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Terminological Variability in Localization Projects

Veronika Litviková

Comenius University in Bratislava

cholevova.veronika@gmail.com

Translation: Jana Bidovská

Abstract

This article deals with terminological variability and usage inconsistency in software localization projects. The theoretical part of the article aims to compare local and international studies discussing the processes of globalization, internalization, localization, and translation, and it primarily discusses theoretical knowledge about terminological variability and inconsistency connected with the new phenomena of corporate language and corporate identity and their enforcement by software companies. The empirical part of the article presents research covering the terminology databases of three software companies (Microsoft, Google, and Apple) and the isolation of variable terms. Based on a survey of 376 respondents, this article tries to determine users' preferences of variable terms when put in context. It also tries to highlight variability in software terminology, determine its impact on localization, and explain its presence in terminology databases and the glossaries of software companies.

Keywords: terminological variability, inconsistency, software terminology, terminology databases, terminology

Introduction

The digital revolution at the turn of the 1970s and 1980s significantly changed several aspects of human life, including the form of texts and their distribution, transmission, and reception. It was precisely in connection with its dissemination through translation and interpretation that pragmatism has gradually come to the fore; translation studies naturally responded to this by moving away from the study of the primary linguistic aspect of texts and inclining toward "the dominance of purpose, differentiation of texts, and intercultural aspects" (Rakšányiová 2014). This change and the higher demand for

dissemination of text in the form and accompaniment of audio and graphic content is linked to the processes of globalization, internationalization, localization, and translation, and, in the context of localization, specifically with multinational companies producing digital content and software. The aim of this article is to point out the existing variability in software terminology and the preferences of software users regarding specific terms and their application which is related to the need for localization to work in translations with current and correct terminology, which meets not only the naming function but also the needs of the user.

The first part of this article deals with the theoretical foundations of globalization, internationalization, localization, and translation processes in order to point out their interconnection and more specifically the position of translation within localization. Subsequently, it focuses on the role of terminological culture, terminological literacy, and socioterminology in localization and their impact on the terminological side of translation, i.e., the intersection of GILT processes, terminology, and the recipients of localized text. Using the example of Microsoft, there is a close look at the form of existing terminology databases, their meaning, and the very process of terminology management; there is a consistency of databases, an occurrence of variable terms, and a level of customization for users (linguists). The article also analyzes the concept of translators' terminological competence, which, in the Slovak and Polish translation environment, is not defined separately but is rather part of other translation competences (Sikora 2014; Štefková 2018). Finally, the article presents the theoretical aspect of the initial problem on which it focused, namely the problem of terminological inconsistency and variability, which in software localization is ultimately linked to the existence of corporate language, i.e., "regulation of language in a corporate context" (Sanden 2015, 1097) and companies' effort to use language as a tool to differentiate themselves from the competition, which also affects the existence, quality, and the way translators use the terminology databases of these companies, given that translation and interpretation are influenced by company rules. The theoretical background of the article concludes with the issue of terminographic work and the need to create a unified terminology database in software in order to simplify and speed up the work of linguists.

The second part of the article analyzes the variability of the terminology of software companies. There is an occurrence of the same terms in different databases. It is worthwhile noting whether their definitions match or name other software elements. Indeed, there are meaning nuances in variable terms and subsequently in the preference for specific terms among ordinary users when looking at the most common and well-

known terms used by Apple, Google, and Microsoft. The article analyzes the possible causes of a preference or rejection of individual variants by users who participated in a survey, taking into account the characteristics of the terms, their possible application in the context, and the software element they name. Based on this information, the article evaluates which terminology database is the most natural for users, it compares the results from the survey regarding the theoretical information on variable terms, and it takes a specific stand on the causes of the development of variable terms, their meaning, and their impact on localization and the user.

1 Globalization, internationalization, localization, and translation

The process of globalization is linked to an introduction of products on the global market. In the 1990s, the Localization Industry Standards Association (LISA) was established in Switzerland, enabling expanding companies to deal with several problems associated with globalization. In 2011 it was followed up by the Globalization and Localization Association (GALA). In marketing terms, globalization can be defined as "the transformation of business and processes to support customers around the world, in whatever language, country, or culture they require" (Lommel 2007, 1). GALA (ibid.) describes globalization as a process at a global level which clearly shows the importance of language in the introduction of products on the global market; attention is drawn to the customer and to the need to meet their specific cultural and linguistic requirements (Kabát 2021a).

The process of internationalization, which is often confused with globalization, is important for localized products. Internationalization is focused on the technical side of modifying the product so that it can be localized. This means modifying various elements "such as international character sets, keyboard layouts, date and time formats, and currencies" (Esselink 2000). Esselink (2000) mentions the need to avoid the use of jargon, slang, and specific references to culture in technical documentation.

Trade-oriented globalization and the internationalization of the technical side of the product is followed by the localization process, which often automatically mentions the fourth GILT process and thus translation. Localization as a process is closely related to translation, but primarily it is a process of adapting the content to the needs of the recipient, i.e., adapting the appearance, color spectrum, and other locality-specific elements. LISA defines localization as "the process of modifying products or services to

account for differences in distinct markets" (Lommel 2007). This means that in the process we face three main categories of problems (linguistic, content-cultural, and technical) (Lommel 2007).

The position of translation within localization is still not clearly defined. O'Hagan places translation "as the core of both localization and globalization," arguing that "from the point of view of traditional translation, localization was initially considered an extension of software engineering. Now it is treated as a new form of translation" (O'Hagan 2006, 39). Drouin, on the other hand, perceives translation and localization as "parallel domains" that complement each other; according to him, translators in the localization process "have to pay special attention to the consistency of terminology, phraseology, style, etc. between very different products" (Drouin 2006, 50). Based on these statements, as well as experience, one cannot deny the importance and significance of translation in the whole process of globalization (not just localization), because its success depends largely on successfully implementing software in the target market, in which quality translation also plays an important role. Having said that, localization as such "has not brought conceptual changes to translation but has instead broadened the concept whereby traditional translation skills must now be combined with technical ability" (Mullamaa and Piñeiro 2006, 61).

2 Terminological culture, literacy, and socioterminology

The media boom that occurred in the second half of the twentieth century also had a significant impact on the formation of terminology. Until then, terminological work – i.e., the creation and verification of terms, the processing of terminology into graphic form, and the care of terminological culture and terminological literacy (Masár 1986) – were primarily dealt with by linguists. In this period, however, many completely new concepts began to emerge which required Slovak counterparts to meet the needs of software and hardware users (not only experts in a particular scientific field, as used to be customary) and form the basic prerequisites of established software terminology in the Slovak environment.

The current situation is comparatively dynamic, so the cultivation of terminological culture seems to be a difficult task. Stoffa defines it as "an adequate use of terms in accordance with the rules and system of grammatically correct language, scientific or technical style, professional, national and international standards and customs of the professional community" (2008, 170). He acknowledges that when designing and

assessing the appropriateness of a term, we must also consider "the processes of deepening international cooperation, integration and globalisation" (Stoffa 2008, 171).

In terms of terminological literacy, Stoffa says that it is "the ability of the user of the term to use the correct terms and solve terminological problems of their field" (2008, 168), which directly applies to translators and is an essential quality. The cultivation of terminological culture is more challenging and depends on the entire community of professional language users, but several of its manifestations, such as the creation of professional glossaries and the use of the same terms to name the same ideas, are also applied at many levels of the localization process.

In the context of the relationship between language (or terminology) and users, it is worthwhile mentioning socioterminology. Terminology is undoubtedly "the primary means of communication and knowledge transfer between software developers and end-users" (Schmitz 2009, 4), as evidenced by documents accompanying the arrival of software to a new locality that are used to introduce the product to users (e.g., user manuals and instructional videos). In the process of the localization of a given product, the translator must take care of the appropriate use of terms and consider their choice based on the requirements of appropriate motivation, systematicity, and novelty, especially in the context of software terminology and its rapid development (Schmitz 2009). At the same time, the established terminology must be respected by anyone who enters the globalization process in order to adequately implement the product, since "avoiding indeterminate, incorrect and inconsistent use of terms and icons must be one of the major goals of software development, quality assurance, and usability testing" (Schmitz 2009, 4). When translating software, sociolinguistic factors must be taken into account. This means that localization can be practically considered as an application of sociolinguistic knowledge at the level of translation. The idea of the locale on which the very concept of localization is based, is perceived as a group of certain cultural preferences (Pym 2001) that enter localization as one of the primary factors. At the same time, when translating, we must consider the differences and cultural features of individual localities which are important from a social point of view as they influence the choice of words and terms. As an applied science, socioterminology is directly oriented towards society, and "it unites the specialized concepts with a community of speakers. In this way, socioterminology enables terminological practices to be adapted to the target languages and linguistic communities…" (ISO/TR 22134 2007, 12).

Based on this justification, the empirical part of the article will largely deal with how users perceive the terms of software companies and examine their preferences for

individual terms using a questionnaire method. According to Cíbiková, the translator automatically includes a future user into the terminological work when considering which term to prefer in the translation. Terminology should therefore be "developed together with users and linked to their requirements" (Cíbiková 2008, 29).

3 Terminology management and the terminological competence of a translator

The enormous rise of new ideas resulting from the development of the IT field and the speed at which the development has taken place since the early 1990s have prompted the emergence of new reflections on the need for the increasingly rapid dissemination of products around the world. At the same time, certain consequences arose from this need that had to be considered right from the outset. In The End of Translation as we Know It, Esselink (1999) anticipated the possible termination of independent localization projects and an increasing volume of texts requiring localization, and he pointed out the need for continuous and regular terminological work and the increasing importance of the use of translation tools. This section of the article elaborates on the need for terminology management.

At first, terminology was only developed at an advanced stage of localization. It initially took the form of lists of terms conceived by the translators themselves, and later the lists were turned into glossaries with definitions which were formed at the beginning of the localization process. Since they were adapted for specific products and product teams did not work with them, this often resulted in the emergence of different terms naming the same concepts, different glossary formats, and the emergence of undesirable inconsistency in terminology (Corbolante 2009).

Terminology management is thus inevitable, with companies often reaching individual solutions. The course of terminology management at Microsoft will serve as an example. Corbolante (2009) describes Microsoft's terminology management model as proactive. The identification of new terms takes place even before the start of the localization process. The terms are then made available to localization teams and other users in the form of a multilingual terminology database. This approach also reduces the occurrence of inconsistencies. Term mining is primarily carried out by English terminologists together with developers, copywriters, and editors. They work on identifying new concepts and terms, verifying their possible existence in glossaries and terminology databases. After verification, definitions are finalized and headwords are created in

the terminology database. The database is prepared for other languages, while concepts and source terms are subject to analysis by the target terminologists. Finally, they choose the appropriate approach for the specific target language, conduct the research, and evaluate the results. In the case of the Microsoft terminology management model, the prerequisite for localization is to insert the term into the terminology database in the target language.

The terminology management process described in this way is actually much more dynamic and depends more or less on automated tools for searching and managing terminology. Tools for detecting the occurrence of inconsistent terminology and approving terms which are captured additionally during the localization itself are also of great importance. Although we can consider this model of terminology management to be sophisticated and of good quality, there are multiple weaknesses. A translator may encounter a term that has not yet been localized in the target language and may either know or not know its definition in the source language. In order to ensure the continuity of the entire localization process, they must propose a suitable term themselves. There may also be cases where the translator has a choice of several terms in the target language that have not yet been approved by the terminologist for the given concept (variability), or it may happen that the localized term already names another idea in the source language (inconsistency). All these situations require the increased attention of the translator; their ability to search, compare, and evaluate terms from several points of view; and the ability to create a new term that meets the requirements of a suitably formulated term.

Corbolante states that the key factor in successful localization is quality terminology management; she defines it as "investigation, documentation, and consistent reuse of terms and their associated concepts" (2009, 1). Knowledge of terminology management shows the interconnection of this process with the work of a translator in the localization process and the increased demands on several of their competences.

Translation competences differ in terms of the type of translation (e.g., artistic, technical, and audiovisual), but their differences are often based on different names of the same competences in specialized articles. A summary of translation competences and the information connected with them can be found in several publications, including *Translation Competences in the Context of Domestic Translation Studies* (Prekladateľské kompetencie v kontexte domácej translatológie) (Koželová 2018) and *Selected Translation Problems: Translation Competences and Audiovisual Translation* (Vybrané problémy prekladu: prekladateľské kompetencie a audiovizuálny preklad) (Koželová and Kuľbak

2019). In the context of localization, translation competences have been addressed by Kabát (2020) and Kabát and Koscelníková (2021).

Terminological competence in Slovakia has so far been dealt with almost exclusively by Štefková (2014) and only in connection with administrative translation. She places it on a par with the theoretical knowledge and practical skills of the translator and speaks of the need and importance of practical experience in "processing terminology, which is necessary for the systematic preservation and consistent use of translation equivalents in the same contexts" (Štefková 2014, 167).

Kraviarová also talks about working with terminological resources in the context of technical translation; according to her, "the responsibility for managing, searching and updating terminological resources" in smaller companies lies with the translator (2014, 74). In addition, she argues that insufficient training in working with terminology causes the tendency among "translators to leave outstanding places in translation" and rely on terminologists, although they could find and use adequate terminological solutions themselves (Kraviarová 2014, 75). The ability to work independently with terminology and search for suitable solutions is all the more urgent in the localization process, where several translators often work on one project or when new clients have no database or only a very limited one.

International sources are a little more specific about terminological competence and basically agree that the quality of translation depends primarily on the adequate selection and use of terminology in the text, and so "[t]his signifies that the translator must successfully deal with terminological problems during the analysis of the source text and the production of the target text" (Montero and Faber 2009, 92). Sikora (2014) also dealt with the definition of terminological competence; in her study, she chose two models of translation competence as a starting point. This was a model that is part of the European Master's in Translation project (2017), and she worked with the ISO 17100 – Translation Services – Requirements for Translation Services standard. In both of these sources, terminological competence is considered to be the accumulation of several subcompetences of a translator. The ISO 17100 standard states that it is the intersection of competence in research, information acquisition and processing as well as technical competence and domain competence. Based on this knowledge, Sikora also defines terminological competence as a combination of the abovementioned subcompetences; indeed, "to obtain terminological information and manage it for translation purposes, translators have to develop and use certain terminology (and information) research skills and be able to use a variety of technical tools which enable efficient

storage and management of terminology" (Sikora 2014, 504). In the context of localization, we can highlight the technical dimension of this competence; however, a translator cannot rely solely on translation tools or on their ability to correctly recognize the terminological unit, assign it a corresponding equivalent in the target language, and compare its use in other discourses and localities. In the context of terminological competence, the significant contribution of the translator to the management of terminology is evident.

4 Inconsistency, the variability of terminology, and the impact of corporate identity on terminology

The availability of a quality glossary of terms or an extensive terminology database, ideally with examples of the use of terms in a real context, their regular updating, and the presence of notes on the specifics of the term are the most ideal prerequisites for maintaining the consistent use of terms in the context of localization, copywriting processes, and the creation of advertising texts; however, inconsistency and variability may occur in such texts and in the glossary or database itself.

In the process of localization, there is the need to achieve a terminological consistency and to use a single term to refer to the same concept, especially when different developers, product teams, and software companies are working with "their own" terminology at different times and in different places. Emphasizing the need for terminological consistency is also important for consumers as it helps in "decreasing indeterminacy caused when a single concept is associated with more than one term and enables associative learning" (Schmitz 2009); it is important for software developers to strive for this as much as possible. In the intuitive software environment, and through the use of known and consistent terms across products, the user can navigate familiar and new phenomena according to already adopted interaction patterns and repeatedly follow them (Byrne 2006).

Terminological variability reflects the fact that systems of concepts and definitions are subject to dynamic development. Using variants is associated mainly with sociolinguistic factors and various social and situational aspects of communication in professional language. Since variability arises most often from the professional sphere and from a non-uniform approach to the formation of terms, its occurrence in the process of localization is not exceptional. It is also related to the diversity of marketed products and the different preferences of users.

An interesting idea in the context of localization is presented in a terminometric[1] survey by Quirion from the University of Ottawa, which intended to "measure the degree of implantation of all designations referring to a single concept or to a set of concepts" (2003, 30). The significance of this idea lies in the possibility of quantitively measuring the actual use of competing or consonant terms in practice (using corpora). Translators could therefore choose a term while considering its further features, such as its level of use.

When talking about the variability and inconsistency of terms in localization, it is important to mention the impact of a company's corporate identity and, within it, the impact of the enforcement of the use of corporate language by software companies such as Google (Cook, Jarvis, and Lee 2015). In addition to the fact that corporate identity is generally perceived as a company's philosophy, ethical values, and history, it is increasingly viewed in connection with multinational companies because "globalization must be dealt with in not only domestic but also foreign culture in order to be able to communicate accordingly" (Vysekalová and Mikeš 2009, 17); this inevitably also manifests itself in the localization process.

Corporate language is the result of a language policy which is typically created for companies by business managers and communication professionals within the company (Sanden 2015). It covers all communications of the company, both internal and external, and reflects the nature of the company using it and the type of end user of the product. This fact requires the increased attention of translators during the localization of the software and all other documents associated with it.

This kind of corporate policy has a definite influence on the creation of variants of terms naming the same concept. The translator, however, often notices the existence of the variability of a particular term only when translating for another company which uses its own glossary, or when translating for a company that does not yet have its own glossary of terms. In such a case, a "comprehensive localization terminology database, which is currently absent [in Slovakia]" would be invaluable (Kabát 2021b, 1). In addition to the need for a comprehensive terminology database, the quality of the available glossaries and databases is questionable. As Gromová (2011) points out, terminological dictionaries are not a valuable source of information for the translator as they do not respect their specific needs and do not contain contextual factors. Given these facts, this

[1] Suggested translation in Slovak – *termínometria*: an analysis of the use of consonant terms naming the concept (see Public Works and Government Services Canada 2007).

article will now deal with the creation of terminology databases and the essence of terminographic work in the process of localization.

5 A terminology database and terminographic work

From practical experience, one of the essential conditions for the smooth process of software localization is having a properly processed terminology file in a universally usable format offering access to all members of the localization team. Compared to encyclopedias and general and specialist dictionaries, a terminology database is preferable in the translation environment due to its comprehensiveness, easy accessibility, and applicable formats in various translation tools. Levická lists other advantages of terminology databases, including the centralization of the information of available terms, the possibility for popularization, and the dissemination of standardized terminology alongside flexibility and the fact that that they are a suitable space for creating a consensus between an expert and a linguist or translator in the process of creating a terminological record (2005).

The creation of a terminology database is a complex process and cannot arise only as a by-product of translation. The parallel to the relationship between lexicology and lexicography is formed precisely by terminology and terminography. Indeed, "[t]erminography involves gathering, systematizing, and presenting terms from a specific branch of knowledge or human activity" (Cabré 1999, 115); however, terms must not be artificially created or invented by terminologists, because their contextual anchoring is an important signal that the term is actually used in practice. Additionally, the terminological record in the database should be detailed and comprehensive, taking into account the needs of the translator.

Gromová (2011, 8–17) describes terminology databases in *Terminological Research in Slovakia: the Past, Present, and Future* (Terminologický výskum na Slovensku – minulosť, prítomnosť, budúcnosť). She speaks of initiatives that relate to the terminological perspective and terminographic work. The theoretical part of the creation of terminology databases in the localization of software products in Slovakia is being actively dealt with by Kabát in works such as the *Model of Localization Terminology Database* (Model lokalizačnej terminologickej databázy) (2021b). He proposes a terminology database that would consist of cards (the equivalent of a terminological record) and fields that should be part of these cards: "[i]f necessary, individual cards could be interconnected, making it easier to search" (2021, 3). The proposed terminology database should be

based on the specifics of software terminology. Depending on the language of the database, individual fields, which should be included in the cards or the terminological record, should include information on the definition and grammatical categories and reference synonymous terms and context. Several sources describing the basic fields in the terminology database records correspond to this (Cabré 1999; Levická 2006; Kabát 2021b).

Comprehensive terminology databases are the most suitable sources of information for translators in the localization process. Online terminology databases include the Slovak Terminology Database and Microsoft's Language Portal. Although this portal has a reduced range of fields, its online form and .tbx format allow wide use of the database. Most often, however, terminology databases are created by the companies themselves and are made available only to translators involved in the localization of specific company products.

The importance of one comprehensive database pooling information about terms from different areas of software and different companies would be seen in the significant simplification of the work of translators working, for example, on the localization of a new product. The need to create such a comprehensive terminology database oriented to the needs of the translator and taking into account the software localization specifications is also confirmed by the fact that "the fundamental prerequisites of localization of software products are accuracy and consistency across all parts of the software product" (Kabát 2021b, 5), which ultimately refers also to the need for the management of such a database and a reassessment of traditional models of terminology databases.

6 An analysis of variant terms regarding user preferences

This part of the article analyzes the terminologies of Apple, Google, and Microsoft regarding the variability of terms that define approximately the same software and hardware concepts. Personal experience as a localizer in software translation for these (and other) companies has made it clear that their terminology is very similar. In investigating variability and the inconsistent use of terms, Slovak terms that name the same ideas are analyzed in all the mentioned companies; at least two out of three companies use a different term (variant) to name the same concept. The choice of given terms, which are intended to illustrate the variability of terminology related to corporate identity, was preceded by extensive research, obtaining information about terminology databases and glossaries, and the actual use of the terms in practice.

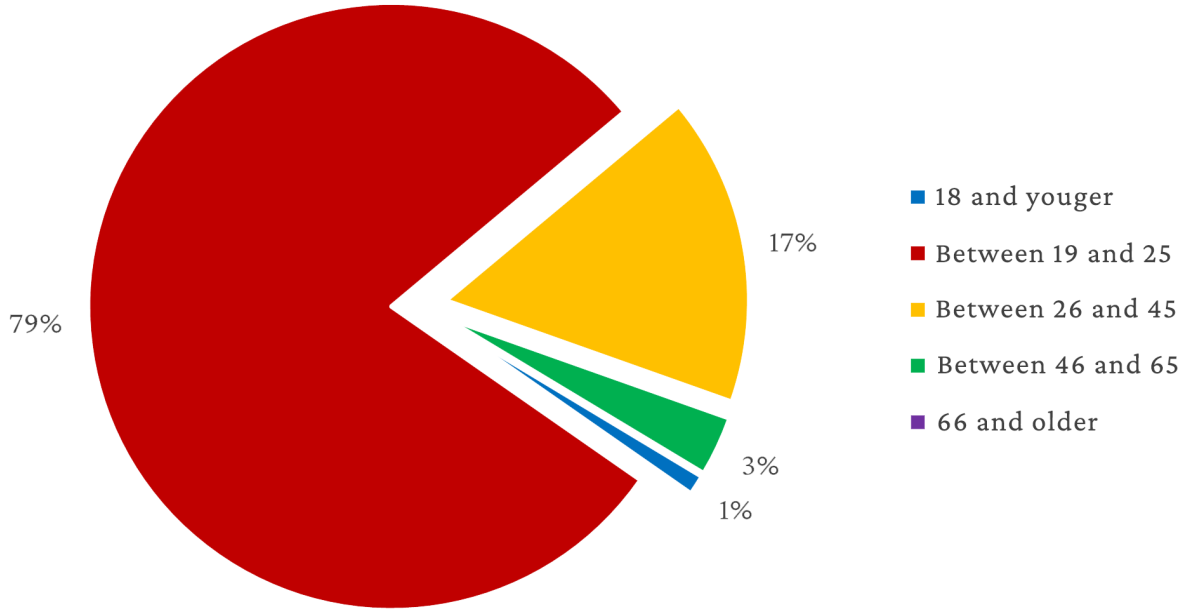
Parallel texts on Apple websites that let the user view articles in the desired language by simply rewriting the language code in the hypertext address of the page were accessed. In the case of Google, terms were acquired through Glossary Manager, which the present author could access due to being a professional translator. As for Microsoft's terminology, the freely available Language Portal was used. In the case of any ambiguities in the pragmatic use of individual terms, their currency and use was verified in the parallel texts of the individual companies.

From these sources, fifty English terms were extracted for the purposes of research, with at least two variant equivalents (but not more than five) in Slovak terminology whose definition and pragmatic function coincided. The selected terms were also used in the survey, which was employed to examine the preferences of individual variants from the viewpoint of an ordinary user of the software and which was based, among other things, on Cíbiková's claim that "[t]erminology should be prepared together with users and associated with their requirements" (Cíbiková 2008, 29). The task of users was to select an option with a sentence which, according to their linguistic feeling, sounded the most natural; there was an attempt to prevent the user from setting their own criteria when choosing the answer (e.g., correct grammar). The final survey had two sections of ten questions (items) each and a choice of answers; a third section was used to collect additional information about the respondent, including their age and the software and hardware products that they use because these factors are important in the subsequent evaluation of users' preferences. After collecting responses from 376 respondents, the survey was evaluated based on the quantitative ratio of the respondents' answers. The distribution and collection of answers took place electronically between February 3 and April 3 in 2020. The overall ratio of the preferred terms of individual companies are possible aspects that could have influenced the choice of preferential terms; although the sample of respondents is seen to be random and not representative, there was an attempt to generalize the results and explore different forms of variability, which can be seen in the specific groups of terms.

6.1 The age of respondents and software usage

Information from the questionnaire regarding the age of respondents and the use of the software served as supplementary information as it was important to obtain answers from a diverse sample of users. Given the number of respondents, more or less every age group of users is represented in the sample, with most being up to the age of sixty-five years. The age representation of users is shown in Graph 1.

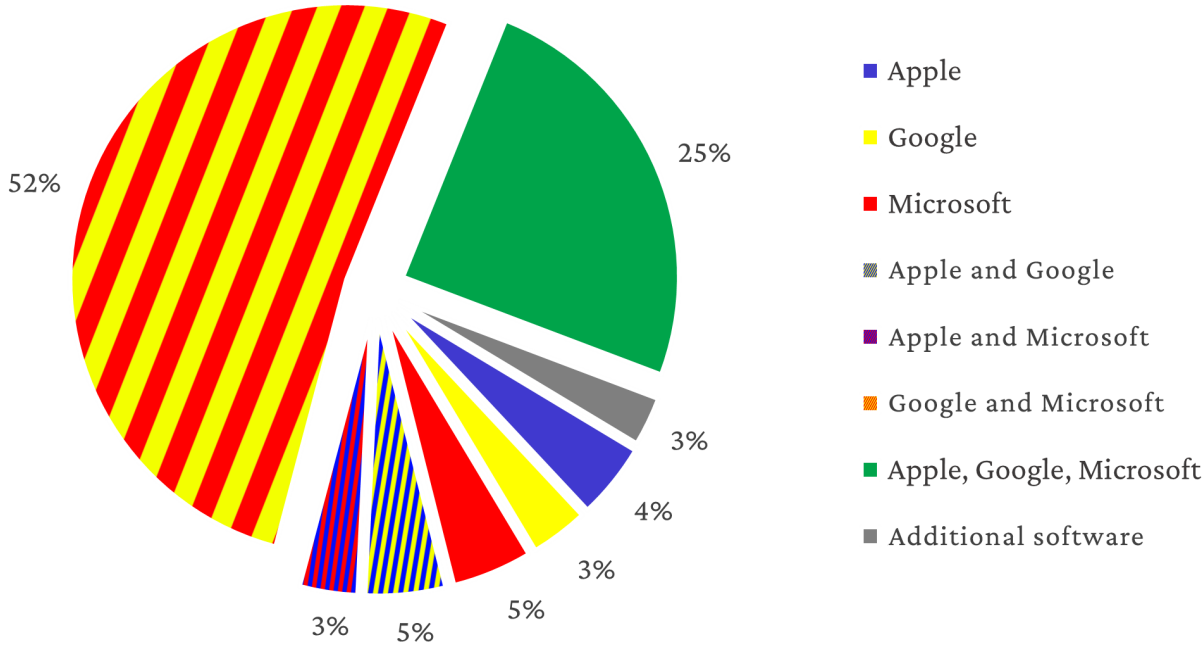
Graph 1 – ***The age of respondents***



The group of respondents aged from nineteen to twenty-five years had the highest representation, but this is most likely due to the electronic administration of the survey. The age of respondents, especially with regard to respondents under the age of eighteen, could consider even relatively recently established terms as obsolete; on the other hand, respondents aged sixty-six years and over might tend to prefer terms that, while they are familiar with them, are now not sufficient to name a particular denotation. As respondents of one age category predominate, the results of the questionnaire cannot be generalized, but they can serve as an incentive source for further investigation.

The aim of an additional question was to discover what types of software users use most often in their private or working life. When choosing the answer in the questionnaire, the respondent could mark the terms they encounter most often. It was necessary to address enough respondents using different software in order to ensure the objectivity of the research. An overview of the types of software used is presented in Graph 2.

Graph 2 – ***The use of different software by respondents expressed as a percentage***

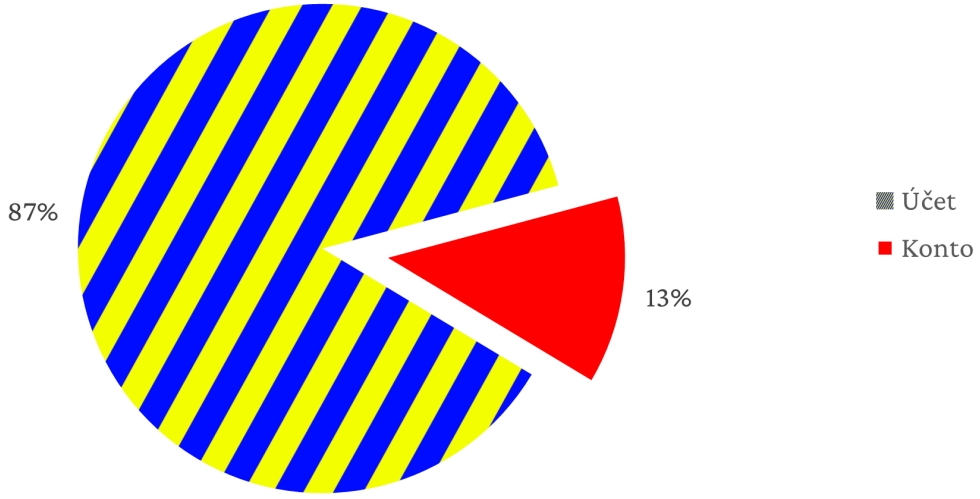


The results shown in Graph 2 show that the variability of the software used among users is sufficiently high, with many respondents using two or three types of software from different software companies at the same time.

6.2 "Account," "app," and "publish"

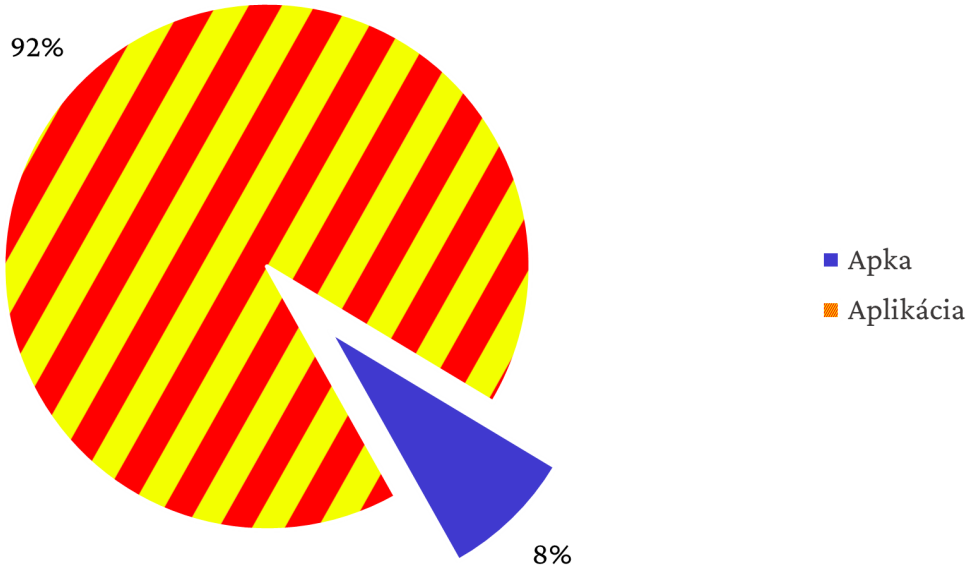
The evaluation of the survey begins with terms which users decided the most unequivocally on. This situation occurred in the case of a pair of variant terms *účet* (Apple, Google) and *konto* (Microsoft), which are Slovak translations of the term "account," shown in Graph 3. There is no fundamental difference between these terms. Both are grammatically correct, short, and well-motivated, so it can be assumed that Microsoft is also trying to distinguish itself from other companies that use the same concept; however, Microsoft has some of the most original software terminology, which has been used in the Slovak environment since the 1990s (Miková 2015). The term *konto* does not seem to have caught on, and Apple and Google prefer to use the *účet* variant alongside the majority of respondents.

Graph 3 – ***The percentage of the terms účet (Apple and Google) and konto (Microsoft) in respondents' answers***



The strategy of enforcing the company's corporate language can also be traced on the example of the variants *apka* (Apple) and *aplikácia* (Google and Microsoft), which are Slovak variants of the term "app."

Graph 4 – ***The percentage of the terms apka (Apple) and aplikácia (Microsoft and Google) in respondents'* answers**

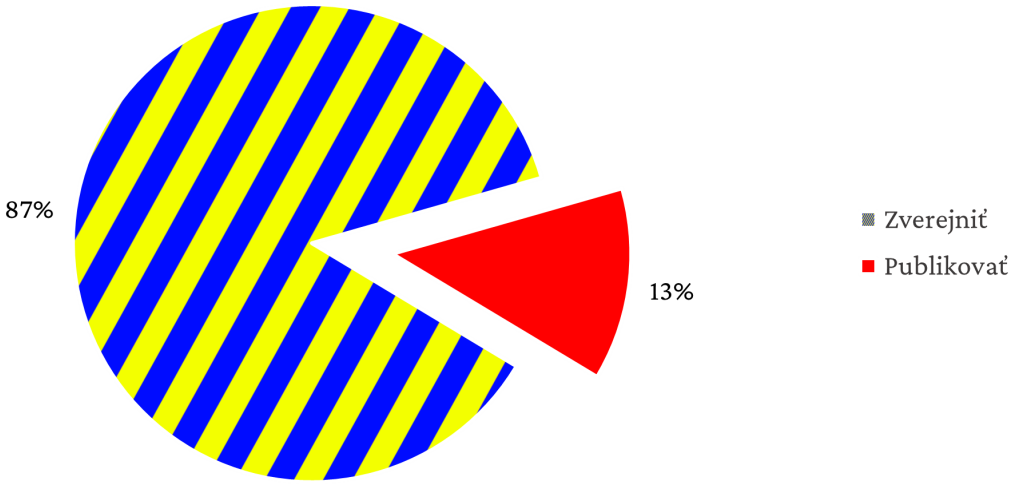


Considering the data shown in Graph 4, the term *aplikácia* is significantly preferred by users compared to *apka*; in addition to being grammatically correct and unambiguous, it is well established in Slovakia. The *apka* variant was created in order to differentiate the company from the competition; although it is shorter, it is assumed that

respondents perceived it to be grammatically incorrect and a slang term, and therefore they most likely do not feel the need to use this "newer" expression.

The assumption that not every variant of the term is explicitly necessary can also be verified in the case of the pair of terms *zverejniť* (Apple and Google) and *publikovať* (Microsoft), which are variants for the translation of "publish."

Graph 5 – ***The percentage of the terms zverejniť (Apple and Google) and publikovať (Microsoft) in respondents'*** **answers**



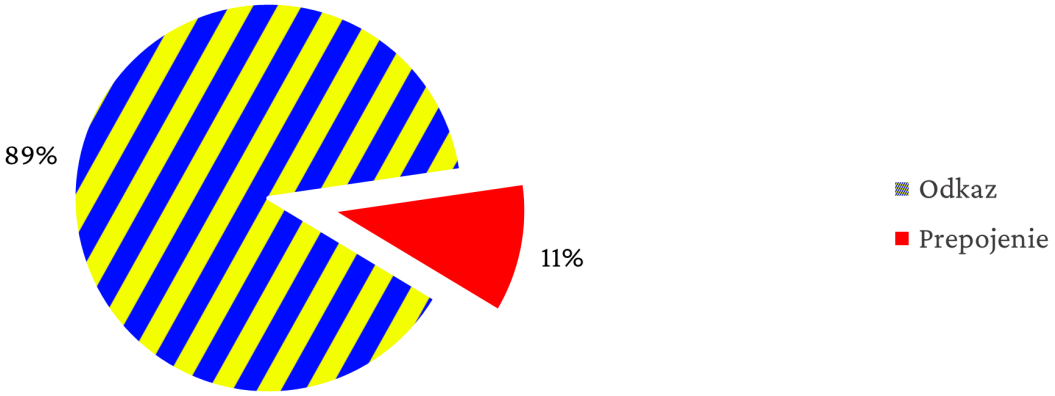
From Graph 5, it can be seen that preferred term *zverejniť* names the given concept appropriately and that it is grammatically correct and systemic. The term *publikovať* meets the requirements, but users may consider it to be a literal translation of "publish." The term *publikovať* did not take the same path as *konto* in the example above, and again one can see the efforts of companies to distinguish themselves from the competition.

From the above, there is a noticeable tendency among companies to use their own corporate language when localizing; it is not about creating terms with the need to name a new concept or replace an outdated expression with a newer, more suitable option. At the same time, the emergence of terms that are solely the product of companies' corporate strategy encourages the emergence of unwanted variability in terminology.

6.3 "Link," "tap," "notification," and "feedback"

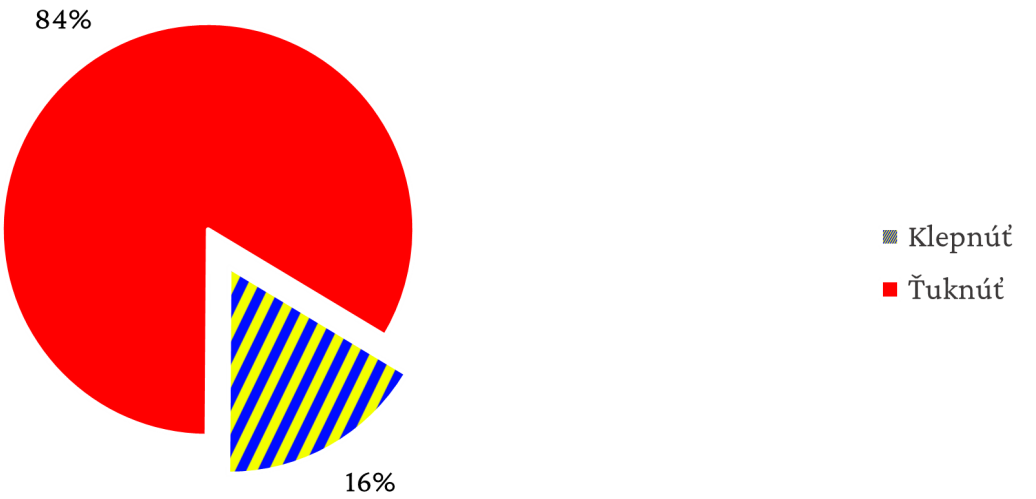
While the previous trio of terms saw efforts by companies to differentiate themselves from the competition by using their own company language, when preferring the following variants of terms, the preference appears to be based on better motivation.

Graph 6 – *The percentage of the terms odkaz (Apple and Google) and prepojenie (Microsoft) in respondents'* answers



Graph 6 shows the preference of the terms *odkaz* (Apple and Google) and *prepojenie* (Microsoft) as translations of "link" in the respondents' answers. The preferred term *odkaz* is shorter and, given the concept it names, also more appropriately motivated. Most often it is a hypertext address of another site or it refers to another source of information. The *prepojenie* variant, on the other hand, could connote a physical connection in the user in the creation of a link to another site. The preference of the term *odkaz* can be explained by the better motivation of the term.

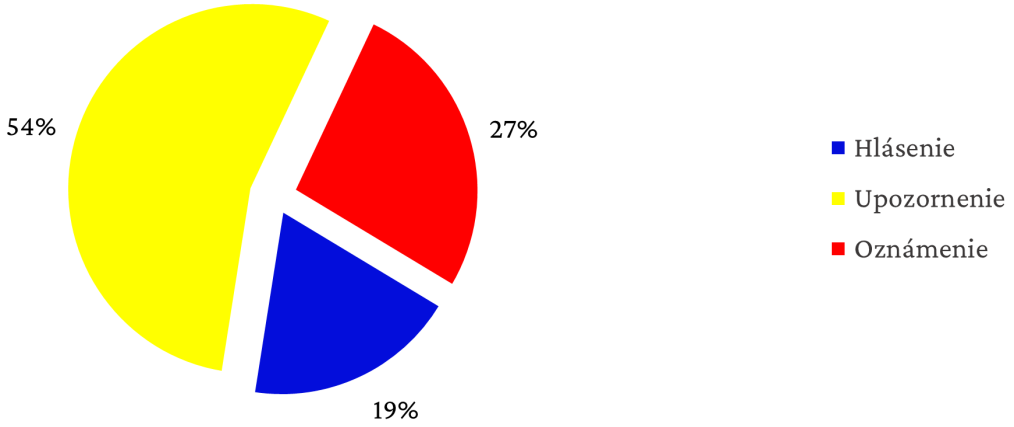
Graph 7 – The percentage of the terms klepnúť (Apple and Google) and ťuknúť (Microsoft) in respondents' answers



There is a similar instance in the pair of terms *klepnúť* (Apple and Google) and *ťuknúť* (Microsoft), which are Slovak variants of "tap." They are shown in Graph 7. Both terms meet the condition of correct grammar and brevity, and they are synonyms of naming the activity of touching the screen (of a mobile device or tablet) with the user's finger; it is the equivalent of a mouse click. The motivation of the gesture of *ťuknutie* and the

significantly softening attribute attached to the term (KSSJ 2003), as opposed to the term *klepnúť*, may have contributed to the tendency of users to prefer the term *ťuknúť*.

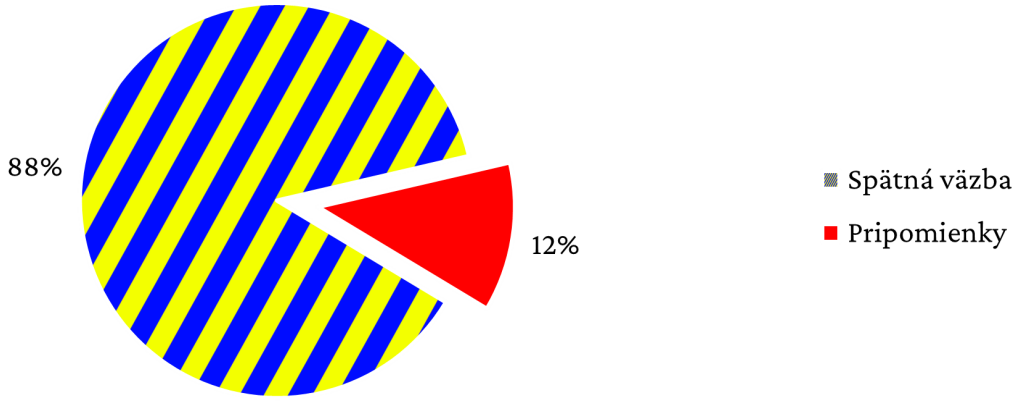
Graph 8 – *The percentage of the terms hlásenie (Apple), upozornenie (Google), and oznámenie (Microsoft) in respondents'* answers



As for the variants of the term "notification" in Graph 8, *hlásenie* and *oznámenie* did not receive very substantial support from respondents. On the other hand, *upozornenie* is considered by users as the most appropriate equivalent, which may be related to its most adequate motivation since it directly points to the very essence and function of the software element that aims to warn the user about the latest activity of the application and the receiving of a new message.

Customer feedback, and their opinions and ideas, are an invaluable asset for any company expanding with its product. The Slovak equivalents of the term "feedback," namely *spätná väzba* (Apple and Google) and *pripomienky* (Microsoft), were therefore included. Graph 9 shows an unambiguous preference for *spätná väzba*. Although both terms are strongly motivated, their motivation varies significantly. *Pripomienky* has a strong connotation and is not neutral (a condition of a well-formed terminological unit) since it gives the user the impression that the response to the product should consist only of noticing shortcomings, errors, and bottlenecks. On the other hand, *spätná väzba* refers to the reciprocal relationship between the user and the software developer and to the developers' interest in the users' own knowledge. The potential use of *pripomienky* could also have a negative impact on obtaining incentives from customers, or even on successfully completing the entire globalization process, as a prerequisite of this is the implementation of feedback.

Graph 9 – ***The percentage of the terms spätná väzba (Apple and Google) and pripomienky (Microsoft) in respondents'*** **answers**

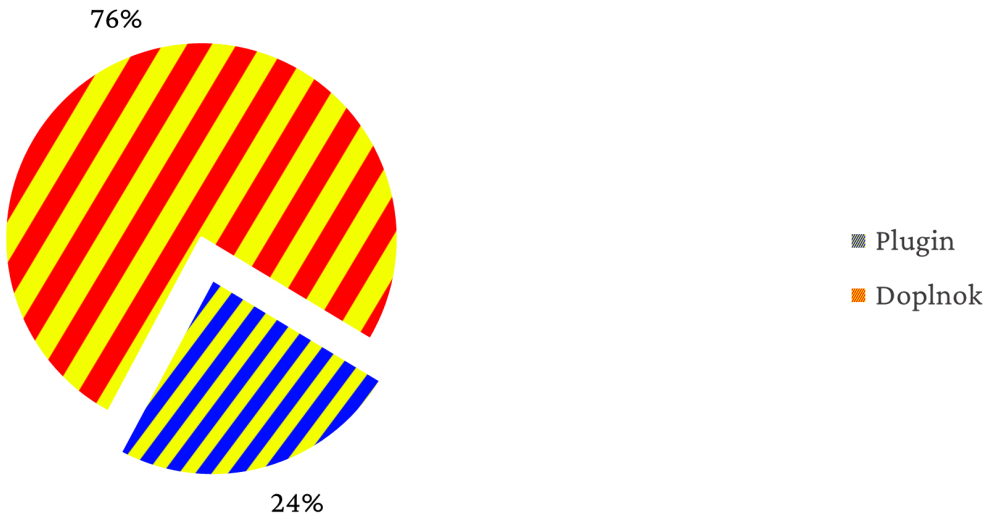


Motivation can thus clearly be a decisive factor in choosing the proper equivalent of the term, since, with its help, users can infer the meaning or function of the concept that the term denotes and they need not familiarize themselves with the definition. Suitably motivated terminology is therefore advantageous for both users and software distributors, who bring the software to the attention of a wider group of recipients.

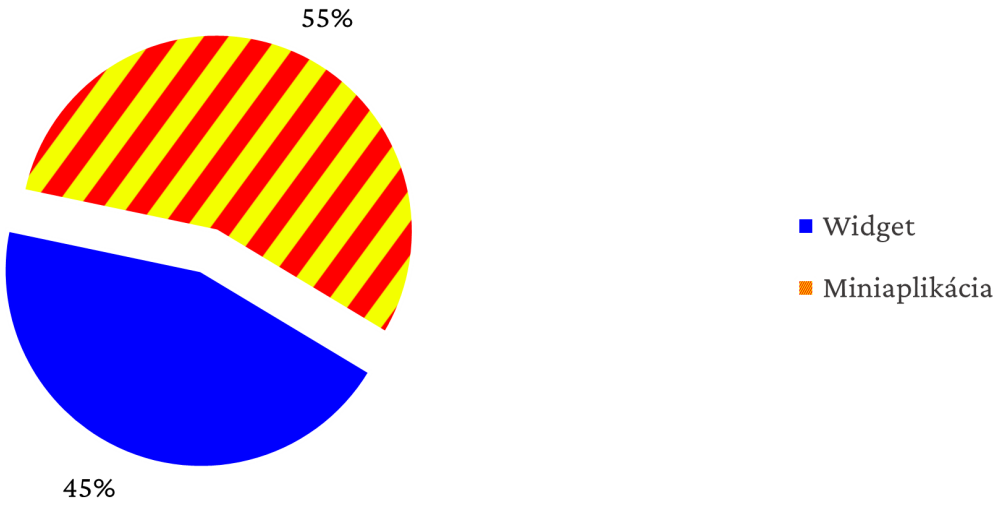
6.4 "Plug-in," "widget," "chat," "downgrade," and "upgrade"

In terms of terminological variability, there are variants of terms that arise in Slovak by the appropriation of the original term, thus making it a linguistic or extralinguistic borrowing. Depending on their prevalence and level of adaptation (orthoepic, orthographic, and morphological), there are unadapted, partially adapted, and fully adapted terms. Software terminology has a higher presence of such types of borrowings, as can be seen in the Slovak terms *plug-in*, *widget*, *chat*, *downgrade*, and *upgrade*. Graph 10 shows respondents' answers regarding the preferences for the terms *plug-in* (Apple and Google) and *doplnok* (Google and Microsoft), with Google listing both variants as correct and suitable for use depending on the type of software and context. The graph clearly shows the preference of the localized term *doplnok*, which is also grammatically correct, unique, and well-motivated compared to the variant *plug-in*, which is a morphological adaptation.

Graph 10 – ***The percentage of the terms plug-in (Apple and Google) and doplnok (Google and Microsoft) in respondents'*** **answers**



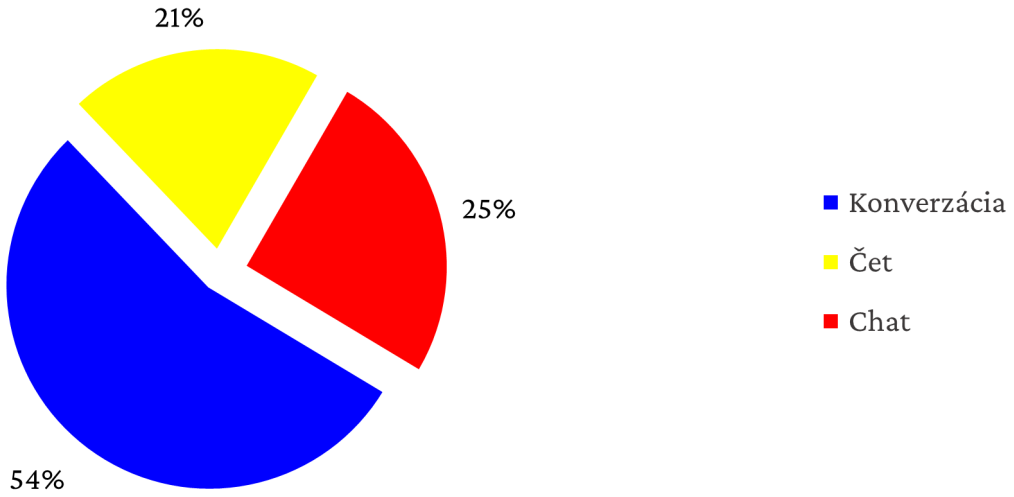
Graph 11 – ***The percentage of the terms widget (Apple) and miniaplikácia (Google and Microsoft) in respondents'*** **answers**



An interesting situation is shown in Graph 11 with the terms *widget* (Apple) and *miniaplikácia* (Google and Microsoft), where there is no longer such a significant difference in users' preferences, even though most prefer *miniaplikácia*. From the available sources, it is known that "plug-in" has been used in software since at least the 1970s (Ionos 2020), whereas "widget" is relatively new, only coming into use after 2000 alongside the concept behind it (Lowensohn 2014). Despite the relative novelty of this idea, users prefer the localized term *miniaplikácia* despite it being a compound descriptive noun.

There is also a tendency to use linguistic borrowings in the case of Microsoft.

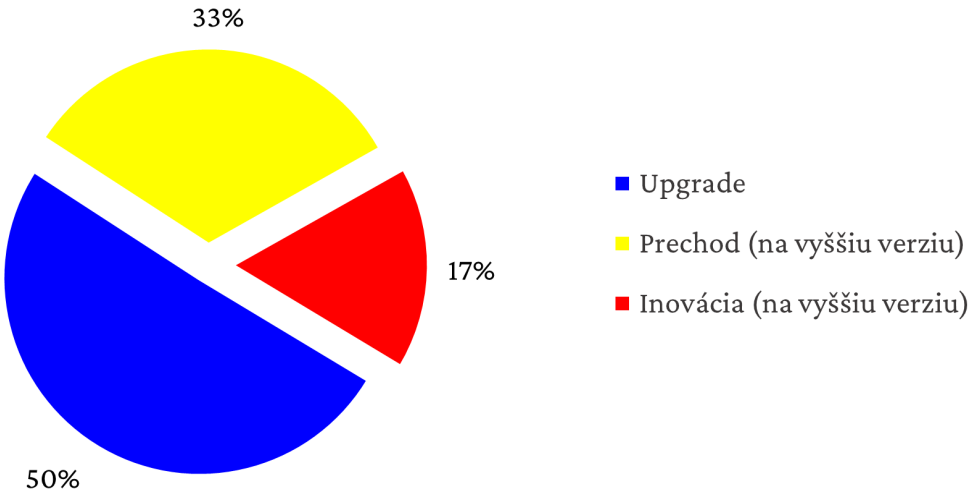
Graph 12 – *The percentage of the terms konverzácia (Apple), čet (Google), and chat (Microsoft) in respondents'* answers



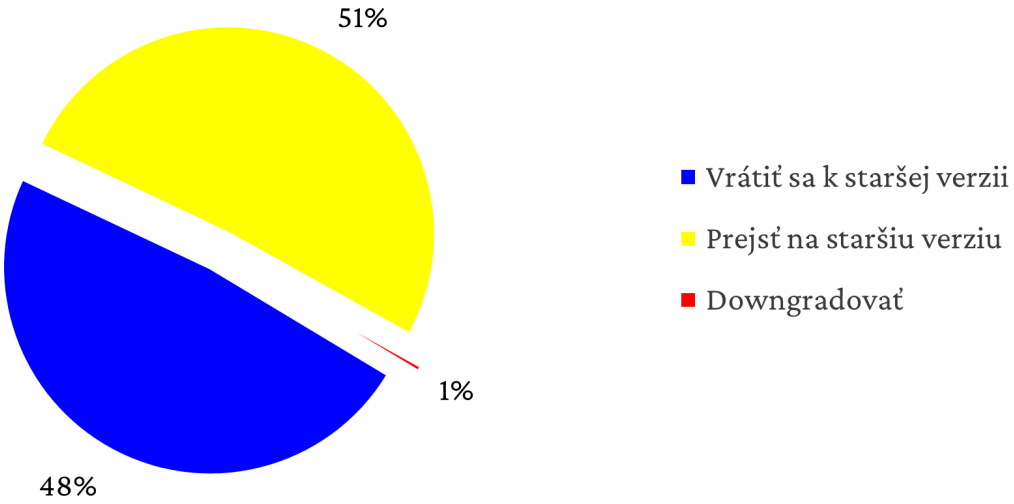
Graph 12 shows the percentage of the preferences of the variant terms *konverzácia* (Apple), *čet* (Google), and *chat* (Microsoft). Users perceive *konverzácia* as the most appropriate term, which is equivalent to the term "conversation" in several terminologies. The concept of the term *chat* is not identical to "conversation," since *chat* is exclusively linked to the online environment and written forms of communication. The orthoepically, orthographically, and morphologically adapted variant *čet* has the potential to be used precisely because of its high level of adaptation, in contrast to the term *chat*, which is used in Microsoft terminology, such as in the cases of *chatovať* (to chat), *okno chatu* (chat window), and *chatovacie centrum* (chat center). Despite the results of the survey, *konverzácia* is not an appropriate variant; in view of personal experience, the term *čet* is preferable and is an effort by Google to meet the needs and requirements of users.

When looking at the preferences of extralinguistic borrowings by users, it is particularly interesting to compare preferences for the terms "upgrade" and "downgrade."

Graph 13 – ***The percentage of the terms upgrade (Apple), prechod (Google), and inovácia (Microsoft) in respondents'*** **answers**



Graph 14 – ***The percentage of the terms vrátiť sa k staršej verzii (Apple), prejsť na staršiu verziu (Google), and downgradovať (Microsoft) in respondents'*** **answers**



An interesting paradox is apparent at first glance from Graphs 13 and 14. Users have not been consistent in their choice of answers, as they have ruled out a preference for borrowed terms and linguistic borrowings. They consider the term *downgradovať* (like other linguistic borrowings adapted at the morphological level) as unacceptable. Paradoxically, they consider *upgrade* to be preferable compared to the other two Slovak equivalents (*prechod* and *inovácia*). Using the example of "upgrade" and "downgrade," one can also observe an inconsistency and non-systemicity within the terminologies of Apple and Microsoft. The exception is Google, which prefers localized, appropriately motivated, systemic, and oppositional terms in the database, which are also deemed appropriate by a reasonable number of respondents. The requirements of systemicity

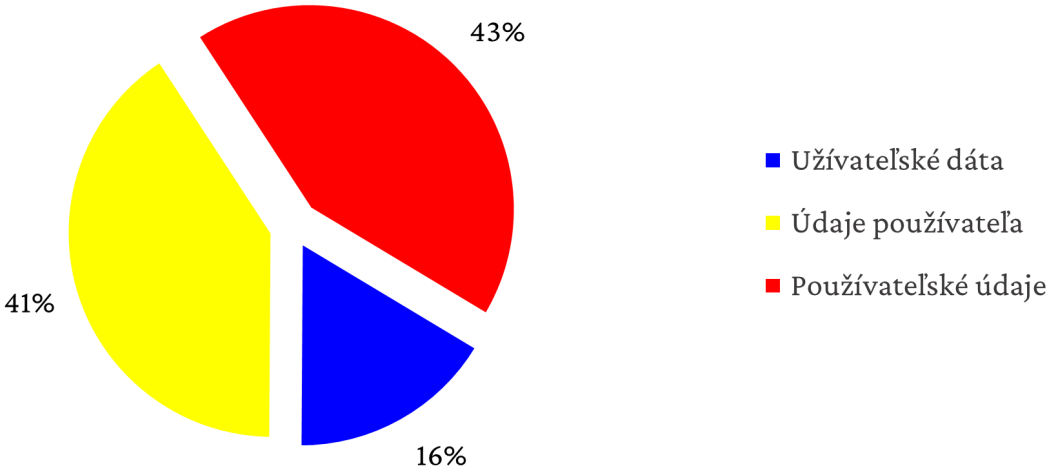
and consistency are more important than users' preferences, and so Google's terms are the most appropriate.

The above shows there has been a more or less unequivocal rejection of extralinguistic preferences by users regardless of whether they were adapted completely, partially, or not at all. This means that many concepts cannot yet be considered to be well enough known for their localization not to be seen as necessary; however, if there is a situation where it is not possible to find a suitable equivalent, an interesting solution is the gradual adaptation of the linguistic borrowing and finally its full acquisition into Slovak.

6.5 "User data," "slider," and "scroll"

The survey also focused on grammatically incorrect or meaningfully incorrect terminological units and examined the preference of users based on the fact that these units are part of some terminology databases.

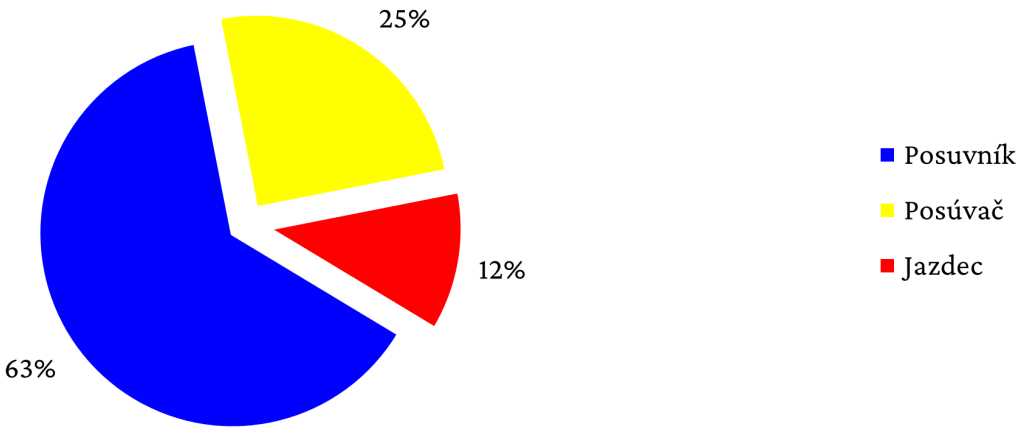
Graph 15 – ***The percentage of the terms užívateľské dáta (Apple), údaje používateľa (Google), and používateľské údaje (Microsoft) in respondents'*** **answers**



Graph 15 shows users' preferences for the variants *užívateľské dáta* (Google), *údaje používateľa* (Google), and *používateľské údaje* (Microsoft), which are translations of the term "user data"; there was a particular interest herein in the preference of the grammatically incorrect variant *užívateľské dáta*. In addition to the fact that the used equivalent of "data" in the Slovak locality is the term *údaje* (the Slovak term *dáta* is associated exclusively with the data transfer of mobile operators), according to the Short Dictionary of Slovak (KSSJ) (2003), *užívateľ* (user) is someone "who has something in use: a user of the apartment". This means the translator must follow the database and take care of semantic correctness, especially if there is no database available. Here the users'

preferred term *používateľské údaje* seems to be the most appropriate of the equivalents given its systemicity and correctness.

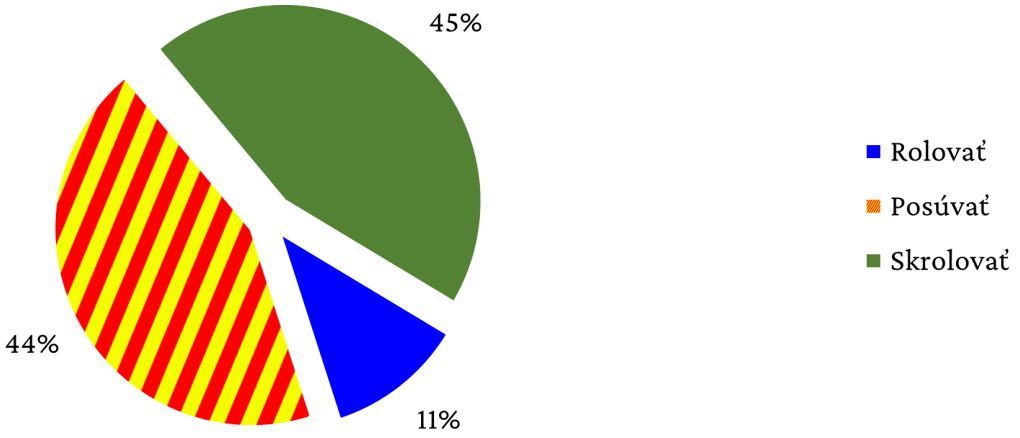
Graph 16 – *The percentage of the terms posuvník (Apple), posúvač (Google), and jazdec (Microsoft) in respondents'* answers



The data processed in Graph 16 indicate the preference of the grammatically incorrect and slang term *posuvník* (with the typically Czech suffix *-ík*), which is part of Apple's terminology. Although the equivalents of Google and Microsoft are grammatically correct and equally short, users have clearly leaned towards *posuvník*. In the case of this term, there was an attempt to exclude unfamiliarity with the concept of the term "slider" with the inclusion of a picture in the survey. The preference of *posuvník* can be explained by the lack of motivation of the remaining two terms. The term *posúvač* is defined in the KSSJ (2003) as a "tech. device or its component used for sliding," and the motivation of the term *jazdec* is not completely clear in meaning. The definition of this term in Microsoft's terminology states that a "slider" is used to refer to a bar designed to scroll a page as well as to a control function for adjusting brightness, zooming, and so on. That is why the need for a better motivated and grammatically correct term becomes apparent. The term *posuvník* can therefore be considered suitable for denoting this concept in Slovakia; this has been confirmed by the Jazyková poradňa JÚĽŠ language counseling center (2017), which stated that the term *posuvník* corresponds to the rules of Slovak grammar.

When examining the potential preference for grammatically incorrect terms, the assumption that there is a certain tendency to adopt and use incorrect terms was verified. Among the Slovak equivalents of the term "scroll," one grammatically incorrect term which is significantly preferred among users in both spoken and written communication was included in the survey.

Graph 17 – *The percentage of the terms rolovať (Apple), posúvať (Google and Microsoft), and skrolovať in respondents'* answers



Graph 17 shows the percentage of user preferences in the equivalents *rolovať (*Apple), *posúvať* (Google and Microsoft), and *skrolovať*. *Posúvať* and *skrolovať* have almost the same percentages of responses. Users most likely made decisions based on their own experience and the frequency of the use of the term in their area. This would explain the preference for the grammatically incorrect *skrolovať*. Maybe this term was formed from the original expression even before the localization of this term into Slovak. This means that users have adopted it as being appropriate due to their need to communicate.

Considering the above examples, it can be said that the terminological culture in the localization terminology databases of software companies is diverse as they often include grammatically (or otherwise) incorrect terms. Translators in the localization process should approach the choice of equivalent terms critically and verify the existence of all equivalents and synonyms.

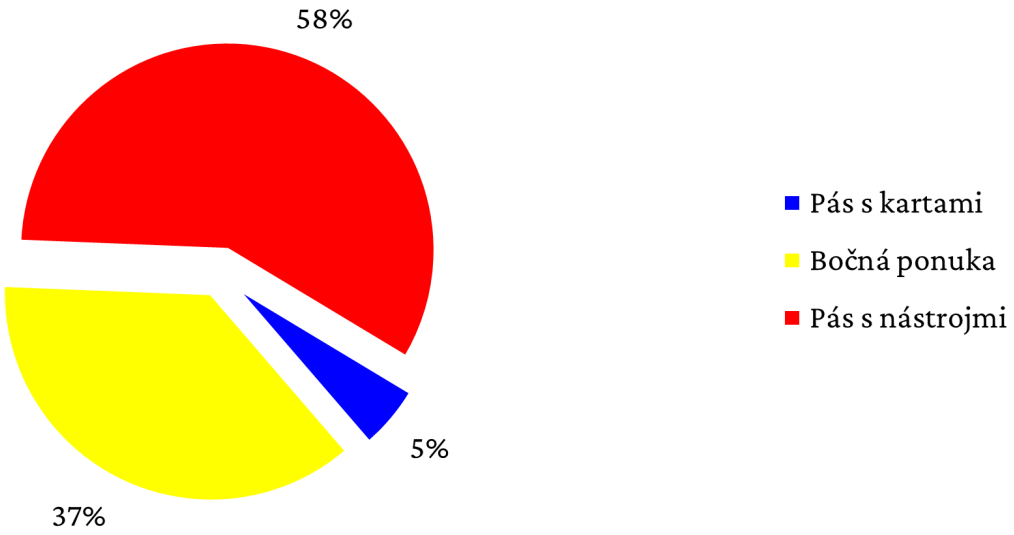
6.6 "Ribbon," "label," and "pop-up"

The localization of software of a particular company and its progress are often influenced by the quality of that company's terminology database. If the translator does not have a database available, this poses a considerable problem because known equivalents suitable for naming a particular concept are often very different from each other. Information about the preferred term from the user's point of view could help the translator.

Graph 18 shows the preference for the equivalents of the term "ribbon." The Slovak equivalents of the three companies are significantly heterogeneous. From the feedback in the survey, it was found that users do not perceive these terms as variants but as

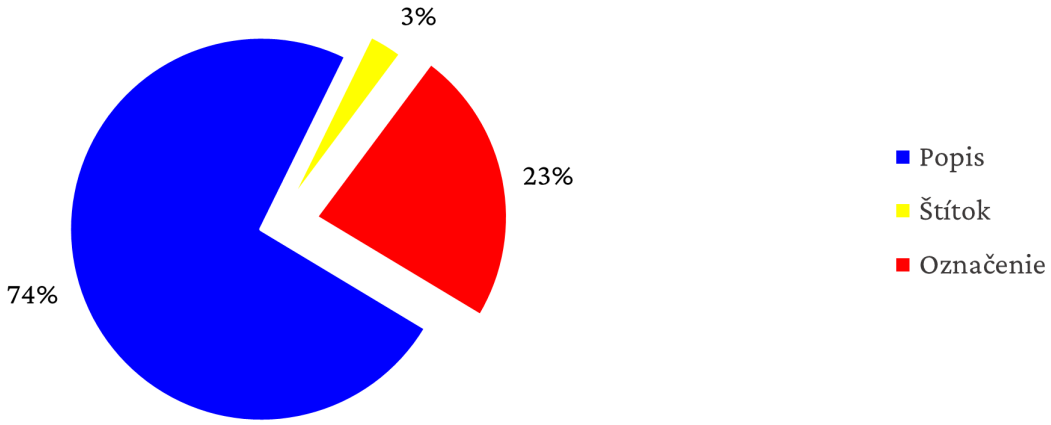
terms naming different ideas. The terms *pás s nástrojmi* and *bočná ponuka* could be particularly confusing for users using multiple software programs since the terms *karta* ("tab") and *ponuka* ("menu") name different concepts in these terminologies. The question was therefore supplemented with a picture. From personal experience with localization, it is known that there is an increasing tendency to use the variant *pás s nástrojmi* due to adequate motivation and user preference.

Graph 18 – ***The percentage of the terms pás s kartami (Apple), bočná ponuka (Google), and pás s nástrojmi (Microsoft) in respondents' answers***



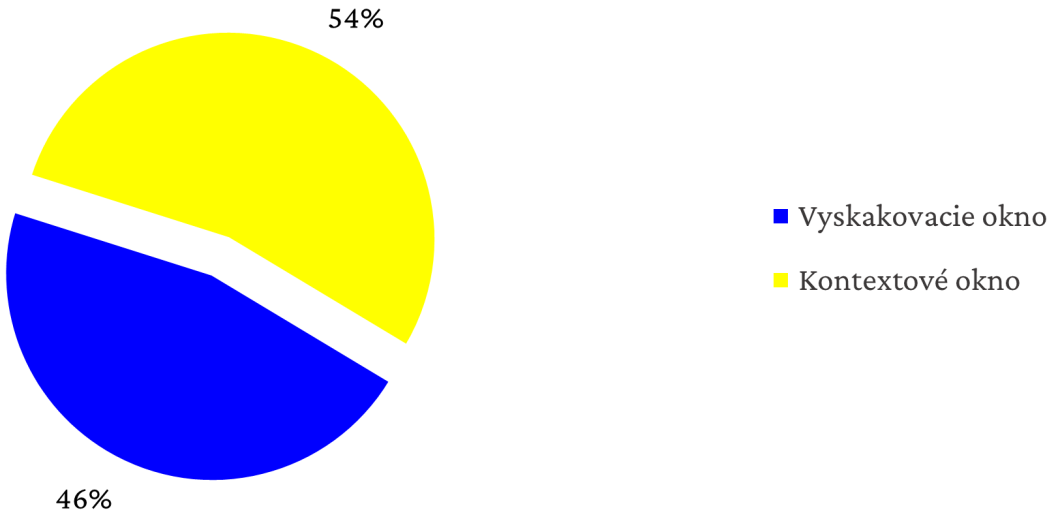
Graph 19 shows another trio of variant terms and an unambiguous preference for the term *popis* (Apple). At the same time, these terms can be seen as synonyms and as terms naming different concepts. In Microsoft's terminology, the term *popis* (description) represents the Slovak equivalent of "caption," and *štítok* (label) is the Slovak equivalent of "badge." Such a high level of inconsistency across the terminology of companies is inappropriate as the translator could simply confuse the terms in the assumption that they are synonymous. Again, the user preference factor appears to be an appropriate guideline for the translator.

Graph 19 – ***The percentage of the terms popis (Apple), štítok (Google), and označenie (Microsoft) in respondents'*** **answers**



Unlike the previous two graphs, where the preference for one of the offered equivalents strongly dominated, Graph 20 shows a more or less equal preference for the terms *vyskakovacie okno* (Apple) and *kontextové okno* (Google), which are both translations of "pop-up window." Both terms could denote distinct and separate ideas. Given the more explicit motivation of *vyskakovacie okno* compared to its equivalent, and due to its ability to capture the essence of this software element (a certain level of metaphoricity arising from the original "pop-up"), this term seems to be more appropriate.

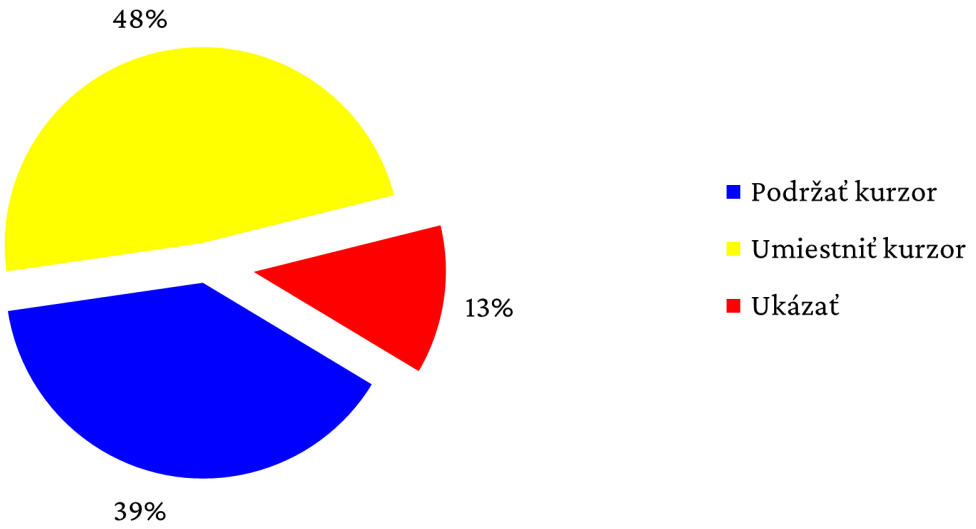
Graph 20 – ***The percentage of the terms vyskakovacie okno (Apple and Google) and kontextové okno (Microsoft) in respondents'*** **answers**



6.7 "Hover" and "preview"

The examples of the following terms illustrate another problem contributing to the variability of terminology, namely the existence of relatively identical terms naming the same concept which have no significant impact on the (mis)understanding of the idea.

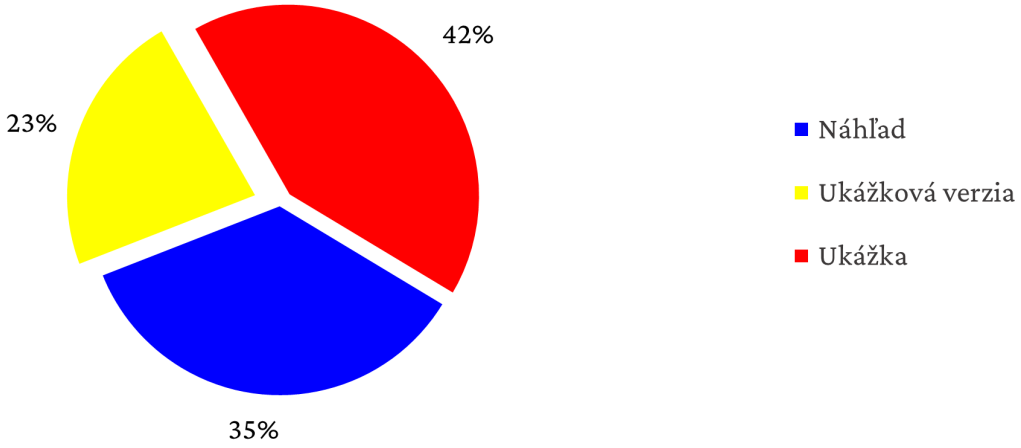
Graph 21 – ***The percentage of the terms podržať kurzor (Apple), umiestniť kurzor (Google), and ukázať (Microsoft) in respondents'*** **answers**



Graph 21 shows the preference of users with respect to the equivalents of the term "hover" which differ primarily in the verb carrying the action. *Podržať* (to hold) evokes a longer period, *umiestniť* (to place) carries the indication of place, referring to direction and movement, and *ukázať* could be interpreted as pointing out or referring to something. All terms are grammatically correct and suitable as terminological units. Their distinctiveness does not affect the reader's understanding. Given the precise nature of the term and the preference of users, the two-word term *umiestniť kurzor* is suitable for use. The existence of the remaining terms is considered redundant since they only contribute to the variability of the use of terminology.

Similarly, there is a unsubstantiated variability in the trio of terms shown in Graph 22. The Slovak equivalents of "preview," i.e., *náhľad, ukážková verzia*, and *ukážka*, have a similar motivation. *Ukážková verzia* has a more precise character but is longer, which affects the possibilities of its declension. *Náhľad* and *ukážka* are synonyms, so their preference by users may be based to a degree on the type of software they use. Given that Microsoft terminology is more common and older, *ukážka* appears to be the best choice of term.

Graph 22 – The percentage of the terms náhľad (Apple), ukážková verzia (Google), and ukážka (Microsoft) in respondents' answers



Both of the above examples of terminological variability indicate the existence of redundant terms that do not affect the understanding of the concept, nor do they serve as a substitute for a non-functional term, so their origin and existence seems unjustified. In addition, they adversely affect the consistency of terminologies and translations.

7 A summary of research results

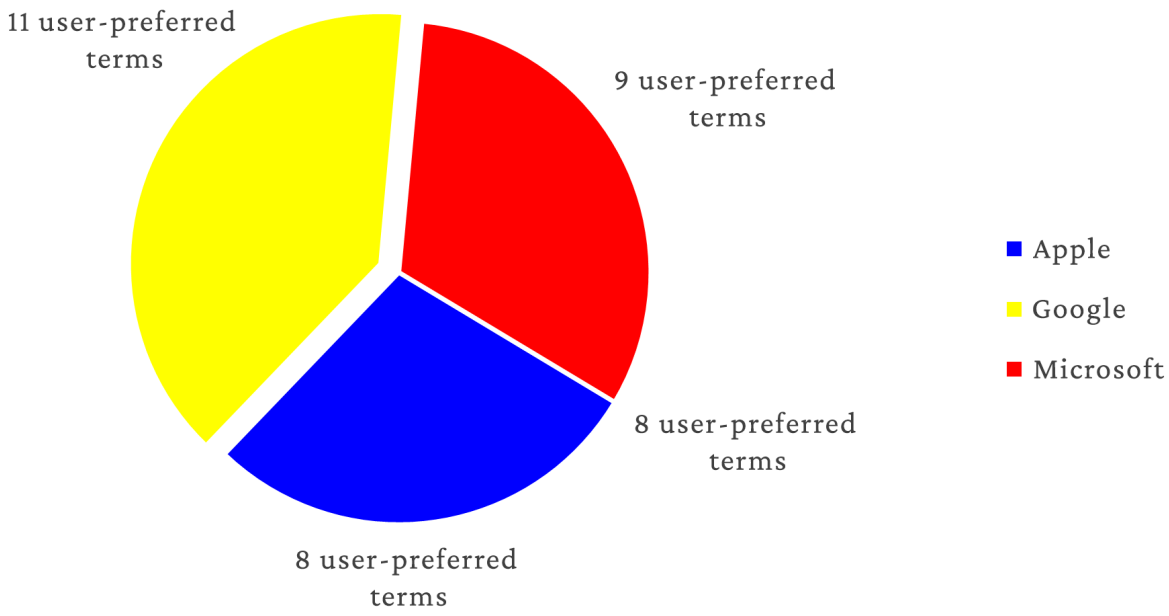
The aim of this research was to find existing variant terms in the terminology databases of companies, identify preferential terms from the point of view of users by means of a survey, highlight different forms of terminological variability, and identify possible causes of occurrence of variable terms with regard to the existence of the phenomenon of corporate language. The choice of variant terms was preceded by extensive research across the terminologies used by Google, Apple, and Microsoft; based on this, variant terms were determined. By searching for definitions in the company databases, and by verifying the placement of terms in context, it was determined that they refer to approximately the same ideas. Based on this, a survey was made which aimed to track the software elements users' preferences of the terms. The survey sought to obtain a picture of variability and highlight the need to unify terminology, as is the case, for example, with medical nomenclature, where one cannot speak of variations of terms.

The limitations of the research can be seen in several aspects. First, the databases of companies whose terms were analyzed were not freely available or appropriately processed for this research (with the exception of Microsoft), which is an example of a lack of terminology management by companies. This is the reason why it was time consuming to process a survey based on the assumption of the existence of variant terms

naming an identical denotate. In addition, due to the COVID-19 pandemic, it was difficult to distribute the survey by other than electronic means, which affected the resulting sample of respondents and thus the prevailing age category of nineteen to twenty-five years. This ultimately made it impossible to generalize the research results as such. Nonetheless, since the respondents are software and language users of working age, there was a true picture of the vocabulary of the current generation of young people who have worked with technologies since childhood or at least used them at primary school.

Besides working with terminology databases, we also discussed the possibility that the translator would have no source of terminology available and that their task would be to create the terminology or choose appropriate equivalents for naming ideas in software. The data processed in Graph 23 illustrate the overall preference for the terminology used by each company which came from the survey and the terms that were identified by users as preferred ones. Google's terms appeared most often among them, which to some extent is because the first ten questions compared two terms, one of which was always part of Google's terminology.

Graph 23 – The preference for each terminology according to the number of user-preferred terms



The terminology used by Google seems to form a bridge between Microsoft as the oldest Slovak software terminology and Apple, whose terminology showed the highest tendency to use unlocalized terms or linguistic borrowings from English. These two terminologies differ considerably from each other, and there is no significant preference for

one or another terminology from the results of the research; if anything, there is a mutual variability, which is also largely based on Apple's promotion of its corporate identity. It seeks to reach users through more informal language, using non-linguistic borrowings with the potential to gain favor with users at a younger age. Microsoft's terminology, on the other hand, could be described as formal or descriptive. At the intersection of these two distinct terminologies, we could place Google as the "golden mean" of software terminology, which could also guide a translator when localizing software. In its favor is also the fact that, in the case of an ambiguous preference for a term by users, personal experience has largely leaned towards Google's terms. Only the Google terminology maintained the internal consistency of the terminology database in the case of equivalents of "upgrade" and "downgrade," which may also indicate its proper compilation and good management.

Interesting observations on terminological variability emerged from the research carried out. When observing variants of individual terms, there was a focus on whether these terminological units met the basic requirements of a suitably formed term, such as correct grammar, systemicity, and motivation. The research revealed also found grammatically incorrect and non-systemic terms in the terminology databases, and several of them were not sufficiently motivated. At the same time, even the users themselves were most likely subconsciously guided by these features when choosing preferred terms. The survey respondents generally preferred grammatically correct terms and perceived motivation as a decisive factor and a prerequisite for understanding the meaning of the terminological unit without knowing the definition of the idea.

Another aspect is the influence of corporate language on the form of companies' software terminology and the presence of non-linguistic borrowings or their preference by users. As for non-linguistic borrowings, users are almost unequivocally inclined to use localized professional units and refuse to use language lending at any level of adaptation; however, adaptation is a way of naturally expanding terminology and enriching it with new equivalents, as the development of software as such is too dynamic. This would be one option of how to naturally cultivate terminological culture while maintaining the systemic terms; however, terminology management is to some extent distorted by the use of corporate language and terms that have been coined in order to differentiate the company from its competitors, i.e., not because of a real need to replace a non-functional, incorrect, or otherwise inappropriate term. This creation of terms or use of synonyms of already existing functional terms is impractical and has a negative impact on the emergence of terminological variability. The translator should, where

possible, consider the superiority of the requirements of systematicity and consistency of terminology.

Based on the obtained results, we can therefore conclude that the existence of variability is not unique in software terminology; there is even an inconsistency of terms within the same terminology database. This is undesirable, especially when it comes to unjustifiably created variants of terms, which then affects the adequate understanding of specific meanings. If the creation of a new variant is necessary (e.g., due to the poor motivation of other variants or the emergence of a new concept), this is most often done through a linguistic borrowing, which can be adapted into Slovak on several levels over time, but this process can be lengthy and result in the inconsistent use of these two terms. In addition, there is a certain influence of users who usually do not wait for the release of a localized version of the software and work with its English version. This may result in the emergence of grammatically incorrect or slang terms, which, however, become so established in the language that users use the term as if it was correct.

The aforementioned aspects affect the daily work of translators in the localization process; they face the difficult task of using grammatically correct and appropriate terms set in an adequate context, avoiding their inconsistent use and using only a single variant of the term. One solution is the creation of a universal localization terminology database that would provide the translator with all the necessary information to meet the requirements of the localization process.

Conclusion

This article dealt with theoretical aspects of the occurrence of terminological variability in localization processes and used a selected sample of variable terms from Google, Apple, and Microsoft. Theoretical information about GILT processes were presented and compared with respect to the theoretical work and research of Esselink (2000). In the context of terminological culture, literacy, and knowledge (Stoffa, 2008), the article addressed the impact of socioterminological factors on terminology as such. In addition, it analyzed the terminology management process using the example of Microsoft, which was described by Corbolante (2009), and it looked at the existence and definition of the terminological competence of a translator. In the theoretical part, the article described the specifics of terminological inconsistency and variability, especially the impact of corporate language on localization and on the variability of terminology,

alluding also to the need for a comprehensive localization terminology database, which is highlighted by Gromová (2011) and Kabát (2021b).

In the empirical part of the article, respondents' answers were analyzed regarding variable terms and their preferences. The results showed a high incidence of variable terms across the terminologies used by Apple, Google, and Microsoft, and there are multiple sources of terminological variability and causes of variable terms. As already mentioned, the inconsistent use of software terminology in localization processes is directly connected to the existence of undesirable variable terms, inadequate management of individual databases, the absence of a unified and comprehensive localization database, and the rapid development of the IT field and the constant need for new term equivalents.

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