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překladačský produkt z hlediska informační  
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struktury věty**

**Diplomová práce**

**The Effect of Integrated Machine Translation on  
the Translation Product in Terms of Sentence  
Information Structure**

**Diploma Thesis**

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*Prohlašuji, že jsem tuto diplomovou práci vypracoval samostatně a uvedl úplný seznam citované a použité literatury.*

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*Na tomto místě bych rád poděkoval PhDr. Pavlu Královi za odborné vedení a cenné rady, kterými přispěl k vypracování této diplomové práce.*

# List of Abbreviations

Adj. – Adjective

Adv. – Adverbial

Aux. - Auxiliary

ALPAC - Automatic Language Processing Advisory Committee

Aux. – Auxiliary Verb

CAT – Computer-Aided Tools

CD – Communicative Dynamism

Conj. – Conjunction

Det. – Determiner

EBMT – Example-Based Machine Translation

FAHQT – Fully Automated High Quality Translation

FSP – Functional Sentence Perspective

HAMT – Human-Aided Machine Translation

HT – Human Translation

InfV – Non-Finite Verb

IRC – Immediately Relevant Context

IS – Information Structure

IT – Information Technology

LexV – Lexical Verb

MAHT – Machine-Aided Human Translation

MIT - Massachusetts Institute of Technology

MT – Machine Translation

NP – Noun Phrase

Num. – Numeral

P – Preposition

PLC – Prague Linguistic Circle

PP – Prepositional Phrase

Pron. – Pronoun

QC – Quotation Compound  
Rh – Rheme  
SL – Source Language  
SMT – Statistic Machine Translation  
ST – Source Text  
Th – Theme  
TL – Target Language  
TM – Translation Memory  
Tr – Transition  
TT – Target Text  
TTy – Translation Technology  
V – Verb  
VP – Verb Phrase

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# 1. INTRODUCTION

Technology plays a prominent role in almost every aspect of human activity. It has become an inevitable part of our personal and professional lives. Among others, it is technology, in particular, that has always defined the society of a particular period of time, from Ancient Egypt and Rome, where many revolutionary advancements in the field of construction and building were made, with the inventions of mechanical clock or printing press in the Middle Ages, all the way to the Modern Era, when discoveries such as the light bulb, automobile and airplane, or television and radio came into the world. Most recently, with the arrival of computational technology and the Internet, another step in the perception of technology as such was taken, changing its character from a rather physical, tangible piece of property into, to some extent, more abstract and intangible part of equipment, i.e. algorithms or applications. Generally speaking, when power of human performance or processing does not prove to be great enough, this is when technology steps in.

With the rise of concepts and processes of globalisation and international communication, entities being active internationally started to produce a vast amount of information. A piece of information, as such, is intentionally created to be shared, otherwise it would be redundant. For this information to be shared with someone else on the other side of the globe, it should be translated. Therefore, as a result of these processes, an increasing demand for a huge volume of texts to be translated occurred. In this respect, generally, Robert Atkinson (2009, 154) talks about “information and communications technology (ICT) revolution.” In his view globalisation and ICT revolution are concepts that presuppose each other. In addition to these arguments, Atkinson also claims that it is particularly the ICT revolution that, in the last two decades, triggered the transformation of traditional economy creating a new economic prospect based on digital and computational technologies. This state of the art may be ascribed to better availability and lower costs of computational devices. Information technologies (IT), these days, has penetrated, probably, to every single household across the civilized, modern-society world having a direct impact on working processes in many fields of human activities, including translation. On the other hand, restricted time allowances and limited financial resources resulted in the gradual need for optimization and increased efficiency of translator’s workflow, in order to improve the competitive

ability. In this state of the market, those that are able to access and utilize all available tools and resources shall gain a major advantage over the competition. This assumption is also confirmed by Antony Pym (2011b, 5), who signals a certain shift of power from translators to people who know the technologies, for example, project managers.

It is necessary to remember, though, that as it is with most of matters in our lives, every piece of technology brings some pros and cons. Undoubtedly, modern technologies provide us with many positive effects resulting in facilitation of working processes in many ways. But on the other hand, greater power poses greater responsibility and one should be aware of the risks that may arise from such usage of technology. We may say that the same principle applies to the sphere of professional commercial translation as well, particularly when it comes to the integration of modern technologies into the working process. This matter of fact is also confirmed by Pym (2011b, 2):

“Technology does not necessarily make things better or more efficient. Just as the internal combustion engine created traffic jams, if not global warming, so translation memories, along with machine translation engines and quick online documentation, can extend the list of alternatives only to impede efficiency in selection, undercutting intuition.”

On the other hand, such an important phenomenon cannot be evaluated on a black-and-white scale only. It needs to be understood in a greater context, which this thesis shall, at least partially, try to provide. The question is to what extent technology helps translators to facilitate their work and, on the contrary, how far it might be limiting and have a negative effect on the output. Pym, among others, also points out that there is a lack of empirical research in this area of Translation Studies (TS) (Pym 2011b, 2).

Translation is not a linear process that could be automatized easily, on the contrary, it is a complex, dynamic and creative act that requires active participation and includes aspects of decision-making. The notion of complexity of automatized translation is further supported by taking into account some complex linguistic aspects. Though, postediting is considered to be a norm these days within the field of commercial translation. Therefore, the thesis deals with the practical aspects of

technologies used within translation industry, Machine Translation (MT) in particular. The integration of such a tool into the translation process may have an effect on the translation product with respect to Information Structure (IS). Apart from introducing basic theoretical aspects related to these concepts, the thesis attempts to provide quantitative data that would indicate the current state of the art with respect to the extent towards which MT systems may influence the way IS is translated. The concept of IS seems to be largely interconnected with the notion of word order and grammatical structure of language. Applying quantitative methodological approaches, we shall try to determine how much does the Google Translate MT system tend to copy the source text grammatical structure, which with some special syntactic structures may coincide with their IS. Furthermore, we shall attempt to find out to what extent the MT output is acceptable or unacceptable from the point of view of IS. And finally, based on the findings of the two previously introduced research questions, we shall try to find out how the integration of MT into the translation process might affect the translation product. The results should be based on factual data, and therefore, the research will focus on the use of MT on non-literary text applying comparative and consensual quantitative methods.

## **2. Machine Translation**

Machine Translation is, along with Translation Memory (TM), one of the most frequently utilized tools within the domain of commercial translation. TMs are simply bilingual files storing aligned segments of the source text (ST) and the target text (TT). Integration of such a memory file into any translation studio provides proportional calculation of concordance of the segment being translated and any other previously translated segments. In other words, the software assesses whether the presented segment or a part of it has been translated before and is therefore stored in the TM. If so, the software traces the translation and automatically suggests it to the translator. In this case, the machine does not produce any output itself, it only allows a quick utilization of previously translated texts and makes it available to the translator. On the other hand, in case of MT, it is the machine that produces the translated text, in the best case scenario, based on a well-defined algorithm. The currently operating MT systems are capable of achieving rather acceptable results, nevertheless, they are products of a long-term development that was accompanied by many unreal and illusionistic visions, as well as more realistic, down-to-earth approaches. Even though Pym (2013) suggests that the two tools, TM/MT are recently merging into one, in order to be able to better understand the way the present-day MT systems work, some factual information regarding the history and development of MT are worth mentioning.

### **2.1. History and Development of Machine Translation**

Even though John Hutchins, in the part on history of MT in the *Routledge Encyclopedia of Translation Studies*, edited by Mona Baker and Kirsten Malmkjær (1998, 140), suggests that the very first mention of the idea of translation conducted by a machine can be traced all the way back to the 17th century, this argument does not seem to be well scientifically based. The lack of sources supporting this claim rather signals that it was as late as in the 1930s that the first signs indicating a factual use of technology for tasks related to the mechanization of translation were presented.

### **2.1.1. The First Proposals in the 1930s**

At the beginning of the 1930s, a French-Armenian, George Artsrouni and Petr Smirnov-Troyanskii from Russia presented their proposals of concepts of automatized translation performed without a direct intervention by a human translator. Interestingly enough, both of the innovators outlined their ideas independently on each other in 1933, in both cases having their proposals patented. With its first public demonstration in 1937, Artsrouni constructed a paper-tape device capable of finding the equivalent of a word in another language, thus producing the first mechanized translation (Hutchins 1995). Despite the fact that the device produced output in the form of single words only, this invention represented a relatively significant scientific breakthrough in the field of MT, influenced other scientists and revealed many further possibilities applied later on in the course of MT research (Hutchins 2005).

Apart from Artsrouni's working prototype, also Troyanskii contributed to the field vastly, though, his merits were more of a theoretical character. Troyanskii proposed three stages that would be involved in process of machine translation: firstly, modification of the ST into the basic form of the words; secondly, automatized transfer of these basic forms; and eventually, conversion of the output produced by machine into more natural form of the TL. With this conception, Troyanskii foresaw the concepts of pre-editing, transfer proper and postediting, respectively, as later introduced by other researchers (Hutchins 1992, 5). It is necessary to point out that both, Artsrouni and Troyanskii, presented their practical demonstration and theoretical approaches respectively, even before the first programmed computers were invented.

### **2.1.2. The First Computers and the Memorandum of July 1949**

Even though the precise dating of the first computer is still a subject of scientific enquiry, this piece of technology was firstly used in a larger framework for the purposes of code deciphering during the World War II (Rojas and Hashagen 2000, 8-9). Indeed, utilization of computers for a non-mathematic operation did not occur until the late 1940s and it was firstly proposed by an American mathematician and scientist, Warren Weaver, as a result of cooperation with a British crystallographer Andrew Booth and his colleague, Richard Richens. Booth and Richens, working at

Birkbeck College in London and the University of Cambridge respectively, closely cooperated in creation of a device that would be able to produce a word-for-word translation of scientific texts based on a punched card mechanism. Nevertheless, it was Weaver himself who introduced the concept of MT to general public by his memorandum in July 1949 (Hutchins 1995, 433-35).

Apart from presenting the possibility of utilization of computers for tasks related to translation to academic and public communities, in the memorandum, Weaver (1955) also suggested methods that would lead to better results than those produced by the deficient word-for-word systems. Particularly, he emphasized the issue of lexical ambiguity and multiple meaning, claiming that immediately relevant context is necessary to be taken into account. Further, he paid attention to the study of cognitive structure of language realization and its relevance to translation. Moreover, Weaver was also appealed by cryptanalysis and methods used in cryptography and was influenced by Claude Shannon's information theory (1949). Last but not least, it is necessary to say that he was aware of the importance of implementation of features of statistics into the process of MT. All of the propositions were sooner or later generally taken into consideration, with more or less fruitful results. Despite their complexity, Weaver believed that the principles introduced by himself are solvable over a short period of time (Hutchins 2000, 18-19).

### **2.1.3. Optimism of the 1950s and Disillusionment in the 1960s**

The memorandum presented by Weaver at the end of the 1940s resulted in high and optimistic expectations and set the grounds for an active research in the field of MT for the following decade. During this period of time, many universities, firstly across the United States, but later on also in Europe and in the rest of the world, started research programs focused, particularly, on the development of the first MT systems. Among the first institutions introducing such a research were the University of Washington in Seattle, the University of California and the Massachusetts Institute of Technology (MIT). Moreover, it was particularly the MIT that appointed the very first researcher in the field of MT, Yehoshua Bar-Hillel, in 1951. In 1952, only a year after his appointment, Bar-Hillel mounted the very first conference on MT that should expose the future prospects of the research

within the field. Only a couple of years later, in January 1954, a MT system designed by Leon Dorset in cooperation with IBM was publicly demonstrated. The system ran translation of 49 sentences from Russian into English. Even though it used only a limited vocabulary of no more than 250 words and very basic grammatical rules, the result seemed to be quite promising and the positive reactions caused the MT research to spread to other corners of the globe, to the Soviet Union in the first place. Due to the Cold War, the research in the US focused, mainly, on Russian-English translations and vice versa (Hutchins 1992, 5-7).

Relatively soon, the researchers came to conclusion that, generally, the systems based on large dictionaries are not capable of producing outputs of a sufficient quality and that more complex methods of syntactic analysis are required. Whereas the previous attempts focused mainly on lexis, by the end of the 1950s, it was syntax that came into primary focus, applying the recent findings from formal and generative grammar. However, even with this approach, it started becoming clear that due to some linguistic issues, particularly semantic interpretation and multiple meaning of words, the initial optimistic prognoses were rather unrealistic and the dream of a machine being able to produce a translated text of a relatively high quality, and thus fully replacing human in this activity, started to fade away (Hutchins 2014). Especially after a report by the Automatic Language Processing Advisory Committee (ALPAC), formed by the US government, was released in 1966. As Hutchins puts it, the committee concluded that: “MT was slower, less accurate and twice as expensive as human translation,” and that “it saw no need for further investment in MT research” (Hutchins 1992, 7). On the other hand, he further adds that the report was “narrow, biased and shortsighted,” and instead, the research should focus on development of tools and aids that would help translators to facilitate their working process. Nevertheless, it resulted in the suspension of funding invested into MT research in the US for more than a decade (Hutchins 1995, 435-6).

#### **2.1.4. The First Machine Translation Systems Being Used in Practice**

Even though there was a decline in research activity in the US at the turn of the 1960s and 1970s, caused as a result of the ALPAC report, the efforts for exploration of automatized translation systems continued in other countries, namely in Canada, but also in Europe, especially in Germany and in France. The firstly employed MT systems were restricted to a specific area, limiting the vocabulary and grammatical complexity needed. Therefore, such systems were capable of generating a rather usable output. In Canada, at the beginning of the 1970s, there was an attempt to build an MT system designed for translation of aircraft manuals. Despite its lack of success, the group of researchers from Montreal University did not retire from their efforts and created a system called *Météo*. *Météo* came into use in 1976 and was designed explicitly for translation of weather forecast reports from English into French. Hutchins comments on the *Météo* system saying that it represented “an exactly appropriate application” of MT, which brings benefits in many ways, most importantly from the economic point of view (Hutchins 1992, 220). Due to a growing amount of documents requiring translation, in the same year, 1976, the Commission of the European Communities implemented a system called *Systran*. This system was developed in 1970 by Peter Toma and laid the foundations of creation of the Eurotra system that was capable of producing translation in all the Community languages (Cieślak 2011, 161-2).

Following the implementation of the first MT systems into the practical, professional use in the 1970s, subsequently, a vast number of systems emerged in the 1980s. Hutchins (1995, 438) describes this period as follows:

“During the 1980s MT advanced rapidly on many fronts. Many new operational systems appeared, the commercial market for MT systems of all kinds expanded, and MT research diversified in many directions.”

After a decade of decline, MT research and development was, once again, on its increase. Caused by a greater availability of computers and software, new MT systems were being built all over the globe, including North America, Central and Eastern Europe, but also in Japan, Korea, China and other Asian countries (Hutchins 2014). Most importantly, the development of MT systems was no longer

a matter of public and governmental authorities only, but the interest shifted also to the private sector, in which technology development companies such as Siemens or Philips started participating in the process of creating MT systems, going hand in hand with advancement in the field of technology (Cieślak 2011, 161).

The ongoing trend of expansion of MT use in the sphere of commercial world culminated with the arrival of the Internet in the late 1990s. It is especially in the domain of localization that MT, as well as other translation aids, started to be used widely at the turn of the centuries. Launching some on-line based MT systems, such as Babelfish by AltaVista, Bing by Microsoft or Google Translate, made this tool even more available to general public. Consequently, Hutchins (2005) states that “MT software is becoming a mass-market product,” comparing its significance to software used for word-processing or desktop publishing. Before we proceed to the current trends within the field of MT utilization and research, let us briefly discuss basic types of system architectures.

## **2.2. Architecture and Typology of Machine Translation Systems**

Since its very first inception in the middle of the 20th century, MT has evolved from an abstract construct into a concrete and functioning reality. Along with TMs, MT is utilizing everyday work of countless number of freelance and in-house translators working on translations of non-literary texts. The basic architectures and approaches are to be described in the following sub-chapters.

### **2.2.1. Direct Translation, Transfer Architecture and Interlingua Systems**

In terms of development, there were many different approaches to creating the algorithms for MT systems. In this respect, Arnold Doug (2003, 122) talks about three most prototypical architecture typologies used within the sphere of MT. Graphical representations of all the three architectures can be seen in Figure 1, the so called “pyramid diagram” was, according to Doug (2003, 122), firstly introduced by Vauquois (1968).

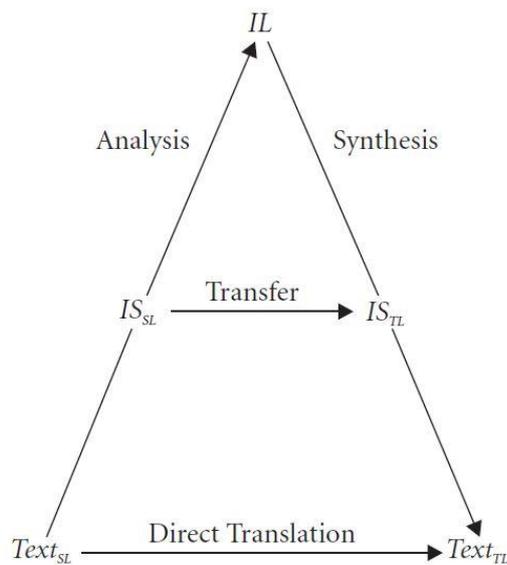


Figure 1: Vauquois's Pyramid Diagram. Adapted from Doug (2003, 123).

The first architecture (depicted at the bottom of the pyramid) is called a direct translation. It represents the most primitive approach when the text in SL is translated directly into text in TL, essentially, on word-for-word basis. Such systems, usually, employed extensive bilingual databases of vocabulary. On the other hand, this approach lacks application of any linguistic structure (Doug, 122-3). Magdalena Cieślak (2011, 162) refers to this architecture type as “the first generation” of MT systems and points out that such systems were designed for a specific pair of languages, for example Russian-English. She also emphasizes that a system of this type may work successfully depending on the quality and size of its vocabulary.

Even though the output of the direct translation architecture is hardly acceptable, thus inapplicable, this typology played a prominent role in the development of the transfer architecture, as well as of the concept of interlingua and further frameworks. As displayed in Figure 1, the transfer approach covers three principal procedures. These are introduced below, the description is borrowed from Doug (2003, 122).

- Analysis – “where the source text is analysed to produce an abstract representation or ‘interface structure’ (IS) for the source language text (*IS<sub>SL</sub>*).”

- Transfer – “where the source-language representation is mapped to a similar representation of the target-language text ( $IS_{TL}$ ).”
- Synthesis – “where the target-language representation is mapped to a target text.”

The third classic architecture, according to Doug (2003, 122), is represented by the concept of interlingua. This MT system typology presents interlingua as a universal language into which the ST is converted, and subsequently, a TT is produced via the translation of interlingua into the TL. In other words, the analysis creates “an inter-lingual representation,” which is then synthesized to form a TL text. According to Cieślak (2011, 162-3), the interlingua approach was largely influenced by the concept of the universal language of Esperanto. In fact, the interlingua approach may become very effective, especially when producing multilingual translation in more than one language. The process of such architecture is shown in Figure 2, where the representation shows that this approach might be used for producing target texts in up to  $n$  number of languages.

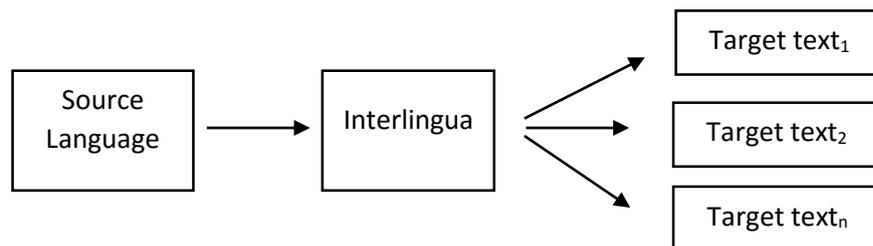


Figure 2: Interlingua Architecture. Created by the author.

Cieślak (2011, 162) classifies the transfer architecture and the interlingua approach as “indirect strategies and second generation systems.” The difference in typology between the above mentioned architectures is provided by Doug (2003, 123):

“A simple way to understand the relationship between these approaches is to start with the three tasks involved in the transfer approach, and say that the interlingual approach tries to eliminate the transfer task, and the direct approach tries to do without analysis and synthesis (i.e. it reduces everything to the transfer task).”

Necessary to say, the interlingua approach may, presumably, still be in use with some of the currently operating systems, especially when translating from or into

minor languages. In such a case, instead of using any artificial language as an interlingua, as with Esperanto for example, a related natural language might be engaged in the process, as in case of Czech and Slovak, for instance. On the other hand, the question whether, and if, to what extent, the interlingua approach is nowadays still being incorporated within the modern MT systems would be really difficult to answer. As MT systems represent dynamically evolving commercial products, subject to fees when used in some cases, the companies developing these systems do not openly share their know-how or provide open-source codes, mainly due to competition reasons. In this respect, such a system forms a certain kind of “a black box” which only partially can be understood and described (Král 2016). Though, researchers may try to uncover some of the aspects using qualitative and quantitative research methodologies, as this thesis attempts with the latter.

All of the above mentioned architectures, i.e. direct, transfer and interlingua, were, throughout the second half of the 20th century, further realized by means of different framework of creating MT systems. Namely, Hutchins (2012, 11-14) differentiates between rule-based and corpus-based systems. These are briefly discussed in the following sections.

### **2.2.2. Rule-Based Systems**

Most of the MT systems, developed as late as the end of the 1980s, were vastly based on linguistic rules of different types of language realization, i.e. primarily lexical, morphological and syntactic, on both sides of the process, thus analysis and synthesis, depending on a concrete application. It should be said, though, that the architectures described above and the framework approach of rule-based systems are not mutually exclusive. This means that there were examples of both, transfer and inter-lingual rule-based MT systems, Eurotra and Rosetta being illustrative examples respectively (Hutchins 2012, 11-14). Other rule-based MT systems worth mentioning include, for instance, Systran, Logos, METAL, or ATLAS by Fujitsu and MELTRAN by Mitsubishi. Sometimes, these systems are also referred to as linguistic-based. Since linguistics should be directly involved in the process of translation, thus MT as well, regardless of the approach, this label might be regarded vague and confusing. Though, some researchers kept devoting their endeavor to the rule-based approach even in the 1990s, we may say that there was

a noticeable paradigm shift in the field of MT study and development by the end of the decade changing the focus of interest on corpus-based systems (for more detailed information on rule-based systems see Hutchins 1992, 1995 and 2012).

### **2.2.3. Corpus-Based Systems**

With the gradual rise of the volume of texts being produced and translated, a large amount of bilingual material was created. Alignment of such texts, either by methods of the conservative rule-based approach or by statistical procedures, produces corpora that might be beneficial in terms of translation. One of the first such projects was realized at the turn of the 1980s and 1990s. These systems were able to extract and select equivalent expressions from the aligned bilingual database based on previously encountered examples. Therefore, this approach is occasionally called example-based machine translation (EBMT). However, none or only a minimal involvement of linguistic rules resulted in the need for restructuring of the output. On the other hand, similarly to the concept of TM, the generated translation is largely based on products previously created by human, which constitutes a great advantage of this approach and, once again, underlines the necessity of human involvement in the process of inter-lingual communication (Hutchins 2012, 11-14). The concept of EBMT remained in the foreground and was further combined with features of statistics.

### **2.2.4. Statistical Machine Translation and Hybrid Systems**

As remarked by Weaver (1955), one of the preconditions for an MT system to be functioning and applicable is that it should be able to employ the methods of statistics. There were attempts to employ these features in the early stage of MT development in the 1960s, though, these efforts were rather unsuccessful and dissatisfactory. Nevertheless, by the end of the 1980s, a group of researchers from IBM decided to reapply these principles in combination with a French-English corpus of Canadian government documents in a project called *Candide*. Interestingly, this approach did not employ any linguistic rules at all, but the results were unexpectedly surprising. In this respect, Hutchins (2012, 11) talks about two phases of a translation model and a language model which are best described as follows:

“The essence of the method was first to align phrases, word groups and individual words of the parallel texts, and then to calculate the probabilities that any one word in a sentence of one language corresponds to a word or words in the translated sentence with which it is aligned in the other language (a ‘translation model’). The outputs were then checked and rearranged according to word-to-word transition frequencies in the target language, derived from the corpus of bilingual texts (a ‘language model’).”

Furthermore, Král (2012, 191-2) explains this approach in a more simplified way saying that the machine “computes the statistical probability that the sentence Y in the target language is a translation of a sentence X in the source language and also the probability that the sentence Y is a well formed sentence in the target language.” This statistic-based method is generally acknowledged as Statistic Machine Translation (SMT). Cieślak (2011, 163) refers to the systems developed in the 1990s incorporating methods of statistics and utilization of corpora as “the third generation” of MT.

According to Hutchins (2012, 14-18) many previously adopted approaches and typologies of systems designed for automatized translation proved to be, in some respect, limiting. Due to contemporary progress in the field and application of new methodologies, the currently operating models may tend to combine features of all the above mentioned approaches, i.e. rule-based, corpus-based and statistic-based, and thus create systems of a hybrid character. This hybrid typology is used by MT systems developed by Microsoft or Google.

### **2.3. 21st Century – The Current State of the Art**

Statistical Machine Translation, along with the hybrid systems, started to play the leading part in the area of application and research at the turn of the centuries. With the arrival of the Internet and spreading of its accessibility, the platform moved from the desktop installation online into the cloud, which resulted in even better availability of automatized translation systems. These days, basically everyone may have a website in a foreign language translated in the blink of an eye. Though, the output may be defective, to a certain extent, it might be sufficient for the purposes of rough understanding. Hutchins (2014) ascribes the prominence of SMT to the following reasons:

- a) constantly growing availability of extensive monolingual and bilingual corpora, especially on the Internet
- b) availability of software for basic SMT procedures, such as alignment, reordering, etc.
- c) no need for researchers to master all the languages involved within the system, thus, lesser involvement of linguistic rules

In terms of research, there are attempts to find suitable objective evaluative tools for MT output. In his research, Donald DePalma (2011) outlines the current trends in the field, emphasizing better acceptance of MT within the community of translators, as well as from the side of corporations. He further confirms, that companies, including agencies, start to incorporate MT into their working environment which results in acceleration and greater efficiency of the translation process.

The recent MT systems constitute dynamically developing environment. Pym (2013) says that this is caused due to the fact that the more users use the system, the better it becomes, thus proposing that the interconnection of corpora and statistic methods enables the system to “learn” via the active participation of its users. He further signals a paradigm shift in the classic conception of translation. More precisely, the integration of MT into the translators’ workflow causes a change in the way translators work. Instead of rendering a TT based on the ST original, they are required to post-edit, i.e. proofread or edit the output of MT to be in accordance with TL norms. Pym concludes that this process of transformation has already started and that it will “turn most translators into posteditors one day, perhaps soon.” Interestingly, Hutchins (1995, 431) envisaged this state of the art two decades ago, when talked about post-editing to be the norm back in 1995.

As it was herein above presented, there were several approaches and stages of development of MT systems that, consequently, led to the current state of the art, when MT is widely used within the translation community. It is now part of the workflow of international organizations, companies and independent agencies, where an extensive volume of texts requires multilingual versions. In addition, it is utilized by freelance translators in order to improve their competitiveness. But it is not exclusively a matter of commercial use, on the contrary, freeware online tools provide regular Internet users with rough, though immediate translation of whatever

content. The current trend of increased facilitation of inter-lingual communication by means of MT integration shall, presumably, remain ongoing even in the following years. The prominence of MT, and thus also postediting, has also penetrated into the sphere of translation training. However, this topic forms a relatively independent topic, these days, in the domain of education of young translators (Somers 2003, 319-340).

For a complete step-by-step overview of history and development of MT and individual MT systems see the *Translation Automation Timeline* (TAUS 2016).

## 2.4. The Position of Machine Translation within Translation Studies

The practical contribution of MT into the translation industry may be perceived as indisputable. But the recently changing nature of the classical conception of translators' workflow has an impact on the way research is conducted within the area of TS. Hutchins (1995, 431) points out that, apart from providing pragmatic answers to practical issues, MT also serves as a domain of intellectual and scientific inquiry. Based on this perspective, this sub-chapter attempts to identify the position of MT within the field of TS.

### 2.4.1. Holmes's Map

The domain of TS provides a relatively wide space for research, ranging from purely theoretical to practically applied employing qualitative and quantitative methodologies. One of the first researchers who brought the notion of mapping the field was James Holmes in his paper from 1972. Holmes (2000) distinctly divides the TS research into "pure" and "applied" branch as shown in Figure 3.

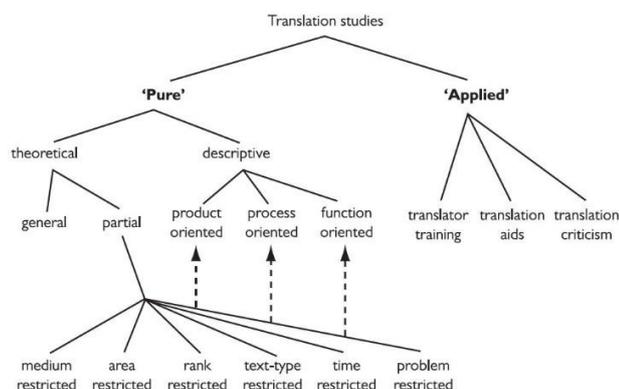


Figure 3: Map of Translation Studies by J. Holmes. Adapted from Toury (1995, 10).

Even though, the map focuses mainly on the presentation of pure methods, it is still considered to be valid by most of TS researchers. According to Munday (2008, 12), “the fact that Holmes devoted two-thirds of his attention to the ‘pure’ aspects of theory and description surely indicates his research interest rather than a lack of possibilities for the applied side.” On the other hand, it clearly indicates where the concept of MT would belong to. The branch of applied approach to research by Holmes, including “translation aids,” is further developed by Munday (2008, 12), as presented in Figure 4.

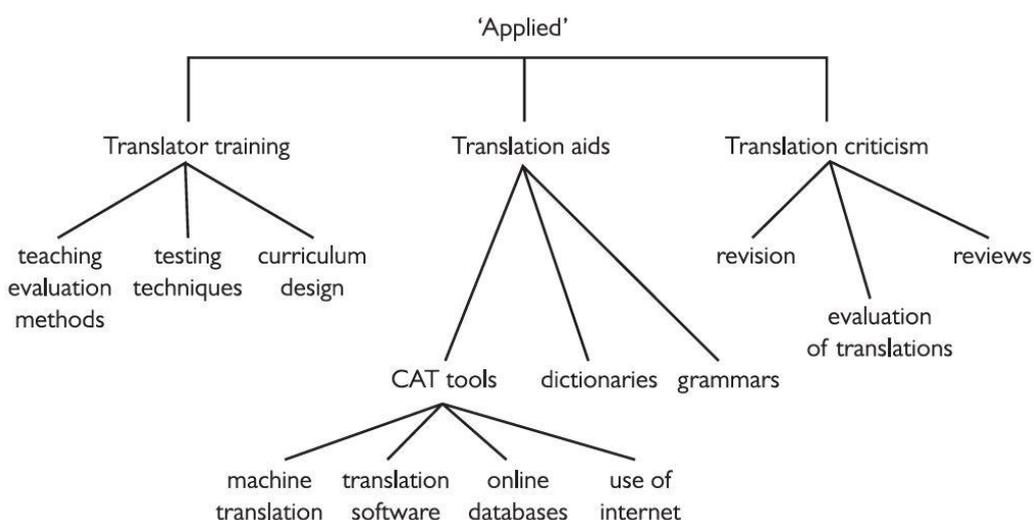


Figure 4: Munday’s Elaboration on Holmes’s Branch of Applied Approach to MT Research. Adapted from Munday (2008, 12).

Based on this classification, Munday introduces three basic entities belonging to the category of translation aids, i.e. computer-aided translation (CAT) tools, dictionaries and grammars. MT is, further, listed along with translation software, online databases and the use of the Internet under the covering term CAT tools. In Král’s point of view (2012, 194), this classification lacks a more sophisticated approach suggesting that the use of the Internet automatically implies utilization of online databases. On the other hand, MT is herein explicitly mentioned.

## 2.4.2. Hutchins's Classification

A different viewpoint on this matter is presented by Hutchins (1992, 148), who uses, for the description of technology utilized in the process of translation, a continuum of machine and human translation. Unlike Munday, Hutchins puts MT outside CAT creating two different categories, as shown in Figure 5 below.

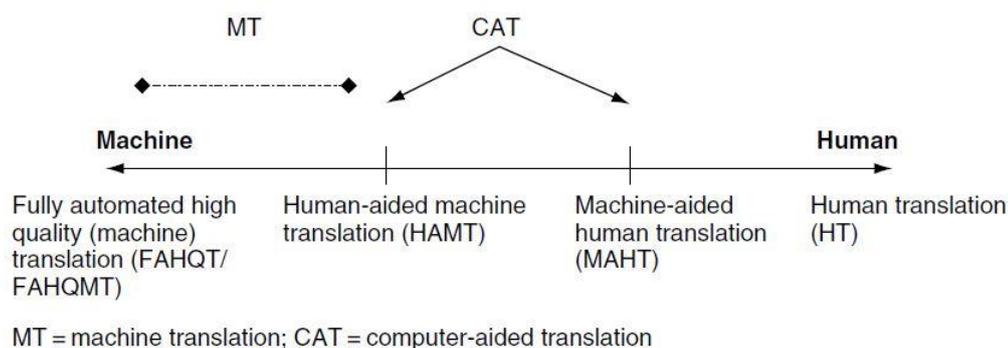


Figure 5: Hutchins's Classification of Different Translation Types. Adapted from Quah (2006, 7).

Obviously, the problem over here is caused by inconsistent usage of the term CAT tools. According to Palumbo (2009, 23), CAT stands for “translation carried out, generally at a professional level, with the help of specific computer tools aimed at improving the efficiency of the translation process.” In this interpretation, MT should be considered a CAT tool. This argument thus supports Munday's classification. On the other hand, Pym (2001a, 77) brings a rather radical solution to this issue of ambiguity pointing out a vague character of the term. Therefore, he suggests to completely avoid it, and instead always clearly specify the technology involved in the translation process.

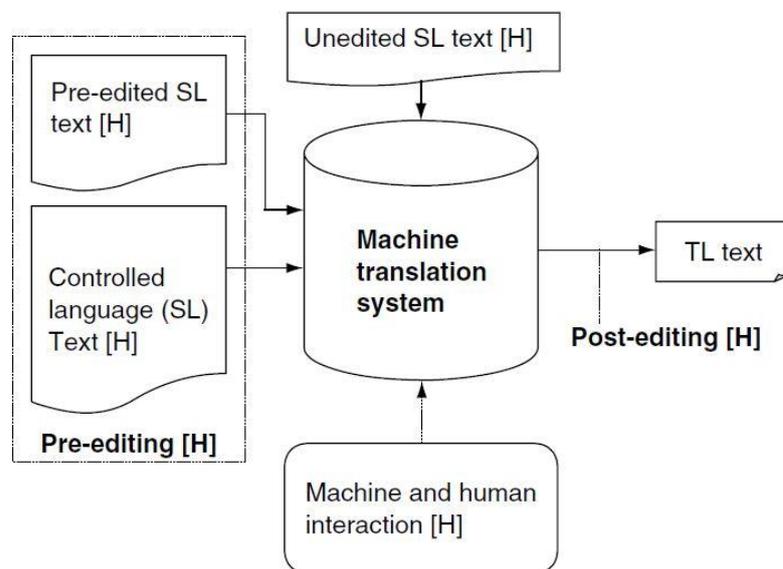
On the other hand, Hutchins's continuum provides a number of additional terms that should be, at least briefly, introduced; namely:

- Fully Automated High Quality Translation (FAHQT)
- Human-Aided Machine Translation (HAMT)
- Machine-Aided Human Translation (MAHT)

Leaving behind the concepts of MT and Human Translation (HT) that stand at the peripheries of the continuum and that seem to be explicit by themselves, FAHQT represents a construct believed to be achievable in the first half of the 20th century.

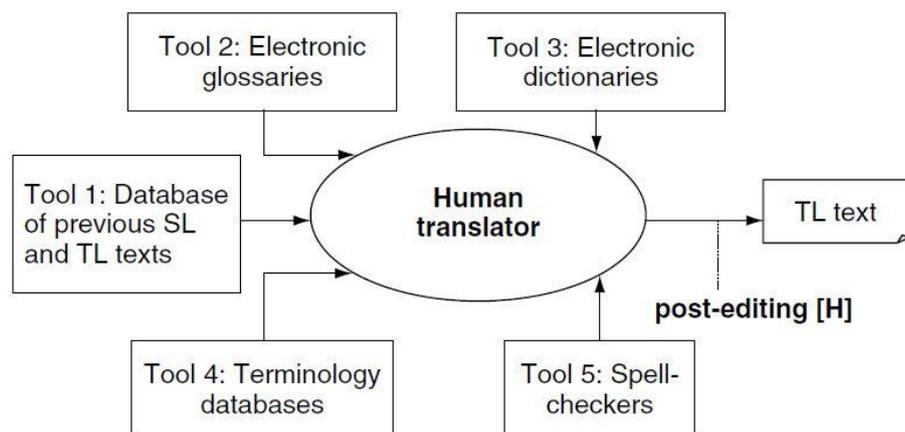
Such systems would be able to function fully automatically without any human intervention producing an output of high quality that would not require any further modifications or editing. The previous efforts and research proved this concept to be unrealistic. Instead, the notions of HAMT and MATH were introduced.

In theoretical point of view, the difference between these two concepts depends on who is in the primary position to the task of translation. In case of HAMT, it is the machine that plays the prominent role, while the level of human involvement is restricted to quality control only, that is via pre-editing the input or post-editing the output. On the contrary, when talking about MAHT, the human factor controls the overall process facilitating various tools available by means of computerized environment. Illustrative demonstrations of HAMT and MAHT are shown below in Figure 6 and 7 respectively. On the other hand, due to involvement of computerized translation technologies in many translation-related tasks, as well as due to the complex nature of translation process as such, having many variables, the distinction between these two concepts in practice usually disappears (Quah 2006, 6-13).



SL = source language; TL = target language; H = human

Figure 6: Human-Aided Machine Translation Model by Quah (2006, 12).



SL = source language; TL = target language; H = human

Figure 7: Machine-Aided Human Translation by Quah (2006, 13).

Despite the ambiguousness in the usage of terminology by different researchers, it is clear that MT has its place in the field of TS. The lack of general agreement, as pointed out by Pym (2011a), might be resolved by his suggestion to clearly specify the type of technology used for the facilitation of the translation process. Perhaps Holmes's division of pure and applied branch of TS, broadened by Munday's elaboration, describes the position of MT within the field the most accurately, due to provision of overall context of the domain. Other models of MT, such as ones by Hutchins or Quah, go into more detail and present more specific propositions with respect to position of machine and human within the process of translation, however, they do not provide any wider context of the field of TS. An interesting proposition was made by Cieślak (2011, 160-6) who views translation as a special kind of human action involving many aspects of decision-making process, which computers are capable of only to a limited extent. According to her, "the act performed by a machine should actually be called transcoding," instead of translation (Cieślak 2011, 160). Even though, she might have a point here, it seems rather unlikely that this term shall become well-established in the field, mainly because of the number of terms already in use. Nevertheless, it might be said that MT represents an internal part of TS constituting an extensive area for scientific inquiry, especially when combined with a specific linguistic feature, as in case of

this theses dealing with the effects of technology on the translation product with respect to sentence information structure.

## **2.5. Advantages and Limitations of Machine Translation**

As already mentioned above, the incorporation of MT into the translator's workflow might bring positive aspects, but also, it is necessary to be aware of the fact that MT, and computational technologies in general, have their limitations, simply because they can only perform operations based on instructions entered by humans. This limited performance capability of computerized devices, probably, represents the main argument and reason why computers should never completely replace humans in tasks connected with translation and text production. The presented sub-chapter attempts to summarize advantages and disadvantages connected to the utilization of computers in the process of inter-lingual communication.

The area in which computers enormously excel humans is the speed of performance. While most of human actions, unless they become automatized to a certain extent, require thinking, active participation and decision-making, which translation certainly does, computers perform their tasks based on strictly defined rules in the form of binary code. This enables them to process and produce an extensive volume of information in, relatively, a very short period of time. In this respect, the utilization of MT decreases not only the time necessary for a text to be translated, but also reduces its costs. Needless to say, though, the output is necessary to be revised and post-edited by a professional. Still, this process results in saving financial and timely resources. According to Král (2012, 192-3), the estimation supported by research "indicate that MT integration may allow translators to improve their throughput by as much as 30-80%." This presents a rather wide range of efficiency, however, even the lower level proposes auspicious results. According to Cieślak (2011, 169), another reason why MT should be incorporated in a translator's workstation is that it provides consistent terminology and might be specified in a certain subject matter. Some of the MT systems, as mentioned above, are designed for a restricted domain utilizing technical dictionaries and terminology databases, as in case of *Météo*.

Even though the level of acceptability and usability of MT output might be relatively high with some languages and in certain domains, still, there are several issues that automated computational translation is not capable of overcoming. Natural languages are usually described as complex systems of communication with several levels of organization, such as syntax, morphology, etc. Each of these levels has a relatively clearly set rules, but also, many exceptions. When there are exceptions to the rules, the less specifically and explicitly it is possible to express them in the form of artificial computational language. If the instructions are specified vaguely, then computers will not be able to perform the operations in a sufficiently successful way. Other reasons Cieślak mentions, with respect to the problems of MT, are the inability of computers to “perform common-sense reasoning” and the incapableness to “deal with some problems where there is a large number of potential solutions” (Cieślak 2011, 172-3).

The above mentioned strengths and weaknesses of MT seem to be beyond reasonable doubt. Nevertheless, the matter becomes even more complicated when different typologies of languages are taken into account. All languages are not realized in the same way. Different language typologies may apply dissimilar principles with regards to the structure of language. Some languages might even lack words expressing particular concepts completely, for example, there is not word for “mountain” in Latvian. As in case of words, there might be concepts, in a particular language, that do not have a correspondent equivalent in another language. Or perhaps, the concept is not used as widely in one language as it is in another language due to a different grammatical system. Consequently, this may represent a problem, that MT would, probably, not be able to solve. For the purposes of this thesis and related experiment, languages of Czech and English are used, being of synthetic and analytic type of language respectively. One of such concepts with a different realization in Czech and English might be the sentence information structure. The concept of IS, as well as the typological differences between these two languages with regards to IS, and the connectedness of MT and IS are in detail described in Chapters 3 a 4 respectively.

## **2.6. Currently Operating Machine Translation Online Systems**

Before proceeding to linguistic aspects that may influence the way MT works with respect to the final translation products, brief comments on currently operating MT systems are worth mentioning. The gradual usage of the Internet by the end of the 20th century resulted in better availability of MT systems even for regular users. Going online, among others, also reduced the costs of utilization of MT, which used to be rather expensive when utilizing such a system on a desktop computer in form of a local installation. The very first MT online system was *Babelfish* by AltaVista company and the service was launched at the beginning of the 21<sup>st</sup> century, in 2002 (Yang and Lange 2003, 191-2). Currently, the two most frequently used online MT systems are, presumably, Microsoft Bing Translator<sup>1</sup> and Google Translate<sup>2</sup> by Google Inc. For the purposes of the hereinafter presented research, we shall use the latter, which is, in more detail, introduced in the following sub-chapter.

### **2.6.1. Google Translate**

Google Translate is an online MT service launched in 2006 by the Google company, these days, presumably the largest provider of Internet-related services and products. The main advantage of this system is that it operates with an endlessly vast and extensive amount of multi-linguistic data being available on the Internet. Utilizing such a voluminous corpus and applying the alignment methods of SMT, Google Translate nowadays operates in more than 100 languages. Needless to say, the volume of texts is continuously growing and its output may be, in many specific domains, rather acceptable depending on the language combination. Due to the reason of competition, the system algorithms are not open to the public, though, the company itself introduces some of its features and presents the system in interesting numbers. Google claims that there are more than 500 million users of the service world-wide, daily translating more than a hundred billion words. The relatively acceptable output of the system might be caused by the fact that Google allows its users to improve the MT by adjusting its output, and thus let the system “to learn.” Therefore, the system is constantly developing in a dynamic way and, interestingly,

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<sup>1</sup> Available at <http://www.bing.com/translator>

<sup>2</sup> Available at <https://translate.google.cz/>

may in a long-term perspective present various outputs (Google 2016). For example, only in the Czech Republic since the middle of 2014, more than 20 thousand volunteers participated in the process of improving the MT, contributing with more than 700 thousand instances of translation (Čížek 2016).

Apart from the online MT service, which may be utilized in any Internet browser, and which is illustrated in Figure 13 below, Google provides also a commercial platform that might be integrated into practically any translation studio software, such as Memsource, MemoQ, SDL Trados Studio and many others. This service, unlike the browser version, is subject to a fee and is mostly used by professional translators and translation agencies. Its main benefit is that it enables automatic insertion of the machine-translated text into the target segment without the need of copying the text in and from the browser. In addition to these options, Google recently introduced a mobile phone application that allows its users to take advantage of a real-time translation even in offline mode and is currently working on MT of optically recognized texts from photographs (Google 2016). For more information on recent developments in the Google Translate MT service see its official blog *Google Translate Blog*.<sup>3</sup>

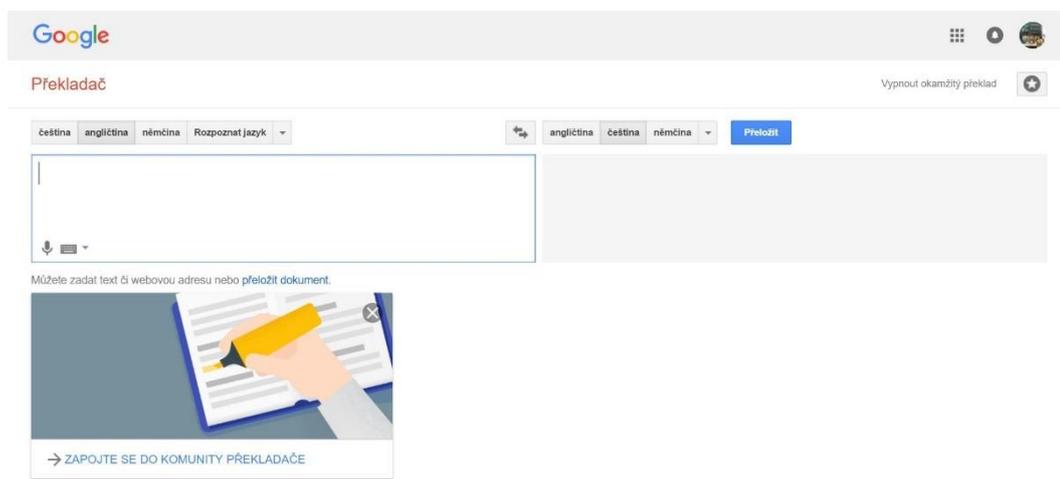


Figure 11: Google Translate Graphical User Interface. Screenshot taken by the author.

<sup>3</sup> Available at <http://googletranslate.blogspot.cz/>

### 3. Information Structure

The concept of Information Structure (IS) generally refers to a linguistic feature dealing with the way information is organized within a sentence. Generally speaking, communication represents an act of intentional sharing of information. For this act to fulfill its communicative purpose, the presented information should be of a new and unknown character. In order to reach mutual understanding, this new piece of information should be based on prospects already known, thus old and shared by the participants of the communicative event. It is particularly the way old, known and new, unknown information is incorporated within the structure of a sentence that is the subject of interest of the concept of IS. This proposition is, in linguistic circles, widely considered to be a prototypical, language universal phenomenon, which means it is shared by and applies to all languages, though individual means of realization may differ across them. The prototypical character in combination with a variable inter-lingual implementation, therefore, signals its relevance to the process of translation.

#### 3.1. Work of Vilém Mathesius

The introduction of the concept of IS to the field of linguistics is largely connected with the work and theoretical framework of group of functional linguists of the Prague Linguistic Circle (PLC) in the first half of the 20th century. The theory was developed by the founder of PLC, a respected linguist and scholar, Vilém Mathesius, who proposed the notion of communicative intention and its influence on the information processing. In his extensive work, among others, Mathesius focused on comparative analysis of differences in Czech and English word order systems gaining global influence and recognition (Firbas 1957). Mathesius pointed out that there is a difference, which needs to be recognized, between “formal” and “actual” division of a sentence. As such, the formal division refers to the grammatical relation of subject and predicate, whereas, the actual division (*aktuální členění větné*) is linked with the element about which something is being said and the information which is said about the element. In connection to this actual division, terms Theme (Th) and Rheme (Rh) were introduced respectively (Mathesius 1939, 171). To put it in another way, Th conveys old information, which usually occurs at the beginning of sentence, and thus precedes the verb serving as a

base for introduction of concepts of higher communicative and informative value. In this respect, it is particularly Rh that presents new information, which tends to follow the verb being placed towards the end of a sentence. This grammatical and semantic classification might be better understood from a diagram by Klaus von Heusinger, as illustrated in Figure 8 below.

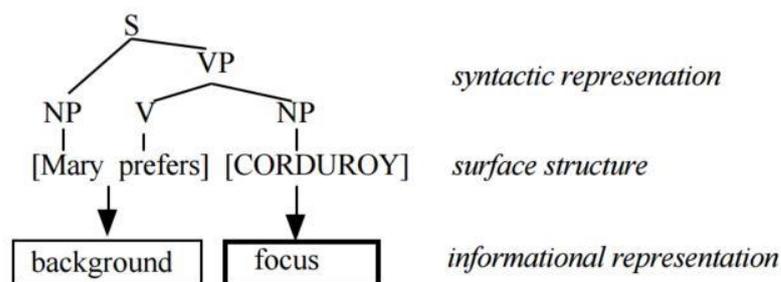


Figure 8: Grammatical and Information Structure by Klaus von Heusinger (2002, 3).

In Heusinger’s point of view, the syntactic representation of subject and predicate is realized by means of noun and verb phrases (NP and VP). Further, he adds the actual surface structure represented by individual lexical items. The very bottom of the diagram presents the information structure using the terms background and focus, which coincide with Th and Rh in Mathesius’ approach respectively. In this respect, there were various attempts to describe the notion of IS from theoretical point of view. Heusinger (2002, 2) provides a well arranged summary of different terminological approaches to the sentence IS dichotomy. The overview can be found in Figure 9.

Terminology for the informational dichotomy	
notion	used by
<i>psychological subject - psychological predicate</i> <i>theme - rheme</i>	von der Gabelentz (1869), Paul (1880)
<i>topic - comment</i> <i>topic - focus</i>	Ammann (1928): <i>Thema - Rhema</i> , Mathesius (1929), Prague School: Firbas (1964) Daneš (1970), American structuralistic Tradition: Halliday (1967) von der Gabelentz (1869), Reinhart (1982) modern Prague School: Sgall & Hajičová & Benešová (1973)
<i>presupposition - focus</i> <i>background - focus</i> <i>old/given - new</i> <i>already activated - newly activated</i>	Chomsky (1971), Jackendoff (1972) Chafe (1976) for contrastive focus, Jacobs (1982) Halliday (1967), Chafe (1976) Chafe (1976)
<i>open proposition - focus</i> <i>notional subject - notional predicate</i>	Prince (1981) É. Kiss (1995)

Figure 9: Overview of Terminological Approaches to Sentence Information Structure Dichotomy. Adopted from Heusinger (2002, 2).

Despite the numerous attempts to coin various terminology, Mathesius' proposition became generally accepted. According to Aleš Svoboda (2004, 88), in his work focused on the comparative analysis of Czech and English word order, Mathesius (1962) concluded that English language tends to be less sensitive to the Th-Rh articulation than Czech, due to differences in grammatical systems of both languages.

### 3.2. Firbas's Elaboration on Mathesius' Propositions

The work of Mathesius in the field of IS was further elaborated on by his follower, Jan Firbas, a scholar and a linguist from the Masaryk University in Brno. Following Mathesius' functional approach, Firbas introduced the term Functional Sentence Perspective (FSP) to replace the original *aktuální členění větné*, mainly, due to the divergent meaning of Czech *aktuální* and the English word *actual* (Firbas 1992, 22).

#### 3.2.1. Functional Sentence Perspective

In the 1950s, Firbas reconsidered many prospects suggested by Mathesius and considerably developed his ideas, putting the theory into an even wider scientific context. Apart from Czech and English, Firbas further demonstrated the criteria of FSP, also, on German and French. Testing Mathesius' hypothesis concerning the lesser susceptibility of English to the Th-Rh distribution than Czech, Firbas disproved this theory concluding that, instead, both languages apply different methods of realization. Besides, he further developed the binary Th-Rh opposition suggested by Mathesius into a more dynamic model as illustrated in Figure 10, with its practical demonstration in Figure 11 (Svoboda 2004, 89-90).

<b>THEMATIC</b>		<b>Non-thematic</b>			
<b>THEMATIC</b>		<b>TRANSITIONAL</b>		<b>RHEMATIC</b>	
<b>THEME proper</b>	<b>Dia-Theme</b>	<b>TRANSITION proper</b>	<b>transition</b>	<b>RHEME</b>	<b>RHEME proper</b>

Figure 10: Elaboration on Th-Rh Dichotomy by Firbas. Adapted from Svoboda (2004, 89).

<i>Yesterday he</i>		<i>was sleeping more than ten hours.</i>			
<i>Yesterday he</i>		<i>was sleeping</i>		<i>more than ten hours.</i>	
<i>Yesterday</i>	<i>he</i>	<i>was</i>	<i>sleeping</i>		<i>more than ten hours.</i>

Figure 11: Practical Demonstration of Firbas’s Model by Svoboda (2004, 90).

Necessarily to say, Firbas managed to expand the theory into very detail, based on Mathesius initial propositions, gaining general recognition among other linguists. Due to the complexity of the pluripartition model, for the purposes of this thesis and further ahead presented experiment, the tripartition classification of Th, Transition (Tr) and Rh would be sufficient. More importantly, applying the theoretical prospects into practice, Firbas further outlined the concept of Communicative Dynamism.

### 3.2.2. Communicative Dynamism

Complementary to the theory of FSP, Firbas also introduced the concept of Communicative Dynamism (CD) claiming that every single element in a sentence carries a certain degree of CD, thus is less or more dynamic, and this is how it contributes to the act of communication. Firbas (1992, 7-8) himself identifies the degree of CD as “the relative extent to which a linguistic element contributes towards the further development of the communication.” To put it in a different way, the sentence constituent carrying the highest degree of CD represents an element towards which the communication is perspectivized. Such elements are, therefore, rhematic and present a new piece of information. On the other hand, elements with a low degree of CD tend to be thematic, i.e. they refer to information previously introduced in the discourse. The transitional division is, typically, realized by verbs separating the thematic and rhematic part of the sentence (Firbas 1992, 16-18).

### 3.2.3. Factors Influencing Functional Sentence Perspective and the Degree of Communicative Dynamism

Necessary to say, the concepts of Functional Sentence Perspective and Communicative Dynamism are complementary. Moreover, the degree of CD is dependent on the interaction of the FSP factors of linearity, semantics, context and

intonation (Svoboda 2004, 90-91). These factors are to be briefly described individually in the following sub-chapters.

### **3.2.3.1. Linearity**

The phenomena of FSP and CD are vastly connected with a sentence word order. To be able to understand the concept of linearity properly, it is necessary to differentiate between “actual linear agreement” and “interpretative arrangement.” As Firbas (1992, 12) explicates, the interpretative arrangement represents “the arrangement of the sentence elements in accordance with a gradual rise in CD.” The concept of actual linear agreement, thereafter, expresses the actual word order. In practice, the conception of linear modification is connected with the tendency of the most dynamic sentence element, carrying the highest degree of CD, to be placed towards the end of the sentence (Firbas 1992, 8). In this respect, Firbas further remarks that the two notions of actual linear agreement and interpretative arrangement may be corresponding to each other, not necessarily though. Consequently, if any other FSP factor does not counter the principle of linearity, thematic elements tend to occur at the beginning of the sentence, whereas rhematic constituents should be found towards its end. This proposition is influenced by the interplay of other FSP factors, as well as by the nature of the grammatical system of a particular language. The issue of divergent grammatical systems of Czech and English, concentrating on word order in particular, and its relevance to distribution of CD is dealt with in Chapter 3.3.

### **3.2.3.2. Semantics**

Another factor influencing the position of Th and Rh within a sentence is semantics. In particular, some sentence elements might be semantically stronger than others. This factor also extensively depends on the nature of particular language. For instance, whereas Czech operates, predominantly, with semantically strong verbs, in English the verbo-nominal character of the language signals the usage of multi-word expressions with a semantically weak or even empty verbal part (Adam 2008, 22-30). Such verbs tend to be functional rather than having semantic interpretation on their own. Additionally, in such cases, the verb is required to be complemented by a word with nominal content. Compare, for example, the following verbs in Czech and English in (1).

- (1) *osprchovat se* [shower yourself] – to have a shower

According to Dušková (1988, 531-2), with respect to semantics, there are some expressions that tend to be inherently thematic, such as NPs with the definite article or demonstrative and possessive pronouns, as well as their nominal pro-forms, as well as other types of pro-forms in general. On the other hand, she also mentions expressions having a relatively high inherent degree of dynamism, as in case of quantifiers, regardless of their position in the sentence. The semantic factor is, therefore, further connected with the role of dependency and independency of an element in context.

### 3.2.3.3. Context

In connection to FSP, the degree of CD of a particular sentence element should always be assessed with respect to the context it occurs in. In this respect, context may be defined as a dynamic linguistic concept represented by a sequence of preceding and following sentences. The contextual factor plays a prominent role in the process of determination of the character of the information. A piece of information may be new, thus unknown from the previously relevant context, or old, which means it was already contextually introduced. One of the scholars who proposes a basic classification of context is Paul Werth (1984, 36), as illustrated in Figure 12.

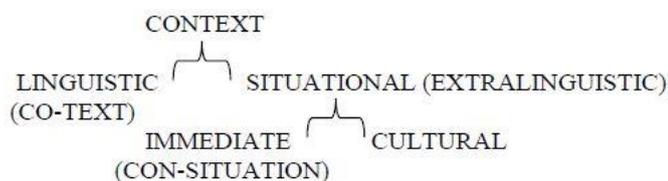


Figure 12: Werth's Classification of Context. Adapted from Werth (1984, 36).

According to Werth, the main division of context is into linguistic and extralinguistic. Based on this classification, it is the linguistic type of context (co-text) that is relevant to the principles of FSP.

A different classification is provided by Firbas (1979, 31) who distinguishes between the following types of context:

- a) *pragmatic* – representing the context of extralinguistic reality
- b) *situational* – representing the context of particular immediate situation

- c) *verbal* – representing the context retrievable from the preceding sequence of sentence

In this classification, it is the verbal context that is of high importance with respect to the determination of thematic and rhematic elements within a sentence. Furthermore, for the purposes of FSP, Firbas (1992, 23) introduced the concept of “immediately relevant context” (IRC). In connection to this he talks about “retrievability” and “irretrievability” of information from the IRC. Generally speaking, as long as a piece of information is context dependent, thus retrievable, it expresses old/known information, which does not necessarily extend the basic framework of information, and therefore, might be considered to be thematic. On the other hand, if the information is irretrievable, in other words context independent, it forms a new/unknown piece of information and it is likely for it to be rhematic and to stand in the position of the element towards which the communication is perspectivized (Svoboda 2004, 94).

#### **3.2.3.4. Intonation**

Last but not least, another factor that also accounts for the contribution to the determination of FSP is intonation. Even though it can only partially be expressed in written text, using italics or sometimes capital letters, it still should be worth mentioning. This feature of prosody plays the most prominent role in spoken discourse. In the context of prominence of prosody, Firbas (1992, 143-8) concludes that it is particularly this factor that might determine the most dynamic element within an utterance, irrespective of its position.

#### **3.2.4. The Interconnectedness of the Factors**

Taking into account all of the four FSP factors mentioned above, it is necessary to point out that the way the distribution of the degrees of CD is realized results from their mutual interconnectedness. Further, the relevance of the individual factors to the perspectivization of a sentence element may not be the same in all languages, on the contrary, it differs across them. This argument is supported by Svoboda (1992, 95) who confirms that “the interplay [of the FSP factors] may be multifunctional,” by means of “the employment of different means in different languages.” The realization of the way IS is constructed is of a dissimilar nature

also in Czech and English. The reasons for the differentness shall be, in more detail, outlined in the following sub-chapter.

### **3.3. Information Structure and Word Order**

The preceding sub-chapters have presented the individual FSP factors and pointed out their interconnectedness having a direct impact on the way information is distributed over sentence elements. As already mentioned above, the linearity factor is of the highest importance, predominantly, when the other factors, i.e. semantics and context, do not counterwork it. Since the thesis and proposed experiment are focused, primarily, on written text, the prosodic factor of intonation shall not be taken into account. In this respect, the phenomenon of IS is largely connected with the notion of word order.

Firbas (1992, 117) points out that, indeed, there is a relation between FSP and word order and accepts Mathesius' definition of word order as "a system constituted by the mutual relations of word-order principles." He also adds that the principles are language universal, as far as Indo-European languages are concerned, but their individual prominence may differ across languages, such as in case of Czech and English. In order to be able to understand the differences between systems of word order in individual languages, Mathesius proposes to use the method of "analytical comparison" (Mathesius 1936, 95).

Applying the approach of the analytical comparison as proposed by Mathesius, Firbas (1992, 118-9) demonstrates the dissimilarities of English and Czech word order introducing "the grammatical principle" and "the FSP linearity principle." The grammatical principle is expressed by means of relatively fixed word order, as in English, when the prototypical word order puts the subject in front of the verb, which is then followed by verbal complementation, most frequently by object (S-V-O word order), depending on the grammatical subcategorization of the verb. In opposition to this stands the principle of FSP linearity when the sequence of the sentence elements goes from Th and through Tr towards Rh, preserving the gradual rise of degrees of CD. This argumentation is confirmed by Dušková (1988, 527-8) who states that Czech utilizes FSP as a primary word order principle, while in English it plays less prominent role applying, primarily, the principles of grammar. This dissimilarity between Czech and English is based on different

system of grammar being inflectional, thus synthetic, and analytic respectively. Due to these differences, English is required to use various syntactic constructions in order to achieve a similar structure of information, while in Czech this may be achieved by simple reordering of sentence elements. The dissimilar character of Czech and English word order, further, results in different realization of the so-called marked and unmarked word order.

### 3.3.1. Word Order Markedness

Apart from the grammatical principle and the FSP linearity principle, in connection to the word order typology, Firbas (1992, 118) further presents “the emotive principle,” which is complementary to the above mentioned principles, and which he describes in the following way:

“The principle of emphasis orders the words in a way that strikes the recipient as more or less out of the ordinary. This is due to the fact that the same words can appear in an order that does not create such an impression of unusualness. The unusual order fulfills an additional communicative purpose not served by the usual order, and is in this sense marked.”

These phenomena of marked and unmarked word order do, to a certain extent, differ in Czech and English as well and demonstrate the primary word order principles applied in these two languages. A practical demonstration is provided by Svoboda (2004, 91) in (2), (3), (4) and (5):

- (2) *Tu knihu jsem četl.*
- (3) *Četl jsem tu knihu.*
- (4) *I've read **the book**.*
- (5) ***The book**, I've read.*

In (2) the information is structured linearly from Th – Rh, which represents a classic example of unmarked word order in Czech. On the other hand, (3) presents the information in an opposite sequence, thus Rh – Th, resulting in creation of marked word order. Based on these examples, it is possible to state that the marked word order in Czech is created when the Th – Rh sequence is violated. Furthermore, also (4) presents the canonical word order in English, thus S-V-O. However, in case of (5), the sentence is structured differently placing the object in front of the subject,

hence O-S-V. Therefore, marked word order in English is created by means of deviation from the canonical S-V-O structure.

The above provided exemplification demonstrates the fact that the FSP linearity principle, indeed, is of primary importance in Czech, while in English, the major part in the process of information structuring is played by the grammatical factor. The emotive principle further influences the manner in which the notion of markedness is created in both languages (Svoboda 2004, 91). This argument is also confirmed by Firbas (1992, 122-3) who affirms by stating “that English and Czech marked word orders differ in the principle from which they deviate. Whereas Czech marked word order deviates from the FSP linearity principles, English, or to be exact modern English marked word order deviates from the grammatical principle.” In this respect Dušková (1988, 534) states that in order to achieve the similar information structure effect, English employs special syntactic constructions. Professor Tárnyiková (2009, 76), coherently, refers to these grammatical structures as “constructions for highlighting.” Her classification is provided in the following sub-chapter.

### **3.3.2. Constructions for Highlighting**

There are many linguistic forms that allow us to frame information in accordance with communicative intentions. In the process of communication, its participants tend to emphasize certain elements based on their consideration. Within the context of information structuring, Tárnyiková (2009, 76-79) states that when it comes to highlighting, the usage of special syntactic constructions is principally dependent on the nature of grammatical system of a particular language. She further points out that languages with grammaticalized word order, such as English, need to utilize special grammatical structures in order to emphasize a certain element. However, Tárnyiková emphasizes that the usage of such special constructions in English results in a certain degree of markedness of the grammatical structure. Conversely, the Czech inflectionally rich word order system may achieve the same effect, simply, by changing positions of the sentence elements. As a result of this, a question arises, i.e. whether a marked word order construction in English should be translated as a marked or unmarked structure in Czech, when primarily the same dynamic communicative effect should be of the highest importance.

Interestingly, Tárnyiková perceives markedness as a matter of degree rather than presenting it in a bipolar opposition. With respect to the difference in the scalar notion of markedness between Czech and English she declares:

“In Czech, where the relatively free word order makes it possible to highlight any sentence element by simply putting it in a prominent position, the existence of the constructions for highlighting is an option, and as such is either stylistically marked or endowed with additional functions of strong emphasis” (Tárnyiková 2009, 112).

In this respect, what results from the above mentioned quotation is the fact that constructions used for highlighting in English, that are more or less marked, have their equivalents in Czech. Though, their usage is not necessitated, and rather represents more of an issue of stylistics. This might be a very interesting aspect to observe, particularly, in connection to translation.

With regards to constrictions for highlighting in English, Tárnyiková (2009, 82) applies the criterion of “degree explicitness of the construction,” which results in the following classification:

- a) explicit
- b) implicit, and
- c) partially-explicit

The first category of explicit constructions is based on a certain kind of patterned frame into which elements are inserted. The usage of such patterns is distinctly evident due to their formal characteristics. For better understanding, the individual types of syntactic structures are accompanied by examples. The constructions matching the suggested criterion include:

- 1) cleft construction
  - (6) *It is syntax that I like.*
- 2) pseudo-cleft constructions
  - (7) *What I like is syntax.*
- 3) there-construction
  - (8) *There is a course on syntax in the curricula.*

On the other hand, the second category of implicit constructions lacks any particular signs that would signal the change in the way information is structured. On the

contrary, it is simply via diverse positioning that the effect of highlighting is accomplished. The constructions that utilize this word order change are the following:

- 4) fronting (or so-called topicalization in Firbas's point of view [1992, 125]), realized by means of element pre-posing

(9) *Syntax I like.*

- 5) subject – verb inversion, realized by means of element post-posing

(10) *Here comes syntax.*

The third type of special syntactic structures can be described as of a rather hybrid character partially incorporating signals of both, explicit and implicit, types of constructions. Tárnýiková (2009, 83) best describes this category in the following way: “compared to the previous types, [it] is not based on the insertion into the base structure of a special signal or frame but rather on the preservation of a pronominal ‘trace’ in the position from which the sentence element has been moved to another position within the same utterance.” In this respect, the above mentioned description characterizes the following structures:

- 6) left-dislocation

(11) *Syntax, I like it.*

- 7) right-dislocation

(12) *I like it, syntax.*

- 8) extra-position (of a heavy, complex element towards the end due to better processing)

(13) *What syntax teaches you matters. - It matters what syntax teaches you.*

All the above listed constructions for highlighting regularly occur in written texts, even though some of them might be more likely to appear in informal language, such as in case of left and right dislocation (Tárnýiková 2009, 83).

Interestingly, in her classification, Tárnýiková does not mention passive voice constructions, which are, presumably, the most frequently used syntactic structures in English, apart from their canonical counterparts in active voice. On the other hand, passivization is mentioned by Dušková (1988, 534) who states that passive represents a prominent mean of FSP, thus it influences the way information

is structured within a sentence. Essentially, there are two basic functions of passivization, i.e. stressing the agent of an active sentence or its deagentization, which means it is thoroughly omitted. Based on these two functions, this is how passives influence the sentence IS in English. On the other hand, Dušková mentions that, in Czech, the utilization of passive voice represents only a “facultative stylistic variation.” Such a premise is also confirmed by Firbas (1992, 119-20) who remarks that English employs the passive voice structure in order to preserve the sequence of Th – Tr – Rh. This argumentation, as well, presents an interesting perspective, especially when related to translation.

Before we proceed to a discussion on how the concepts of IS and MT are interconnected, and how, and to what extent, this interconnection might be interesting from the point of view of translation and its research, let us briefly discuss also other approaches to IS.

### **3.4. Other Approaches to Information Structure**

Apart from the Czech linguistic tradition represented, in particular, by the PLC, there were also other attempts to describe the way information is organized within a sentence or a text, especially in the Anglo-Saxon culture. Necessary to say, these efforts that occurred, mainly, in the second half of the 20th century, were largely influenced by the work of Mathesius.

One of the first linguistics scholars who attempted to elaborate on the work of PLC was Michael Halliday. According to Heusinger (2002, 12) it was particularly M.A.K. Halliday who firstly used the term information structure establishing an independent linguistic concept. As confirmed by Brown and Yule (1983, 153-4), Halliday’s work was predominantly based on the aspects introduced by the Prague school. Particularly, he focused on the realization of IS in spoken discourse, especially, in connection with the principle of intonation. In Halliday’s perspective (1967, 212) Th always precedes Rh, regardless of the syntactic structure. In this way, his approach to the conception of IS seems to be rather limited and simplified. It is necessary to point out that the term IS, within this thesis, is not used in reference to Halliday’s conception, but is used generally as a covering term for all concepts related to the way information is structured as introduced within this chapter.

Another theoretical approach to the concept of IS was presented by Wallace Chafe (1976). Chafe primarily focused on the way discourse functions and is organized. In his perspective, discourse is structured based on the relation of speaker's assumption about hearer's knowledge. More importantly, Chafe (1976, 28) introduces the term "information packaging," referring to the way information is organized within discourse. Chafe's approach to information packaging was further followed by Huddleston and Pullum (2002, 1363-1448) who, in more detail, extensively present the actual means used for a different realization of IS. More specifically, they further extended the notion of context dependency differentiating between information that is new/known with respect to discourse and recipient. In this respect, they conclude that a piece of information that is old for the recipient may represent information being newly introduced to the discourse emphasizing the concept of shared knowledge and speaker's presupposition. All the above mentioned scholars approach the concept of IS in a monolingual theoretical and descriptive manner, but only a limited number of publications actually applies the approach of comparative analysis providing specific comparison between more languages. Such a point of view is partially presented by Tárnyiková (2009), and in a more complex way by Dušková (1988, 518-541).

Even though, there were various attempts to describe the notion of IS, including the endeavors to establish a different theoretical and terminological framework, these efforts were, to a great extent, based on the previous work of Czech linguistic scholars. The theory of FSP and CD, as proposed by Firbas based on presumptions of Mathesius, received general recognition in the academic world and became widely accepted. The prominence of the contributions of Czech scholars and researchers to the field of linguistics is, primarily, the major reason why these theories were paid the most attention to within the literature overview part of this thesis. Though, some more approaches were briefly mentioned as well to put the concept of IS into a wider context. For even more detailed information on this phenomenon see Firbas's monograph (1992), *Functional Sentence Perspective in Written and Spoken Communication*, that is, in a great detail, fully devoted to this topic. Nevertheless, it is necessary to mention that the Czech tradition in this field of linguistic research still proceeds, mainly via the work of followers of Mathesius and Firbas, namely by Vachek, Daneš, Svoboda, Adam,

Hajičová, Sgall and others (Tárnyiková 2009, 76). The following chapter shall attempt to connect the both above introduced concepts of MT and IS, as individually described in Chapter 2 and Chapter 3 respectively, and to propose some theoretical aspects that might be practically tested and are exercisable in research.

## **4. Machine Translation and Information Structure Combined**

As already mentioned above, the integration of Machine Translation into the translators' workflow may be considered a norm these days. Hence, MT represents a significant tool which may be comparatively helpful in the process of translation. Apart from its practical application, MT serves also as a subject of scientific inquiry. There are many research areas in which MT might be contributive to the process of rendering a translation product, especially when combined with a specific linguistic issues. As pointed out by Pym (2011b, 2), in this domain, not much empirical research has been conducted so far. On the other hand, this state of the art may allow for a certain latitude with respect to research methodology. The most of the research carried out in this field focused on qualitative aspects of currently operating online MT systems, however, not much attention has been paid to the employment of quantitative methods with regards to the impact of incorporation of MT into the translation process.

Analogous to the concept of Machine Translation, what has also been presented above is the relevance of knowledge of dissimilar realization of the way information is structured in Czech and English. Generally, the consciousness of different language typologies, as well as the awareness of the issues related to IS, might be regarded as crucial for the provision of inter-lingual written communication, as translation may, in other words, be described. In this respect, the combination of the concepts of MT and IS may be of a high interest, hopefully, presenting valuable results and tendencies arising from consequences of utilization of MT. Another interesting aspect contributing to this, might be the scalar character of word order markedness, as remarked by Tárníková (2009, 76). Accepting her argumentation, markedness may be perceived as a matter of degree. Due to this reason, it cannot be simply decided on the basis of bipolar scale. Furthermore, quality assessment, especially in connection with translation, involves a relatively high degree of subjectivity. Therefore, instead of providing qualitative evaluation, this thesis focuses on quantitative methodology aiming at quantification of tendencies related to MT with respect to the IS.

Applying approaches of quantitative methodology, the thesis attempts to examine and provide practical results of translation tendencies related to the integration of MT into the process of translation with respect to sentence IS. Since the concept of IS seems to be closely related to language grammatical structure, one of the aims of the thesis focuses on the way selected syntactic structures are machine-translated by a SMT system with respect to changes in word order. Presumably, the MT may tend to follow the grammatical structure of the SL. Another aspect that should be taken into consideration is the acceptability of the MT output with respect to IS. In this respect, the quantification of acceptability and unacceptability of the MT shall try to be provided. However, taking into account the premise that the MT might tend to copy the grammatical structure of the ST with selected syntactic constructions, the acceptability rate can be expected to be rather low. Last but not least, a practical application on the realization of translation product might be able to present some hard data related to the way translators might be influenced by grammatical and information structure of the MT output when post-editing. The following methodological chapter describes, in a greater detail, methods and tools utilized in research related to the above outlined research questions. Apart from that, it also clarifies the argumentation for selection of particular syntactic constructions to be examined within the research and the subsequent experiment.

## 5. Methodology

As outlined in the previous chapter, the practical interconnection of the concepts of Machine Translation and Information Structure might result in presenting interesting aspects of utilization of the integrated MT with respect to a translation product. Resulting from the different language typologies, and thus diverse nature of grammatical systems in Czech and English, in this regard, what has also been presented are the basic assumptions regarding the usage of MT in connection to IS. Taking into account the relative degree of markedness of constructions for highlighting in English, supposedly, the MT shall tend to copy the grammatical structure, which may result in unacceptability of the MT output from the point of view of IS. In consequence, a practical question arises, namely to what extent these presumptions may eventually influence translators and products created as a result of their activity. Naturally, there might be also other interesting and promising aspects worth investigating resulting from the connection of the described concepts of MT and IS, though, this thesis shall attempt to examine the aforementioned premises. Necessary to point out, the language pair used within this research is English-Czech, with English being the source language (SL) and Czech the target language (TL).

### 5.1. Text Selection

In order to be able to test the above specified presuppositions, a suitable and representative text sample is required. Ideally, it should be a text that translators might be very likely to encounter in practice and for translation of which they would prefer to use MT. Since MT is not commonly used for translation of literary texts, a non-literary text was selected. One of the fields that may provide such a text is, for example, psychology. Since the research intentions are quantitative, the text should be extensive enough to provide a sufficient amount of data that more general conclusions might be drawn upon. Carefully considering all the herein mentioned criteria, *Introduction to Psychology* by Charles Stangor was selected to be a presentable text. It is an introductory textbook on psychology containing 861 pages that provides an extensive amount of data for the purposes of empirical research. The textbook is available online in electronic form, free of charge, as a part of Sailor

Academy of Open Textbooks<sup>4</sup>. The digitalized text in electronic form allows better orientation within the extensive amount of textual material, but more importantly, enables us to use the method of full-text searching.

## **5.2. Selection of Syntactic Structures**

The full-text method of browsing may represent a systematic way of text extraction. When dealing with such an extensive amount of textual data, hardly, all syntactic constructions for highlighting, as presented in Chapter 3.3., can be examined. Additionally, not all of the construction for highlighting have formal signals that would enable utilization of this method. Due to this reason, only those syntactic structures that signal some kind of formal characteristics were chosen. Accordingly, these are represented by the explicit category of constructions for highlighting as suggested by Tárnyiková (2009, 82). Additionally, a certain degree of formal properties, in its verbal realization and in case of regular verbs, is also expressed by English passive constructions, as proposed by Dušková (1988, 534). Since passives are one of the most frequently used syntactic structures in English, with regards to their canonical counterparts, they should also be taken into consideration. Therefore, the quantification focuses on the following special syntactic structures:

- a) there-constructions,
- b) pseudo/cleft-constructions, and
- c) passive voice constructions

Apart from being able to extract them from the text using full-text searching, these structures should be paid close attention to when being translated, especially when MT is integrated into the process. More specifically, these special syntactic constructions represent typical examples of the way syntax is used to emphasize a specific sentence element in English. Comparatively, in Czech, a different translation method might be required and, probably, such constructions usually should not be translated simply on word-for-word basis, since the inflectionally rich word order system allows a different approach of repositioning of the elements. Therefore, this might represent an issue, especially, for inexperienced translators.

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<sup>4</sup> <http://www.saylor.org/books/>

The following sections, very briefly, comment on syntactic characteristics of the selected constructions.

### 5.2.1. There-constructions

In Tárnyiková's point of view (2009, 93-100), there-structures represent an explicit syntactic construction used for highlighting, in other words rhematization, of an element that, otherwise, would stand in the position of the subject, thus would be thematic. The grammatical structure goes as follows:

*There + auxiliary/lexical V + the highlighted element*

The practical example, as well as its canonical counterpart, are presented in (14) and (15) respectively:

(14) *There is a course on syntax in the curricula.*

(15) *A course on syntax is in the curricula.*

Using this grammatical construction, the NP *a course on syntax* may be in this way rhematized. This type of construction is usually used in connection with various kinds of adverbials, nevertheless, these carry a lower degree of CD than the highlighted element emphasized by the used syntactic variant.

With respect to the text extraction, there were 42 there-constructions found in the text using the keyword *there*. For the complete list of there-constructions found see Appendix I.

### 5.2.2. Pseudo/Cleft-constructions

Another type of special syntactic structures that Tárnyiková (2009, 85-92) classifies as explicit are cleft and pseudo-cleft constructions. For the purposes of the research, they constitute one pseudo/cleft category due to their similar formal structure enabling for highlighting of any sentence constituent, including the predicate in case of pseudo-clefts. Their grammatical structures go as follows:

Cleft: *It + be + the highlighted element + that clause*

Pseudo-cleft: *Wh pseudo-cleft element + be + the highlighted element*

The practical examples of cleft and pseudo-cleft construction are presented in (16) and (17) respectively:

(16) *It is syntax that I like.*

(17) *What I like is syntax.*

With respect to the text extraction, there were 27 cleft and 5 pseudo-cleft structures, thus 32 pseudo/cleft constructions, found in the text based on the following 10 keywords: *it is, it's, it was, it will be, what, where, when, who, why, how*. When a particular keyword was searched for within the text, it was decided whether the occurrence constitutes a pseudo/cleft construction or not based on a method of close reading. All the occurrences were, therefore, analyzed separately. For the complete list of the pseudo/cleft-constructions found see Appendix I.

### **5.2.3. Passive Voice Constructions**

As pointed out by Dušková (1988, 534) and Firbas (1992, 119-20), comparing to the explicit category of constructions for highlighting, passive constructions do not influence the way information is structured within a sentence by means of formal characteristics, but rather via the grammatical choice of voice which directly affects the Th-Tr-Rh sequence. In this manner, it has a direct impact on the sentence IS. The transformation of an active sentence into a passive structure is demonstrated based on (18) and (19):

(18) *Syntax nearly killed him.*

(19) *He was nearly killed by syntax.*

In this respect the subject of the active clause becomes an object of preposition of the passive clause, and similarly, the object of the active clause happens to be transformed into the subject of the passive clause. The verbal constituent in the passive is realized by the form of *be* auxiliary, depending on the tense of the active clause, and the past participle form of the verb. This grammatical change simultaneously results in the change of position of Th and Rh within the structure.

With respect to the text extraction, based on the methods of full-text searching and, once again, close reading, there were 82 passive voice constructions found in the text based on the following 11 keywords: *were, was, is, are, will, would, should, could, be, been* and *being*. It is necessary to point out though, that

since passive is used in non-literary texts really frequently, a further restrictive criterion for the selection was taken into consideration. Particularly, any re-occurring lexical verb in passive constructions was extracted three times in maximum. In other words, this means that, for example, if there were multiple occurrences of the verb *influence* in its passive form, only the first three occurrences are included in the list of findings. The fourth, fifth and any other occurrence was ignored. This criterion was applied due to the high probability of alike output that may exert an influence on the results of the research.

Overall, the 861-page non-literary textbook on psychology was searched for 3 categories of special syntactic structures, i.e. there, pseudo/cleft and passive voice constructions, using 22 different keywords. As a result of the full-text searching, in combination with the method of close reading, 156 constructions were selected and extracted to be further examined. The numbers as such are not in any way defining, but on the other hand, they may express a relative rate of occurrence of the selected syntactic structures within non-literary texts. For a complete list of the selected special syntactic structures found within the text, see Appendix I. The individual occurrences are numbered 1-156 for better orientation and references, as indicated within the part presenting results of the research. The following sub-chapters explicitly describe the methods of further assessment and evaluation and also introduces the experiment that aims at employing these theoretical findings into practice.

### **5.3. Evaluative Methods**

The previous chapters introduced the text used for the purposes of empirical research and explicitly provided the argumentation for the selection of specific syntactic structures, as well as introduced the methodology for extraction of the individual grammatical constructions from the text. All of the 156 segments were, thereafter, machine-translated using the SMT system, Google Translate. The complete list of the segments and their MTs is presented in Appendix I. Furthermore, the following sub-chapters explicate the evaluative methods used for quantifications of the phenomena examined within the research. More specifically, the issue of whether, and to what extent, the MT provided by the Google Translate SMT system tend to copy the grammatical structure of the selected syntactic constructions in English, when being translated to Czech, is quantified by means of

comparative analysis of the ST and its MT. Secondly, the degree of acceptability of the MT output, with respect to the IS, is determined by means of bipolar consensual quantification. And not least, the rate towards which translators might be influenced by the grammatical structure, and thus the IS, of the MT output is resolved on the basis of quantitative comparison of translation products. The research and experiment results are, in consequence, presented in the Chapter 6.

### **5.3.1. Quantitative Comparative Analysis**

Attempting to quantify to what extent Google Translate does copy the grammatical structure of English ST when being translated to Czech, the method of comparative analysis of the ST and its MT was applied. In other words, in case of all of the 156 segments, the ST word order was compared to the word order of the MT on the basis of constituents. A constituent, in this regard, is understood as a grammatical unit, bare or complex, that represents a single sentence function. Further explication is demonstrated based on the example provided in (20).

(20) *I like when you play guitar.*

In (20), there are, in total, three individual constituents. Firstly, the pronoun *I* represents a constituent standing in the position of the sentence function of a subject. The second constituent is represented by the lexical verb *like*, which functions in the sentence as a predicate. Consequently, the clause *when you play guitar*, also, constructs a constituent in the function of an object. Therefore, any constituent may be represented by a single word, a phrase or a clause. Based on the above provided argumentation, one constituent represents one single sentence element, and therefore, carries one degree of CD. If the constituent is of a complex character, the division may be further implemented on a lower level as well. This means, for example, that within the subordinate clause *when you play guitar*, further sub-division of constituents may be applied. Primarily, the way information is structured is realized on the macro-level of sentence.

For the purposes of quantification, with regards to the constituent division, there were two categories of word order changes created when comparing the ST and the MT:

- a) minor change – a change of word order within one constituent that does not have a direct impact on the sentence-level IS; for example:

(21) *the research design – návrh výzkumu* [design research];

which may be describe as: NP [Adj. N1 -> N2 N1]

- b) major change – a change of word order between more than one constituent that results in a change in the sentence-level IS; for instance:

(22) *stimuli are sent – jsou odesílány podněty* [are sent stimuli];

which can be illustrated as:

Subject-Predicate [NP Aux. LexV. -> Aux. LexV. NP]

In addition to this classification, the changes in grammatical structures are quantified individually with respect to the separate types of selected syntactic constructions and the results are presented in Chapter 6.

### **5.3.2. Bipolar Consensual Quantification**

Trying to determine to what extent the Google Translate MT of the 156 segments is acceptable with respect to their IS, the evaluative method of bipolar consensual quantification was applied. In this regard, the notion of acceptability is perceived as a bipolar opposition defining whether the MT output may, or may not, be used without further changes to its grammatical, and thus informational, structure. Necessary to say, the evaluation was based on raw, unmodified textual material, and inherently, it did not take into consideration any grammatical or terminological inaccuracies. Based on this argumentation a simple two-level rating scale was created. The scale includes two values, 1 and 0, to be used for assessment of acceptability and unacceptability of the MT IS respectively. Using the suggested ratings scale, the 156 extracted segments were assessed by two assessors, in order to reach some kind of interpretative consensus, therefore the term consensual quantification. The first evaluation was conducted by myself, the author of the thesis and a student of translation on the master's degree level. The second one was carried out by a professional translator and a language services provider upon request based on commercial demand. Accordingly, the provided service was paid for. Subsequently, the both assessments were compared, so the presented results are based on a relative degree of consensual agreement.

Naturally, choosing a different rating scale might have resulted in different findings. Initially, the intended assessment should be based on a three-level rating scale including an intermediate level for vague and fuzzy occurrences. However, utilization of such an evaluative scale could eventuate in most of the segments being classified within this intermediate level category. Presumably, such results would be of no informative value at all. Due to this reason, the two-level scale was chosen to be implemented. Likewise, a higher number of assessors would lead to a better interpretation of the evaluation. However, a restricted range of the thesis, as well as limited financial resources, in combination with other points this thesis attempts to focus on, resulted in the minimal number of two assessments to be carried out for the results to have, at least, some interpretative value. On the other hand, if the assessment by only one assessor would be provided, the presented evaluation would be highly subjective. Therefore, applying the consensual methodology aims, at least to some extent, at reduction of the degree of subjectivity within this part of the research. The full overview of both assessments, as well as its mutual comparison is presented in Appendix II. The results are presented in Chapter 6.

## **5.4. Experiment**

Both of the above mentioned parts of the research work, primarily, only with the output of Google Translate MT system, attempting to provide quantitative data with respect to the way it is capable of controlling the process of translation of grammatical and informational structure. The third part of the research, in a form of empirical experiment, tries to apply these findings in practice. More specifically, it attempts to quantify to what extent translators might be influenced by the IS as machine-translated by Google Translate, especially with the instances that were consensually agreed to be unacceptable, and thus should require restructuring. Presumably, this might be an issue for inexperienced translators, who might tend to follow the suggested structure of a sentence with respect to grammar and information, as suggested by the MT system.

### **5.4.1. Experiment Text**

Ideally, in order to be able to draw general conclusions, all the 156 segments, or at least all of those that were evaluated as unacceptable with respect to IS, should be translated by a number of professional translators. Translating such an extensive

volume of text to such an extent would require a relatively large amount of financial resources, which is, in our case, no viable. However, the experiment is practically realizable in a smaller scale and with limited number of translators and textual material to be translated.

For this purpose, the overall number of 156 segments was reduced to 20 constructions the MT of which was consensually agreed to be unacceptable, based on proportional occurrence of the selected syntactic constructions in the text. The number of 20 constructions represents an extent of approximately 2 standardized pages<sup>5</sup>, which is a normative measure in the field of commercial translation. This volume of textual material seems to be reasonable with respect to demands on translators in order to obtain a sufficient amount of hard data. The proportional distribution is clearly illustrated in Table 1 below.

Syntactic Construction	Number of Occurrences	Percentages	% in Experiment Text
There-construction	42	27	30
Pseudo/Cleft-construction	32	21	20
Passive voice construction	82	53	50
Total	156	100	100

Table 1: Proportional distribution of selected syntactic constructions occurring within the examined text.

Based on the proportional distribution, the text to be assigned for translation contains 30% of there-constructions, 20% of pseudo/cleft-constructions and 50% of passive voice constructions. In concrete numbers, reaching the overall amount of 20 syntactic structures, and thus 2 standardized pages, the experiment text consists of 6 there-constructions, 4 pseudo/cleft-constructions and 10 passive voice constructions. As already pointed out, the experiment text was created from the segments assessed as unacceptable with respect to their IS. Since if selected linearly, some of the segments were rather primitive and did not require very complex translational approaches. Therefore, of the unacceptably evaluated constructions were selected those featuring a certain kind of grammatical complexity requiring more sophisticated method of translation. These constructions were arranged randomly presented in its wider textual context represented by the preceding and following paragraph. Such a textual sequence is essential from the

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<sup>5</sup> A standardized page (or a norm page), according to Czech standards, consists of 1,800 characters including spaces.

translation point of view in terms of determination of organization of IS. The full experiment text is presented in Appendix III.

#### **5.4.2. Research Group**

The created text was further assigned to be translated, or rather post-edited, by a group of translators. Once again, for the results to be of a generally conclusive value, a large number of translations produced by professional translators would be required. Since the work of professional translators would be rather expensive, the limited resources do not allow us to obtain so much data. Though, a smaller scale research may, still, produce interesting results that other future investigations might be based on. The group of translators, in this respect, is represented by students of translation in their last year of studies on master's degree level or by graduates of this university program. Necessary to say, all of them, during their studies, previously participated in the course(s) focused on translation technologies, including MT, so the concept of postediting is not new for them. In order to simulate the practice as much as possible, the students were offered a paid translation job as a part of participating in the experiment. Overall, 29 students and graduates were addressed with the opportunity to participate in this experiment, for which they would be financially compensated. As a result, out of the 29 persons, the willingness to participate in the research was expressed by 16 of them. The experiment was not conducted in laboratory conditions, but preferably, the participants were allowed to work in their own, natural environment which they are used to work in. On the other hand, to be able to control the process of experiment efficiently, it was managed through the project management interface in Memsorce Cloud, access to which was provided by the university.

#### **5.4.3. Memsorce Cloud**

Memsorce Cloud is an online translation software service that enables translators to access their working environment from any device with a stable Internet connection. Its cloud platform, among others, enables a project manager to efficiently control and manage the process of translation, even with multiple users. This online translation tool providing project management interface was used, mainly, because of its low demands on translators with respect to their technological knowledge and skills, and also, in order to ensure a unified form of the final

translation product. The working Memsourse Cloud graphical user interface and its project management environment are shown in Figures 14 and 15 respectively. Figure 16 illustrates, in more detail, the environment inside an individual project.

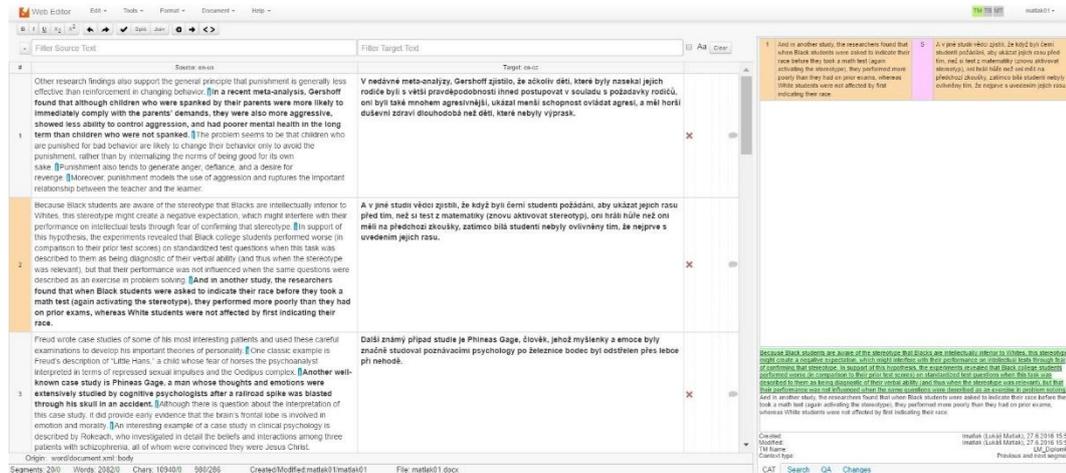


Figure 14: Memsourse Cloud - Graphical User Interface.

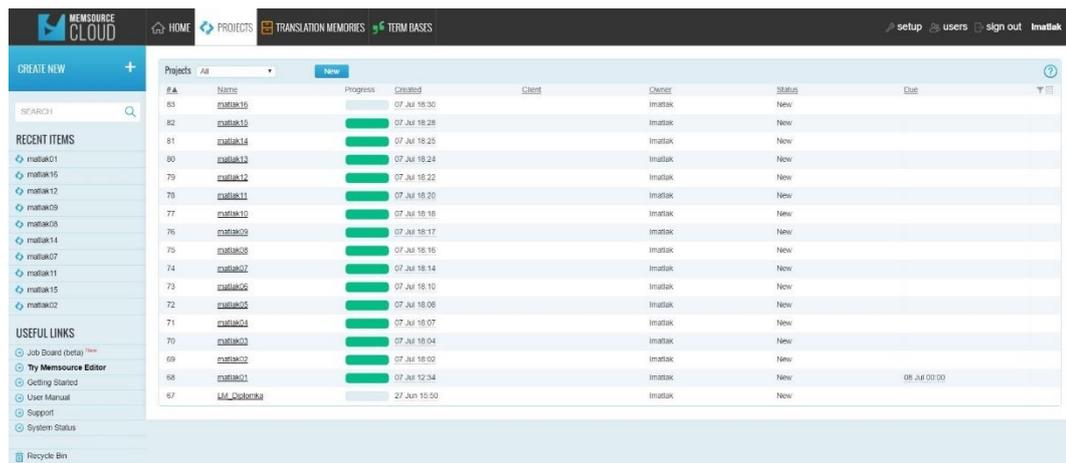


Figure 15: Memsourse Cloud - Project Management Environment.

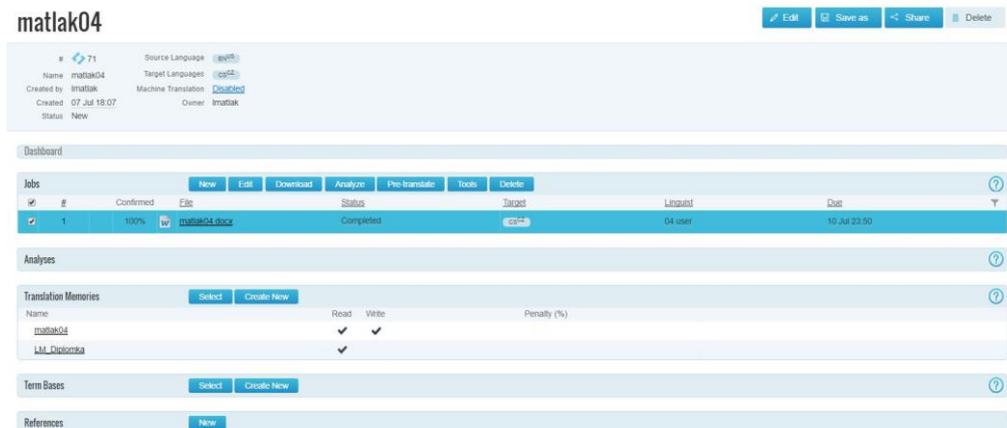


Figure 16: Memsourse Cloud – Inside the Project.

As previously mentioned, the Google Translate SMT system constitutes a dynamically evolving environment and its output may in a long-term period differ. Preventing this situation, instead of integrating the real-time MT plug-in into the server service, a TM containing the MT output as translated in January 2016 was created for the purposes of the above mentioned quantifications. The TM, which operates only in read-only mode, would simulate the integrated MT automatically suggesting the translation of individual segments. This process ensures the homogeneity of the results of the experiment.

Describing the project management process, firstly, it was necessary to create a linguist account for each user. Further, for each of the participant an individual project was created, into which the file to be translated was uploaded and the universal TM, in read-only mode, was assigned. Since the software requires also a TM in write mode, another TM was created in and assigned for each project. At this point, individual translators could be provided with access information, thus login and password, instructions how to operate within the project environment and a translation brief. The translation brief includes the information regarding the text and the intended use of the translated text. In this case, the text was introduced to the participants as selected excerpts from an introductory textbook on psychology that should be published in a scientific psychological journal. Having all necessary information, the translators were requested to post-edit the sentences in bold. The rest of the text was provided as immediately relevant context. The primary reason for this restriction is, once again, the limited amount of financial resources available for the experiment. Secondly, translating all the provided context would result in having a great amount of textual material, that is not in any way, or only partially, connected with the inquiries of this thesis. Once any translator started the process of translation, the project had been set a three-hour deadline within which the translation should be completed. In all cases, the time allowance proved to be sufficiently long enough for finalization of the TT. Consequently, all translated documents were exported and compared with the ST grammatical and information structure by means of quantitative comparative analysis. The aligned bilingual files

containing the ST and all the TTs, as well as the above mentioned TM, are to be found on the enclosed CD-ROM.<sup>6</sup>

#### **5.4.4. Quantitative Comparative Analysis of Translation Products**

For the comparison of the translation products created as a result of the translation/post-editing process by the experiment participants was, once again, used the method of quantitative comparative analysis. However, in this case the method was used slightly differently than in terms of quantification of the tendency of MT to copy the ST grammatical structure. More specifically, since all the MTs of the segments selected for the experiment text copied the ST word order and were consensually assessed as unacceptable with respect to IS, in this case, the comparative analysis applied the following criteria:

- a) there-constructions: the translation is considered to be influenced by the MT (i) if it fully copies the grammatical structure of the ST, thus MT, or (ii) if it fronts any other element than the one being highlighted by the usage of the syntactic there-construction in English.
- b) pseudo/cleft-constructions: the translation is considered to be influenced by the MT (i) if it fully copies the grammatical structure of the ST, thus MT, or (ii) if it fronts any other element than the one being highlighted by the usage of the syntactic pseudo/cleft-construction in English.
- c) passive voice construction: the translation is considered to be influenced by the MT (i) if it fully copies the grammatical structure of the ST, thus MT, or (ii) if it copies the passive realization of the grammatical category of voice of the English verb.

Applying the above explicated criteria enables us to quantify to what extent the translators might have been influenced by the grammatical and information structure of the ST, and thus its MT. Necessary to point out, the criteria do not apply to all syntactic structures in general, but rather, only to those selected for the purposes of the hereinafter presented research, as well as they are not the one and only possible. As previously stated, in case of the bipolar consensual quantification, any grammatical or terminological inaccuracies were not taken into consideration

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<sup>6</sup> Also available at <https://goo.gl/f14Jmo>

during the evaluation process. These would be, among others, the subject of interest of a qualitative research, which in this respect also might be worth conducting. Considering the evaluation of the translations, they were assessed separately as conducted by individual participants. Consequently, the overall quantification of 320 segments is provided as a result of being examined within the scope of the 16 translations. The results are presented within Chapter 6.

## **6. Research and Experiment Results Presentation**

Resulting from the mutual interconnectedness of the concepts of Machine Translation and Information Structure, the following chapter presents the research and experiment results. The ways how these two concepts can be practically related in research are explicitly described in Chapter 4. Subsequently, Chapter 5 explicates the methodology, methods and individual tools used for the purposes of the research. For the results to be well-arranged, this chapter is subdivided into three further parts.

### **6.1. Part One – MT Copying ST Grammatical Structure**

The first part presents the quantitative results of the extent to which the Google Translate MT system tend copy the ST word order of the segments containing the selected special syntactic constructions, i.e. there, pseudo/cleft and passive structures. Applying the assessment method based on sentence constituents, as previously described in the part dealing with methodological approaches, the individual types of syntactic structures were compared separately, so the results are presented with respect to every individual category, and subsequently, also the overall quantification is provided. Apart from that, what is also included is a detailed syntactic description of minor and major changes in word order as created in consequence of the MT. Necessary to say the changes do not concern the selected structures exclusively, but also the co-occurring elements, thus the segment as a whole. The results are presented in tables along with circular diagrams.

In case of there-constructions, altogether 42 segments were found, extracted and machine-translated to be further examined. Out of these, 30 MTs fully copied the ST word order without any minor changes to the grammatical structure of the ST. Subsequently, out of the remaining 12 machine-translated segments, 7 of them contained minor changes within a constituent and other 5 segments included major changes that may have a direct impact on the translation of IS. Expressed proportionally, more than 70% of there-constructions were machine-translated by Google Translate on word-for-word basis. In only about 29% of cases the MT system made a change to the original ST structure, as displayed in Chart 1 below. On the other hand, since only the major changes have a direct impact on the macro-level IS, it is really only 12% of cases within this category, as presented in the

following Chart 2. Based on these numbers, this rate seems to be rather low. The individual occurrences containing changes in the word order complemented with their grammatical transformation are listed below. The variations are presented linearly, as occurred within the examined text.

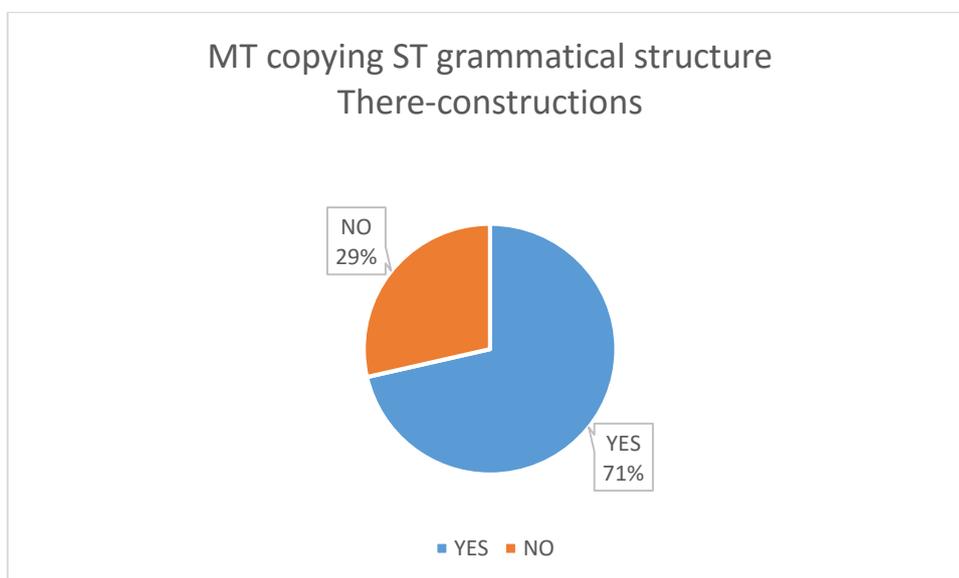


Chart 1: There-constructions – MT copying the grammatical structure of the ST.

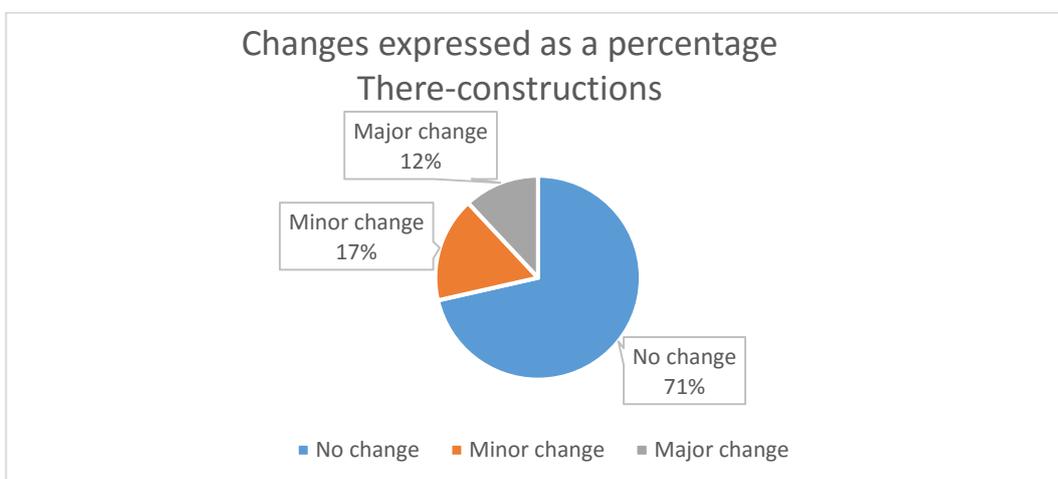


Chart 2: There-constructions – Minor and major changes expressed as a percentage.

No.	Full text search keyword	ST_eng	MT_cs
5	There	There are a variety of available <b>career choices</b> within psychology that provide employment in many different areas of interest.	Existuje celá řada dostupných <b>možností kariéry</b> v psychologii, které poskytují zaměstnání v mnoha různých oblastech zájmu.

Minor - NP [Adj. N -> N Adj.]

9	There	When there are two variables in <b>the research design</b> , one of them is called the predictor variable and the other the outcome variable.	V případě, že jsou dvě proměnné v <b>designu výzkumu</b> , jeden z nich je nazýván prognostická proměnná a druhý výsledek variabilní.
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Minor - NP [Adj. N1 -> N1 N2]

15	There	It seems that although conscious reports of the visual experiences are not possible, <b>there is still</b> a parallel and implicit process at work, enabling people to perceive certain aspects of the stimuli.	Zdá se, že i když vědomé zprávy vizuálních zážitků nejsou možné, <b>stále existuje</b> paralelní a implicitní proces při práci, umožňuje lidem vnímat některé aspekty podněty.
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Minor - VP [there+be Adv. -> Adv. V]

19	There	There are more than 1,000 types of <b>odor receptor cells</b> in the olfactory membrane.	Existuje více než 1000 typů <b>receptorů buněk pachových</b> v čichovém membráně.
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Minor - NP [Adj.1 Adj.2 N1 -> N2 N1 Adj.1]

26	There	Imagine, for instance, that <b>I asked you to indicate</b> whether there are more words in the English language that begin with the letter "R" or that have the letter "R" as the third letter.	Představte si například, že <b>bych vás požádal, abyste uvést</b> , zda existují další slova v anglickém jazyce, který začíná písmenem "R" nebo které mají písmeno "R" jako třetí dopis.
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Major - Clause [Pron. lexV. Pron. infV. -> Pron. Pron. lexV. Conj. infV.]

27	There	Although there is general agreement among psychologists that <b>g exists</b> , there is also evidence for specific intelligence (s), a measure of specific skills in narrow domains.	Ačkoli panuje všeobecná shoda mezi psychology, že <b>existuje g</b> , tam je také důkaz pro specifickou inteligenci (y), kterým se měří specifických dovedností v úzkých domén.
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Major - Clause [NP VP -> VP NP]

28	There	There are many explanations for <b>the Flynn effect</b> , including better nutrition, increased access to information, and more familiarity with multiple-choice tests.	Existuje mnoho vysvětlení pro <b>efekt Flynn</b> , včetně lepší výživy, lepší přístup k informacím a větší obeznámenost s mnohočetným výběrem testy.
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Minor - NP [N1 N2 -> N2 N1]

29	There	There is a lively debate among scholars about whether it is appropriate or beneficial to label some children as "gifted and talented" in school and <b>to provide them with accelerated special classes</b> and other programs that are not available to everyone.	Tam je živá diskuse mezi učenice o tom, zda je vhodné nebo prospěšné označovat některé děti jako "nadané a talented" ve škole a <b>aby jim poskytly urychlenými speciálních tříd</b> a dalších programů, které nejsou dostupné pro každého.
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Major - VP [InfV. Pron. PP -> Conj. Pron. lexV. NP]

31	There	On the math part of <b>the Scholastic Assessment Test (SAT)</b> , boys with scores of 700 or above outnumber girls by more than 10 to 1, but there are also more boys in the lowest end of the distribution as well.	Na matematické části <b>testu Scholastic Assessment (SAT)</b> , chlapci se skóre 700 nebo vyšší převažují dívky o více než 10: 1, ale tam jsou také více chlapců v nejnižším konci rozdělení stejně.
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Minor - NP [Adj. Adj. N1 -> N1 N2 N3]

32	There	There are two emotional pathways in the brain (one slow and one fast), <b>both of which</b> are controlled by the thalamus.	K dispozici jsou dva emoční dráhy v mozku (jeden pomalé a rychlé jeden), <b>z nichž oba</b> jsou ovládaný thalamu.
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Minor - NP [Num. + of P Pron. -> P Pron. Num.]

33	There	Despite tremendous economic growth in France, Japan, and the United States between 1946 to 1990, <b>there was no increase in reports of well-being by the citizens of these countries.</b>	Navzdory obrovskému hospodářskému růstu ve Francii, Japonsku a Spojených státech v letech 1946 až 1990 <b>došlo ve zprávách o blahu ze strany občanů těchto zemí bez navýšení.</b>
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Major - Clause [There+be NP (N + PP + PP) -> lexV. PP PP PP]

37	There	Clearly <b>there is something wrong with their child</b> , but even the experts cannot agree on exactly what <b>the problem is</b> .	Je zřejmé, že <b>je něco v nepořádku s jejich dítětem děje</b> , ale i odborníci nemohou shodnout na tom, co přesně <b>je problém</b> .
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Major - Clause [There+be NP PP -> be NP PP lexV.]; Clause [NP VP -> VP NP]

Based on the comparative analysis, it is possible to say, that there seems to be no systematic way the Google Translate SMT system machine-translates the English syntactic construction *there + be*. The Czech translations, as converted by the MT system, are listed in Table 2, including the frequencies of particular occurrences of the translation.

Czech translation of <i>there + be</i>	Frequency
existovat [exist]	19
tam + být [there + be]	10
být [be]	9
být zde [be + here]	1
panovat [prevail]	1
dojít [happen]	1
žádný překlad - no translation	1
TOTAL	42

Table 2: The list of Czech translations of *there + be* structure.

Applying the very similar approach were processed also segments containing pseudo/cleft-constructions. Overall, 32 segments were found and, in detail, examined with respect to the changes in the grammatical structure of the ST. Out

of these, 22 MTs fully copied the word order of the ST with no changes to its grammatical structure, which represents more than two thirds of all the text. Additionally, the remaining 10 segments were machine-translated with minor or major changes. Specifically, 6 segments contained only minor changes without any primary effect on the sentence-level IS structure, thus approximately 19 %, and the major changes occurred in case of 4 segments, representing 12% of all of the 32 segments. The proportional representation is expressed in Charts 3 and 4 below, that are followed by the list of individual occurrences of segments containing changes supplemented with their syntactic description.

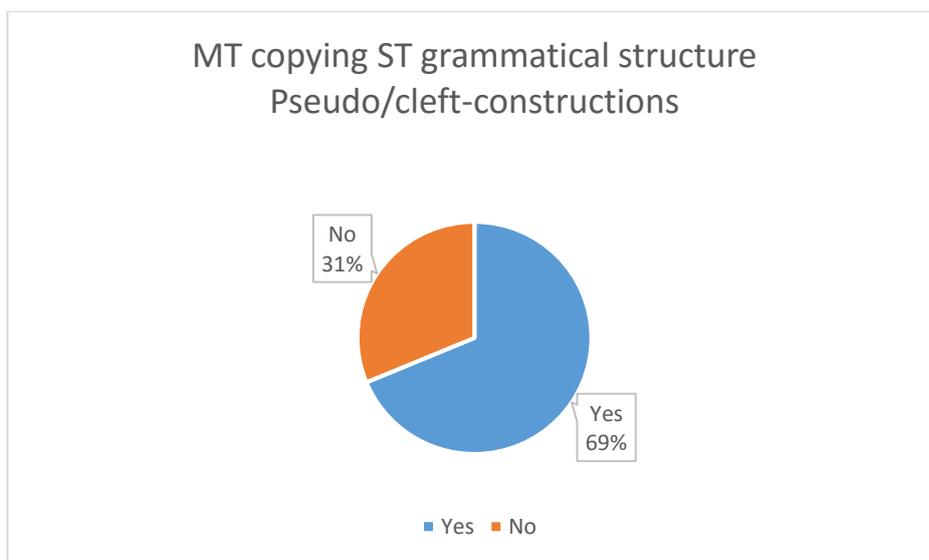


Chart 3: Pseudo/cleft-constructions – MT copying the grammatical structure of the ST.

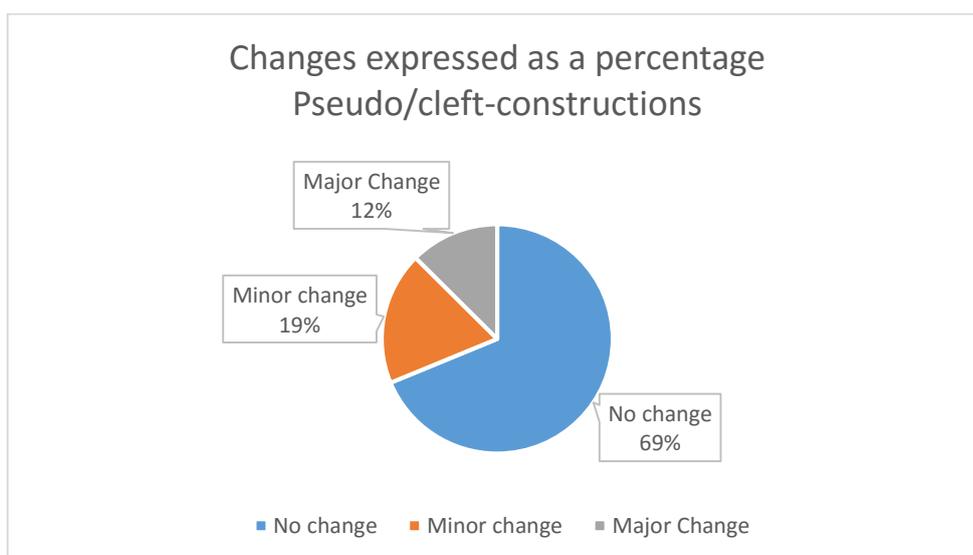


Chart 4: Pseudo/cleft-constructions – Minor and major changes expressed as a percentage.

No.	Full text search keyword	ST_eng	MT_cs
44	It is	Our brains are the most "plastic" when we are young children, as it is during this time that <b>we learn the most about our environment.</b>	Naše mozky jsou nejvíce "plast", když jsme malé děti, protože je v této době, že <b>jsme nejvíce o našem životním prostředí učít.</b>

Major - Clause [Pron. lexV. Adv. PP -> be Adv. PP InfV.]

57	It is	<b>Emotion regulation</b> is particularly difficult when we are tired, depressed, or anxious, and it is under these conditions that we more easily let our emotions get the best of us.	<b>Regulace Emotion</b> je obzvláště obtížné, když jsme unavení, depresivní, nebo úzkostní, a to za těchto podmínek, že bychom snadněji nechat naše emoce dostat to nejlepší z nás.
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Minor - NP [Adj. N1 -> N1 N2]

60	It is	Rather it is the social situation, and not <b>the people themselves</b> , that is responsible for the behavior.	Spíše se jedná o sociální situaci, a ne <b>samotné osoby</b> , který je zodpovědný za chování.
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Minor - NP [N Pron. -> Pron. N]

62	It was	When <b>participants were exposed to words related to the location of the square</b> just before they stopped its movement, they became more likely to think that they controlled the motion, even when it was actually the computer that stopped it.	Když <b>byly účastníci vystaveny slovy týkajícími se umístění náměstí těsně před tím</b> , než se zastavil jeho pohyb, se staly více pravděpodobné, že si myslí, že řízený pohyb, i když to bylo vlastně počítač, který je zastaven.
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Major - Clause [NP be lexV. PP-> be NP1 lexV. NP2]

63	It was	<b>This initial equivalence allowed them to observe differences in the white noise levels</b> between the two groups after the experimental manipulation, leading to the conclusion that it was the independent variable (and not some other variable) that caused these differences.	<b>Tento počáteční ekvivalence jim umožnilo pozorovat rozdíly v bílých hladině hluku</b> v obou skupinách po experimentální manipulaci, což vede k závěru, že nezávislá proměnná (a ne nějaké jiné proměnné), které způsobily tyto rozdíly.
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Major - Clause [NP lexV. Pron. infV -> NP Pron. lexV. infV.]

65	It was	Köhler argued that it was this flash of insight, not <b>the prior trial-and-error approaches</b> , which were so important for conditioning theories, that allowed the animals to solve the problem.	Köhler tvrdil, že to byl tento záblesk pochopení, nikoliv <b>přístupy předchozí pokus-omyl</b> , který byl tak důležitý pro kondiční teorií, které umožnily zvířatům, aby tento problém vyřešit.
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Minor - NP [Adj. QC N -> N Adj. QC]

67	It was	Although Jennifer Thompson was positive that it was Ronald Cotton <b>who had raped her</b> , her memory was inaccurate.	Ačkoliv Jennifer Thompson byl pozitivní, že to byl Ronald Cotton, <b>který ji znásilnil</b> , její paměť byla nepřesná.
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Major - Clause [Pron.1 Aux. lexV. Pron.2 -> Pron.1 Pron.2 lexV.]

69	It was	Social psychologists have discovered that it was the <b>38 people themselves</b> that contributed to the tragedy, because people are less likely to notice, interpret, and respond to the needs of others when they are with others than they are when they are alone.	Sociální psychologové zjistili, že to bylo <b>38 samotní lidé</b> , které přispěly k tragédii, protože lidé jsou méně pravděpodobné, že si všimnout, interpretovat a reagovat na potřeby druhých, když jsou s ostatními, než oni jsou, když jsou sami.
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Minor - NP [Num. N Pron. -> Num. Pron. N]

73	What	What is perhaps common to all the disorders is the <b>person's inability</b> to accurately understand and be sensitive to the motives and needs of the people around them.	Co je možná společná pro všechny poruchy je <b>schopnost člověka</b> přesně rozumět a být citlivé na motivy a potřeby lidí kolem nich.
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Minor - NP [N1 N2 -> N Adj.]

74	What	What we need to do, then, is to recognize both the strengths and limitations of <b>group performance</b> and use whatever techniques we can to increase process gains and reduce process losses.	Co musíme udělat, pak je rozpoznat silné i omezení <b>výkonu skupiny</b> a použití jakéhokoliv techniky můžeme zvýšit proces zisky a snížit ztráty procesu.
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Minor - NP [Adj. N -> N Adj.]

Unlike in case of there-constructions, when the MT system somehow recognizes the syntactic structures and translates it differently in individual instances, when it comes to machine-translating the pseudo/cleft-constructions, the MT system seems to be operating strictly on word-for-word basis. This results in a highly marked TT in Czech that is not indispensably necessitated. Though, this feature should be subject of a qualitative research.

Last category examined by the means of comparative analysis are passives voice constructions. In this case, altogether 82 segments were extracted to be analyzed. Out of these, 67 MTs copied the ST grammatical structure fully without any changes. The remaining 15 segments contained 6 minor and 9 major changes within the ST word order sequence. Expressed as a percentage, up to 82% of the MT output fully followed the ST, while only in 18% of cases changes were made. In particular, 7% and 11% of modifications are represented by minor and major

changes respectively. The proportional representation is illustrated in Charts 5 and 6.

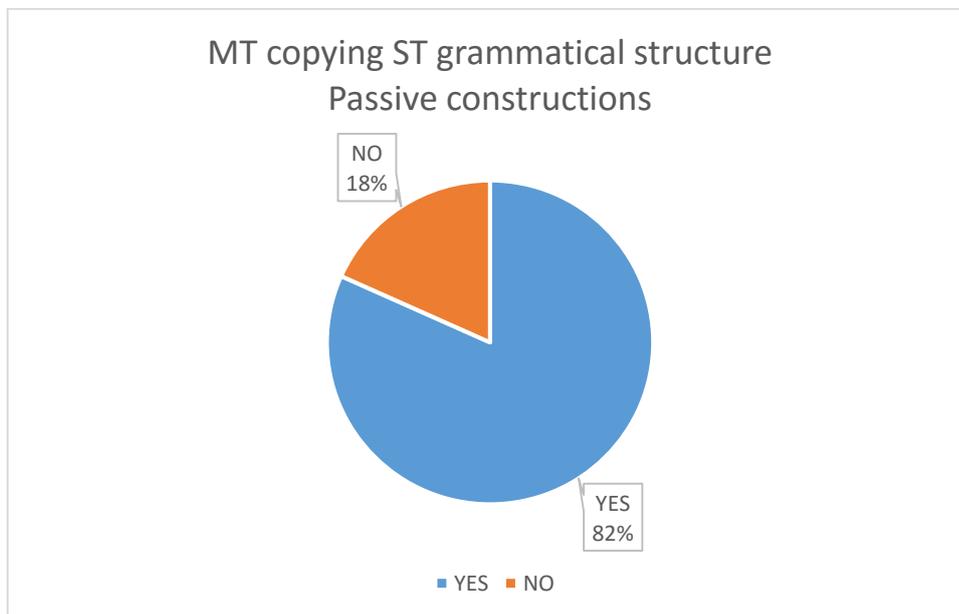


Chart 5: Passive constructions – MT copying the grammatical structure of the ST.

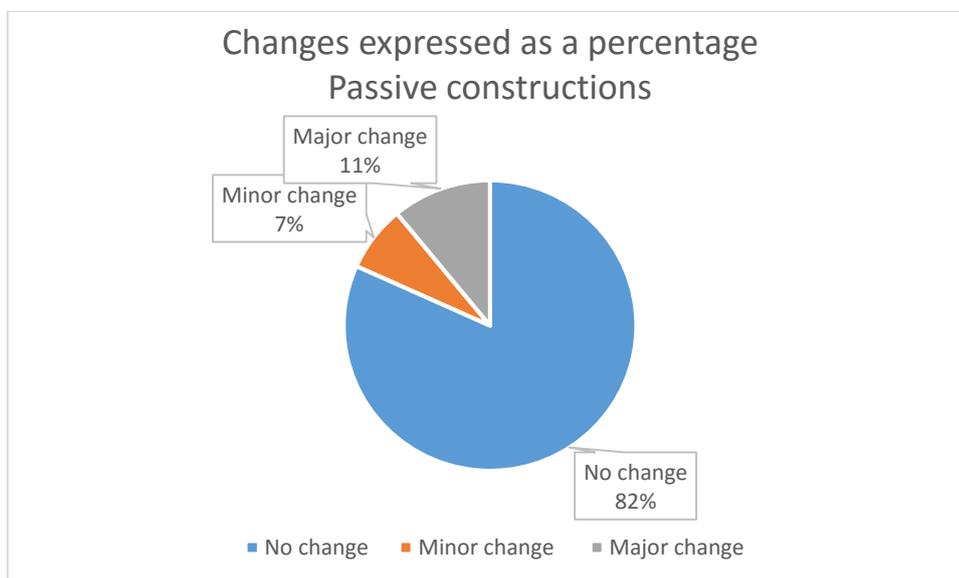


Chart 6: Passive constructions – Minor and major changes expressed as a percentage.

These charts are complemented with particular occurrences of changes within the segments containing passive voice constructions.

No.	Full text search keyword	ST_eng	MT_cs
86	Were	In a recent meta-analysis, Gershoff found that although children who were spanked by their parents were more likely to immediately comply with the <b>parents' demands</b> , they were also more aggressive, showed less ability to control aggression, and had poorer mental health in the long term than children who were not spanked.	V nedávné meta-analýzy, Gershoff zjistilo, že ačkoliv děti, které byly nasekal jejich rodiče byli s větší pravděpodobností ihned postupovat v souladu s <b>požadavky rodičů</b> , oni byli také mnohem agresivnější, ukázal menší schopnost ovládat agresí, a měl horší duševní zdraví dlouhodobá než děti, které nebyly výprask.

Minor - NP [N1 N2 -> N2 N1]

87	Were	The American psychologist Karl Lashley attempted to determine where <b>memories were stored</b> in the brain by teaching rats how to run mazes, and then lesioning different brain structures to see if they were still able to complete the maze.	Americký psycholog Karl Lashley pokusil určit, kde <b>byly vzpomínky uloženy</b> v mozku tím, že učí krysy, jak spustit bludiště, a pak lesioning odlišné mozkové struktury tak, aby zjistili, jestli jsou stále schopni dokončit bludiště.
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Major - Subject-Aux. [NP be lexV. -> be NP lexV.]

89	Were	And in another study, the researchers found that <b>when Black students were asked</b> to indicate their race before they took a math test (again activating the stereotype), they performed more poorly than they had on prior exams, whereas White students were not affected by first indicating their race.	A v jiné studii vědci zjistili, že <b>když byli černí studenti požádáni</b> , aby ukázat jejich rasu před tím, než si test z matematiky (znovu aktivovat stereotyp), oni hráli hůře než oni měli na předchozí zkoušky, zatímco bílá studenti nebyly ovlivněny tím, že nejprve s uvedením jejich rasu.
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Major - Subject-Aux. [Pron. NP be lexV. -> Pron. be NP lexV.]

93	Was	Perhaps the school of psychology that is most familiar to the general public is <b>the psychodynamic approach to understanding behavior</b> , which was championed by Sigmund Freud (1856–1939) and his followers.	Možná, že škola psychologie, která je nejvíce známý pro širokou veřejnost je <b>psychodynamic přístup k chování, porozumění</b> , která byla bojoval Sigmund Freud (1856-1939) a jeho následovníků.
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Minor - NP [Adj. N1 P gerund. N2 -> Adj. N1 P N2 N3]

96	Was	In one experiment <b>a rat was given the opportunity</b> to electrically stimulate its own hypothalamus by pressing a pedal.	V jednom experimentu <b>byla krysa dána možnost</b> , aby elektricky stimulovat vlastní hypothalamus stisknutím pedálu.
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Major - Subject-Aux. [N be lexV. -> be N lexV.]

102	Was	My post-traumatic stress disorder (PTSD) was triggered by several traumas, most importantly a sexual attack at knifepoint <b>that left me thinking</b> I would die.	Můj posttraumatická stresová porucha (PTSD) byla vyvolána několika traumaty, což je nejdůležitější sexuálního útoku pod ostřím nože, <b>který mě opustil přemýšlel</b> bych zemřít.
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Major - Clause [Pron.1 lexV.1 Pron2. lexV.2 -> Pron.1 Pron.2 lexV.1 lexV.2]

106	Was	In both cases, participants reported their confidence in each prediction, and accuracy was determined by the responses of the <b>people themselves</b> .	V obou případech se účastníci vykazují jejich důvěru v každém predikci a přesnost byla stanovena na základě odpovědí <b>samotných lidí</b> .
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Minor - NP [N Pron. -> Pron. N]

110	Was	Fortunately, the practice of sterilization was abandoned between the 1940s and the 1960s, although <b>sterilization laws</b> remained on the books in some states until the 1970s.	Naštěstí praxe sterilizace byla opuštěna mezi 1940 a 1960, ačkoli <b>zákony sterilizace</b> zůstal na knihách v některých státech až do 1970.
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Minor - NP [Adj. N1 -> N1 N2]

124	Is	We have seen, for instance, that depression is caused by lower-level genetic factors, by <b>medium-level personal factors</b> , and by higher-level social and cultural factors.	Viděli jsme například, že deprese je způsobena genetickými faktory nižší úrovně, <b>osobními faktory střední úrovně</b> , a tím vyšší úrovně sociálních a kulturních faktorů.
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Minor - NP [QC Adj.1 N1 -> Adj.1 N1 Adj.2 N2]

132	Is	In election polls, for instance, <b>a sample is taken</b> from the population of all "likely voters" in the upcoming elections.	Ve volebních průzkumech, například, <b>je vzorek odebíráán</b> z obyvatel všech "pravděpodobných voličů" v nadcházejících volbách.
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Major - Subject-Aux. [NP be LexV. -> be NP LexV.]

141	Are	<b>When old facts are discarded</b> , they are replaced with new facts based on newer and more correct data.	<b>Jsou-li staré fakta vyřazeny</b> , jsou nahrazeny novými skutečnostmi založenými na novější a správnými daty.
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Major - Subject-Aux. [P NP be LexV. -> be-if NP LexV.]

143	Are	Behaviorists believe that the human mind is a "black box" <b>into which stimuli are sent and from which responses are received</b> .	Behavioristé věří, že lidská mysl je "černá skříňka", <b>do níž jsou odesílány podněty a ze kterého jsou přijímány odpovědi</b> .
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Major - Subject-Predicate [PP NP be LexV. -> PP. be LexV. NP]

144	Are	In terms of <b>the nature-nurture debate</b> , the behaviorists agreed with the nurture approach, believing that we are shaped exclusively by our environments.	Pokud jde o <b>diskusi přírody život se</b> behavioristé souhlasila s přístupem, život, věřit, že jsme ve tvaru výlučně našimi prostředí.
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Minor - NP [QC N1 -> N1 N2 infV.]

147	Are	In the prisoner's dilemma game, the participants are shown a payoff matrix in which <b>numbers are used</b> to express the potential outcomes for each of the players in the game, given the decisions each player makes.	V vězně dilema hry, účastníci jsou zobrazeny na matici přínosu, ve kterém <b>jsou čísla používána</b> k vyjádření možných výsledků pro každý z hráčů ve hře, vzhledem k rozhodnutí každý hráč dělá.
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Major - Subject-Aux. [NP be LexV. -> be NP LexV.]

154	Will	The client and the therapist work together to develop the goals of the therapy, the particular ways that <b>the goals will be reached</b> , and the timeline for reaching them.	Klient a terapeut spolupracovat na rozvoji cílů terapie, konkrétní způsoby, které <b>bude dosaženo cíle</b> a časové osy pro jejich dosažení.
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Major - Subject-Predicate [NP be LexV. -> Aux. be NP]

The provided quantification, with some passives, reveals an interesting tendency of the MT system to place the otherwise inherently thematic subjects in English to a more rhematic position in Czech following the functional, thus semantically empty, English auxiliary. These major changes in the ST grammatical structure, as classified in accordance with the above mentioned criteria, might signal an interesting point with respect to the future development of the system. In addition, this prospect may be further supported by the data presented in Table 3, that illustrate the way the English passive constructions are machine-translated into Czech with respect to the grammatical category of voice.

Czech Translation	Frequency
Passive voice	88
Active Voice	6
Infinitive	2
Total	96

Table 3: Machine translation of English passive constructions into Czech with respect to grammatical category of voice.

The 82 textual segments contain, altogether, 96 passive clauses. Out of these, 6 of them were translated as active and 2 as infinitive clauses. The remaining 88 clauses remained passive also in their translation. Still, this might signal a certain kind of development that is based on continually increasing bilingual corpus of Czech and English texts. Even though the rate is still relatively low, this phenomenon might be worth monitoring from a long-term perspective. To provide an overall idea, the active voice MTs are listed below:

79	Were	<b>The participant is given a chance</b> to have questions about the procedure answered, thus guaranteeing his or her free choice about participating.	<b>Účastník dostane šanci</b> na to, aby otázky týkající se postupu odpověděli tento zaručující svou svobodnou volbu o účasti.
107	Was	Simonton also found that among U.S. presidents, the ability to effectively lead <b>was well predicted</b> by ratings of the president's intelligence.	Simonton také zjistil, že u amerických prezidentů, schopnost účinně vést <b>dobře předpověděl</b> ratingu prezidentova inteligence.

127	Is	<b>When an action is met with failure</b> , on the other hand, we are less likely to perceive this outcome as the result of our free will, and we are more likely to blame the outcome on luck or our teacher.	<b>Je-li akce setkala s neúspěchem</b> , na druhou stranu, my jsme méně pravděpodobně, že vnímají tento výsledek jako výsledek naší svobodné vůle, a my jsme s větší pravděpodobností na vině výsledek na štěstí nebo naše učitele.
144	Are	In terms of the nature-nurture debate, the behaviorists agreed with the nurture approach, believing that <b>we are shaped</b> exclusively by our environments.	Pokud jde o diskusi přírody žít se behavioristé souhlasila s přístupem, žít, věřit, <b>že jsme ve tvaru</b> výlučně našimi prostředí.
146	Are	In these cultures <b>children are taught</b> to focus on developing harmonious social relationships with others.	V těchto kulturách <b>se děti učí</b> zaměřit na rozvoj harmonické sociální vztahy s ostatními.
151	Are	Worldwide, about 99% of rapes and about 90% of robberies, assaults, and murders <b>are committed by men</b> .	Celosvětově je asi 99% znásilnění a asi 90% z loupeže, přepadení a vraždy <b>páchají muži</b> .

The above provided quantifications present interesting points connected with the way Google Translate SMT system tend to approach translation of textual segments containing the selected syntactic structures. Providing an overall summary, the system fully copied the ST grammatical structure in more than three quarters of occurrences and only in a quarter of them incorporated a certain change to the ST word order. Taking into account the typological differences of the two languages, English and Czech, for the MT output to be highly usable without any further postediting, the rate seems to be rather low. On the other hand, in about 24% of cases the MT system carried out a certain kind of a grammatical change, 12% of them being classified as major, and thus, having an impact on the way information is structured and translated over a sentence. Even though, there does not seem to be a systematic approach of the MT system when it comes to translating individual syntactic constructions, based on general observation there might be certain regularities, as in case of translation of the grammatical category of voice. These phenomena might be worth monitoring from a longer perspective, which may eventuate in presenting, perhaps, different numerical results. As previously pointed out, the changes did not concern only the selected structures but also the co-occurring elements. In this respect, applying more restrictive criteria focused exclusively on the special syntactic constructions could present slightly different

results. The overall quantitative results of all selected syntactic structures combined are presented in Charts 7 and 8.

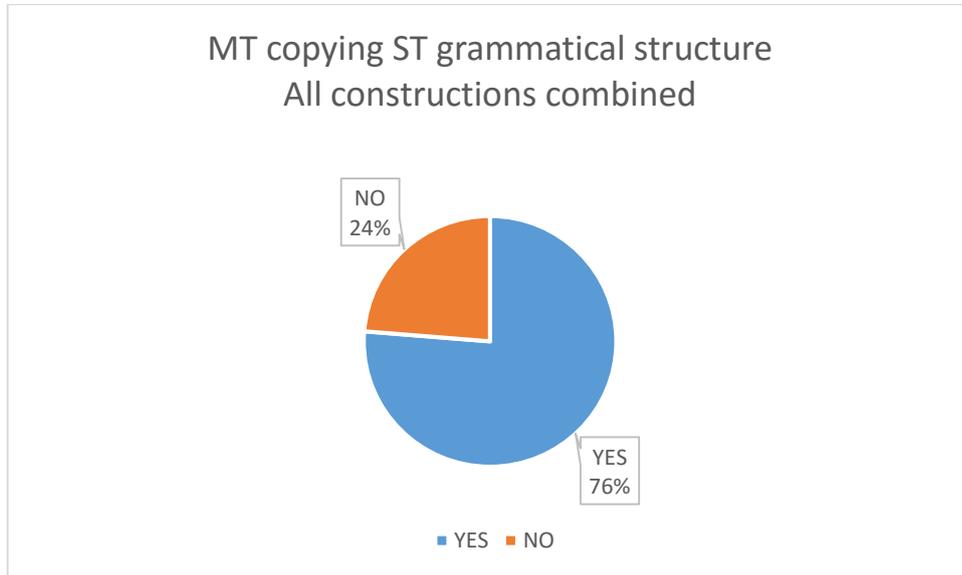


Chart 7: All constructions combined – MT copying the grammatical structure of the ST.

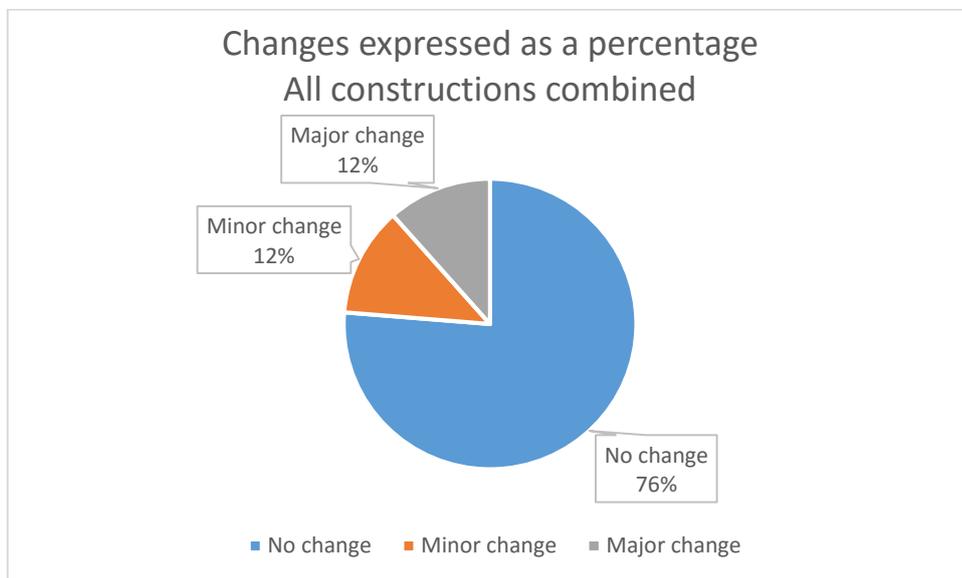


Chart 8: All constructions combined – Minor and major changes expressed as a percentage.

## 6.2. Part Two – Quantification of Acceptability of MT with Respect to IS

The second part presents the attempts to consensually quantify the extent towards which the raw MT output of selected syntactic structures is acceptable with respect to IS. As already pointed out in the methodological part of this thesis, the evaluation was conducted, independently on each other, by two assessors. Using the two-level rating scale, the assessors were required to evaluate each segment by assigning values 1 or 0, which signal the acceptability and unacceptability of the MT with respect to IS respectively. In consequence, both of the assessments were compared in order to reach, at least partially, some kind of consensual evaluation. The choice for selecting this rating scale in particular is argued for within the methodological part describing bipolar consensual quantification. The results present proportional rate of acceptability with selected syntactic constructions separately, as well as overall outcome of the evaluation is included. The following results are presented and arranged in tables along with charts and diagrams.

With there-constructions altogether 42 segments were evaluated by both assessors. The first assessor marked as acceptable 13 segments, and other 29 were, thereafter, evaluated as unacceptable. In a similar way, the second assessor evaluated as acceptable 12 segments and the rest of 30 segments marked as unacceptable. Their evaluations are illustrated in Chart 9.

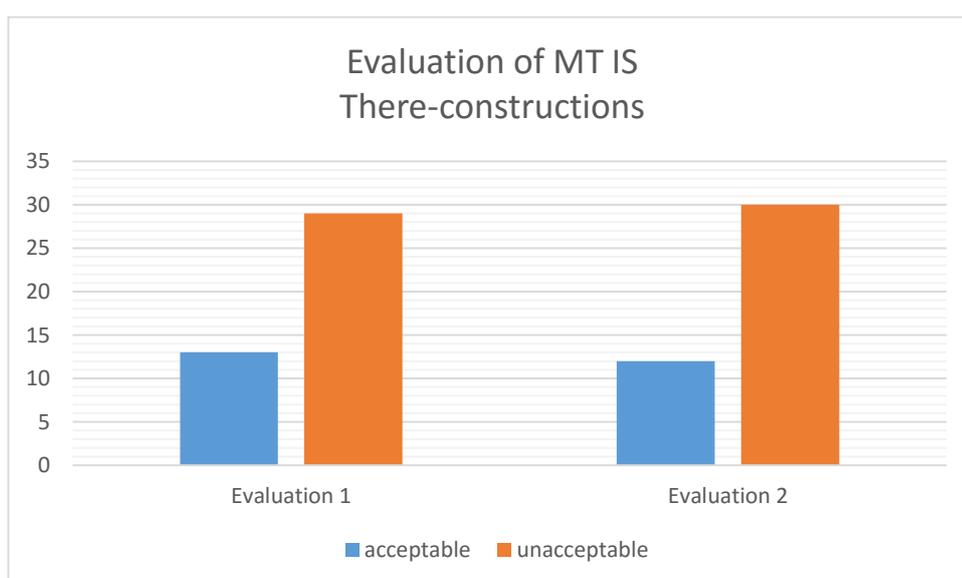


Chart 9: There-constructions – Evaluations of MT IS by individual assessors.

When mutually compared, the evaluations were correspondent in 11 segments being assessed as acceptable, 28 segments as unacceptable and only in case of 3 segments the evaluation was divergent. Expressed as a percentage, based on the evaluation of 42 segments containing there-constructions 27% of segments were consensually agreed to be acceptable, 67% of segments were labeled as unacceptable with respect to their sentence IS and in 7% of segments the evaluations were not correspondent. The proportional representation is shown in Chart 10.

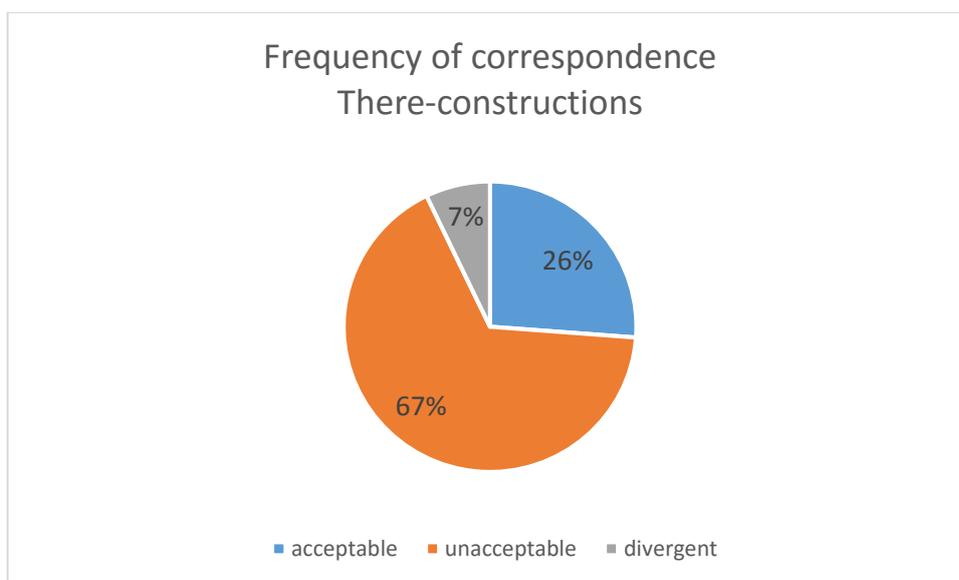


Chart 10: There-constructions – Frequency of correspondence of individual evaluations. Based on the above provided quantification, it may be stated that the acceptability rate of MT IS seems to be rather low. Based on general observation, segments assessed as acceptable were mostly those with only one verbal complement, or those with a complex grammatical constituent being placed towards the end of the sentence even in the ST. Constructions containing more than one verbal complement were, on the other hand, mostly assessed as unacceptable. Though, this should be, once again, a subject of interest of a qualitative research which might also be, in this area, worth conducting. The overall results of evaluation of there-constructions are, for better orientation, presented in Table 4.

There-constructions	Evaluation 1	Evaluation 2	Correspondence	Frequency
Acceptable	13	12	Acceptable	11
Unacceptable	29	30	Unacceptable	28
Total	42	42	Divergent	3
			Total	42

Table 4: There-constructions – Overall results of the evaluation.

In a similar way were evaluated and compared also pseudo/cleft-constructions. Overall, 32 segments were assessed with respect to un/acceptability of the MT IS. Out of these, in the first evaluation 16 segments were marked as acceptable, and concurrently, other 16 as unacceptable. The second evaluation assessed as acceptable 19 segments and the rest of them, thus 13, was classified as unacceptable with respect to IS. Both evaluations are presented in Chart 11.

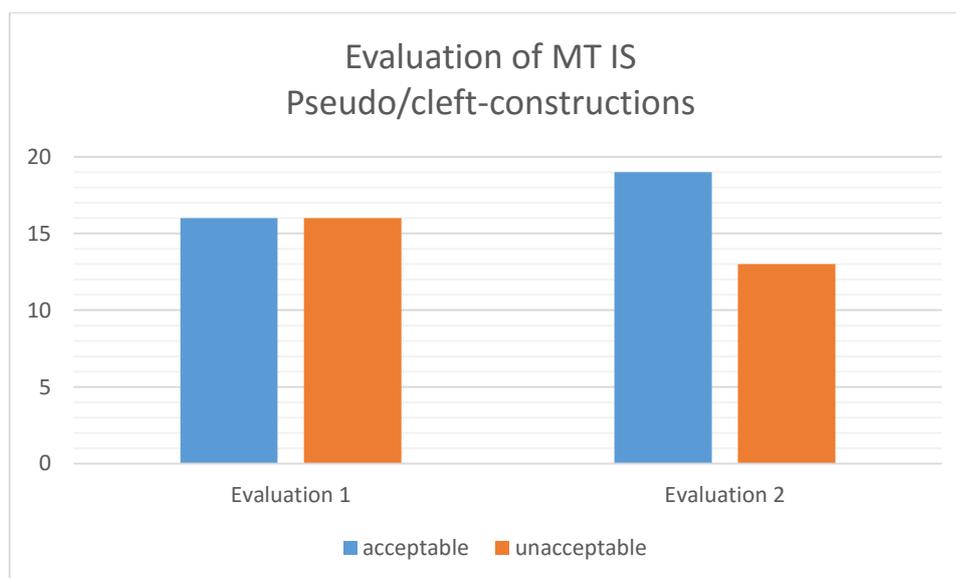


Chart 11: Pseudo/cleft constructions – Evaluations of MT IS by individual assessors.

Regarding the correspondence of the two evaluations, based on a mutual comparison, 14 segments were consensually assessed as acceptable, 11 as unacceptable and 7 segments were not agreed upon, and thus are classified as divergent. Expressed proportionally, out of the 32 segments containing pseudo/cleft constructions, 44% were agreed to be acceptable, 34% of segments assessed as unacceptable and in 22% of cases mutual agreement was not reached. The evaluations expressed as a percentage is illustrated in Chart 12.

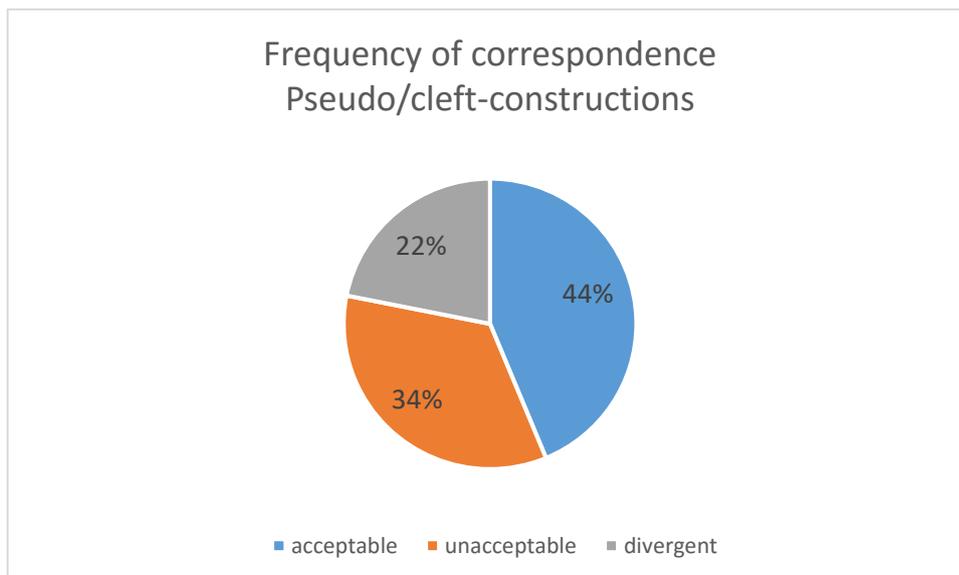


Chart 12: Pseudo/cleft constructions – Frequency of correspondence of individual evaluations.

Based on the above introduced quantitative data, the acceptability rate of the MT IS with pseudo/cleft-constructions is relatively higher than in case of there-constructions. This might be caused by the fact that, unlike there-constructions, to pseudo/cleft-constructions there are formally equivalent syntactic structures in Czech, called *vytýkací konstrukce* (Tárnyiková 2009, 85). On the other hand, these tend to be considered highly marked, and therefore, should be examined with their immediately relevant context, and presumably, also from the point of view of stylistics. Based on general observations, as acceptable were, mostly, assessed those pseudo/cleft constructions that are realized by a relatively non-complex ST grammatical structure. On the other hand, those MT segments evaluated as unacceptable result in creation of an even more complex syntactic structure than their counterparts in the ST. Persistently, this issue would be subjected to a qualitative research and is not paid attention to within this research. The relatively high rate of divergent classifications, in this case the 22%, can be interpreted as a result of the ambiguous nature of these syntactic variant in Czech and English from grammatical and stylistic point of view. The results are presented in Table 5.

Pseudo/cleft-constructions	Evaluation 1	Evaluation 2	Correspondence	Frequency
Acceptable	16	19	Acceptable	14
Unacceptable	16	13	Unacceptable	11
Total	32	32	Divergent	7
			Total	32

Table 5: Pseudo/cleft-constructions – Overall results of the evaluation.

The last category of syntactic structures examined with respect to quantification of un/acceptability of the MT IS are passives. In this respect, altogether, 82 segments were evaluated by both assessors and mutually compared in order to reach a relative degree of consensual agreement. The first evaluation marked as acceptable 49 of segment, while other 33 of them were classified as unacceptable. The evaluation by the second assessor interpreted 53 of segments as acceptable and the remaining 29 as rather unacceptable. The evaluations are shown in Chart 13.

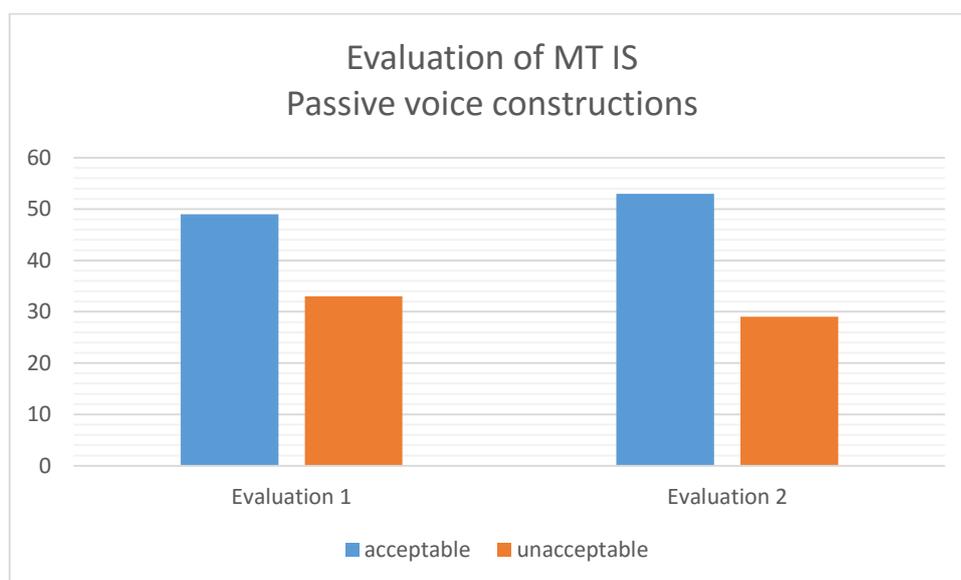


Chart 13: Passive voice constructions – Evaluations of MT IS by individual assessors.

The extent toward which correspondence between both evaluation was reached is expressed by 46 segments being classified as acceptable, 26 as unacceptable and in case of 10 segments the classification was not agreed upon. Interestingly, when expressed as a percentage, 56% of segments were assessed to be acceptable, 32% as unacceptable and 12% of them were classified as divergent. The proportional representation is illustrated in Chart 14.

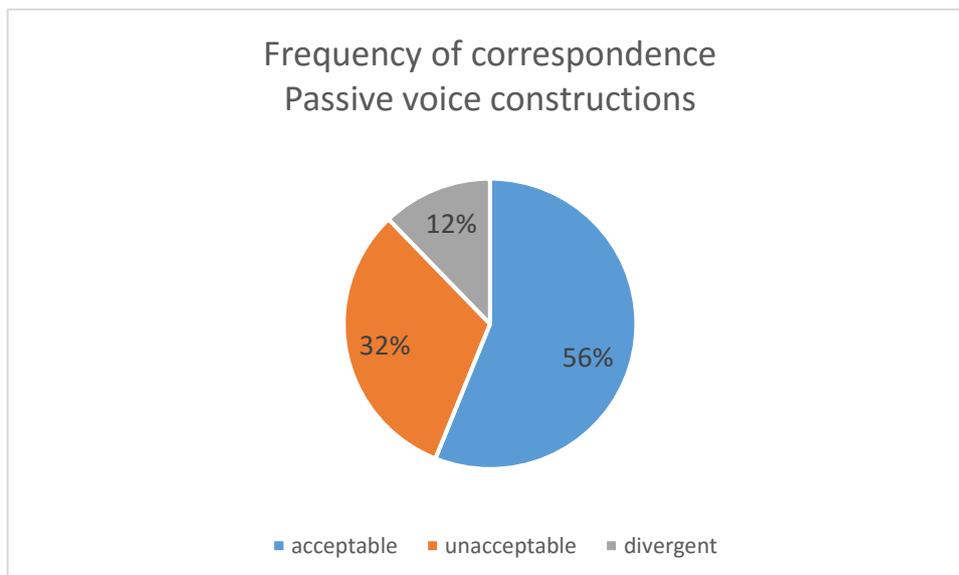


Chart 14: Passive voice constructions – Frequency of correspondence of individual evaluations.

The above provided quantification presents a relatively high rate of acceptability of the MT IS with passive constructions. This would probably be caused by the fact that passives are widely used also within Czech non-literary discourse, and partially also due to the ability of the MT system to translate an English passive sentence to Czech as an active clause. Though, there still might be some segments, which when translated to Czech, remain in passive voice and which may, in such a case, sound rather unnaturally in the TL. These would be, most likely, represented by the 32% of segments containing passive voice constructions, as indicated in Chart 14. Furthermore, stating what is natural from the linguistic point of view seems to be a rather vague variable, and apparently, this notion may differ individually, which results in 12% of segments being not consensually agreed upon. The comparison of usage of passives in Czech and English is a comparatively widely discussed topic, to which the above provided quantification may, at least to some extent and in a limited way, also contribute. Similarly, as in previous cases, the aggregate results are presented in Table 6.

Passive voice constructions	Evaluation 1	Evaluation 2	Correspondence	Frequency
Acceptable	49	53	Acceptable	46
Unacceptable	33	29	Unacceptable	26
Total	82	82	Divergent	10
			Total	82

Table 6: Passive voice constructions – Overall results of the evaluation.

Based on the quantifications presented above, the results of evaluations of individual selected syntactic structures are complemented with a summarizing complex viewpoint of all constructions combined. In this respect, out of all 156 segments, 71 and thus 45% of them were consensually evaluated as acceptable, 65 and thus 42% of them were assessed as unacceptable and the remaining 20 segments representing 13% of all of the segments were not agreed upon to be classified as either acceptable or unacceptable. The individual assessments, as well as the frequency of correspondence of the classifications are illustrated in Charts 15 and 16 respectively. These charts are completed with Table 7.

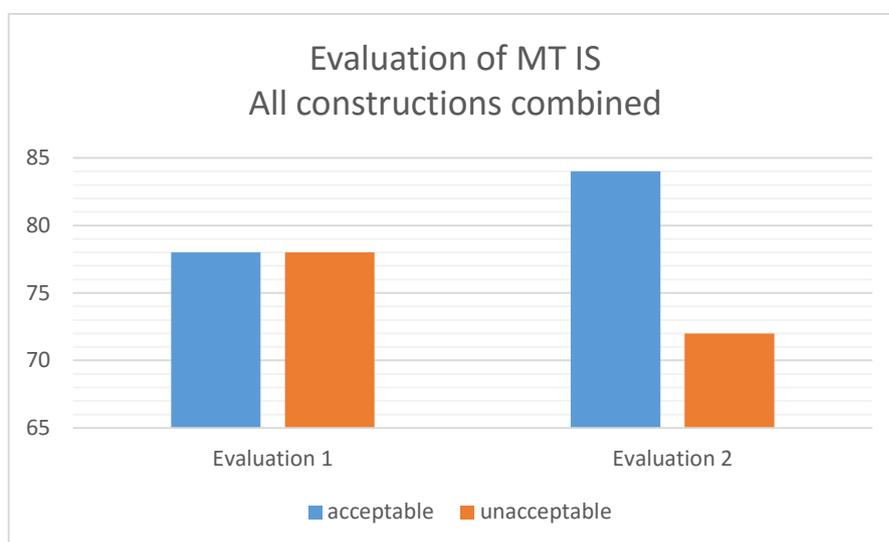


Chart 15: All constructions combined – Evaluations of MT IS by individual assessors.

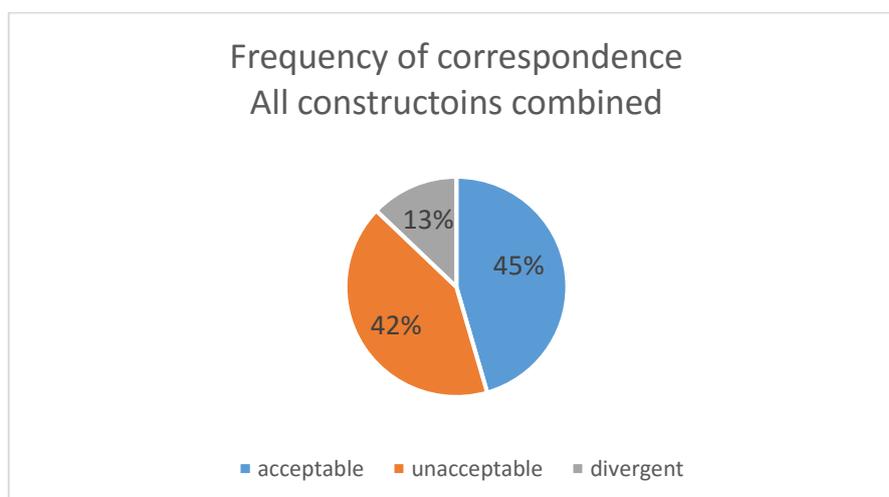


Chart 16: All constructions combined – Frequency of correspondence of individual evaluations.

All constructions combined	Evaluation 1	Evaluation 2	Correspondence	Frequency
Acceptable	78	84	Acceptable	71
Unacceptable	78	72	Unacceptable	65
Total	156	156	Divergent	20
			Total	156

Table 7: All constructions combined – Overall results of the evaluation.

It is necessary to point out that the above presented results of the bipolar consensual quantification are not in any way generally conclusive. On the contrary, in order to be able to draw more general conclusions a larger amount of textual segments to be evaluated, and primarily a considerably greater number of assessors to conduct the evaluations would be required. Even though the research attempted to eliminate the degree of subjectivity as much as possible, in this respect, it was not completely successful. Admittedly, the 20 segments that were consensually not agreed upon their classification, being expressed by the 13% of all selected constructions, signal a certain degree of subjectivity on the part of assessors' evaluation. Nevertheless, for the results to be of a higher interpretative value, more objective criteria for evaluation would be required to be applied. Taking into account this subjectivity factor, on the other hand, it is possible to say that, with some limitations, the above presented quantification expresses the rate towards which the MT IS of the selected syntactic constructions may be regarded to be acceptable and unacceptable within this text, being expressed proportionally by 45% and 42% respectively. Instead of drawing general conclusions, the research attempts to indicate ways and methods that might be utilized for such an inquiry. Presumably, the findings would differ based on a specific language pair and the character of typology of the language systems. In addition, examining the data available applying quantitative methodologies might also bring interesting points expressing the current state of the art of the MT system with respect to the way it machine-translates information and its structure.

### 6.3. Part Three – Experiment Findings

The third part of the research presenting the empirical experiment findings attempts to quantify the extent to which translators might be influenced by the grammatical structure of the ST, which may in case of some syntactic structures coincide with their IS, as suggested by integrated MT. The research group represented by students of translation, in this case, was assigned to translate the text which was selected based on the above specified methodology (see Chapter 5.4). The experiment text is presented in Appendix III. Accordingly, the translation was conducted, altogether, by 16 individuals using the Memsources Cloud translation software. With the ST containing 20 segments, the overall number of translated units available for the purposes of the quantification is 320. All of these segments were evaluated with respect to the criteria as defined within Chapter 5.4.4. Similarly to the previous two parts of the research, the results are presented separately for each type of the selected syntactic constructions, as well as the overall findings are presented in order to provide a more complex point of view. It is necessary to emphasize, that the evaluative criteria do not reflect whether the translation is right or wrong. This would be an issue of a qualitative research, which presumably cannot be simply evaluated based on binary opposition. The following results are arranged in tables along with charts and diagrams. All bilingual translation files are to be found on the enclosed CD-ROM.<sup>7</sup>

In the ST, there were 6 segments containing there-constructions. Taking into account all the 16 translation products, it is altogether 96 segments to be further examined and quantified. Out of these 96 segments, the translations were evaluated as influenced by the MT in case of 25 of them. The remaining 71 segments were restructured and thus assessed as not being influenced by the MT. The proportional representation is illustrated in Chart 17 below. Furthermore, the evaluations of individual occurrences of there-constructions within individual translation products are presented in Table 8.

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<sup>7</sup> Also available at <https://goo.gl/f14Jmo>

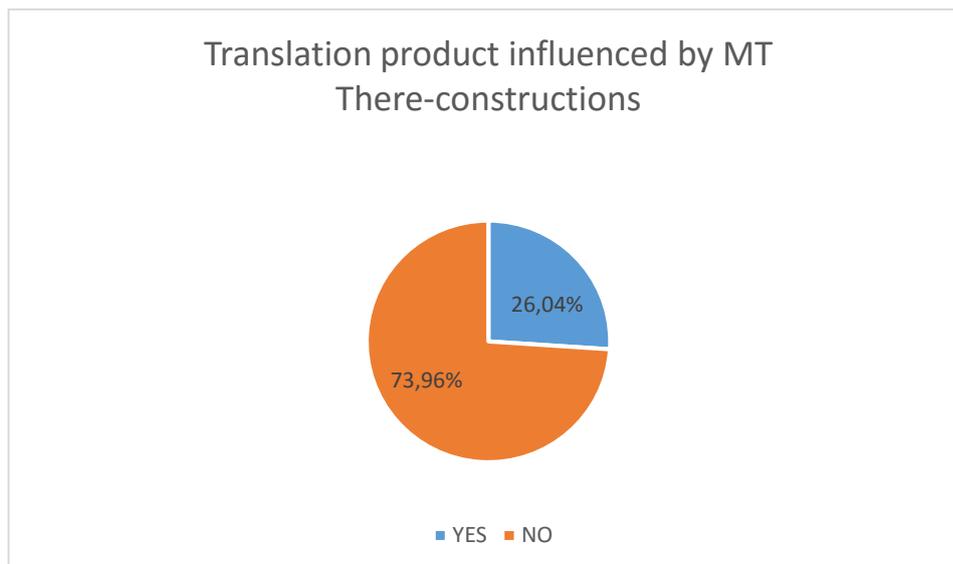


Chart 17: There-constructions – Evaluation of the influence of MT on translation product.

There-constructions																
Segment no.	Student no.															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
6	Y	N	Y	N	N	N	N	N	N	Y	N	Y	N	Y	Y	N
7	N	N	Y	N	N	N	N	N	N	N	N	Y	N	N	N	N
11	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N
15	Y	N	Y	N	N	Y	N	Y	N	Y	N	Y	N	Y	Y	N
17	N	Y	Y	N	N	N	N	N	N	N	Y	Y	N	N	N	N
19	N	N	Y	N	N	N	N	Y	Y	N	Y	N	N	N	N	N
Total Y					25					Yes as %					26.04	
Total N					71					No as %					73.96	

Table 8: There-constructions – Evaluation matrix.

Based on the above provided quantification, with there-constructions, the translators seemed to be influenced by the MT in more than a quarter of cases, particularly 26.04%. On the other hand, they did not follow the ST grammatical structure, which was automatically suggested by the MT in translation of almost 74% of segments.

Similarly were quantified also translations of pseudo/cleft-constructions. Based on the proportional distribution, the ST contained 4 segments with pseudo/cleft-constructions. Therefore, overall there were 64 occurrences to be quantified with respect to the influence of MT on the translation product. Out of these 64 segment, 18 were assessed as influenced by the MT fully coping the ST structure, while the remaining 46 segments were evaluated as not being influenced by the output automatically suggested by the MT system. These numbers are

expressed as a percentage in the following Chart 18. The evaluation matrix is further presented in Table 9.

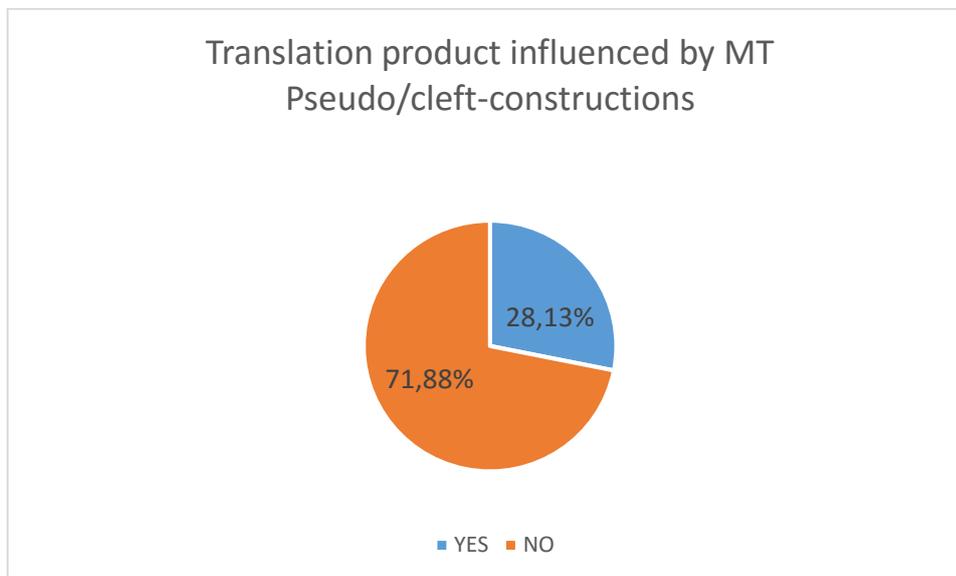


Chart 18: Pseudo/cleft-constructions – Evaluation of the influence of MT on translation product.

Pseudo/cleft-constructions																
Segment no.	Student no.															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
4	N	N	N	N	Y	N	N	N	N	Y	N	Y	N	N	N	N
13	N	Y	Y	N	Y	N	N	N	N	N	Y	N	N	N	N	Y
14	Y	N	Y	N	N	Y	Y	N	N	Y	N	N	N	N	Y	N
18	N	Y	N	N	N	N	N	N	N	N	Y	Y	N	N	N	Y
Total Y					18			Yes as %					28.13			
Total N					46			No as %					71.88			

Table 9: Pseudo/cleft-constructions – Evaluation matrix.

In a similar way as with there-constructions, what results from the above introduced quantitative data regarding the 64 segments containing pseudo/cleft-constructions is that the ST structure was changed in 71.88%. On the contrary, as arises from the hereinbefore evaluation matrix, the translators fully followed the MT when dealing with these special syntactic constructions in 28.13% of cases.

The last category to be assessed with respect to the above introduced criteria are passive voice constructions. Overall, there are 10 segments containing a passive construction in the ST, which results in 160 passive segments to be evaluated in relation to the quantification. In this respect, 40 segments were assessed to be

influenced by the ST MT, while in case of the other 120 segments, the translations were, in some way, restructured changing the grammatical voice in the TT. Expressed as a percentage, these are represented by 25% and 75% respectively, as illustrated in Chart 19. In addition, the assessments of individual occurrences of passive voice constructions within individual translations are presented in Table 10.

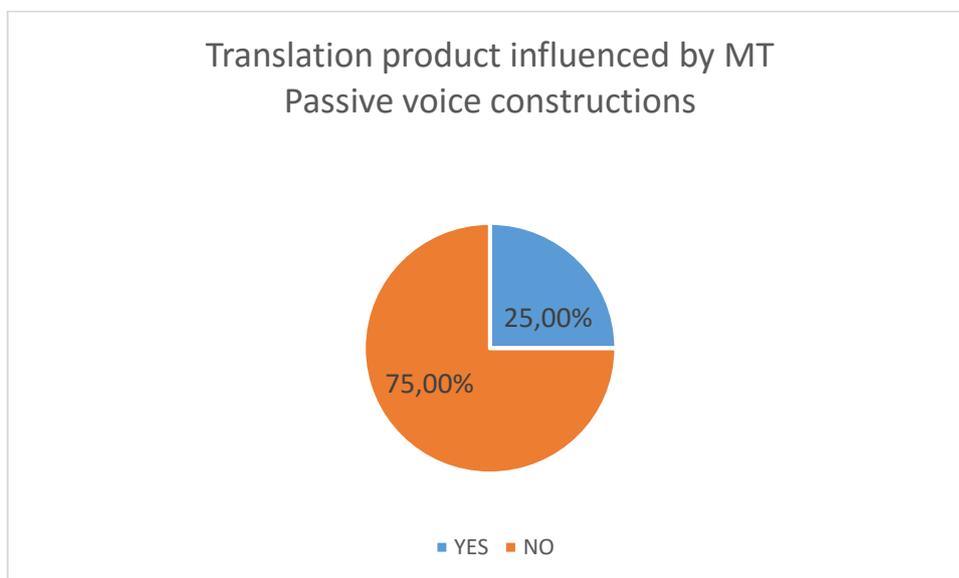


Chart 19: Passive voice constructions – Evaluation of the influence of MT on translation product.

Passive voice constructions																
Segment no.	Student no.															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	N	N	Y	N	N	Y	N	N	N	N	N	N	N	N	N	N
2	N	N	Y	N	N	N	N	N	N	N	Y	N	Y	N	N	Y
3	N	N	Y	N	N	Y	Y	Y	N	N	N	Y	N	N	N	N
5	N	Y	Y	N	N	N	N	N	N	N	Y	Y	Y	N	Y	Y
8	Y	N	N	N	N	N	N	N	N	N	Y	N	Y	N	N	N
9	N	N	N	N	N	Y	Y	N	N	N	N	Y	N	N	N	N
10	N	N	N	N	Y	Y	Y	Y	N	Y	N	Y	N	Y	N	Y
12	N	N	N	N	N	N	N	N	N	N	Y	N	Y	N	N	N
16	Y	Y	N	N	N	N	N	Y	N	Y	N	N	N	N	N	Y
20	N	N	N	N	N	N	N	Y	N	N	N	N	N	N	N	N
Total Y						40			Yes as %				25.00			
Total N						120			No as %				75.00			

Table 10: Passive voice constructions – Evaluation matrix.

Interestingly, the proportional rates expressing the extent towards which the translators might have been influenced by the integrated MT, with all individual syntactic constructions, seems to be relatively similar, being represented by, approximately, a quarter of cases. The following evaluation matrix, illustrated in

Table 11, presents the overall results of all of the selected syntactic structures combined.

Construction	passive	passive	passive	pseudo/cleft	passive	there	there	passive	passive	passive	there	passive	pseudo/cleft	pseudo/cleft	there	passive	there	pseudo/cleft	there	passive						
	Segment no.																									
Student no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20						
1	N	N	N	N	N	Y	N	Y	N	N	N	N	N	Y	Y	Y	N	N	N	N						
2	N	N	N	N	Y	N	N	N	N	N	N	N	Y	N	N	Y	Y	Y	N	N						
3	Y	Y	Y	N	Y	Y	Y	N	N	N	Y	N	Y	Y	Y	N	Y	N	Y	N						
4	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N						
5	N	N	N	Y	N	N	N	N	N	Y	N	N	Y	N	N	N	N	N	N	N						
6	Y	N	Y	N	N	N	N	N	Y	Y	N	N	N	Y	Y	N	N	N	N	N						
7	N	N	Y	N	N	N	N	N	Y	Y	N	N	N	Y	N	N	N	N	N	N						
8	N	N	Y	N	N	N	N	N	N	Y	N	N	N	N	Y	Y	N	N	Y	Y						
9	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N						
10	N	N	N	Y	N	Y	N	N	N	Y	N	N	N	Y	Y	Y	N	N	N	N						
11	N	Y	N	N	Y	N	N	Y	N	N	N	Y	Y	N	N	N	Y	Y	Y	N						
12	N	N	Y	Y	Y	Y	Y	N	Y	Y	N	N	N	N	Y	N	Y	Y	N	N						
13	N	Y	N	N	Y	N	N	Y	N	N	N	Y	N	N	N	N	N	N	N	N						
14	N	N	N	N	N	Y	N	N	N	Y	N	N	N	N	Y	N	N	N	N	N						
15	N	N	N	N	Y	Y	N	N	N	N	N	N	N	Y	Y	N	N	N	N	N						
16	N	Y	N	N	Y	N	N	N	N	Y	N	N	Y	N	N	Y	N	Y	N	N						
Total Y	83		Yes as %				25.94				Total N				237				No as %				74.06			

Table 11: All constructions combined – Evaluation matrix.

What results from the above presented evaluation matrix is that approximately 26% of translated segment were evaluated as influenced by the suggested MT. On the other hand, in case of more than 74% of segments, the translations were assessed as not to be influenced by the MT output. Though, the presented results need to interpreted cautiously. Even though the research group was formed by students of translation, naturally, their linguistic and translation competences differ. The dissimilar quality of the translation products, with respect to the extent to which they might have been influenced by MT, can be demonstrated on two marginal outputs. Whereas the student no. 4 completely eliminated the influence of the MT, in some cases, as with the translation conducted by student no. 12, the rate of the MT influence was determined as high as 50%. The individual evaluations of these two translation products are shown in Tables 12 and 13 respectively.

Student04																				
Segment no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Copying ST/MT?	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Total Y	0		Yes as %				0%		Total N					20		No as %			100%	

Table 12: The lowest rate of MT influence.

Student12																				
Segment no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Copying ST/MT?	N	N	Y	Y	Y	Y	Y	N	Y	Y	N	N	N	N	Y	N	Y	Y	N	N
Total Y	10		Yes as %				50%		Total N					10		No as %			50%	

Table 13: The highest rate of MT influence.

The divergent quality of the translations might be perceived as a subjective factor that has an impact on the conclusive value of the results. In other words, examining a different research group might result in, more or less, different quantitative data. In addition, the MT influence rate with majority of translations was approximately about 25%. To what extent this number is relevant is a matter of interpretation. What is interesting, though, is the similarity of the rates with all individual types of syntactic structures. These might be, at least partially in relation to the examined text and research group, conclusive indicating that the students were presumably influenced by the suggested MT in about a quarter of cases. With there- constructions, different kinds of adverbials with inherently lower degree of CD could be the primary issue. On the other hand, in case of pseudo/cleft constructions, it was the inability of the MT system to change the ST grammatical structure, which might have influenced the experiment participants. Particularly, the translations of the segments containing pseudo/cleft-constructions proved to be influenced by the suggested MT output the most, in 28.13% of cases. Another interesting point arises from the results related to passive constructions. Presumably, what could have been expected is that the influence rate with passives would be considerably higher. However, in 120 segments, thus 75% of cases, the translators decided to change the grammatical voice from passive in English to active in Czech. This number may indicate that, based on their previously encountered experience with MT, the students, in some cases, might be aware of the limitations of utilization of MT that need to be paid close attention to during the translation process.

## 7. CONCLUSION

The above presented thesis emphasizes the contemporary prominence of machine translation in the sphere of commercial non-literary translation, as well as it presents the complexity of its utilization with respect to some linguistic features, sentence information structure in particular. This notion is of high importance especially when working with different language typologies, as in case of Czech and English. Based on the theoretical background, we attempted to establish a direct connection between these two concepts and to transfer this interconnection into practice by means of application of quantitative methodological approaches, which would result in providing quantitative data. With selected syntactic structures, i.e. there-constructions, pseudo/cleft-construction and passive voice constructions, we focused on the way the Google Translate machine translation system tends to copy the grammatical structure of the source text. Examining this feature, the method of comparative analysis of the source text and its machine translation was applied. Further, we tried to quantify the acceptability of the machine translation output with respect to information structure by employing the method of bipolar consensual quantification. Last but not least, based on the findings related to the two presented issues, we attempted to determine the extent to which translators may be influenced by the integration of machine translation into their working process utilizing the method of comparative evaluation of the translation products. The presented results are based on the examination of 156 textual segments extracted from an extensive non-literary text and translations of a text created for the purposes of the experiment.

With respect to the notion of machine translation copying the source text grammatical structure, with the examined text it was determined that the Google Translate system does fully copy the source text in 76% of cases. Only 24% of the segments were translated with minor or major changes to the original structure. Additionally, only in 18 segments the changes had a direct impact on the way information structure is translated. These numbers prove the fact that the machine translation system, in the current state of the art, still has certain limitations. As far as the acceptability of the machine translation output with respect to information structure is concerned, based on consensual agreement by two assessors, 45% of segments were concluded to be acceptable, 42% were assessed as unacceptable and

in 13% of cases consensual agreement was not reached. Though, these results are of a deficient value, since immediately relevant context was not taken into consideration. In connection to the attempts to determine the extent towards which translators might be influenced by automatic suggestions made by the machine translation system, based on the data from the evaluation matrix, out of all 320 segments being examined, approximately 26% of the translations were determined to be influenced by the machine translation, while translations of 74% of segments were not.

It is necessary to point out that these data are not, in any way, generally conclusive and that selecting a different text, research group or evaluative criteria might result in obtaining dissimilar results. Instead, the research tries to outline implementation of some methods that might be utilized in this area, in which still not much empirical research has been conducted so far. Even though the research attempted to eliminate any potential subjectivity criteria, some subjective factors were still present, as in case of the bipolar consensual quantification. In this respect, for the results to have a greater value, an extensive amount of evaluations to be compared would be required. Also, what should be taken into consideration in greater detail is the contextual factor. Nevertheless, since Google Translate is a continuously and dynamically developing system, it might be interesting to observe the machine translation output from a long-term perspective and to compare the results with the hereinbefore presented findings. What might also be worth conducting, in connection to these two concepts, is a qualitative research, which could result in presenting other interesting data.

Apart from presenting the significance of utilization of integrated machine translation in the translation process, the thesis also points out some of its limitations. Perhaps it will take a while before computers and other information technologies will be able to utterly replace human translators in the process of interlingual communication. Machine translation is a powerful tool, which enables its users to greatly facilitate their work. If it has not already happened, the integration of machine translation, and thus postediting, into the workflow shall become the norm in the translation industry. Nonetheless, the users need to be aware of its limits.

## RESUMÉ

Tato diplomová práce se zabývá integrací strojového překladu do pracovního procesu moderního překladatele a jejím vlivem na informační strukturu věty. Strojový překlad představuje široce diskutované téma v oblasti komerčních překladů neliterárních textů. Tento koncept poskytuje překladateli možnosti, jak zrychlit a zefektivnit celý pracovní proces. Přesto zde však existují určité limity, na které je třeba při využití tohoto nástroje brát ohled. Mezi jeden z těchto prvků lze zařadit také ne/schopnost moderních systémů správně převádět informační strukturu věty.

Teoretická část práce podrobně prezentuje vývoj strojového překladu od samotného vzniku této myšlenky, až po v současnosti využívané komerční systémy. Dále poskytuje detailní informace týkající se lingvistického konceptu informační struktury. V této části je vycházeno především z české lingvistické tradice a základů vyplývajících z práce Pražského lingvistického kroužku v první polovině 20. století, na které v dalších letech navázal především Jan Firbas. Kromě českých přístupů práce shrnuje také ostatní přístupy k této problematice vycházející především ze západní tradice. Samostatná kapitola je věnovaná také vzájemnému propojení konceptů strojového překladu a informační struktury a aplikaci teoretických poznatků v praxi.

Metodologická část práce detailně popisuje přístupy uplatňované v rámci empirického výzkumu, který se zabývá vlivem strojového překladu na překladatelský produkt z hlediska informační struktury. Praktická část pracuje se třemi hlavními výzkumnými otázkami, které jsou následně kvantifikovány. Konkrétně se jedná o tendenci strojového překladu kopírovat gramatickou strukturu výchozího textu. Dále se práce pokouší kvantifikovat akceptovatelnost výstupu strojového překladu z hlediska informační struktury a také definovat rozsah vlivu strojového překladu na výsledný překladatelský produkt právě z hlediska větné informační struktury.

Závěrečná část práce je věnována prezentaci výsledků, ke kterým bylo dospěno na základě rozsáhlého výzkumu a následného experimentu. Kromě samotných výsledků práce explicitně odhaluje nedostatky kvantitativního výzkumu a poskytuje možné přístupy, které lze aplikovat v rámci budoucího bádání.

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# ABSTRACT

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<b>Studijní obor:</b>	Angličtina se zaměřením na tlumočení a překlad
<b>Katedra:</b>	Katedra anglistiky a amerikanistiky FF UPOL
<b>Název česky:</b>	Vliv integrovaného strojového překladu na překladatelský produkt z hlediska informační struktury věty
<b>Název anglicky:</b>	The Effect of Integrated Machine Translation on the Translation Product in Terms of Sentence Information Structure
<b>Vedoucí práce:</b>	PhDr. Pavel Král
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<b>Počet referencí:</b>	53
<b>Klíčová slova v ČJ:</b>	Strojový překlad, statistický strojový překlad, Google Translate, informační struktura, funkční větná perspektiva, komunikační dynamismu
<b>Klíčová slova v AJ:</b>	Machine Translation, Statistic Machine Translation, Google Translate, Information Structure, Functional Sentence Perspective, Communicative Dynamism
<b>Anotace v ČJ:</b>	Tato diplomová práce se zabývá vlivem strojového překladu na překladatelský produkt z hlediska informační struktury. Práce se snaží poukázat na určité limity, které mohou vyplývat z integrace strojového překladu do překladatelského procesu, a dává si za cíl naznačit možné přístupy ke kvantitativnímu výzkumu v této oblasti. Teoretický rámec podrobně představuje a propojuje oba koncepty. V rámci informační struktury je vycházeno především z české lingvistické tradice.

Metodologická část práce explicitně popisuje metody a nástroje využívané v rámci empirického výzkumu. Závěrečná část pak předkládá výsledky samotného výzkumu.

**Anotace v AJ:**

This diploma thesis focuses on the effect of machine translation on the translation product in terms of information structure. The thesis attempts to point out certain limitations that arise from the integration of machine translation into the translation process, and further, it aims at indicating possible approaches to quantitative research in this domain of inquiry. The theoretical framework in a great detail presents and interconnects both of the concepts. The chapter on information structure is largely based on the Czech linguistic traditions. The methodological part explicitly describes the methods and tools used within the research. Consequently, the final part presents the results of the research.

# **APPENDICES**

- I      The List of Extracted Segments and their Machine Translations
- II     Assessments of Information Structure Acceptability
- III    The Experiment Text

**APPENDIX I: THE LIST OF EXTRACTED SEGMENTS AND THEIR MACHINE TRANSLATIONS**

No.	Full text search keyword	ST_eng	MT_cs	Copying WO?
1	There	But there are hundreds of thousands of psychologists in the world, and most of them work in other places, doing work that you are probably not aware of.	Ale existují stovky tisíc psychologů na světě, a většina z nich pracuje na jiných místech, dělat práci, kterou jste pravděpodobně nejsou vědomi.	YES
2	There	There were more than 21,000 homicides in the United States in 2009.	Tam bylo více než 21.000 vražd ve Spojených státech v roce 2009.	YES
3	There	There were more than 30,000 deaths caused by handguns in the United States in 2009.	Tam bylo více než 30.000 úmrtí způsobené ručních zbraní ve Spojených státech v roce 2009.	YES
4	There	Psychologists have found that there is a fundamental difference in social norms between Western cultures (including those in the United States, Canada, Western Europe, Australia, and New Zealand) and East Asian cultures (including those in China, Japan, Taiwan, Korea, India, and Southeast Asia).	Psychologové zjistili, že existuje zásadní rozdíl ve společenských norem mezi západních kulturách (včetně těch ve Spojených státech amerických, Kanadě, západní Evropě, Austrálii a na Novém Zélandu) a východoasijských kulturách (včetně těch v Číně, Japonsku, Tchaj-wan, Korea, Indie a jihovýchodní Asie).	YES
5	There	There are a variety of available career choices within psychology that provide employment in many different areas of interest.	Existuje celá řada dostupných možností kariéry v psychologii, které poskytují zaměstnání v mnoha různých oblastech zájmu.	NO
6	There	There are well-known laws in the physical sciences, such as the law of gravity and the laws of thermodynamics, and there are some universally accepted laws in psychology, such as the law of effect and Weber's law.	Tam jsou dobře známé zákony v přírodních vědách, jako je například zákon gravitace a zákonů termodynamiky, a tam jsou některé všeobecně přijímané zákony v psychologii, jako je zákon o účinku a Weberova zákona.	YES
7	There	There are three major research designs used by psychologists, and each has its own advantages and disadvantages.	Existují tři hlavní výzkumné vzory používané psychology, a každá z nich má své výhody i nevýhody.	YES
8	There	This occurs when there are one or more extreme scores (known as outliers) at one end of the distribution.	K tomu dochází, když existuje jeden nebo více extrémní skóre (známé jako odlehle hodnoty) na jednom konci rozdělení.	YES
9	There	When there are two variables in the research design, one of them is called the predictor variable and the other the outcome variable.	V případě, že jsou dvě proměnné v designu výzkumu, jeden z nich je nazýván prognostická proměnná a druhý výsledek variabilní.	NO
10	There	In this case there is no relationship at all between the two variables, and they are said to be independent.	V tomto případě neexistuje žádný vztah vůbec mezi těmito dvěma proměnnými, a oni jsou řekl, aby byl nezávislý.	YES
11	There	Hence, there is likely a real relationship between or among the variables in the research design.	Proto je pravděpodobné, že skutečný vztah mezi a mezi proměnnými ve výzkumném designu.	YES
12	There	In reality there were no differences among the rats given to the two groups of students.	Ve skutečnosti nebyly žádné rozdíly mezi krysami daných dvou skupin studentů.	YES

13	There	There are both advantages and disadvantages to being left-handed in a world where most people are right-handed.	Tam jsou výhody i nevýhody jsou leváci ve světě, kde většina lidí jsou praváci.	YES
14	There	Research using these techniques has found, for instance, that there are specific neurons, known as feature detectors, in the visual cortex that detect movement, lines and edges, and even faces.	Výzkum pomocí těchto technik zjistil, například, že existují specifické neurony, známý jako hraných detektory, v zrakové kůře, které detekují pohyb, linie a hrany, a dokonce i tváře.	YES
15	There	It seems that although conscious reports of the visual experiences are not possible, there is still a parallel and implicit process at work, enabling people to perceive certain aspects of the stimuli.	Zdá se, že i když vědomé zprávy vizuálních zážitků nejsou možné, stále existuje paralelní a implicitní proces při práci, umožňuje lidem vnímat některé aspekty podněty.	NO
16	There	There are about 120 million rods in each eye.	Tam je asi 120 milionů tyče v každém oku.	YES
17	There	Because there are no photoreceptor cells at the place where the optic nerve leaves the retina, a hole or blind spot in our vision is created.	Protože nejsou k dispozici žádné fotoreceptor buňky v místě, kde zrakový nerv opouští sítnici, díry nebo slepé místo v naší vizi je vytvořen.	YES
18	There	Most taste buds are located in the top outer edges of the tongue, but there are also receptors at the back of the tongue as well as on the walls of the mouth and at the back of the throat.	Většina chuťové pohárky se nachází v horních vnějších okrajů jazyka, ale jsou zde i receptory v zadní části jazyka, jakož i na stěnách úst a na zadní straně krku.	YES
19	There	There are more than 1,000 types of odor receptor cells in the olfactory membrane.	Existuje více než 1000 typů receptorů buněk pachových v čichovém membráně.	NO
20	There	The McGurk effect is an error in sound perception that occurs when there is a mismatch between the senses of hearing and seeing.	McGurk efekt je chyba ve vnímání zvuku, ke kterému dochází, pokud existuje nesoulad mezi smysly sluchu a vidění.	YES
21	There	More of the controls are color-coded and multifunctional so that there is less clutter on the dashboard.	Další ovládací prvky jsou barevně odlišeny a multifunkční, takže tam je méně nepořádek na přístrojové desce.	YES
22	There	There are also individual differences in need for sleep.	Tam jsou také individuální rozdíly v potřebě spánku.	YES
23	There	On the other hand, there are at least some cultural differences in the effectiveness of different parenting styles.	Na druhé straně, existují alespoň některé kulturní rozdíly v účinnosti různých rodičovských stylů.	YES
24	There	For me there was no safe place in the world, not even my home.	Pro mě nebylo bezpečné místo na světě, dokonce ani můj domov.	YES
25	There	Although reinforcement can be effective in education, and teachers make use of it by awarding gold stars, good grades, and praise, there are also substantial limitations to using reward to improve learning.	Přestože výtuz může být efektivní v oblasti vzdělávání a učitelé využít ji udělením zlaté hvězdy, dobré známky, a chválu, existují také podstatné omezení používání odměnu vedoucích ke zlepšení učení.	YES
26	There	Imagine, for instance, that I asked you to indicate whether there are more words in the English language that begin with the letter "R" or that have the letter "R" as the third letter.	Představte si například, že bych vás požádal, abyste uvést, zda existují další slova v anglickém jazyce, který začíná písmenem "R" nebo které mají písmeno "R" jako třetí dopis.	NO

27	There	Although there is general agreement among psychologists that g exists, there is also evidence for specific intelligence (s), a measure of specific skills in narrow domains.	Ačkoli panuje všeobecná shoda mezi psychology, že existuje g, tam je také důkaz pro specifickou inteligenci (y), kterým se měří specifických dovedností v úzkých domén.	NO
28	There	There are many explanations for the Flynn effect, including better nutrition, increased access to information, and more familiarity with multiple-choice tests.	Existuje mnoho vysvětlení pro efekt Flynn, včetně lepší výživy, lepší přístup k informacím a větší obeznámenost s mnohočetným výběrem testy.	NO
29	There	There is a lively debate among scholars about whether it is appropriate or beneficial to label some children as "gifted and talented" in school and to provide them with accelerated special classes and other programs that are not available to everyone.	Tam je živá diskuse mezi učenice o tom, zda je vhodné nebo prospěšné označovat některé děti jako "nadaný a talented" ve škole a aby jim poskytly urychlenými speciálních tříd a dalších programů, které nejsou dostupné pro každého.	NO
30	There	There are also observed sex differences on some particular types of tasks.	Existují také pozorovány pohlavní rozdíly na některé konkrétní typy úloh.	YES
31	There	On the math part of the Scholastic Assessment Test (SAT), boys with scores of 700 or above outnumber girls by more than 10 to 1, but there are also more boys in the lowest end of the distribution as well.	Na matematické části testu Scholastic Assessment (SAT), chlapci se skóre 700 nebo vyšší převažují dívky o více než 10: 1, ale tam jsou také více chlapců v nejnižším konci rozdělení stejně.	NO
32	There	There are two emotional pathways in the brain (one slow and one fast), both of which are controlled by the thalamus.	K dispozici jsou dva emoční dráhy v mozku (jeden pomalé a rychlé jeden), z nichž oba jsou ovládány thalamu.	NO
33	There	Despite tremendous economic growth in France, Japan, and the United States between 1946 to 1990, there was no increase in reports of well-being by the citizens of these countries.	Navzdory obrovskému hospodářskému růstu ve Francii, Japonsku a Spojených státech v letech 1946 až 1990 došlo ve zprávách o blaho ze strany občanů těchto zemí bez navýšení.	NO
34	There	Twin studies also support the idea that there is a genetic component to sexual orientation.	Twin studie rovněž podporují myšlenku, že existuje genetická složka se sexuální orientací.	YES
35	There	There is also little scientific support for most of the Freudian defense mechanisms.	K dispozici je také malá vědecká podpora pro většinu z freudovské obranných mechanismů.	YES
36	There	Although a medical doctor can see cancer in the lungs using an MRI scan or see blocked arteries in the heart using cardiac catheterization, there is no corresponding test for psychological disorder.	I když lékař může vidět rakoviny plic s použitím MRI nebo zobrazit blokování tepny v srdci pomocí srdeční katetrizace, neexistuje odpovídající test psychické poruchy.	YES
37	There	Clearly there is something wrong with their child, but even the experts cannot agree on exactly what the problem is.	Je zřejmé, že je něco v nepořádku s jejich dítětem děje, ale i odborníci nemohou shodnout na tom, co přesně je problém.	NO
38	There	Cognitive-Behavior Therapy is based on the idea that there is a recursive link among our thoughts, our feelings, and our behavior.	Kognitivně-behaviorální terapie je založen na myšlence, že existuje rekurzivní odkaz mezi naše myšlenky, naše pocity a naše chování.	YES
39	There	There are a variety of explanations for the occurrence of altruism.	Existuje celá řada vysvětlení výskytu altruismu.	YES
40	There	In addition to differences across cultures, there are also regional differences in the incidence of violence in different parts of the United States.	Kromě rozdílů v různých kulturách, jsou také regionální rozdíly ve výskytu násilí v různých částech Spojených států.	YES

41	There	The men were told that there would be 18 trials during the experiment, and on each trial they would see two cards.	Muži bylo sděleno, že by 18 pokusů během experimentu a na každé zkoušce se uvidí dvě karty.	YES
42	There	They found that there was significantly less graffiti in the second group of restrooms than in the first one.	Zjistili, že tam bylo významně méně graffiti ve druhé skupině toalety, než v první.	YES
43	It is	It is only by reading the original reports that you will really see how the research process works.	Je to jen tím, že čte původní zprávy, že vám bude opravdu vidět, jak výzkumný proces funguje.	YES
44	It is	Our brains are the most "plastic" when we are young children, as it is during this time that we learn the most about our environment.	Naše mozky jsou nejvíce "plast", když jsme malé děti, protože je v této době, že jsme nejvíce o našem životním prostředí učít.	NO
45	It is	Unlike light waves, which can travel in a vacuum, sound waves are carried within mediums such as air, water, or metal, and it is the changes in pressure associated with these mediums that the ear detects.	Na rozdíl od světelných vln, které se mohou pohybovat ve vakuu, zvukové vlny se provádí v médiích, jako je vzduch, voda, nebo kovu, a to je změny v tlaku, spojené s těmito médii, že ucho zjištěných.	YES
46	It is	It is for this reason that dogs (and people, too) tend to cock their heads when trying to pinpoint a sound, so that the ears receive slightly different signals.	Je to z toho důvodu, že psi a lidé (i) mají sklon kohout hlavy, když se snaží určit zvuk, takže uši dostávají mírně odlišné signály.	YES
47	It is	We also lose consciousness when we sleep, and it is with this altered state of consciousness that we begin our chapter.	Také jsme ztratit vědomí, když spíme, a to je s tímto změněného stavu vědomí, že začneme naši kapitolu.	YES
48	It is	It is defined by the direct physical interactions that babies have with the objects around them.	Je definován přímé fyzické interakce, že děti mají s objekty kolem nich.	YES
49	It is	It is through the remarkable increases in cognitive ability that children learn to interact with and understand their environments.	To je přes pozoruhodné zvýšení kognitivních schopností, které se děti učí komunikovat s a pochopit jejich prostředí.	YES
50	It is	Normally, it is the mother who provides early attachment, but fathers are not irrelevant.	Za normálních okolností je to matka, která zajišťuje včasné přílohu, ale otcové nejsou relevantní.	NO
51	It is	And it is during middle adulthood that many people first begin to suffer from ailments such as high cholesterol and high blood pressure as well as low bone density.	A to je ve středním dospělosti, že mnoho lidí nejprve začít s onemocněním, jako je vysoký cholesterol a vysoký krevní tlak, jakož i nízké hustoty kostí.	YES
52	It is	It is in early and middle adulthood that muscle strength, reaction time, cardiac output, and sensory abilities begin to decline.	Je v časný a střední dospělosti, že svalová síla, reakční doba, srdeční výdej a smyslové schopnosti začnou klesat.	YES
53	It is	It is this superior knowledge combined with a slower and more complete processing style, along with a more sophisticated understanding of the workings of the world around them, that gives the elderly the advantage of wisdom over the advantages of fluid intelligence—the ability to think and acquire information quickly and abstractly—which favor the young.	Je to lepší než znalosti v kombinaci s pomalejším a úplnější zpracování stylu, spolu s sofistikovanější pochopení toho, jak funguje svět kolem sebe, který dává starší lidé tu výhodu, že wisdom nad výhodami tekutiny zpravodajských schopností myslet a získávat informace rychle a abstraktně, které dávají přednost mladým.	YES

54	It is	In short, although psychological tests accurately measure intelligence, it is cultures that interpret the meanings of those tests and determine how people with differing levels of intelligence are treated.	Stručně řečeno, ačkoliv psychologické testy přesně změřit inteligenci, to je kultury, které interpretují význam těchto testů a zjistit, jak lidé s různou úrovní inteligence jsou ošetřeny.	YES
55	It is	It is at this point that the child first understands that words are more than sounds—they refer to particular objects and ideas.	To je v tomto bodě, že dítě první chápe, že slova jsou více než zvuky, které odkazují na konkrétní objekty a nápady.	YES
56	It is	Whether it is the thrill of a roller-coaster ride that elicits an unexpected scream, the flush of embarrassment that follows a public mistake, or the horror of a potential plane crash that creates an exceptionally brilliant response in a pilot, emotions move our actions.	Ať už je to vzrušení z prudkých výkyvech, které vyvolává nečekaný výkřik, splachovací rozpaků, který následuje po veřejné chybě, nebo hrůzu z možného zřícení letadla, který vytváří mimořádně brilantní odezvu u pilota, emoce přesunout naše činy.	YES
57	It is	Emotion regulation is particularly difficult when we are tired, depressed, or anxious, and it is under these conditions that we more easily let our emotions get the best of us.	Regulace Emotion je obzvláště obtížné, když jsme unavení, depresivní, nebo úzkosti, a to za těchto podmínek, že bychom snadněji nechat naše emoce dostat to nejlepší z nás.	NO
58	It is	Although the hormones are secreted by the ovaries and testes, it is the hypothalamus and the pituitary glands that control the process.	I když hormony jsou vylučovány vaječníky a varlata, je hypothalamu a hypofýzy, které řídí proces.	YES
59	It is	It is this unconditional giving and receiving of love that promotes the welfare of both partners and provides the secure base that allows both partners to thrive.	Je to bezpodmínečné dávání a přijímání lásky, která podporuje prospěch obou partnerů a zajišťuje bezpečnou základnu, která umožňuje oba partnery, aby se dařilo.	YES
60	It is	Rather it is the social situation, and not the people themselves, that is responsible for the behavior.	Spíše se jedná o sociální situaci, a ne samotné osoby, který je zodpovědný za chování.	NO
61	It is	When we look back on history, we find that it is the unusual, divergent, innovative minority groups or individuals, who—although frequently ridiculed at the time for their unusual ideas—end up being respected for producing positive changes.	Když se podíváme zpět na historii, zjistíme, že je to neobvyklé, odlišné, inovativní menšinové skupiny nebo jednotlivci, kteří, i když často zesměšňován v době jejich neobvyklé nápady-skončit respektovány pro výrobu pozitivní změny.	YES
62	It was	When participants were exposed to words related to the location of the square just before they stopped its movement, they became more likely to think that they controlled the motion, even when it was actually the computer that stopped it.	Když byly účastníci vystaveny slov týkajících se umístění náměstí těsně před tím, než se zastavil jeho pohyb, se staly více pravděpodobné, že si myslí, že řízený pohyb, i když to bylo vlastně počítač, který je zastaven.	NO
63	It was	This initial equivalence allowed them to observe differences in the white noise levels between the two groups after the experimental manipulation, leading to the conclusion that it was the independent variable (and not some other variable) that caused these differences.	Tento počáteční ekvivalence jim umožnilo pozorovat rozdíly v bílých hladinách hluku v obou skupinách po experimentální manipulaci, což vede k závěru, že nezávislá proměnná (a ne nějaké jiné proměnné), které způsobily tyto rozdíly.	NO
64	It was	Piaget found that it was not until about 8 months that the children realized that	Piaget zjistil, že to nebylo až do asi 8 měsíců, že děti si uvědomil, že objekt byl pouze krytá a nešlo.	YES

		the object was merely covered and not gone.		
65	It was	Köhler argued that it was this flash of insight, not the prior trial-and-error approaches, which were so important for conditioning theories, that allowed the animals to solve the problem.	Köhler tvrdil, že to byl tento záblesk pochopení, nikoliv přístupy předchozí pokus-omyl, který byl tak důležitý pro kondiční teorií, které umožnily zvířatům, aby tento problém vyřešit.	NO
66	It was	But it was not until after Mr. Cotton had served 11 years in prison for a crime he did not commit that conclusive DNA evidence indicated that Bobby Poole was the actual rapist, and Cotton was released from jail.	Ale to nebylo až poté, co pan Cotton sloužil 11 let ve vězení za zločin, který nespáchal, že nezvratný důkaz DNA naznačují, že Bobby Poole byl skutečný násilník a bavlno byl propuštěn z vězení.	YES
67	It was	Although Jennifer Thompson was positive that it was Ronald Cotton who had raped her, her memory was inaccurate.	Ačkoliv Jennifer Thompson byl pozitivní, že to byl Ronald Cotton, který ji znásilnil, její paměť byla nepřesná.	NO
68	It was	It was only at the age of 35 that the twins were reunited and discovered how similar they were to each other.	To bylo jen ve věku 35, že dvojčata byli smířeni a zjistil, jak podobné byly k sobě navzájem.	YES
69	It was	Social psychologists have discovered that it was the 38 people themselves that contributed to the tragedy, because people are less likely to notice, interpret, and respond to the needs of others when they are with others than they are when they are alone.	Sociální psychologové zjistili, že to bylo 38 samotní lidé, které přispěly k tragédii, protože lidé jsou méně pravděpodobné, že si všimnout, interpretovat a reagovat na potřeby druhých, když jsou s ostatními, než oni jsou, když jsou sami.	NO
70	What	What Adams did not know at the time was that her brain may have been undergoing the same changes that Ravel's had undergone 66 years earlier.	Co Adams nevěděl, v té době bylo, že její mozek může prošly stejné změny, které veselím podstoupili 66 let dříve.	YES
71	What	What sets humans apart from other animals is our larger cerebral cortex—the outer bark-like layer of our brain that allows us to so successfully use language, acquire complex skills, create tools, and live in social groups.	Co odlišuje člověka odlišuje od ostatních zvířat, je naše větší mozková kůra, vnější kůra-jako vrstva našeho mozku, která nám umožňuje tak úspěšně používat jazyk, získají komplexní dovednosti, vytvořit nástroje, a žijí v sociálních skupinách.	YES
72	What	A big part of what the adolescent is learning is social identity, the part of the self-concept that is derived from one's group memberships.	Velká část toho, co adolescent se učí je sociální identita, část sebepojetí, který je odvozen od něčích členství ve skupinách.	YES
73	What	What is perhaps common to all the disorders is the person's inability to accurately understand and be sensitive to the motives and needs of the people around them.	Co je možná společná pro všechny poruchy je schopnost člověka přesně rozumět a být citlivé na motivy a potřeby lidí kolem nich.	NO
74	What	What we need to do, then, is to recognize both the strengths and limitations of group performance and use whatever techniques we can to increase process gains and reduce process losses.	Co musíme udělat, pak je rozpoznat silné i omezení výkonu skupiny a použití jakéhokoliv techniky můžeme zvýšit proces zisky a snížit ztráty procesu.	NO
75	Were	Furthermore, the decisions were made unconsciously; the participants did not know why they chose the tea they chose.	Kromě toho, že rozhodnutí byla provedena nevědomě; účastníci nevěděli, proč si vybrali čaj si vybrali.	YES

76	Were	Austrian neurologist Sigmund Freud (1856–1939), who argued that many psychological disorders were caused by memories that we have repressed and thus remain outside our consciousness.	Rakouský neurolog Sigmund Freud (1856-1939), který argumentoval, že mnohé psychické poruchy byly způsobeny vzpomínky, které jsme potlačených a tak zůstávají mimo naše vědomí.	YES
77	Were	James and the other members of the functionalist school were influenced by Charles Darwin's (1809–1882) theory of natural selection, which proposed that the physical characteristics of animals and humans evolved because they were useful, or functional.	James a další členové funkcionalistické školy byly ovlivněny Charles Darwin (1809-1882) teorie přirozeného výběru, který navrhol, že fyzikální vlastnosti zvířat a lidech vyvinulo, protože byly užitečné, nebo funkční.	YES
78	Were	Freud's ideas were extended by other psychologists whom he influenced, including Carl Jung (1875–1961), Alfred Adler (1870–1937), Karen Horney (1855–1952), and Erik Erikson (1902–1994).	Freudovy myšlenky byly rozšířeny dalšími psychology, koho ovlivnil, včetně Carl Jung (1875-1961), Alfred Adler (1870-1937), Karen Horneyové (1855-1952), a Erik Erikson (1902 - 1994).	YES
79	Were	The participant is given a chance to have questions about the procedure answered, thus guaranteeing his or her free choice about participating.	Účastník dostane šanci na to, aby otázky týkající se postupu odpověděl tento zaručující svou svobodnou volbu o účasti.	YES
80	Were	Another well-known case study is Phineas Gage, a man whose thoughts and emotions were extensively studied by cognitive psychologists after a railroad spike was blasted through his skull in an accident.	Další známý případ studie je Phineas Gage, člověk, jehož myšlenky a emoce byly značně studoval poznávacími psychology po železnice bodec byl odstřelen přes lebce při nehodě.	YES
81	Were	If Adams and Ravel were both affected by the same disease, this could explain why they both became fascinated with the repetitive aspects of their arts, and it would present a remarkable example of the influence of our brains on behavior.	Pokud Adams a Ravel byli oba postiženi stejnou nemocí, mohlo by to vysvětlovat, proč oba stali se fascinovanými s opakovanými aspekty jejich umění, a to by znamenalo pozoruhodný příklad vlivu našich mozků na chování.	YES
82	Were	The participants were told that they would be playing a computer "Cyberball" game with two other players who were also in fMRI machines (the two opponents did not actually exist, and their responses were controlled by the computer).	Účastníci bylo řečeno, že budou hrát počítač "Cyberball" hru se dvěma dalšími hráči, kteří byli také v fMRI strojích (oba soupeři neměli skutečně existují, a jejich odpovědi byly řízeny počítačem).	YES
83	Were	In one relevant experiment, Karremans, Stroebe, and Claus had Dutch college students view a series of computer trials in which a string of letters such as BBBBbBBBB or BBBbBBBB were presented on the screen.	V jednom příslušném pokusu Karremans, Stroebe a Claus měl holandské vysokoškoláci mohli sérii počítačových studiích, v nichž řetězec písmen, jako BBBBbBBBB nebo BBBbBBBB byly prezentovány na obrazovce.	YES
84	Were	Rangel found that wines were rated more positively and caused greater brain activity in brain areas associated with pleasure when they were said to cost more than when they were said to cost less.	Rangel zjistil, že víno bylo hodnoceno pozitivně a způsobilo větší mozkovou aktivitu v mozkových oblastech spojených s potěšením, když oni byli řekl, aby stát více, než když byli řekl, aby stát méně.	YES
85	Were	Franz Anton Mesmer (1734–1815) was an Austrian doctor who believed that all living bodies were filled with magnetic energy.	Franz Anton Mesmer (1734-1815) byl rakouský lékař, který věřil, že všechny živé orgány byly naplněny magnetické energie.	YES

86	Were	In a recent meta-analysis, Gershoff found that although children who were spanked by their parents were more likely to immediately comply with the parents' demands, they were also more aggressive, showed less ability to control aggression, and had poorer mental health in the long term than children who were not spanked.	V nedávné meta-analýzy, Gershoff zjistilo, že ačkoliv děti, které byly nasekal jejich rodiče byli s větší pravděpodobností ihned postupovat v souladu s požadavky rodičů, oni byli také mnohem agresivnější, ukázal menší schopnost ovládat agresii, a měl horší duševní zdraví dlouhodobá než děti, které nebyly výprask.	NO
87	Were	The American psychologist Karl Lashley attempted to determine where memories were stored in the brain by teaching rats how to run mazes, and then lesioning different brain structures to see if they were still able to complete the maze.	Americký psycholog Karl Lashley pokusil určit, kde byly vzpomínky uloženy v mozku tím, že učil krysy, jak spustit bludiště, a pak lesioning odlišné mozkové struktury tak, aby zjistili, jestli jsou stále schopni dokončit bludiště.	NO
88	Were	They videotaped the athletes both as they learned that they had won a silver or a bronze medal and again as they were awarded the medal.	Oni nahrával sportovce a to jak se dozvěděli, že oni vyhráli stříbrnou nebo bronzovou medaili a opět tak, jak byly uděleny medaile.	YES
89	Were	And in another study, the researchers found that when Black students were asked to indicate their race before they took a math test (again activating the stereotype), they performed more poorly than they had on prior exams, whereas White students were not affected by first indicating their race.	A v jiné studii vědci zjistili, že když byli černí studenti požádáni, aby ukázat jejich rasu před tím, než si test z matematiky (znovu aktivovat stereotyp), oni hráli hůře než oni měli na předchozí zkoušky, zatímco bílá studenti nebyly ovlivněny tím, že nejprve s uvedením jejich rasu.	NO
90	Were	Similar results were found by Frank, Everett, Fedorenko, and Gibson, who showed that the Amazonian tribe known as the Pirahã, who have no linguistic method for expressing exact quantities (not even the number "one") were nevertheless able to perform matches with large numbers without problem.	Podobné výsledky byly nalezeny Frank, Everett, Fedorenko a Gibson, který ukázal, že amazonský kmen známý jako Pirahã, kteří nemají jazykovou způsob vyjadřování přesné množství (ani číslo "jedna") byly přesto schopny plnit utkání s velké množství bez problémů.	YES
91	Were	Psychoanalytic models of personality were complemented during the 1950s and 1960s by the theories of humanistic psychologists.	Psychoanalytické modely osobnosti byly realizovány v průběhu roku 1950 a 1960 teoriemi humanistických psychologů.	YES
92	Were	Scores on the IAT predicted suicide attempts in the next 6 months above all the other risk factors that were collected by the hospital staff, including past history of suicide attempts.	Skóre na IAT předpověděl, pokusy o sebevraždu v příštích 6 měsících nad všemi dalšími rizikovými faktory, které byly shromážděny podle nemocničním personálem, včetně minulé historii pokusů o sebevraždu.	YES
93	Was	Perhaps the school of psychology that is most familiar to the general public is the psychodynamic approach to understanding behavior, which was championed by Sigmund Freud (1856–1939) and his followers.	Možná, že škola psychologie, která je nejvíce známý pro širokou veřejnost je psychodynamic přístup k chování, porozumění, která byla bojoval Sigmund Freud (1856-1939) a jeho následovníků.	NO
94	Was	Watson was influenced in large part by the work of the Russian physiologist Ivan Pavlov (1849–1936), who had discovered that dogs would salivate at the sound of a tone that had previously been associated with the presentation of food.	Watson byl ovlivněn do značné míry dílem ruského fyziologa Ivan Pavlov (1849-1936), který objevil, že psi by sliněním na zvuk tónem, který byl předtím spojený s prezentací potravin.	YES

95	Was	The research showed that subjects overwhelmingly preferred glass "M" over glass "Q," and the researchers concluded that Pepsi was preferred to Coke.	Výzkum ukázal, že subjekty v dřívě většině přednost skleněné "M" přes skleněnou "Q" a vědci k závěru, že Pepsi byla dána přednost Coke.	YES
96	Was	In one experiment a rat was given the opportunity to electrically stimulate its own hypothalamus by pressing a pedal.	V jednom experimentu byla krysa dána možnost, aby elektricky stimulovat vlastní hypothalamus stisknutím pedálu.	NO
97	Was	Each of the participants was measured under three different conditions.	Každý z účastníků byla měřena při třech různých podmínkách.	YES
98	Was	The field of psychophysics was founded by the German psychologist Gustav Fechner (1801–1887), who was the first to study the relationship between the strength of a stimulus and a person's ability to detect the stimulus.	Pole psychophysics bylo založeno německým psychologem Gustav Fechner (1801-1887), který byl jako první studovat vztah mezi velikostí stimulu a schopnost jedince k detekci podnět.	YES
99	Was	Parks was examined by a team of sleep specialists, who found that the pattern of brain waves that occurred while he slept was very abnormal.	Parks byla zkoumána týmem spánku odborníků, kteří zjistili, že vzor mozkových vln, které se vyskytly, zatímco on spal bylo velmi neobvyklé.	YES
100	Was	In 1964, 17-year-old high school student Randy Gardner remained awake for 264 hours (11 days) in order to set a new Guinness World Record. At the request of his worried parents, he was monitored by a U.S. Navy psychiatrist, Lt. Cmdr. John J. Ross.	V roce 1964, 17-letý student střední školy Randy Gardner zůstal vzhůru za 264 hodin (11 dní) s cílem zavést nové Guinnessově knize rekordů. Na žádost jeho znepokojených rodičů, byl monitorován US Navy psychiatra, Lt. Cmdr. John J. Ross.	YES
101	Was	One approach to assessing identity development was proposed by James Marcia.	Jedním z přístupů k hodnocení vývoje identity byl navrhopán James Marcia.	YES
102	Was	My post-traumatic stress disorder (PTSD) was triggered by several traumas, most importantly a sexual attack at knifepoint that left me thinking I would die.	Můj posttraumatická stresová porucha (PTSD) byla vyvolána několika traumaty, což je nejdůležitější sexuálního útoku pod ostrím nože, který mě opustil přemýšlel bych zemřít.	NO
103	Was	Hardin noted that in many European towns there was at one time a centrally located pasture, known as the commons, which was shared by the inhabitants of the village to graze their livestock.	Hardin poznamenat, že v mnoha evropských městech tam byl najednou centrálně umístěný pastviny, známý jako sněmovně, která byla rozdělena mezi obyvateli obce pást svůj dobytek.	YES
104	Was	Classical conditioning was first studied by physiologist Ivan Pavlov.	Klasická klimatizace byla poprvé studována fyziolog Ivan Pavlov.	YES
105	Was	The cognitive school was influenced in large part by the development of the electronic computer, and although the differences between computers and the human mind are vast, cognitive psychologists have used the computer as a model for understanding the workings of the mind.	Kognitivní škola byla ovlivněna z velké části vývojem elektronického počítače, i když rozdíl mezi počítači a lidské mysli jsou obrovské, kognitivní psychologové používají počítač jako model pro pochopení fungování mysli.	XES
106	Was	In both cases, participants reported their confidence in each prediction, and accuracy was determined by the responses of the people themselves.	V obou případech se účastníci vykazují jejich důvěru v každém predikci a přesnost byla stanovena na základě odpovědí samotných lidí.	NO

107	Was	Simonton also found that among U.S. presidents, the ability to effectively lead was well predicted by ratings of the president's intelligence.	Simonton také zjistil, že u amerických prezidentů, schopnost účinně vést dobře předpověděl ratingu prezidentova inteligence.	YES
108	Was	Eugenics became immensely popular in the United States in the early 20th century and was supported by many prominent psychologists, including Sir Francis Galton.	Eugenika stala nesmírně populární ve Spojených státech na počátku 20. století a byl podporován mnoha významnými psychology, včetně sira Francis Galton.	YES
109	Was	Dozens of universities, including those in the Ivy League, offered courses in eugenics, and the topic was presented in most high school and college biology texts.	Desítky vysokých škol, včetně těch v Ivy League, nabízeny kurzy eugeniky, a toto téma byla prezentována ve většině střední a vysoké školy biologie textů.	YES
110	Was	Fortunately, the practice of sterilization was abandoned between the 1940s and the 1960s, although sterilization laws remained on the books in some states until the 1970s.	Naštěstí praxe sterilizace byla opuštěna mezi 1940 a 1960, ačkoli zákony sterilizace zůstal na knihách v některých státech až do 1970.	NO
111	Was	This idea was reinforced in research by Hakuta, Bialystok, and Wiley, who examined U.S. census records of language learning in millions of Chinese and Spanish speakers living in the United States.	Tato myšlenka byla posílena ve výzkumu Hakuta, Bialystoku, a Wiley, který zkoumal území USA sčítání lidu záznamy o studiu jazyků v milionech čínských a španělské reproduktory žijící ve Spojených státech.	YES
112	Was	This area was first localized in the 1860s by the French physician Paul Broca, who studied patients with lesions to various parts of the brain.	Tato oblast byla nejprve lokalizován v roce 1860 francouzským lékařem Paul Broca, kdo studoval u pacientů s lézemi do různých částí mozku.	YES
113	Was	One of the early efforts was made by Catherine and Keith Hayes, who raised a chimpanzee named Viki in their home along with their own children.	Jedním z prvních snah byl vyroben Catherine a Keith Hayes, který vznesl šimpanze s názvem Vicky ve svém domě spolu s jejich vlastními dětmi.	YES
114	Was	The most frequently cited example of this possibility was proposed by Benjamin Whorf (1897–1941), an American linguist who was particularly interested in Native American languages.	Nejčastěji citovaným příkladem této možnosti bylo navrženo Benjamin Whorf (1897-1941), americký lingvista, která byla obzvláště zájem o indiánských jazycích.	YES
115	Was	Elyse's childhood, also a happy one, was followed by college and then film school abroad.	Elyse dětství, také nějaký šťastný, byl následován vysokou školu a pak filmové škole v zahraničí.	YES
116	Was	Early theories assumed that personality was expressed in people's physical appearance.	Brzy teorie předpokládají, že osobnost byla vyjádřena ve fyzickém vzhledu lidí.	YES
117	Was	The trait approach to personality was pioneered by early psychologists, including Gordon Allport (1897–1967), Raymond Cattell (1905–1998), and Hans Eysenck (1916–1997).	Znak přístup k osobnosti byl propagován časnými psychology, včetně Gordon Allport (1897-1967), Raymond Cattell (1905-1998), a Hans Eysenck (1916 - 1997).	YES
118	Was	Freud and Charcot also found that during hypnosis the remembering of the trauma was often accompanied by an outpouring of emotion, known as catharsis, and that following the catharsis the patient's symptoms were frequently reduced in severity.	Freud a Charcot také zjištěno, že během hypnózy zapamatování traumatu byl často doprovázen výlevu emocí, známý jako katarzi, a to v návaznosti na katarzi symptomy pacienta byly často sníženy závažnosti.	YES

119	Was	In France, one of the key reformers was Philippe Pinel (1745–1826), who believed that mental illness was caused by a combination of physical and psychological stressors, exacerbated by inhumane conditions.	Ve Francii, jeden z hlavních reformátorů byl Philippe Pinel (1745-1826), který věřil, že duševní nemoc byla způsobena kombinací fyzických a psychických stresorů, obnovených nelidských podmínkách.	YES
120	Was	Here he was tested by a pediatric neurologist, a psychologist, and a child psychiatrist.	Zde byl testován dětského neurologa, psychologa a dětského psychiatra.	YES
121	Was	The most well-known mood stabilizer, lithium carbonate (or "lithium"), was approved by the FDA in the 1970s for treating both manic and depressive episodes, and it has proven very effective.	Nejvíce známý stabilizátor nálady, uhličitan lithný (nebo "lithium"), byl schválen FDA v roce 1970 pro léčení a manických depresivních epizod, a to se ukázal jako velmi účinný.	YES
122	Was	Until the middle of the 20th century, schizophrenia was inevitably accompanied by the presence of positive symptoms, including bizarre, disruptive, and potentially dangerous behavior.	Až do poloviny 20. století, schizofrenie byl nevyhnutelně spojeno s přítomností pozitivních symptomů, včetně bizarní, rušivý, a potenciálně nebezpečné chování.	YES
123	Was	The tendency to conform to those in authority, known as obedience, was demonstrated in a remarkable set of studies performed by Stanley Milgram.	Tendence, aby odpovídaly těm v orgánu, známý jako poslušnost, byla prokázána v pozoruhodném souboru studií provedených Stanley Milgram.	YES
124	Is	We have seen, for instance, that depression is caused by lower-level genetic factors, by medium-level personal factors, and by higher-level social and cultural factors.	Viděli jsme například, že deprese je způsobena genetickými faktory nižší úrovně, osobními faktory střední úrovně, a tím vyšší úrovně sociálních a kulturních faktorů.	NO
125	Is	Human judgment is sometimes compromised by inaccuracies in our thinking styles and by our motivations and emotions.	Lidský úsudek je někdy ohrožen nepřesností v našich stylech myšlení a naše motivace a emoce.	YES
126	Is	Many of the major theories of psychology, ranging from the Freudian psychodynamic theories to contemporary work in cognitive psychology, argue that much of our behavior is determined by variables that we are not aware of.	Mnoho z hlavních teorií psychologie, od freudovské psychodynamické teorií k současné práci v kognitivní psychologii, argumentovat, že velká část našeho chování je určena proměnnými, které si nejsme vědomi.	YES
127	Is	When an action is met with failure, on the other hand, we are less likely to perceive this outcome as the result of our free will, and we are more likely to blame the outcome on luck or our teacher.	Je-li akce setkala s neúspěchem, na druhou stranu, my jsme méně pravděpodobně, že vnímají tento výsledek jako výsledek naší svobodné vůle, a my jsme s větší pravděpodobností na vině výsledek na štěstí nebo naše učitele.	NO
128	Is	Science is always influenced by the technology that surrounds it, and psychology is no exception.	Věda je vždy ovlivněna technologií, která ji obklopuje, a psychologie není výjimkou.	YES
129	Is	Some research, such as the research conducted by the Nazis on prisoners during World War II, is perceived as immoral by almost everyone.	Některé výzkumy, jako je výzkum prováděný nacisty na vězňech během druhé světové války, je vnímáno jako nemorální téměř každý.	YES
130	Is	As with ethical decisions involving human participants, a set of basic principles has been developed that helps researchers make informed decisions	Stejně jako s etickými rozhodnutími zahrnujících lidské účastníky, sada základních principů byla vyvinuta, která pomáhá vědcům činit informovaná	YES

		about such research; a summary is shown below.	rozhodnutí o takový výzkum; souhrn je uveden níže.	
131	Is	An interesting example of a case study in clinical psychology is described by Rokeach, who investigated in detail the beliefs and interactions among three patients with schizophrenia, all of whom were convinced they were Jesus Christ.	Zajímavý příklad případové studie v klinické psychologie je popsán Rokeach, který zkoumal podrobně přesvědčení a interakce mezi třemi pacientů se schizofrenií, z nichž všichni byli přesvědčeni, že jsou Ježíš Kristus.	YES
132	Is	In election polls, for instance, a sample is taken from the population of all "likely voters" in the upcoming elections.	Ve volebních průzkumech, například, je vzorek odebírán z obyvatel všech "pravděpodobných voličů" v nadcházejících volbách.	NO
133	Is	In the same way, study time and memory errors are also related, because the more time a person is given to study a list of words, the fewer errors he or she will make.	Stejným způsobem, studie času a chyby paměti také souvisí, protože čím více, když člověk je dána studovat seznam slov, tím méně chyb on nebo ona bude dělat.	YES
134	Is	The most common statistical measure of the strength of linear relationships among variables is the Pearson correlation coefficient, which is symbolized by the letter r.	Nejběžnější Statistická míra síly lineárních vztahů mezi proměnnými je Pearson korelační koeficient, který je symbolizován písmenem R.	YES
135	Is	The direction of the linear relationship is indicated by the sign of the correlation coefficient.	Směr lineárního vztahu je označen znaménkem korelačního koeficientu.	YES
136	Is	As we have seen in Chapter 1 "Introducing Psychology", scientists associated with the behaviorist school argued that all learning is driven by experience, and that nature plays no role.	Jak jsme viděli v 1. kapitole "Představení psychologie", vědci spojené s behavioristy škole tvrdil, že všechno učení je poháněn zkušeností, a že příroda nehraje žádnou roli.	YES
137	Is	Although obesity is caused in part by genetics, it is increased by overeating and a lack of physical activity.	Ačkoli obezita je způsobena zčásti genetiky, je zvýšena o přejídání a nedostatek fyzické aktivity.	YES
138	Is	In addition to the psychological assessment, the patient is usually seen by a physician to gain information about potential Axis III (physical) problems.	Kromě psychologického hodnocení, pacient je obvykle vidět lékař, který má získat informace o potenciálních osy III (fyzické) problémů.	YES
139	Is	Beliefs in culture of honor norms are stronger among men who live or who were raised in the South and West than among men who are from or living in the North and East.	Víry v kultuře cti norem jsou silnější mezi lidmi, kteří žijí nebo kteří byli vychováni v jižním a západním směrem než u mužů, kteří jsou z nebo žijí na severu a východě země.	YES
140	Is	The ability of a group to perform well is determined by the characteristics of the group members (e.g., are they knowledgeable and skilled?) as well as by the group process—that is, the events that occur while the group is working on the task.	Schopnost skupiny fungovat dobře je určena charakteristikami členů skupiny (např, jsou jejich znalosti a kvalifikované?), Jakož i skupiny procesem—to znamená, že události, ke kterým dochází, když se skupina pracuje na úkolu.	YES
141	Are	When old facts are discarded, they are replaced with new facts based on newer and more correct data.	Jsou-li staré fakta vyřazeny, jsou nahrazeny novými skutečnostmi založenými na novější a správnými daty.	NO

142	Are	Are people around the world generally the same, or are they influenced by their backgrounds and environments in different ways?	Jsou lidé na celém světě obecně stejná, nebo jsou ovlivněny jejich zázemí a prostředí různými způsoby?	YES
143	Are	Behaviorists believe that the human mind is a "black box" into which stimuli are sent and from which responses are received.	Behavioristé věří, že lidská mysl je "černá skříňka", do níž jsou odesílány podněty a ze kterého jsou přijímány odpovědi.	NO
144	Are	In terms of the nature-nurture debate, the behaviorists agreed with the nurture approach, believing that we are shaped exclusively by our environments.	Pokud jde o diskusi přírody život se behavioristé souhlasila s přístupem, život, věřit, že jsme ve tvaru výlučně našimi prostředí.	NO
145	Are	An important aspect of social-cultural psychology are social norms—the ways of thinking, feeling, or behaving that are shared by group members and perceived by them as appropriate.	Důležitým aspektem sociálně-kulturní psychologie jsou společenské normy-způsoby myšlení, cítění, nebo chovat, které jsou sdíleny členy skupiny a vnímané nich podle potřeby.	YES
146	Are	In these cultures children are taught to focus on developing harmonious social relationships with others.	V těchto kulturách se děti učí zaměřit na rozvoj harmonické sociální vztahy s ostatními.	NO
147	Are	In the prisoner's dilemma game, the participants are shown a payoff matrix in which numbers are used to express the potential outcomes for each of the players in the game, given the decisions each player makes.	V vězně dilema hry, účastníci jsou zobrazeny na matici přínosu, ve kterém jsou čísla používána k vyjádření možných výsledků pro každý z hráčů ve hře, vzhledem k rozhodnutí každý hráč dělá.	NO
148	Are	The chromosomes are made up of strands of the molecule DNA (deoxyribonucleic acid), and the DNA is grouped into segments known as genes.	Chromozomy jsou tvořeny řetězců molekuly DNA (deoxyribonukleové kyseliny), a DNA je rozdělena do úseků, známých jako geny.	YES
149	Are/Will	The idea is that if the twins are raised in the same household, then the twins will be influenced by their environments to an equal degree, and this influence will be pretty much equal for identical and fraternal twins.	Myšlenka je, že pokud dvojčata jsou chována ve stejné domácnosti, pak dvojčata budou ovlivněny jejich prostředí, aby byla stejnou měrou, a tento vliv bude do značné míry stejná pro identických dvojčat a bratrské.	NO
150	Are	Auditory hallucinations are the most common and are reported by approximately three quarters of patients.	Sluchové halucinace jsou nejčastější a jsou hlášeny zhruba tři čtvrtiny pacientů.	YES
151	Are	Worldwide, about 99% of rapes and about 90% of robberies, assaults, and murders are committed by men.	Celosvětově je asi 99% znásilnění a asi 90% z loupeže, přepadení a vraždy páchají muži.	YES
152	Will	These statements will be accompanied by statistical tests, often including statements such as " $p < 0.05$ " or about confidence intervals.	Tyto příkazy budou doprovázeny statistických testů, často včetně tvrzení jako " $p < 0,05$ " nebo o intervaly spolehlivosti.	YES
153	Will	The therapist will summarize the information about the patient on each of the five DSM axes, and the diagnosis will likely be sent to an insurance company to justify payment for the treatment.	Terapeut shrne informace o pacientovi na každém z pěti DSM os, a diagnóza bude pravděpodobně poslán do pojišťovny ospravedlnit platbu za ošetření.	YES
154	Will	The client and the therapist work together to develop the goals of the therapy, the particular ways that the goals will be reached, and the timeline for reaching them.	Klient a terapeut spolupracovat na rozvoji cílů terapie, konkrétní způsoby, které bude dosaženo cíle a časové osy pro jejich dosažení.	YES

155	Would	One of the two participants was asked to draw slips of paper to select the two brands that would be tasted at this session.	Jeden ze dvou účastníků byl požádán, aby čerpat lístky vybrat dvě značky, které by ochutnat v této relaci.	YES
156	Would	It seems that children modify their language through imitation, reinforcement, and shaping, as would be predicted by learning theories.	Zdá se, že děti modifikovat jejich jazykem prostřednictvím napodobování, zesílení a tvarování, jak by se dalo předpokládat na základě teorie učení.	YES

**APPENDIX II: ASSESSMENTS OF INFORMATION STRUCTURE ACCEPTABILITY**

No.	ST_eng	MT_cs	Evaluation 1	Evaluation 2	Result
1	But there are hundreds of thousands of psychologists in the world, and most of them work in other places, doing work that you are probably not aware of.	Ale existují stovky tisíc psychologů na světě, a většina z nich pracuje na jiných místech, dělat práci, kterou jste pravděpodobně nejsou vědomi.	0	0	unacceptable
2	There were more than 21,000 homicides in the United States in 2009.	Tam bylo více než 21.000 vražd ve Spojených státech v roce 2009.	0	0	unacceptable
3	There were more than 30,000 deaths caused by handguns in the United States in 2009.	Tam bylo více než 30.000 úmrtí způsobené ručními zbraní ve Spojených státech v roce 2009.	0	0	unacceptable
4	Psychologists have found that there is a fundamental difference in social norms between Western cultures (including those in the United States, Canada, Western Europe, Australia, and New Zealand) and East Asian cultures (including those in China, Japan, Taiwan, Korea, India, and Southeast Asia).	Psychologové zjistili, že existuje zásadní rozdíl ve společenských norem mezi západních kulturách (včetně těch ve Spojených státech amerických, Kanadě, západní Evropě, Austrálii a na Novém Zélandu) a východoasijských kulturách (včetně těch v Číně, Japonsku, Tchaj-wan, Korea, Indie a jihovýchodní Asie).	1	1	acceptable
5	There are a variety of available career choices within psychology that provide employment in many different areas of interest.	Existuje celá řada dostupných možností kariéry v psychologii, které poskytují zaměstnání v mnoha různých oblastech zájmu.	0	0	unacceptable
6	There are well-known laws in the physical sciences, such as the law of gravity and the laws of thermodynamics, and there are some universally accepted laws in psychology, such as the law of effect and Weber's law.	Tam jsou dobře známé zákony v přírodních vědách, jako je například zákon gravitace a zákonů termodynamiky, a tam jsou některé všeobecně přijímané zákony v psychologii, jako je zákon o účinku a Weberova zákona.	0	0	unacceptable
7	There are three major research designs used by psychologists, and each has its own advantages and disadvantages.	Existují tři hlavní výzkumné vzory používané psychology, a každá z nich má své výhody i nevýhody.	1	1	acceptable
8	This occurs when there are one or more extreme scores (known as outliers) at one end of the distribution.	K tomu dochází, když existuje jeden nebo více extrémní skóre (známé jako odlehle hodnoty) na jednom konci rozdělení.	1	0	divergent

9	When there are two variables in the research design, one of them is called the predictor variable and the other the outcome variable.	V případě, že jsou dvě proměnné v designu výzkumu, jeden z nich je nazýván prognostická proměnná a druhý výsledek variabilní.	0	0	unacceptable
10	In this case there is no relationship at all between the two variables, and they are said to be independent.	V tomto případě neexistuje žádný vztah vůbec mezi těmito dvěma proměnnými, a oni jsou řekl, aby byl nezávislý.	0	0	unacceptable
11	Hence, there is likely a real relationship between or among the variables in the research design.	Proto je pravděpodobné, že skutečný vztah mezi a mezi proměnnými ve výzkumném designu.	0	0	unacceptable
12	In reality there were no differences among the rats given to the two groups of students.	Ve skutečnosti nebyly žádné rozdíly mezi krysami daných dvou skupin studentů.	1	1	acceptable
13	There are both advantages and disadvantages to being left-handed in a world where most people are right-handed.	Tam jsou výhody i nevýhody jsou levák ve světě, kde většina lidí jsou praváci.	0	0	unacceptable
14	Research using these techniques has found, for instance, that there are specific neurons, known as feature detectors, in the visual cortex that detect movement, lines and edges, and even faces.	Výzkum pomocí těchto technik zjistil, například, že existují specifické neurony, známý jako hraných detektory, v zrakové kůry, které detekují pohyb, linie a hrany, a dokonce i tváře.	0	0	unacceptable
15	It seems that although conscious reports of the visual experiences are not possible, there is still a parallel and implicit process at work, enabling people to perceive certain aspects of the stimuli.	Zdá se, že i když vědomé zprávy vizuálních zážitků nejsou možné, stále existuje paralelní a implicitní proces při práci, umožňuje lidem vnímat některé aspekty podněty.	1	0	divergent
16	There are about 120 million rods in each eye.	Tam je asi 120 milionů tyče v každém oku.	0	0	unacceptable
17	Because there are no photoreceptor cells at the place where the optic nerve leaves the retina, a hole or blind spot in our vision is created.	Protože nejsou k dispozici žádné photoreceptor buňky v místě, kde zrakový nerv opouští sítnici, díry nebo slepé místo v naší vizi je vytvořen.	0	0	unacceptable
18	Most taste buds are located in the top outer edges of the tongue, but there are also receptors at the back of the tongue as well as on the walls of the mouth and at the back of the throat.	Většina chuťové pohárky se nachází v horních vnějších okrajů jazyka, ale jsou zde i receptory v zadní části jazyka, jakož i na stěnách úst a na zadní straně krku.	1	1	acceptable

19	There are more than 1,000 types of odor receptor cells in the olfactory membrane.	Existuje více než 1000 typů receptorů buněk pachových v čichovém membráně.	0	0	unacceptable
20	The McGurk effect is an error in sound perception that occurs when there is a mismatch between the senses of hearing and seeing.	McGurk efekt je chyba ve vnímání zvuku, ke kterému dochází, pokud existuje nesoulad mezi smysly sluchu a vidění.	1	1	acceptable
21	More of the controls are color-coded and multifunctional so that there is less clutter on the dashboard.	Další ovládací prvky jsou barevně odlišeny a multifunkční, takže tam je méně nepořádek na přístrojové desce.	0	0	unacceptable
22	There are also individual differences in need for sleep.	Tam jsou také individuální rozdíly v potřebě spánku.	0	0	unacceptable
23	On the other hand, there are at least some cultural differences in the effectiveness of different parenting styles.	Na druhé straně, existují alespoň některé kulturní rozdíly v účinnosti různých rodičovských stylů.	0	0	unacceptable
24	For me there was no safe place in the world, not even my home.	Pro mě nebylo bezpečné místo na světě, dokonce ani můj domov.	1	1	acceptable
25	Although reinforcement can be effective in education, and teachers make use of it by awarding gold stars, good grades, and praise, there are also substantial limitations to using reward to improve learning.	Přestože výztuž může být efektivní v oblasti vzdělávání a učitelé využít ji udělením zlaté hvězdy, dobré známky, a chválu, existují také podstatné omezení používání odměny vedoucích ke zlepšení učení.	0	0	unacceptable
26	Imagine, for instance, that I asked you to indicate whether there are more words in the English language that begin with the letter "R" or that have the letter "R" as the third letter.	Představte si například, že bych vás požádal, abyste uvést, zda existují další slova v anglickém jazyce, který začíná písmenem "R" nebo které mají písmeno "R" jako třetí dopis.	1	1	acceptable
27	Although there is general agreement among psychologists that g exists, there is also evidence for specific intelligence (s), a measure of specific skills in narrow domains.	Ačkoli panuje všeobecná shoda mezi psychology, že existuje g, tam je také důkaz pro specifickou inteligenci (y), kterým se měří specifických dovedností v úzkých domén.	0	0	unacceptable
28	There are many explanations for the Flynn effect, including better nutrition, increased access to information, and more familiarity with multiple-choice tests.	Existuje mnoho vysvětlení pro efekt Flynn, včetně lepší výživy, lepší přístup k informacím a větší obeznámenost s mnohočetným výběrem testy.	0	0	unacceptable

29	There is a lively debate among scholars about whether it is appropriate or beneficial to label some children as "gifted and talented" in school and to provide them with accelerated special classes and other programs that are not available to everyone.	Tam je živá diskuse mezi učenice o tom, zda je vhodné nebo prospěšné označovat některé děti jako "nadaný a talented" ve škole a aby jim poskytly urychlenými speciálních tříd a dalších programů, které nejsou dostupné pro každého.	0	0	unacceptable
30	There are also observed sex differences on some particular types of tasks.	Existují také pozorovány pohlavní rozdíly na některé konkrétní typy úloh.	0	0	unacceptable
31	On the math part of the Scholastic Assessment Test (SAT), boys with scores of 700 or above outnumber girls by more than 10 to 1, but there are also more boys in the lowest end of the distribution as well.	Na matematické části testu Scholastic Assessment (SAT), chlapci se skóre 700 nebo vyšší převažují dívky o více než 10: 1, ale tam jsou také více chlapců v nejnižším konci rozdělení stejně.	1	1	acceptable
32	There are two emotional pathways in the brain (one slow and one fast), both of which are controlled by the thalamus.	K dispozici jsou dva emoční dráhy v mozku (jeden pomalé a rychlé jeden), z nichž oba jsou ovládány thalamu.	0	0	unacceptable
33	Despite tremendous economic growth in France, Japan, and the United States between 1946 to 1990, there was no increase in reports of well-being by the citizens of these countries.	Navzdory obrovskému hospodářskému růstu ve Francii, Japonsku a Spojených státech v letech 1946 až 1990 došlo ve zprávách o blahu ze strany občanů těchto zemí bez navýšení.	0	0	unacceptable
34	Twin studies also support the idea that there is a genetic component to sexual orientation.	Twin studie rovněž podporují myšlenku, že existuje genetická složka se sexuální orientací.	0	0	unacceptable
35	There is also little scientific support for most of the Freudian defense mechanisms.	K dispozici je také malá vědecká podpora pro většinu z freudovské obranných mechanismů.	0	0	unacceptable
36	Although a medical doctor can see cancer in the lungs using an MRI scan or see blocked arteries in the heart using cardiac catheterization, there is no corresponding test for psychological disorder.	I když lékař může vidět rakoviny plic s použitím MRI nebo zobrazit blokové tepny v srdci pomocí srdeční katetrizace, neexistuje odpovídající test psychické poruchy.	0	1	divergent
37	Clearly there is something wrong with their child, but even the experts cannot agree on exactly what the problem is.	Je zřejmé, že je něco v nepořádku s jejich dítětem děje, ale i odborníci nemohou shodnout na tom, co přesně je problém.	0	0	unacceptable

38	Cognitive-Behavior Therapy is based on the idea that there is a recursive link among our thoughts, our feelings, and our behavior.	Kognitivně-behaviorální terapie je založen na myšlence, že existuje rekurzivní odkaz mezi naše myšlenky, naše pocity a naše chování.	1	1	acceptable
39	There are a variety of explanations for the occurrence of altruism.	Existuje celá řada vysvětlení výskytu altruismu.	1	1	acceptable
40	In addition to differences across cultures, there are also regional differences in the incidence of violence in different parts of the United States.	Kromě rozdílů v různých kulturách, jsou také regionální rozdíly ve výskytu násilí v různých částech Spojených států.	1	1	acceptable
41	The men were told that there would be 18 trials during the experiment, and on each trial they would see two cards.	Muži bylo sděleno, že by 18 pokusů během experimentu a na každé zkoušce se uvidí dvě karty.	0	0	unacceptable
42	They found that there was significantly less graffiti in the second group of restrooms than in the first one.	Zjistili, že tam bylo významně méně graffiti ve druhé skupině toalety, než v první.	0	0	unacceptable
43	It is only by reading the original reports that you will really see how the research process works.	Je to jen tím, že čte původní zprávy, že vám bude opravdu vidět, jak výzkumný proces funguje.	1	1	acceptable
44	Our brains are the most "plastic" when we are young children, as it is during this time that we learn the most about our environment.	Naše mozky jsou nejvíce "plast", když jsme malé děti, protože je v této době, že jsme nejvíce o našem životním prostředí učít.	0	0	unacceptable
45	Unlike light waves, which can travel in a vacuum, sound waves are carried within mediums such as air, water, or metal, and it is the changes in pressure associated with these mediums that the ear detects.	Na rozdíl od světelných vln, které se mohou pohybovat ve vakuu, zvukové vlny se provádí v médiích, jako je vzduch, voda, nebo kovu, a to je změny v tlaku, spojené s těmito médii, že ucho zjištěných.	0	0	unacceptable
46	It is for this reason that dogs (and people, too) tend to cock their heads when trying to pinpoint a sound, so that the ears receive slightly different signals.	Je to z toho důvodu, že psi a lidé (i) mají sklon kohout hlavy, když se snaží určit zvuk, takže uši dostávají mírně odlišné signály.	1	1	acceptable
47	We also lose consciousness when we sleep, and it is with this altered state of consciousness that we begin our chapter.	Také jsme ztratit vědomí, když spíme, a to je s tímto změněného stavu vědomí, že začneme naši kapitolu.	0	0	unacceptable
48	It is defined by the direct physical interactions that babies have with the objects around them.	Je definován přímé fyzické interakce, že děti mají s objekty kolem nich.	1	1	acceptable

49	It is through the remarkable increases in cognitive ability that children learn to interact with and understand their environments.	To je přes pozoruhodné zvýšení kognitivních schopností, které se děti učí komunikovat s a pochopit jejich prostředí.	0	0	unacceptable
50	Normally, it is the mother who provides early attachment, but fathers are not irrelevant.	Za normálních okolností je to matka, která zajišťuje včasné přílohu, ale otcové nejsou relevantní.	1	1	acceptable
51	And it is during middle adulthood that many people first begin to suffer from ailments such as high cholesterol and high blood pressure as well as low bone density.	A to je ve středním dospělosti, že mnoho lidí nejprve začít s onemocněním, jako je vysoký cholesterol a vysoký krevní tlak, jakož i nízké hustoty kostí.	1	0	divergent
52	It is in early and middle adulthood that muscle strength, reaction time, cardiac output, and sensory abilities begin to decline.	Je v časný a střední dospělosti, že svalová síla, reakční doba, srdeční výdej a smyslové schopnosti začnou klesat.	0	0	unacceptable
53	It is this superior knowledge combined with a slower and more complete processing style, along with a more sophisticated understanding of the workings of the world around them, that gives the elderly the advantage of wisdom over the advantages of fluid intelligence—the ability to think and acquire information quickly and abstractly—which favor the young.	Je to lepší než znalosti v kombinaci s pomalejším a úplnější zpracování stylu, spolu s sofistikovanější pochopení toho, jak funguje svět kolem sebe, který dává starší lidé tu výhodu, že wisdom nad výhodami tekutiny zpravodajských schopnosti myslet a získávat informace rychle a abstraktně, které dávají přednost mladým.	0	0	unacceptable
54	In short, although psychological tests accurately measure intelligence, it is cultures that interpret the meanings of those tests and determine how people with differing levels of intelligence are treated.	Stručně řečeno, ačkoliv psychologické testy přesně změřit inteligenci, to je kultury, které interpretují význam těchto testů a zjistit, jak lidé s různou úrovní inteligence jsou ošetřeny.	0	0	unacceptable
55	It is at this point that the child first understands that words are more than sounds—they refer to particular objects and ideas.	To je v tomto bodě, že dítě první chápe, že slova jsou více než zvuky, které odkazují na konkrétní objekty a nápady.	1	1	acceptable
56	Whether it is the thrill of a roller-coaster ride that elicits an unexpected scream, the flush of embarrassment that follows a public mistake, or the horror of a potential plane crash that creates an exceptionally brilliant response in a pilot, emotions move our actions.	Ať už je to vzrušení z prudkých výkyvech, které vyvolává nečekaný výkřik, splachovací rozpaků, který následuje po veřejné chybě, nebo hrůzu z možného zřícení letadla, který vytváří mimořádně brilantní odezvu u pilota, emoce přesunout naše činy.	1	1	acceptable

57	Emotion regulation is particularly difficult when we are tired, depressed, or anxious, and it is under these conditions that we more easily let our emotions get the best of us.	Regulace Emotion je obzvláště obtížné, když jsme unavení, depresivní, nebo úzkostní, a to za těchto podmínek, že bychom snadněji nechali naše emoce dostat to nejlepší z nás.	0	1	divergent
58	Although the hormones are secreted by the ovaries and testes, it is the hypothalamus and the pituitary glands that control the process.	I když hormony jsou vylučovány vaječníky a varlata, je hypotalamu a hypofýzy, které řídí proces.	0	0	unacceptable
59	It is this unconditional giving and receiving of love that promotes the welfare of both partners and provides the secure base that allows both partners to thrive.	Je to bezpodmínečné dávání a přijímání lásky, která podporuje prospěch obou partnerů a zajišťuje bezpečnou základnu, která umožňuje oba partnery, aby se dařilo.	1	1	acceptable
60	Rather it is the social situation, and not the people themselves, that is responsible for the behavior.	Spíše se jedná o sociální situaci, a ne samotné osoby, který je zodpovědný za chování.	0	0	unacceptable
61	When we look back on history, we find that it is the unusual, divergent, innovative minority groups or individuals, who—although frequently ridiculed at the time for their unusual ideas—end up being respected for producing positive changes.	Když se podíváme zpět na historii, zjistíme, že je to neobvyklé, odlišné, inovativní menšinové skupiny nebo jednotlivci, kteří, i když často zesměšňováni v době jejich neobvyklé nápady-skončit respektovány pro výrobu pozitivní změny.	1	1	acceptable
62	When participants were exposed to words related to the location of the square just before they stopped its movement, they became more likely to think that they controlled the motion, even when it was actually the computer that stopped it.	Když byly účastníci vystaveny slovům týkajících se umístění náměstí těsně před tím, než se zastavil jeho pohyb, se staly více pravděpodobné, že si myslí, že řízený pohyb, i když to bylo vlastně počítač, který je zastaven.	1	1	acceptable
63	This initial equivalence allowed them to observe differences in the white noise levels between the two groups after the experimental manipulation, leading to the conclusion that it was the independent variable (and not some other variable) that caused these differences.	Tento počáteční ekvivalence jim umožnilo pozorovat rozdíly v bílých hladinách hluku v obou skupinách po experimentální manipulaci, což vede k závěru, že nezávislá proměnná (a ne nějaké jiné proměnné), které způsobily tyto rozdíly.	0	0	unacceptable
64	Piaget found that it was not until about 8 months that the children realized that the object was merely covered and not gone.	Piaget zjistil, že to nebylo až do asi 8 měsíců, že děti si uvědomil, že objekt byl pouze krytý a nešlo.	1	1	acceptable

65	Köhler argued that it was this flash of insight, not the prior trial-and-error approaches, which were so important for conditioning theories, that allowed the animals to solve the problem.	Köhler tvrdil, že to byl tento záblesk pochopení, nikoliv přístupy předchozí pokus-omyl, který byl tak důležitý pro kondiční teorii, které umožnily zvířatům, aby tento problém vyřešit.	1	1	acceptable
66	But it was not until after Mr. Cotton had served 11 years in prison for a crime he did not commit that conclusive DNA evidence indicated that Bobby Poole was the actual rapist, and Cotton was released from jail.	Ale to nebylo až poté, co pan Cotton sloužil 11 let ve vězení za zločin, který nespáchal, že nezvratný důkaz DNA naznačují, že Bobby Poole byl skutečný násilník a bavlno byl propuštěn z vězení.	1	0	divergent
67	Although Jennifer Thompson was positive that it was Ronald Cotton who had raped her, her memory was inaccurate.	Ačkoliv Jennifer Thompson byl pozitivní, že to byl Ronald Cotton, který ji znásilnil, její paměť byla nepřesná.	1	1	acceptable
68	It was only at the age of 35 that the twins were reunited and discovered how similar they were to each other.	To bylo jen ve věku 35, že dvojčata byli smířeni a zjistil, jak podobné byly k sobě navzájem.	0	0	unacceptable
69	Social psychologists have discovered that it was the 38 people themselves that contributed to the tragedy, because people are less likely to notice, interpret, and respond to the needs of others when they are with others than they are when they are alone.	Sociální psychologové zjistili, že to bylo 38 samotní lidé, které přispěly k tragédii, protože lidé jsou méně pravděpodobné, že si všimnout, interpretovat a reagovat na potřeby druhých, když jsou s ostatními, než oni jsou, když jsou sami.	0	1	divergent
70	What Adams did not know at the time was that her brain may have been undergoing the same changes that Ravel's had undergone 66 years earlier.	Co Adams nevěděl, v té době bylo, že její mozek může prošly stejné změny, které veselím podstoupili 66 let dříve.	0	1	divergent
71	What sets humans apart from other animals is our larger cerebral cortex—the outer bark-like layer of our brain that allows us to so successfully use language, acquire complex skills, create tools, and live in social groups.	Co odlišuje člověka odlišuje od ostatních zvířat, je naše větší mozková kůra, vnější kůra-jako vrstva našeho mozku, která nám umožňuje tak úspěšně používat jazyk, získají komplexní dovednosti, vytvořit nástroje, a žijí v sociálních skupinách.	1	1	acceptable
72	A big part of what the adolescent is learning is social identity, the part of the self-concept that is derived from one's group memberships.	Velká část toho, co adolescent se učí je sociální identita, část sebepojetí, který je odvozen od něčích členství ve skupinách.	0	1	divergent

73	What is perhaps common to all the disorders is the person's inability to accurately understand and be sensitive to the motives and needs of the people around them.	Co je možná společná pro všechny poruchy je schopnost člověka přesně rozumět a být citlivé na motivy a potřeby lidí kolem nich.	1	1	acceptable
74	What we need to do, then, is to recognize both the strengths and limitations of group performance and use whatever techniques we can to increase process gains and reduce process losses.	Co musíme udělat, pak je rozpoznat silné i omezení výkonu skupiny a použití jakéhokoliv techniky můžeme zvýšit proces zisky a snížit ztráty procesu.	0	1	divergent
75	Furthermore, the decisions were made unconsciously; the participants did not know why they chose the tea they chose.	Kromě toho, že rozhodnutí byla provedena nevědomě; účastníci nevěděli, proč si vybrali čaj si vybrali.	1	1	acceptable
76	Austrian neurologist Sigmund Freud (1856–1939), who argued that many psychological disorders were caused by memories that we have repressed and thus remain outside our consciousness.	Rakouský neurolog Sigmund Freud (1856-1939), který argumentoval, že mnohé psychické poruchy byly způsobeny vzpomínky, které jsme potlačených a tak zůstávají mimo naše vědomí.	1	1	acceptable
77	James and the other members of the functionalist school were influenced by Charles Darwin's (1809–1882) theory of natural selection, which proposed that the physical characteristics of animals and humans evolved because they were useful, or functional.	James a další členové funkcionalistické školy byly ovlivněny Charles Darwin (1809-1882) teorie přirozeného výběru, který navrhol, že fyzikální vlastnosti zvířatech a lidech vyvinulo, protože byly užitečné, nebo funkční.	1	1	acceptable
78	Freud's ideas were extended by other psychologists whom he influenced, including Carl Jung (1875–1961), Alfred Adler (1870–1937), Karen Horney (1855–1952), and Erik Erikson (1902–1994).	Freudovy myšlenky byly rozšířeny dalšími psychology, koho ovlivnil, včetně Carl Jung (1875-1961), Alfred Adler (1870-1937), Karen Horneyové (1855-1952), a Erik Erikson (1902 - 1994).	1	1	acceptable
79	The participant is given a chance to have questions about the procedure answered, thus guaranteeing his or her free choice about participating.	Účastník dostane šanci na to, aby otázky týkající se postupu odpověděli tento zaručující svou svobodnou volbu o účasti.	0	1	divergent
80	Another well-known case study is Phineas Gage, a man whose thoughts and emotions were extensively studied by cognitive psychologists after a railroad spike was blasted through his skull in an accident.	Další známý případ studie je Phineas Gage, člověk, jehož myšlenky a emoce byly značně studoval poznávacími psychology po železnice bodec byl odstřelen přes lebce při nehodě.	0	0	unacceptable

81	If Adams and Ravel were both affected by the same disease, this could explain why they both became fascinated with the repetitive aspects of their arts, and it would present a remarkable example of the influence of our brains on behavior.	Pokud Adams a Ravel byli oba postiženi stejnou nemocí, mohlo by to vysvětlovat, proč oba stali se fascinovanými s opakovanými aspekty jejich umění, a to by znamenalo pozoruhodný příklad vlivu našich mozků na chování.	0	0	unacceptable
82	The participants were told that they would be playing a computer "Cyberball" game with two other players who were also in fMRI machines (the two opponents did not actually exist, and their responses were controlled by the computer).	Účastníci bylo řečeno, že budou hrát počítač "Cyberball" hru se dvěma dalšími hráči, kteří byli také v fMRI strojích (oba soupeři neměli skutečně existují, a jejich odpovědi byly řízeny počítačem).	0	0	unacceptable
83	In one relevant experiment, Karremans, Stroebe, and Claus had Dutch college students view a series of computer trials in which a string of letters such as BBBBbBBBB or BBBbBBBB were presented on the screen.	V jednom příslušném pokusu Karremans, Stroebe a Claus měl holandské vysokoškoláci mohli sérii počítačových studií, v nichž řetězec písmen, jako BBBBbBBBB nebo BBBbBBBB byly prezentovány na obrazovce.	0	0	unacceptable
84	Rangel found that wines were rated more positively and caused greater brain activity in brain areas associated with pleasure when they were said to cost more than when they were said to cost less.	Rangel zjistil, že víno bylo hodnoceno pozitivně a způsobilo větší mozkovou aktivitu v mozkových oblastech spojených s potěšením, když oni byli řekli, aby stát více, než když byli řekli, aby stát méně.	1	1	acceptable
85	Franz Anton Mesmer (1734–1815) was an Austrian doctor who believed that all living bodies were filled with magnetic energy.	Franz Anton Mesmer (1734–1815) byl rakouský lékař, který věřil, že všechny živé orgány byly naplněny magnetické energie.	1	1	acceptable
86	In a recent meta-analysis, Gershoff found that although children who were spanked by their parents were more likely to immediately comply with the parents' demands, they were also more aggressive, showed less ability to control aggression, and had poorer mental health in the long term than children who were not spanked.	V nedávné meta-analýze, Gershoff zjistilo, že ačkoliv děti, které byly nasekaly jejich rodiče byli s větší pravděpodobností ihned postupovat v souladu s požadavky rodičů, oni byli také mnohem agresivnější, ukázal menší schopnost ovládat agresí, a měl horší duševní zdraví dlouhodobá než děti, které nebyly výprask.	0	0	unacceptable

87	The American psychologist Karl Lashley attempted to determine where memories were stored in the brain by teaching rats how to run mazes, and then lesioning different brain structures to see if they were still able to complete the maze.	Americký psycholog Karl Lashley pokusil určit, kde byly vzpomínky uloženy v mozku tím, že učí krysy, jak spustit bludiště, a pak lesioning odlišné mozkové struktury tak, aby zjistili, jestli jsou stále schopni dokončit bludiště.	0	0	unacceptable
88	They videotaped the athletes both as they learned that they had won a silver or a bronze medal and again as they were awarded the medal.	Oni nahrával sportovce a to jak se dozvěděli, že oni vyhráli stříbrnou nebo bronzovou medaili a opět tak, jak byly uděleny medaile.	1	1	acceptable
89	And in another study, the researchers found that when Black students were asked to indicate their race before they took a math test (again activating the stereotype), they performed more poorly than they had on prior exams, whereas White students were not affected by first indicating their race.	A v jiné studii vědci zjistili, že když byli černí studenti požádáni, aby ukázali jejich rasu před tím, než si test z matematiky (znovu aktivovat stereotyp), oni hráli hůře než oni měli na předchozí zkoušky, zatímco bílí studenti nebyly ovlivněny tím, že nejprve s uvedením jejich rasu.	0	0	unacceptable
90	Similar results were found by Frank, Everett, Fedorenko, and Gibson, who showed that the Amazonian tribe known as the Pirahã, who have no linguistic method for expressing exact quantities (not even the number "one") were nevertheless able to perform matches with large numbers without problem.	Podobné výsledky byly nalezeny Frank, Everett, Fedorenko a Gibson, který ukázal, že amazonský kmen známý jako Pirahã, kteří nemají jazykovou způsob vyjadřování přesné množství (ani číslo "jedna") byly přesto schopny plnit utkání s velké množství bez problémů.	0	0	unacceptable
91	Psychoanalytic models of personality were complemented during the 1950s and 1960s by the theories of humanistic psychologists.	Psychoanalytické modely osobnosti byly realizovány v průběhu roku 1950 a 1960 teoriemi humanistických psychologů.	0	1	divergent
92	Scores on the IAT predicted suicide attempts in the next 6 months above all the other risk factors that were collected by the hospital staff, including past history of suicide attempts.	Skóre na IAT předpověděly, pokusy o sebevraždu v příštích 6 měsících nad všemi dalšími rizikovými faktory, které byly shromážděny podle nemocničním personálem, včetně minulé historii pokusů o sebevraždu.	1	0	divergent
93	Perhaps the school of psychology that is most familiar to the general public is the psychodynamic approach to understanding behavior, which was championed by Sigmund Freud (1856–1939) and his followers.	Možná, že škola psychologie, která je nejvíce známá pro širokou veřejnost je psychodynamický přístup k chování, porozumění, která byla bojoval Sigmund Freud (1856-1939) a jeho následovníků.	0	1	divergent

94	Watson was influenced in large part by the work of the Russian physiologist Ivan Pavlov (1849–1936), who had discovered that dogs would salivate at the sound of a tone that had previously been associated with the presentation of food.	Watson byl ovlivněn do značné míry dílem ruského fyziologa Ivan Pavlov (1849-1936), který objevil, že psi by sliněním na zvuk tónem, který byl předtím spojený s prezentací potravin.	1	1	acceptable
95	The research showed that subjects overwhelmingly preferred glass “M” over glass “Q,” and the researchers concluded that Pepsi was preferred to Coke.	Výzkum ukázal, že subjekty v drtivě většině přednost skleněné "M" přes skleněnou "Q" a vědci k závěru, že Pepsi byla dána přednost Coke.	0	0	unacceptable
96	In one experiment a rat was given the opportunity to electrically stimulate its own hypothalamus by pressing a pedal.	V jednom experimentu byla krysa dána možnost, aby elektricky stimulovat vlastní hypothalamus stisknutím pedálu.	0	0	unacceptable
97	Each of the participants was measured under three different conditions.	Každý z účastníků byla měřena při třech různých podmínkách.	1	1	acceptable
98	The field of psychophysics was founded by the German psychologist Gustav Fechner (1801–1887), who was the first to study the relationship between the strength of a stimulus and a person’s ability to detect the stimulus.	Pole psychophysics bylo založeno německým psychologem Gustav Fechner (1801-1887), který byl jako první studovat vztah mezi velikostí stimulu a schopnost jedince k detekci podnět.	1	1	acceptable
99	Parks was examined by a team of sleep specialists, who found that the pattern of brain waves that occurred while he slept was very abnormal.	Parks byla zkoumána týmem spánku odborníků, kteří zjistili, že vzor mozkových vln, které se vyskytly, zatímco on spal bylo velmi neobvyklé.	1	1	acceptable
100	In 1964, 17-year-old high school student Randy Gardner remained awake for 264 hours (11 days) in order to set a new Guinness World Record. At the request of his worried parents, he was monitored by a U.S. Navy psychiatrist, Lt. Cmdr. John J. Ross.	V roce 1964, 17-letý student střední školy Randy Gardner zůstal vzhůru za 264 hodin (11 dní) s cílem zavést nové Guinnessově knize rekordů. Na žádost jeho znepokojených rodičů, byl monitorován US Navy psychiatra, Lt. Cmdr. John J. Ross.	0	1	divergent
101	One approach to assessing identity development was proposed by James Marcia.	Jedním z přístupů k hodnocení vývoje identity byl navrhován James Marcia.	1	1	acceptable

102	My post-traumatic stress disorder (PTSD) was triggered by several traumas, most importantly a sexual attack at knifepoint that left me thinking I would die.	Můj posttraumatická stresová porucha (PTSD) byla vyvolána několika traumaty, což je nejdůležitější sexuálního útoku pod ostřím nože, který mě opustil přemýšlel bych zemřít.	1	1	acceptable
103	Hardin noted that in many European towns there was at one time a centrally located pasture, known as the commons, which was shared by the inhabitants of the village to graze their livestock.	Hardin poznamenat, že v mnoha evropských městech tam byl najednou centrálně umístěný pastviny, známý jako sněmovně, která byla rozdělena mezi obyvateli obce pást svůj dobytek.	1	1	acceptable
104	Classical conditioning was first studied by physiologist Ivan Pavlov.	Klasická klimatizace byla poprvé studována fyziolog Ivan Pavlov.	1	1	acceptable
105	The cognitive school was influenced in large part by the development of the electronic computer, and although the differences between computers and the human mind are vast, cognitive psychologists have used the computer as a model for understanding the workings of the mind.	Kognitivní škola byla ovlivněna z velké části vývojem elektronického počítače, i když rozdíly mezi počítači a lidské mysli jsou obrovské, kognitivní psychologové používají počítač jako model pro pochopení fungování mysli.	1	1	acceptable
106	In both cases, participants reported their confidence in each prediction, and accuracy was determined by the responses of the people themselves.	V obou případech se účastníci vykazují jejich důvěru v každém předíci a přesnost byla stanovena na základě odpovědi samotných lidí.	1	1	acceptable
107	Simonton also found that among U.S. presidents, the ability to effectively lead was well predicted by ratings of the president's intelligence.	Simonton také zjistil, že u amerických prezidentů, schopnost účinně vést dobře předpověděl ratingu prezidentova inteligence.	1	1	acceptable
108	Eugenics became immensely popular in the United States in the early 20th century and was supported by many prominent psychologists, including Sir Francis Galton.	Eugenika stala nesmírně populární ve Spojených státech na počátku 20. století a byl podporován mnoha významnými psychology, včetně sira Francise Galton.	1	1	acceptable
109	Dozens of universities, including those in the Ivy League, offered courses in eugenics, and the topic was presented in most high school and college biology texts.	Desítky vysokých škol, včetně těch v Ivy League, nabízeny kurzy eugeniky, a toto téma byla prezentována ve většině střední a vysoké školy biologie textů.	0	1	divergent

110	Fortunately, the practice of sterilization was abandoned between the 1940s and the 1960s, although sterilization laws remained on the books in some states until the 1970s.	Naštěstí praxe sterilizace byla opuštěna mezi 1940 a 1960, ačkoli zákony sterilizace zůstal na knihách v některých státech až do 1970.	1	1	acceptable
111	This idea was reinforced in research by Hakuta, Bialystok, and Wiley, who examined U.S. census records of language learning in millions of Chinese and Spanish speakers living in the United States.	Tato myšlenka byla posílena ve výzkumu Hakuta, Bialystoku, a Wiley, který zkoumal území USA sčítání lidu záznamy o studiu jazyků v milionech čínských a španělské reproduktory žijící ve Spojených státech.	1	1	acceptable
112	This area was first localized in the 1860s by the French physician Paul Broca, who studied patients with lesions to various parts of the brain.	Tato oblast byla nejprve lokalizován v roce 1860 francouzským lékařem Paul Broca, kdo studoval u pacientů s lézemi do různých částí mozku.	1	1	acceptable
113	One of the early efforts was made by Catherine and Keith Hayes, who raised a chimpanzee named Viki in their home along with their own children.	Jedním z prvních snah byl vyroben Catherine a Keith Hayes, který vznesl šimpanze s názvem Vicky ve svém domě spolu s jejich vlastními dětmi.	0	0	unacceptable
114	The most frequently cited example of this possibility was proposed by Benjamin Whorf (1897–1941), an American linguist who was particularly interested in Native American languages.	Nejčastěji citovaným příkladem této možnosti bylo navrženo Benjamin Whorf (1897-1941), americký lingvista, která byla obzvláště zájem o indiánských jazycích.	1	1	acceptable
115	Elyse's childhood, also a happy one, was followed by college and then film school abroad.	Elyse dětství, také nějaký šťastný, byl následován vysokou školu a pak filmové škole v zahraničí.	0	0	unacceptable
116	Early theories assumed that personality was expressed in people's physical appearance.	Brzy teorie předpokládají, že osobnost byla vyjádřena ve fyzickém vzhledu lidí.	1	0	divergent
117	The trait approach to personality was pioneered by early psychologists, including Gordon Allport (1897–1967), Raymond Cattell (1905–1998), and Hans Eysenck (1916–1997).	Znak přístup k osobnosti byl propagován časnými psychology, včetně Gordon Allport (1897-1967), Raymond Cattell (1905-1998), a Hans Eysenck (1916 - 1997).	1	1	acceptable
118	Freud and Charcot also found that during hypnosis the remembering of the trauma was often accompanied by an outpouring of emotion, known as catharsis, and that following the catharsis the patient's symptoms were frequently reduced in severity.	Freud a Charcot také zjištěno, že během hypnózy zapamatování traumatu byl často doprovázen výlevu emocí, známý jako katarzi, a to v návaznosti na katarzi symptomy pacienta byly často sníženy závažnosti.	0	0	unacceptable

119	In France, one of the key reformers was Philippe Pinel (1745–1826), who believed that mental illness was caused by a combination of physical and psychological stressors, exacerbated by inhumane conditions.	Ve Francii, jeden z hlavních reformátorů byl Philippe Pinel (1745-1826), který věřil, že duševní nemoc byla způsobena kombinací fyzických a psychických stresorů, obnovený nelidských podmínkách.	0	0	unacceptable
120	Here he was tested by a pediatric neurologist, a psychologist, and a child psychiatrist.	Zde byl testován dětského neurologa, psychologa a dětského psychiatra.	1	1	acceptable
121	The most well-known mood stabilizer, lithium carbonate (or "lithium"), was approved by the FDA in the 1970s for treating both manic and depressive episodes, and it has proven very effective.	Nejvíce známý stabilizátor nálady, uhličitan lithný (nebo "lithium"), byl schválen FDA v roce 1970 pro léčení a manických depresivních epizod, a to se ukázal jako velmi účinný.	0	0	unacceptable
122	Until the middle of the 20th century, schizophrenia was inevitably accompanied by the presence of positive symptoms, including bizarre, disruptive, and potentially dangerous behavior.	Až do poloviny 20. století, schizofrenie byl nevyhnutelně spojeno s přítomností pozitivních symptomů, včetně bizarní, rušivý, a potenciálně nebezpečné chování.	1	1	acceptable
123	The tendency to conform to those in authority, known as obedience, was demonstrated in a remarkable set of studies performed by Stanley Milgram.	Tendence, aby odpovídaly těm v orgánu, známý jako poslušnost, byla prokázána v pozoruhodném souboru studií provedených Stanley Milgram.	1	1	acceptable
124	We have seen, for instance, that depression is caused by lower-level genetic factors, by medium-level personal factors, and by higher-level social and cultural factors.	Viděli jsme například, že deprese je způsobena genetickými faktory nižší úrovně, osobními faktory střední úrovně, a tím vyšší úrovně sociálních a kulturních faktorů.	1	1	acceptable
125	Human judgment is sometimes compromised by inaccuracies in our thinking styles and by our motivations and emotions.	Lidský úsudek je někdy ohrožen nepřesností v našich stylech myšlení a naše motivace a emoce.	1	1	acceptable
126	Many of the major theories of psychology, ranging from the Freudian psychodynamic theories to contemporary work in cognitive psychology, argue that much of our behavior is determined by variables that we are not aware of.	Mnoho z hlavních teorií psychologie, od freudovské psychodynamické teorií k současné práci v kognitivní psychologii, argumentovat, že velká část našeho chování je určena proměnnými, které si nejsme vědomi.	1	1	acceptable

127	When an action is met with failure, on the other hand, we are less likely to perceive this outcome as the result of our free will, and we are more likely to blame the outcome on luck or our teacher.	Je-li akce setkala s neúspěchem, na druhou stranu, my jsme méně pravděpodobné, že vnímají tento výsledek jako výsledek naší svobodné vůle, a my jsme s větší pravděpodobností na vině výsledek na štěstí nebo naše učitele.	0	1	divergent
128	Science is always influenced by the technology that surrounds it, and psychology is no exception.	Věda je vždy ovlivněn technologie, která ji obklopuje, a psychologie není výjimkou.	1	1	acceptable
129	Some research, such as the research conducted by the Nazis on prisoners during World War II, is perceived as immoral by almost everyone.	Některé výzkumy, jako je výzkum prováděný nacisty na vězně během druhé světové války, je vnímáno jako nemorální téměř každý.	0	0	unacceptable
130	As with ethical decisions involving human participants, a set of basic principles has been developed that helps researchers make informed decisions about such research; a summary is shown below.	Stejně jako s etickými rozhodnutími zahrnujících lidské účastníky, sada základních principů byl vyvinut, která pomáhá vědci činit informovaná rozhodnutí o takový výzkum; souhrn je uveden níže.	0	0	unacceptable
131	An interesting example of a case study in clinical psychology is described by Rokeach, who investigated in detail the beliefs and interactions among three patients with schizophrenia, all of whom were convinced they were Jesus Christ.	Zajímavý příklad případové studie v klinické psychologie je popsán Rokeach, který zkoumal podrobně přesvědčení a interakce mezi třemi pacientů se schizofrenií, z nichž všichni byli přesvědčeni, že jsou Ježíš Kristus.	0	0	unacceptable
132	In election polls, for instance, a sample is taken from the population of all "likely voters" in the upcoming elections.	Ve volebních průzkumech, například, je vzorek odebírán z obyvatel všech "pravděpodobných voličů" v nadcházejících volbách.	1	1	acceptable
133	In the same way, study time and memory errors are also related, because the more time a person is given to study a list of words, the fewer errors he or she will make.	Stejným způsobem, studie času a chyby paměti také souvisí, protože čím více, když člověk je dána studovat seznam slov, tím méně chyb on nebo ona bude dělat.	0	0	unacceptable
134	The most common statistical measure of the strength of linear relationships among variables is the Pearson correlation coefficient, which is symbolized by the letter r.	Nejběžnější Statistická míra síly lineárních vztahů mezi proměnnými je Pearson korelační koeficient, který je symbolizován písmenem R.	1	1	acceptable
135	The direction of the linear relationship is indicated by the sign of the correlation coefficient.	Směr lineárního vztahu je označen znaménkem korelačního koeficientu.	1	1	acceptable

136	As we have seen in Chapter 1 "Introducing Psychology", scientists associated with the behaviorist school argued that all learning is driven by experience, and that nature plays no role.	Jak jsme viděli v 1. kapitole "Představení psychologie", vědci spojené s behavioristy školy tvrdil, že všechno učení je poháněn zkušeností, a že příroda nehraje žádnou roli.	1	1	acceptable
137	Although obesity is caused in part by genetics, it is increased by overeating and a lack of physical activity.	Ačkoli obezita je způsobena zčásti genetikou, je zvýšena o přejídání a nedostatek fyzické aktivity.	1	1	acceptable
138	In addition to the psychological assessment, the patient is usually seen by a physician to gain information about potential Axis III (physical) problems.	Kromě psychologického hodnocení, pacient je obvykle vidět lékař, který má získat informace o potenciálních osy III (fyzické) problémů.	0	0	unacceptable
139	Beliefs in culture of honor norms are stronger among men who live or who were raised in the South and West than among men who are from or living in the North and East.	Víry v kultuře cti norem jsou silnější mezi lidmi, kteří žijí nebo kteří byli vychováni v jižním a západním směrem než u mužů, kteří jsou z nebo žijí na severu a východě země.	1	1	acceptable
140	The ability of a group to perform well is determined by the characteristics of the group members (e.g., are they knowledgeable and skilled?) as well as by the group process—that is, the events that occur while the group is working on the task.	Schopnost skupiny fungovat dobře je určena charakteristikami členů skupiny (např. jsou jejich znalosti a kvalifikované?), Jakož i skupiny procesem—to znamená, že události, ke kterým dochází, když se skupina pracuje na úkolu.	1	1	acceptable
141	When old facts are discarded, they are replaced with new facts based on newer and more correct data.	Jsou-li staré fakta vyřazeny, jsou nahrazeny novými skutečnostmi založenými na novější a správnými daty.	1	1	acceptable
142	Are people around the world generally the same, or are they influenced by their backgrounds and environments in different ways?	Jsou lidé na celém světě obecně stejní, nebo jsou ovlivněni jejich zázemí a prostředí různými způsoby?	0	0	unacceptable
143	Behaviorists believe that the human mind is a "black box" into which stimuli are sent and from which responses are received.	Behavioristé věří, že lidská mysl je "černá skříňka", do níž jsou odesílány podněty a ze kterého jsou přijímány odpovědi.	1	1	acceptable
144	In terms of the nature-nurture debate, the behaviorists agreed with the nurture approach, believing that we are shaped exclusively by our environments.	Pokud jde o diskusi přírody život se behavioristé souhlasila s přístupem, život, věřit, že jsme ve tvaru výlučně našimi prostředí.	0	0	unacceptable

145	An important aspect of social-cultural psychology are social norms—the ways of thinking, feeling, or behaving that are shared by group members and perceived by them as appropriate.	Důležitým aspektem sociálně-kulturní psychologie jsou společenské normy-způsoby myšlení, cítění, nebo chovat, které jsou sdíleny členy skupiny a vnímané nich podle potřeby.	0	0	unacceptable
146	In these cultures children are taught to focus on developing harmonious social relationships with others.	V těchto kulturách se děti učí zaměřit na rozvoj harmonické sociální vztahy s ostatními.	1	1	acceptable
147	In the prisoner's dilemma game, the participants are shown a payoff matrix in which numbers are used to express the potential outcomes for each of the players in the game, given the decisions each player makes.	V vězně dilema hry, účastníci jsou zobrazeni na matici přínosu, ve kterém jsou čísla používána k vyjádření možných výsledků pro každý z hráčů ve hře, vzhledem k rozhodnutí každý hráč dělá.	0	0	unacceptable
148	The chromosomes are made up of strands of the molecule DNA (deoxyribonucleic acid), and the DNA is grouped into segments known as genes.	Chromozómy jsou tvořeny řetězců molekuly DNA (deoxyribonukleové kyseliny), a DNA je rozdělena do úseků, známých jako geny.	1	1	acceptable
149	The idea is that if the twins are raised in the same household, then the twins will be influenced by their environments to an equal degree, and this influence will be pretty much equal for identical and fraternal twins.	Myšlenka je, že pokud dvojčata jsou chována ve stejné domácnosti, pak dvojčata budou ovlivněny jejich prostředí, aby byla stejnou měrou, a tento vliv bude do značné míry stejná pro identických dvojčat a bratrské.	0	0	unacceptable
150	Auditory hallucinations are the most common and are reported by approximately three quarters of patients.	Sluchové halucinace jsou nejčastější a jsou hlášeny zhruba tři čtvrtiny pacientů.	0	1	divergent
151	Worldwide, about 99% of rapes and about 90% of robberies, assaults, and murders are committed by men.	Celosvětově je asi 99% znásilnění a asi 90% z loupeže, přepadení a vraždy páchají muži.	1	0	divergent
152	These statements will be accompanied by statistical tests, often including statements such as "p < 0.05" or about confidence intervals.	Tyto příkazy budou doprovázeny statistických testů, často včetně tvrzení jako "p < 0,05" nebo o intervaly spolehlivosti.	1	1	acceptable
153	The therapist will summarize the information about the patient on each of the five DSM axes, and the diagnosis will likely be sent to an insurance company to justify payment for the treatment.	Terapeut shrne informace o pacientovi na každém z pěti DSM os, a diagnóza bude pravděpodobně poslán do pojišťovny ospravedlnit platbu za ošetření.	1	1	acceptable

154	The client and the therapist work together to develop the goals of the therapy, the particular ways that the goals will be reached, and the timeline for reaching them.	Klient a terapeut spolupracovat na rozvoji cílů terapie, konkrétní způsoby, které bude dosaženo cíle a časové osy pro jejich dosažení.	1	1	acceptable
155	One of the two participants was asked to draw slips of paper to select the two brands that would be tasted at this session.	Jeden ze dvou účastníků byl požádán, aby čerpal lístky vybrat dvě značky, které by ochutnat v této relaci.	0	0	unacceptable
156	It seems that children modify their language through imitation, reinforcement, and shaping, as would be predicted by learning theories.	Zdá se, že děti modifikovat jejich jazykem prostřednictvím napodobování, zesílení a tvarování, jak by se dalo předpokládat na základě teorie učení.	1	1	acceptable

### APPENDIX III: THE EXPERIMENT TEXT

#### [segment no. 1]

Other research findings also support the general principle that punishment is generally less effective than reinforcement in changing behavior. **In a recent meta-analysis, Gershoff found that although children who were spanked by their parents were more likely to immediately comply with the parents' demands, they were also more aggressive, showed less ability to control aggression, and had poorer mental health in the long term than children who were not spanked.** The problem seems to be that children who are punished for bad behavior are likely to change their behavior only to avoid the punishment, rather than by internalizing the norms of being good for its own sake. Punishment also tends to generate anger, defiance, and a desire for revenge. Moreover, punishment models the use of aggression and ruptures the important relationship between the teacher and the learner.

#### [segment no. 2]

Because Black students are aware of the stereotype that Blacks are intellectually inferior to Whites, this stereotype might create a negative expectation, which might interfere with their performance on intellectual tests through fear of confirming that stereotype. In support of this hypothesis, the experiments revealed that Black college students performed worse (in comparison to their prior test scores) on standardized test questions when this task was described to them as being diagnostic of their verbal ability (and thus when the stereotype was relevant), but that their performance was not influenced when the same questions were described as an exercise in problem solving. **And in another study, the researchers found that when Black students were asked to indicate their race before they took a math test (again activating the stereotype), they performed more poorly than they had on prior exams, whereas White students were not affected by first indicating their race.**

#### [segment no. 3]

Freud wrote case studies of some of his most interesting patients and used these careful examinations to develop his important theories of personality. One classic example is Freud's description of "Little Hans," a child whose fear of horses the psychoanalyst interpreted in terms of repressed sexual impulses and the Oedipus complex. **Another well-known case study is Phineas Gage, a man whose thoughts and emotions were extensively studied by cognitive psychologists after a railroad spike was blasted through his skull in an accident.** Although there is question about the interpretation of this case study, it did provide early evidence that the brain's frontal lobe is involved in emotion and morality. An interesting example of a case study in clinical psychology is described by Rokeach, who investigated in detail the beliefs and interactions among three patients with schizophrenia, all of whom were convinced they were Jesus Christ.

#### [segment no. 4]

The sexual response cycle and sexual desire are regulated by the sex hormones *estrogen* in women and *testosterone* in both women and in men. **Although the hormones are secreted by the ovaries and testes, it is the hypothalamus and the pituitary glands that control the process.** Estrogen levels in women vary across the menstrual cycle, peaking during ovulation. Women are more interested in having sex during ovulation but can experience high levels of sexual arousal throughout the menstrual cycle.

#### [segment no. 5]

Although some brain structures are particularly important in memory, this does not mean that all memories are stored in one place. **The American psychologist Karl Lashley attempted to determine where memories were stored in the brain by teaching rats how to run mazes, and then lesioning different brain structures to see if they were still able to complete the maze.** This idea seemed straightforward, and Lashley expected to find that memory was stored

in certain parts of the brain. But he discovered that no matter where he removed brain tissue, the rats retained at least some memory of the maze, leading him to conclude that memory isn't located in a single place in the brain, but rather is distributed around it.

**[segment no. 6]**

On the basis of these results, the psychologist Charles Spearman (1863–1945) hypothesized that there must be a single underlying construct that all of these items measure. He called *the construct that the different abilities and skills measured on intelligence tests have in common* the general intelligence factor (g). **Although there is general agreement among psychologists that g exists, there is also evidence for specific intelligence (s), a measure of specific skills in narrow domains.** One empirical result in support of the idea of s comes from intelligence tests themselves. Although the different types of questions do correlate with each other, some items correlate more highly with each other than do other items; they form clusters or clumps of intelligences.

**[segment no. 7]**

The visual cortex is made up of specialized neurons that turn the sensations they receive from the optic nerve into meaningful images. **Because there are no photoreceptor cells at the place where the optic nerve leaves the retina, a hole or blind spot in our vision is created.** When both of our eyes are open, we don't experience a problem because our eyes are constantly moving, and one eye makes up for what the other eye misses.

**[segment no. 8]**

The Pepsi Cola Corporation, now PepsiCo Inc., conducted the "Pepsi Challenge" by randomly assigning individuals to taste either a Pepsi or a Coke. The researchers labeled the glasses with only an "M" (for Pepsi) or a "Q" (for Coke) and asked the participants to rate how much they liked the beverage. **The research showed that subjects overwhelmingly preferred glass "M" over glass "Q," and the researchers concluded that Pepsi was preferred to Coke.** Can you tell what confounding variable is present in this research design? How would you redesign the research to eliminate the confound?

**[segment no. 9]**

Charcot was experimenting with the use of hypnosis, and he and Freud found that under hypnosis many of the hysterical patients reported having experienced a traumatic sexual experience, such as sexual abuse, as children. **Freud and Charcot also found that during hypnosis the remembering of the trauma was often accompanied by an outpouring of emotion, known as catharsis, and that following the catharsis the patient's symptoms were frequently reduced in severity.** These observations led Freud and Charcot to conclude that these disorders were caused by psychological rather than physiological factors.

**[segment no. 10]**

Although family studies can reveal whether a trait runs in a family, it cannot explain why. In a twin study, *researchers study the personality characteristics of twins*. Twin studies rely on the fact that identical (or monozygotic) twins have essentially the same set of genes, while fraternal (or dizygotic) twins have, on average, a half-identical set. **The idea is that if the twins are raised in the same household, then the twins will be influenced by their environments to an equal degree, and this influence will be pretty much equal for identical and fraternal twins.** In other words, if environmental factors are the same, then the only factor that can make identical twins more similar than fraternal twins is their greater genetic similarity.

**[segment no. 11]**

In addition to lesion approaches, it is also possible to learn about the brain by studying the electrical activity created by the firing of its neurons. One approach, primarily used with

animals, is to place detectors in the brain to study the responses of specific neurons. **Research using these techniques has found, for instance, that there are specific neurons, known as feature detectors, in the visual cortex that detect movement, lines and edges, and even faces.**

[segment no. 12]

#### Research with Animals

Because animals make up an important part of the natural world, and because some research cannot be conducted using humans, animals are also participants in psychological research. Most psychological research using animals is now conducted with rats, mice, and birds, and the use of other animals in research is declining. **As with ethical decisions involving human participants, a set of basic principles has been developed that helps researchers make informed decisions about such research; a summary is shown below.**

[segment no. 13]

#### Social Development During Childhood

**It is through the remarkable increases in cognitive ability that children learn to interact with and understand their environments.** But these cognitive skills are only part of the changes that are occurring during childhood. Equally crucial is the development of the child's social skills—the ability to understand, predict, and create bonds with the other people in their environments.

[segment no. 14]

#### The Ear

Just as the eye detects light waves, the ear detects sound waves. Vibrating objects (such as the human vocal chords or guitar strings) cause air molecules to bump into each other and produce sound waves, which travel from their source as peaks and valleys much like the ripples that expand outward when a stone is tossed into a pond. **Unlike light waves, which can travel in a vacuum, sound waves are carried within mediums such as air, water, or metal, and it is the changes in pressure associated with these mediums that the ear detects.** As with light waves, we detect both the wavelength and the *amplitude* of sound waves.

[segment no. 15]

#### Laws and Theories as Organizing Principles

One goal of research is to organize information into meaningful statements that can be applied in many situations. *Principles that are so general as to apply to all situations in a given domain of inquiry* are known as laws. **There are well-known laws in the physical sciences, such as the law of gravity and the laws of thermodynamics, and there are some universally accepted laws in psychology, such as the law of effect and Weber's law.** But because laws are very general principles and their validity has already been well established, they are themselves rarely directly subjected to scientific test.

[segment no. 16]

Decisions about whether research is ethical are made using established ethical codes developed by scientific organizations, such as the American Psychological Association, and federal governments. In the United States, the Department of Health and Human Services provides the guidelines for ethical standards in research. **Some research, such as the research conducted by the Nazis on prisoners during World War II, is perceived as immoral by almost everyone.** Other procedures, such as the use of animals in research testing the effectiveness of drugs, are more controversial.

[segment no. 17]

While it is true that we do need money to afford food and adequate shelter for ourselves and our families, after this minimum level of wealth is reached, more money does not generally buy more happiness. Even though income and material success has improved dramatically in many countries over the past decades, happiness has not. **Despite tremendous economic growth in France, Japan, and the United States between 1946 to 1990, there was no increase in reports of well-being by the citizens of these countries.** Americans today have about three times the buying power they had in the 1950s, and yet overall happiness has not increased. The problem seems to be that we never seem to have enough money to make us “really” happy.

[segment no. 18]

Anderson and Dill had from the outset created initial equivalence between the groups. **This initial equivalence allowed them to observe differences in the white noise levels between the two groups after the experimental manipulation, leading to the conclusion that it was the independent variable (and not some other variable) that caused these differences.** The idea is that the only thing that was different between the students in the two groups was the video game they had played.

[segment no. 19]

John B. Watson and B. F. Skinner believed that all learning was the result of reinforcement, and thus that reinforcement could be used to educate children. **Although reinforcement can be effective in education, and teachers make use of it by awarding gold stars, good grades, and praise, there are also substantial limitations to using reward to improve learning.** To be most effective, rewards must be contingent on appropriate behavior. In some cases teachers may distribute rewards indiscriminately, for instance by giving praise or good grades to children whose work does not warrant it, in the hope that they will “feel good about themselves” and that this self-esteem will lead to better performance.

[segment no. 20]

Paula Bernstein and Elyse Schein were identical twins who were adopted into separate families immediately after their births in 1968. It was only at the age of 35 that the twins were reunited and discovered how similar they were to each other. Paula Bernstein grew up in a happy home in suburban New York. She loved her adopted parents and older brother and even wrote an article titled “Why I Don’t Want to Find My Birth Mother.” **Elyse’s childhood, also a happy one, was followed by college and then film school abroad.**