

First steps towards the Lithuanian word association database

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Abstract

This paper introduces the first version of the Lithuanian database of free association norms. This is an attempt to provide an open-access resource, which would be helpful for psycholinguists, linguists, computational linguists, and students. This version of the database includes 277 cue word forms. The responses were collected from 304 participants. In total 15,612 association pairs were recorded. The paper presents the procedure of collecting free associations and additional data available for researchers. It also provides a list of all cue words with their five most frequent associates and some summary statistics.

Key words: *free associations; lexical associations; Lithuanian association database; Lithuanian association norms; association norms*

1. Introduction

Eliciting lexical associations by giving participants a free association test is a commonly used experimental technique. The respondents are asked to read (or listen to) a cue word and to produce the first response that comes to their minds. Depending on the purpose of the study and the expected outcome, the participants are asked to record either only their first response or more than one word. These associations can then be summarized in databases or dictionaries.

Responses to the cue words have been analysed extensively, and various potential classifications have been provided. Traditionally, the responses were classified into paradigmatic (when a cue and a response are related by their meaning, e.g. *black* -> *white*), syntagmatic (when a cue and a responses form a phrase, e.g., *black* -> *coffee*), and clang associations (when the words are related by their phonetic form, e.g., *black* -> *lack*) (e.g. Meara, 2009). This classification, though, has been criticised and updated (see Fitzpatrick, 2007), but the general idea of words being associated for different reasons (semantics, co-occurrence in language, or phonetic form) remains.

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Lexical associations have various potential applications in psychology, linguistics, computational linguistics, and other areas. Just to name a few, association norms are used in:

- clinical practices: e.g. research on schizophrenia (Manschreck et al., 2012);
- computational modelling: e.g. *The Small World of Words Project*, which tries to model the mental lexicon based on the association norms (De Deyne and Storms, 2008);
- corpus linguistics: e.g. word associations are extracted from large corpora and compared with those provided by language speakers (Michelbacher et al., 2011);
- second language acquisition research: attempts to evaluate the knowledge of the L2 based on lexical associations provided by the learner (Fitzpatrick, 2007).

Apart from practical applications, word association norms are used in psycholinguistic experiments for studying the *priming* effect: words that are related in the mental lexicon (be it a semantic or a syntactic relationship) facilitate each other's activation and processing (Harley, 2001). That is, if you read *doctor* after having read *nurse*, you understand it faster than when you read it without any context. The effect of priming has been widely replicated, and it gives an insight into how the mental lexicon is organized.

Because of the robust effect of priming, association norms are also useful in order to control for association priming effects in various language processing experiments, where association strength might be a confounding variable. For example, in collocation research, researchers have tried to disentangle between the effect of collocation and the effect of semantic association (Durrant and Doherty, 2010). It has to be noted that the relationship between an association and a collocation is not always a clear one. There are word associations that are not collocations (usually paradigmatic associations: *doctor* -> *nurse*), as well as there are collocations of words that do not elicit each other in free association tasks (e.g. *provide* and *information*). There are also collocations that are associated (e.g., *spend* -> *money*). Thus, in language processing experiments that are concerned with collocation processing, controlling the association strength between collocates becomes an issue.

As collecting word association norms from participants is costly and time consuming, there have been various attempts to extract lexical associations from corpora (e.g. Church and Hanks, 1990; Lin et al., 2019). However, these attempts, at least so far, have been limited to extracting only

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syntagmatic associations, that is, associations based on word co-occurrences. As such, they overlook a large part of word associations, especially considering that adult speakers tend to provide many paradigmatic responses (Ervin, 1961). While such computer assisted methods for extracting associated words definitely have their applications, they are not sufficient for purposes of studying various aspects of the mental lexicon.

As large association databases come in useful for controlling stimuli sets for various language processing experiments, in English, large and widely used free association norms exist for decades. Some examples are the Edinburgh associative thesaurus (Kiss et al., 1973) or the University of South Florida Free Association Norms (Nelson et al., 1998). More recently, databases for other languages have been published as well. Just to name a few examples, such as databases were published for:

- Mexican Spanish (Barrón-Martínez and Arias-Trejo, 2014): 234 cue words;
- European Portuguese (Comesaña et al., 2014): 139 words;
- German (Melinger and Weber, 2006): 409 cue words;
- Spanish (Fernandez et al., 2004): 247 cue words;
- Dutch (Deyne and Storms, 2008): 1,424 cue words.

When reviewing this (far from complete) illustrative list of databases, it becomes apparent that there are no clearly stated and widely accepted rules on how to create association norm databases. The existing ones vary considerably in their scope and methodological choices. In many large databases, the data were collected in various stages, using those cue words that are of interest to the research team at that particular time. In some cases, data collection took decades (e.g. Nelson et al., 1998).

Also, existing association databases serve different purposes. While some of them, such as the German one, were created solely as a reference database for further research, some others had more specific research questions in mind. For example, Comesaña et al. (2014) aimed at providing a normative association database for child language. Also, they compared their Portuguese results with Spanish results and showed differences in the way associations change across these two language groups.

Overall, association norm databases allow researchers save time and effort needed to collect data for their studies from scratch: if one needs to control semantic associations of their stimuli they can simply access an already available collection of associations provided in the database. With various

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open science initiatives taking place at the moment, sharing such data could become a common practice.

2. Association norms in Lithuanian

For the Lithuanian language, there is one valuable resource: a dictionary of associations (Steponavičienė, 1986). Steponavičienė used 140 cue words, most of them taken and translated from an association dictionary of English, and administered a written form of association test to 1,000 respondents (all students in Lithuanian universities). One limitation of this dictionary, though, is that there is no digital version of the data available, which makes the use of it rather daunting. Also, it has only 140 cue words, so it could definitely be expanded. A larger dataset of association norms for the Lithuanian language could have more potential applications for various experimental research projects or practical applications.

Apart from this dictionary, there are no published databases of a larger number of associative norms. Researchers that have looked at associations, analysed them at smaller scale, mostly qualitatively, e.g. focusing either on a word and its associations, such as the word *medis* ‘tree’ (Papurėlytė-Klovienė, 2011), or associations of animal names (Akelaitienė, 2007), or looked at associations produced by students of different age groups (Daukšytė, 2005).

This paper presents the first version of a Lithuanian database of association norms. The full database with all the additional information described in this paper is an open-access resource available to download at the platform *Zenodo* (doi: 10.5281/zenodo.3451880). The data available contains the database in the SQL format, as well as a summary spreadsheet for an easier use. The details of its collection and design are presented in the following sections.

2.1 Stages of data collection

The data for the database were collected in 2018 in two stages. In both stages, the participants received a written list of cues and had to write down the first word that came to their minds after reading the cue.

The first data administration stage was intended to test whether the morphological form of the cue word would affect the responses in Lithuanian (see next section for more detail on the selection of

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the cue words). During the first administration, the participants ($n = 64$) completed a paper and pencil association test. They were also asked to give information about their age, gender, and their first language. The whole procedure took about 10-15 minutes. Three different populations were targeted: students of English Philology, students of Physics, and students of Life Sciences.

During the second administration with a second set of stimuli, the data collection took place online, in order to maximize the number of responses and to make the data collection more efficient. An online platform designed for running psycholinguistic experiments *PsyToolkit* (Stoet, 2017) was used for creating this task. The questionnaire was sent to a group of students and also posted on a faculty's social network page encouraging people to participate and to invite their friends.

2.2 Cue words in the database

Different sets of stimuli were used for the two administrations. The first administration was a paper and pencil test. During it, 24 frequent verbs and 24 frequent common nouns were selected for the study from the dictionary of word frequencies (Utkā, 2009).

Half of the nouns were abstract (e.g., *patirtis* 'experience', *likimas* 'destiny'), and the other half were concrete (e.g., *kaklas* 'a neck', *variklis* 'an engine'). Each noun was included into the stimuli set in three forms: nominative, genitive, and accusative cases (e.g., *patirtis.NOM.SG*, *patirties.GEN.SG*, *patirtį.ACC.SG*). These specific forms were chosen, as in Lithuanian singular nominative, genitive, and accusative cases are the most frequently used noun cases (Rimkutė, 2006).

As for the verbs, half of them were transitive (e.g. *daryti* 'to do', *pradėti* 'to start') and half were intransitive (e.g. *gyventi* 'to live', *augti* 'to grow'). They were also presented in three different forms: infinitive, third person present singular and third person past singular (e.g. *daryti.INF*, *daro.PRS.3SG*, *darė.PST.3SG*). Those 144 word forms were divided across three experimental lists so that each participant would see only one form of each target word. All experimental lists had three versions, each arranged in random order, to minimize any effect of presentation order on the responses.

The second stage of data collection was based on stimuli, later to be used in a language processing experiment. The stimuli included in total 152 frequent word forms: 70 verbs, 70 nouns and 12

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adjectives. These stimuli were divided into three lists and presented in an individually randomized order for each participant.

All the cue words were limited to frequent words in Lithuanian. Previous research shows that word frequency affects responses to that word, with more frequent words leading to more paradigmatic responses (e.g. Cronin, 2002). However, it seemed to be a reasonable first step, since responses to frequent cue words seem to be more homogeneous as well, at least for native speakers (Fitzpatrick, 2007).

2.3 Data cleaning

The paper and pencil data did not require much data cleaning: the responses were simply recorded digitally, correcting a few spelling mistakes. The data collected online were much messier and required more changes. To start with, while incomplete surveys with just a few responses missing were retained, the surveys with only one or two responses provided were discarded, assuming that these participants might have not taken the task seriously. Also, spelling mistakes were corrected. English words written in English (such as a response *flashdrive* to the cue *atminties* ‘memory’) were kept as they were. Afterwards, the responses that were provided without Lithuanian letters were corrected. This was sometimes not a straightforward procedure, as in some cases there was no way to decide which form of the word the participant had in mind (e.g. *problema.NOM.SG* or *problemą.ACC.SG*). Only minimal changes were introduced in order for the word to be an existing grammatical form in Lithuanian. That is, **sprendima* would be changed to *sprendimą.ACC.SG*, as the provided form *sprendima* can only be interpreted as the accusative singular form written without the diacritical mark. Conversely, *problema* would never be changed to *problemą.ACC.SG* no matter that a lot of other participants would have provided an accusative form to that specific cue, just because both forms *problema.NOM.SG* and *problemą.ACC.SG* are possible in Lithuanian, and the researcher cannot predict which one the participant had in mind. This procedure allowed making straightforward decisions without any interpretations of the researcher. It has to be noted, though, that only very few participants provided answers without Lithuanian diacritics, and even for them, most of the answers were not ambiguous, so these problems were rather exceptional and did not affect the final database much. Data cleaning also included deleting longer comments provided by the participants (e.g. *Nežinau, kodėl tai pirmas žodis, apie kurį pagalvojau* ‘I don’t know why this was the first word I thought about’) though these were very rare. However, if more than one word

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was provided as an answer (usually a phrase, e.g. *namų darbai* ‘homework’), all the items were kept in the dataset.

The answers provided by the participants were not lemmatized or grouped in any way: forms like *darbą*.ACC.SG, *darbus*.ACC.PL, or *lavinti*.INF, *lavino*.3.PST.SG are presented as separate words. This is both potentially problematic and more informative. While to the best of my knowledge, so far there has been no published research on the effect of cue’s morphological form on the response, some initial analysis seems to show that different morphological forms of the cue elicit different responses (Vilkaitė-Lozdienė, 2019). It seems that especially for nouns, the morphological form of the cue influences the response with accusative and genitive cases eliciting more syntagmatic responses than nominative case. Considering that the morphology of the cue matters, the morphology of the answers provided can also be worth further research.

The final dataset presented in the database contains 277 cue word forms and the responses from 304 participants. The minimum number of participants who have a response per cue word was 18, while the maximum was 208. In total, this makes up 15,612 associations.

2.4 Participants

The characteristics of the respondents who took part in the different stages of the study are presented in Table 1.

Table 1. Description of participants

		Paper and pencil version	Online version
Total number of participants		64	240
Age	Average (<i>SD</i>)	19.20 (0.72)	23.52 (6.01)
Gender	Female	43	216
	Male	21	24
L1	Lithuanian	64	214
	Russian		3
	Polish		9
	Two languages		11
Level of education	Unfinished secondary education		5
	Secondary education		5

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Student at a professional college		1
Finished college		3
University student	64	173
Degree holder		53

As Table 1 clearly shows, the populations of the participants in the two administrations of the experiment were a bit different. It is not unexpected: once the data are collected online, the researcher has little control on who answers the questionnaire. However, given that the data about the participants is available, everyone using the database can make their own decisions. Researchers can filter and select the data that are of their interest, for example, associations provided by students of a particular course or only one gender, associations provided by bilingual or monolingual speakers, or any other associations.

2.5 The database

The whole database is created in the SQL format using the *HeidiSQL* interface and can be freely downloaded from *Zenodo* (doi: 10.5281/zenodo.3451880). There are two formats of the database available there. The SQL format includes three tables (*Respondents*, *Cues*, and *Responses*) as well as a brief explanation of the data. The *Cues* table provides the main information about the cue words, such as part of speech, morphological form, and other details. The *Respondents* table includes the participant's age, gender, L1, educational level, and other demographic information. The *Responses* table includes all the responses given to the cues, their lengths, and the version of the experiment. These tables can be linked and queried together in order to access the data of interest to any researcher.

However, the SQL format is not very user friendly, especially for novice researchers, so the downloadable material also includes a summary spreadsheet. It summarizes all the responses given to cue words only by the native speakers of Lithuanian. As such, it can be easily accessible for potential users, including students who want to use association norms for their experiments.

2.6 Summary data

While the full dataset is available online in the SQL format, this paper presents a brief summary of the association norms in the Appendix. This summary only includes the responses of the participants who indicated Lithuanian as their first language (as these data can be used as a reference for native speaker norms). This means it includes 278 respondents and, in total, 14,336 association pairs. The Appendix presents all the cue words of the database together with some

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characteristics of their associative behaviour (following Barrón-Martínez and Arias-Trejo, 2014; Comesaña et al., 2014) and their 5 most frequent associations provided for each of the cue words. Table 2 explains the measures presented.

Table 2. Information presented in the Appendix

	Measure	Abbreviation	Explanation
1	Number of responses	NR	The total number of responses given to the stimulus. It is equal to the number of participants who provided an answer.
2	Number of different responses	NDR	The number of different responses given to the stimulus.
3	Number of idiosyncratic responses	IR	The number of responses given by only one respondent
4	First association strength:	FA	The percentage of participants who responded with the first association (NA is given if there was only one participant and the response was idiosyncratic)
5	Second association strength:	SA	The percentage of participants who responded with the second association (NA is given if there was only one participant and the response was idiosyncratic)
6	First five most frequent associates	First 5	The first five most frequent associates together with their frequencies. If one or more words given had the frequency of 1, they were taken from all the other associations with the frequency of one in alphabetical order.

3. Discussion

While this database for now is rather limited, it is still the largest set of association norms freely available online that we have for the Lithuanian language. It has a number of potential applications for research. First of all, in psycholinguistics, the priming effect was established for years, but in order to explore it, lexical association lists are needed. In Lithuanian, the priming effect has not been studied at all so far. Running simple reaction time experiments to test for priming effects could be an easy and attractive task to work with for MA or even BA projects. It could help students learn the basic techniques of psycholinguistics and extend our knowledge about priming effects.

Further studies could also look at word associations more generally by examining, for instance, the differences between word associations in L1 and L2 (those were researched extensively in English,

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e.g. Fitzpatrick, 2006, 2007; Meara, 1983; in Lithuanian there was only a BA thesis by Župerkaitė (2018)), the effect of morphological form of the cue (Vilkaitė-Lozdienė, 2019), and gender or age of the participant on the word associations provided. Word association is a great way to get an insight into one's mental lexicon, and this leads to numerous research questions.

While using association norms that are a couple of decades old is a common practice, as at least some of the associations tend to remain rather stable, arguably, associations do change over time. For example, the already mentioned response *flashdrive* to the stimulus *atminties* 'memory' would not have been given 20 years ago. Also, the associations of the cue word *prezidentas* 'president' are obviously affected by the current political situation. Because of the potential changes in associations, it could be interesting to look at associations diachronically as well. Thus, in the future, it could be interesting to collect new associations for the same cue words used by Steponavičienė (1986) and add them to the database. Research on English data, seems to suggest that word associations do change over time, but the most frequent words are the ones that are the most resistant to change (Jenkins and Palermo, 1965).

However, the main aim this database is created for is not the study of word associations in themselves, but rather the possibility to control for priming effects in any other psycholinguistic experiment one might want to run. Admittedly, for this purpose, the larger the database, the more useful it is, and for now its use can only be limited. While the number of responses to each cue word is adequate, the number of cue words could definitely be enlarged. The intention is to add cue words to the present version of the database over time to reach a comprehensive set of association norms, comparable to the ones existing for English. Another aim is to enlarge this database keeping track of various stages of data collection and basic information of the participants contributing the associations so that these data could be used for various research projects. To this aim, researchers that have association data available and want to make them public by contributing to this database are welcome to contact the author.

Appendix: List of Abbreviations

3	third person
ACC	accusative
GEN	genitive
INF	infinitive
NOM	nominative

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PL plural
 PRS present
 PST past
 SG singular

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References

- Akelaitienė, G., 2007. Gyvūnų pavadinimai ir kalbinės asociacijos. *Žmogus ir žodis* 9, 65–69.
- Barrón-Martínez, J.B., Arias-Trejo, N., 2014. Word association norms in Mexican Spanish. *The Spanish journal of psychology* 17, 1–13.
- Comesaña, M., Fraga, I., Moreira, A.J., Frade, C.S., Soares, A.P., 2014. Free associate norms for 139 European Portuguese words for children from different age groups. *Behav Res* 46, 564–574.
- Cronin, V.S., 2002. The syntagmatic–paradigmatic shift and reading development. *Journal of Child Language* 29, 189–204.
- Church, K.W., Hanks, P., 1990. Word association norms, mutual information, and lexicography. *Computational Linguistics* 16, 22–29.
- Daukšytė, J., 2005. Skirtingos kalbinės aplinkos nevienodo amžiaus moksleivių žodinės asociacijos gimtąja (lietuvių) kalba. *Ugdymo psichologija* 77, 64–71.
- De Deyne, S., Storms, G., 2008. Word associations: Network and semantic properties. *Behavior Research Methods* 40, 213–231.
- Deyne, S.D., Storms, G., 2008. Word associations: Norms for 1,424 Dutch words in a continuous task. *Behav Res* 40, 198–205.
- Durrant, P., Doherty, A., 2010. Are high-frequency collocations psychologically real? Investigating the thesis of collocational priming. *Corpus Linguistics and Linguistic Theory* 6, 125–155.
- Ervin, S.M., 1961. Changes with Age in the Verbal Determinants of Word-Association. *The American Journal of Psychology* 74, 361–372.
- Fernandez, A., Diez, E., Alonso, M.A., Beato, M.S., 2004. Free-association norms for the Spanish names of the Snodgrass and Vanderwart pictures. *Behavior Research Methods, Instruments, & Computers* 36, 577–583.

Vilkaitė-Lozdienė, L. 2019. First steps towards the Lithuanian word association database. *Taikomoji kalbotyra*, 12: 226–258, www.taikomojikalbotyra.lt.

Fitzpatrick, T., 2007. Word association patterns: unpacking the assumptions. *International Journal of Applied Linguistics* 17, 319–331.

Fitzpatrick, T., 2006. Habits and rabbits: Word associations and the L2 lexicon. *EUROSLA Yearbook* 6, 121–145.

Harley, T.A., 2001. *The psychology of language: From data to theory*, 2nd ed. Psychology press.

Jenkins, J.J., Palermo, D.S., 1965. Further data on changes in word-association norms. *Journal of personality and social psychology* 1, 303.

Kiss, G.R., Milroy, C., Piper, J., 1973. An associative thesaurus of English and its computer analysis. *The Computer and Literary Studies*. Aitken, A.J., Bailey, R.W., Hamilton-Smith, N. (eds.), University Press, Edinburgh.

Lin, S.-Y., Chen, H.-C., Chang, T.-H., Lee, W.-E., Sung, Y.-T., 2019. CLAD: A corpus-derived Chinese Lexical Association Database. *Behavior Research Methods* 51, 2310–2336.

Manschreck, T.C., Merrill, A.M., Jabbar, G., Chun, J., Delisi, L.E., 2012. Frequency of normative word associations in the speech of individuals at familial high-risk for schizophrenia. *Schizophr. Res.* 140, 99–103.

Meara, P., 1983. Word associations in a foreign language. *Nottingham Linguistics Circular* 11, 29–38.

Meara, P., 2009. *Connected Words: Word associations and second language vocabulary acquisition*. John Benjamins Publishing.

Melinger, A. & Weber, A., 2006. Noun Associations for German database. Available online: <http://www.psycholing.es.uni-tuebingen.de/nag/index.php> (accessed on 10.06.2018)

Michelbacher, L., Evert, S., Schütze, H., 2011. *Asymmetry in corpus-derived and human word associations*. de Gruyter.

Nelson, D.L., McEvoy, C.L., Schreiber, T.A., 1998. The University of Florida word association, rhyme, and word fragment norms. Available online: <http://www.usf.edu/FreeAssociation/> (accessed 10.06.2018).

Papurėlytė-Klovienė, S., 2011. Žodžio MEDIS asociacijų laukas lietuvių kalbos pasaulėvaizdyje. *Acta humanitarica universitatis Saulensis* 13, 405–416.

Rimkutė, E., 2006. Dabartinės lietuvių kalbos gramatinių formų vartoseną morfologiškai anotuotame tekстыne. *Lituanistica* 66, 2, 34–55.

Steponavičienė, S., 1986. *Lietuvių kalbos žodinių asociacijų žodynas*. Vilnius: Mokslas.

Stoet, G., 2017. PsyToolkit: A Novel Web-Based Method for Running Online Questionnaires and Reaction-Time Experiments. *Teaching of Psychology* 44, 24–31.

Utka, A. 2009. Dažninis rašytinės lietuvių kalbos žodynas: 1 milijono žodžių morfologiškai anotuoto tekстыno pagrindu. Kaunas: VDU leidykla. <https://clarin.vdu.lt/xmlui/handle/20.500.11821/12> (accessed 10.09.2019)

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Vilkaitė-Lozdienė, L., 2019. Lexical associations_ Does the response depend on the cue's morphology? Presented at the *Kalbos ir žmonės: komunikacija daugiakalbiame pasaulyje*, Vilnius.

Župerkaitė, A. 2018. *Žodžių asociacijos kaip antrosios kalbos mokėjimo lygio rodiklis*. Bakalauro darbas. Vilniaus universitetas.

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Summary

This paper introduces the first version of the Lithuanian database of free association norms available online on *Zenodo* (doi: 10.5281/zenodo.3451880). This is an attempt to provide an open access resource that would be helpful for psycholinguists, linguists, computational linguists, and students. This first version of the database includes 277 cue word forms: nouns, verbs, and some adjectives. The responses were collected from 304 participants. In total, 15,612 association pairs are recorded.

Word associations for this database were collected using a simple free association experiment technique: the participants were given cue words and asked to write down the first word that came to their minds. The data were collected in two stages: 64 participants took a paper and pencil test, while the others (n = 240) completed a survey online. The responses were cleaned for mistakes, longer comments, and non-Lithuanian spelling, but they were not lemmatized and are presented in their original form in the database. The data available to download includes tables of Participants, Cues, and Responses needed to use the database in the SQL format, as well as a summary spreadsheet for easier use for researchers not familiar with databases. The Appendix of the paper provides a summary of the main association pairs in the database together with some descriptive statistics.

This is a first step towards a more comprehensive association norms database for the Lithuanian language. In the future, this database will be enlarged with more responses and more cue words. Any collaborations from researchers who are willing to share their data are very welcome.

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Pirmieji žingsniai kuriant lietuviškų žodžių asociacijų duomenų bazę

Laura Vilkaitė-Lozdienė

Santrauka

Šiame straipsnyje pristatoma pirma lietuvių kalbos žodžių asociacijų duomenų bazės versija, kuri yra laisvai prieinama internetu *Zenodo* platformoje (doi: 10.5281/zenodo.3451880). Ši duomenų bazė galėtų būti naudinga psicholingvistams, lingvistams, kompiuterinės lingvistikos specialistams ir studentams, kurie domisi leksikos tyrimais. Dabartinėje duomenų bazės versijoje pateikiamos 277 stimulų (dažnų daiktavardžių, veiksmažodžių ir būdvardžių) formos. Renkant šių formų leksines asociacijas dalyvavo 304 respondentai. Iš viso duomenų bazėje pateikiamos 15 612 asociacijų poros.

Duomenų bazę sudaro atsakymai, surinkti atliekant įprastą laisvų asociacijų testą, kai dalyviui pateikiamas stimulus ir jo prašoma užrašyti pirmą į galvą šovusį atsakymą. Duomenys bazei buvo surinkti dviem etapais: 64 dalyviai atliko asociacijų testą raštu, kiti 240 užpildė tyrimo anketą internete. Atsakymai buvo surinkti, suskaitmeninti, ištaisytos rašybos klaidos, ištrinti ilgesni komentarai, pridėtos trūkstamos lietuviškos raidės. Atsakymai niekaip nekeisti, nelemuoti, saugomi bazėje tokia forma, kokia juos pateikė dalyviai. Duomenų bazė sukurta naudoti SQL formatu, ją sudaro lentelės, apibendrinančios stimulus (*Cues*), dalyvius (*Respondents*) ir atsakymus (*Responses*). Naudodamasis šia duomenų baze, vartotojas gali atsirinkti jį dominančius stimulus ir atsakymus pagal įvairias charakteristikas: dalyvių pirmąją kalbą ar amžių, žodžio kalbos dalį, formą ir panašiai. Taip pat pateikiama visus atsakymus į stimulus apibendrinanti lentelė, skirta paprastesniam naudojimui. Ji gali būti paranki mokslininkams, kurie neturi darbo su duomenų bazėmis patirties, ar studentams. Straipsnio *Priede* taip pat pateikiamas visų duomenų apibendrinimas – dažniausios asociacijų poros ir kiekvieno stimulo aprašomoji statistika.

Ši duomenų bazė – pirmasis žingsnis išsamios lietuvių kalbos asociacijų duomenų bazės link. Planuojama, kad ji ilgainiui bus pildoma naujais stimulais ir taip galės būti naudinga įvairiems

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moksliniams tyrimams. Autorė mielai bendradarbiautų ir su kitais mokslininkais, kurie norėtų pasidalyti savo turimomis asociacijų normomis.

Raktiniai žodžiai: *laisvosios asociacijos; leksinės asociacijos; lietuviškų žodžių asociacijų duomenų bazė*

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Appendix

	Cue	NR	NDR	IR	FA	SA	First 5
1	aplinką	60	32	20	0,150	0,083	saugoti, 9, tausoti, 5, keisti, 4, tvarkyti, 4, gražią, 3
2	atkreipti	67	4	2	0,896	0,075	dėmesį, 60, dėmesys, 5, atrasti, 1, suteikti, 1
3	atlieka	21	15	12	0,238	0,095	darbą, 5, pareigą, 2, užduotį, 2, dainą, 1, darbas, 1
4	atliko	19	10	7	0,368	0,158	darbą, 7, užduotį, 3, testą, 2, baigė, 1, bandymą, 1
5	atlikti	90	30	17	0,200	0,178	užduotį, 18, darbą, 16, darbus, 9, užduotis, 9, namų darbus, 4
6	atmintį	24	18	15	0,208	0,083	lavinti, 5, lavina, 2, prarado, 2, atsiminti, 1, eilėraštis, 1
7	atminties	21	19	18	0,143	NA	galia, 3, bėdos, 1, daug, 1, <i>flashdrive</i> , 1, galias, 1
8	atmintis	19	17	15	0,105	0,105	prasta, 2, prisiminimai, 2, <i>flash</i> , 1, gera, 1, gerėja, 1
9	atrodė	24	19	16	0,125	0,125	gerai, 3, gražiai, 3, juokingai, 2, baisiai, 1, galvojo, 1
10	atrodo	19	13	10	0,263	0,105	gražiai, 5, blogai, 2, gražu, 2, akiniai, 1, didelis, 1
11	atrodyti	21	11	9	0,286	0,286	gerai, 6, gražiai, 6, baisiai, 1, išvaizda, 1, keistai, 1
12	atsakomybę	65	30	21	0,246	0,138	prisiimti, 16, turėti, 9, jausti, 4, nešti, 4, turi, 3
13	auga	21	15	12	0,190	0,143	medis, 4, vaikas, 3, vaikai, 2, augalas, 1, barzda, 1
14	augo	19	14	12	0,211	0,158	vaikas, 4, medis, 3, botanika, 1, brendimas, 1, didelis, 1
15	augti	24	20	17	0,125	0,083	greitai, 3, neužaugti, 2, užaugti, 2, augalas, 1, aukštyn, 1

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	Cue	NR	NDR	IR	FA	SA	First 5
16	aukštas	200	50	35	0,300	0,125	žemas, 60, namas, 25, pastatas, 15, medis, 13, žmogus, 13
17	automobilį	66	34	25	0,182	0,152	vairuoti, 12, pirkti, 10, nusipirkti, 4, parduoti, 4, taisyti, 3
18	baigė	24	15	10	0,208	0,125	darbą, 5, mokyklą, 3, darbas, 2, mokslus, 2, universitetą, 2
19	baigia	19	14	9	0,105	0,105	darbus, 2, darbą, 2, greitai, 2, pradeda, 2, universitetą, 2
20	baigti	20	12	8	0,250	0,150	darbą, 5, pradėti, 3, finišas, 2, mokslus, 2, laiku, 1
21	baltas	157	47	34	0,223	0,146	juodas, 35, lapas, 23, sniegas, 17, katinas, 16, paukštis, 8
22	baudą	67	17	10	0,433	0,119	gauti, 29, sumokėti, 8, mokėti, 7, gavo, 5, policija, 4
23	būdą	65	43	30	0,108	0,062	gerą, 7, turėti, 4, gyvenimo, 3, rasti, 3, charakteris, 2
24	bylą	67	31	19	0,164	0,119	nagrinėti, 11, iškelti, 8, teismas, 6, nutraukti, 5, laimėti, 3
25	darbą	24	18	15	0,208	0,083	dirbti, 5, baigė, 2, daryti, 2, atlieka, 1, atliko, 1
26	darbas	19	17	15	0,105	0,105	pinigai, 2, vargina, 2, atlyginimas, 1, atlygis, 1, baigtas, 1
27	darbo	21	13	9	0,190	0,190	birža, 4, jėga, 4, laikas, 2, pokalbis, 2, diena, 1
28	darė	19	16	13	0,105	0,105	darbus, 2, valgyt, 2, valgyti, 2, atliko, 1, blogai, 1
29	daro	21	15	11	0,143	0,143	darbą, 3, įtaką, 3, atlieka, 2, veikia, 2, bloga, 1
30	daryti	84	40	27	0,119	0,095	darbus, 10, namų darbus, 8, darbas, 6, darbą, 6, gera, 5
31	dėmesį	65	28	18	0,246	0,108	sutelkti, 16, atkreipti, 7, patraukti, 5, nukreipti, 4, rodyti, 4

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32	derybas	61	27	21	0,443	0,049	vesti, 27, laimėti, 3, veda, 3, vedu, 3, laimėjo, 2
	Cue	NR	NDR	IR	FA	SA	First 5
33	dėti	65	31	19	0,185	0,123	pastangas, 12, kiaušinius, 8, daiktus, 3, imti, 3, kiaušinį, 3
34	didelis	202	67	44	0,337	0,109	mažas, 68, namas, 22, šuo, 12, balionas, 5, vaikas, 5
35	diena	208	33	20	0,505	0,159	naktis, 105, graži, 33, saulėta, 9, laba, 8, saulė, 7
36	dokumentą	19	15	12	0,158	0,105	parodyti, 3, pamesti, 2, pasirašė, 2, asmeninį, 1, atspausdinti, 1
37	dokumentas	20	15	12	0,150	0,150	slaptas, 3, svarbus, 3, pasas, 2, asmens, 1, brangus, 1
38	dokumento	24	14	11	0,292	0,167	kopija, 7, numeris, 4, nuotrauka, 2, antspaudas, 1, duomenys, 1
39	duoda	65	39	29	0,200	0,062	ima, 13, naudos, 4, pinigų, 4, valgyti, 3, duoną, 2
40	duomenis	66	41	35	0,167	0,076	rinkti, 11, gauti, 5, surinkti, 5, pateikti, 4, apdoroti, 3
41	duoti	61	36	27	0,148	0,098	imti, 9, pinigų, 6, gauti, 4, laiko, 4, ranką, 3
42	egzaminą	66	15	11	0,485	0,242	išlaikyti, 32, laikyti, 16, išlaikė, 5, laikas, 2, bakalauras, 1
43	eina	208	67	43	0,163	0,130	bėga, 34, namo, 27, laikas, 22, sau, 15, šuo, 7
44	gaisrą	61	16	7	0,361	0,115	gesinti, 22, užgesinti, 7, ugnis, 6, gesina, 5, sukelti, 4
45	gaišti	67	7	5	0,776	0,149	laiką, 52, laikas, 10, katinas, 1, kaupiti, 1, mirti, 1
46	galimybę	65	30	24	0,185	0,169	gauti, 12, suteikti, 11, turėti, 11, išnaudoti, 3, prarasti, 2
47	gauna	79	43	31	0,152	0,089	algą, 12, atlygį, 7, duoda, 6, ima, 4, pinigų, 4

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48	gauti	88	46	32	0,102	0,080	dovana, 9, alga, 7, dovanų, 6, duoti, 6, pinigų, 5
49	gavo	24	19	15	0,125	0,083	dovana, 3, davė, 2, dovanų, 2, dvejetą, 2, baudą, 1
	Cue	NR	NDR	IR	FA	SA	First 5
50	geras	198	43	32	0,323	0,146	blogas, 64, draugas, 29, žmogus, 29, oras, 14, darbas, 10
51	gilus	188	52	25	0,229	0,090	ežeras, 43, miegas, 17, vanduo, 16, šulinys, 15, vandenynas, 7
52	grėsmę	67	37	30	0,239	0,075	kelti, 16, jausti, 5, patirti, 4, sukelti, 4, pajauti, 3
53	gulėjo	20	12	10	0,400	0,100	lovoje, 8, sėdėjo, 2, gatvėje, 1, ilgai, 1, lova, 1
54	gulėti	19	12	9	0,316	0,105	lovoje, 6, lova, 2, stovėti, 2, ilgai, 1, ilsėtis, 1
55	guli	23	12	9	0,348	0,174	lovoje, 8, miega, 4, vienas, 2, aukštiekninkas, 1, ilsėtis, 1
56	gyvena	21	15	11	0,190	0,095	gerai, 4, gyvenimą, 2, name, 2, vienas, 2, amžinai, 1
57	gyveno	19	11	7	0,211	0,158	ilgai, 4, laimingai, 3, senelis, 3, mirė, 2, gerai, 1
58	gyventi	24	20	18	0,167	0,083	mirti, 4, mieste, 2, blogai, 1, džiaugtis, 1, gera, 1
59	idėja	21	13	11	0,238	0,238	gera, 5, mintis, 5, Lietuvai, 1, atėjo, 1, galvoje, 1
60	idėją	19	18	17	0,105	NA	kurti, 2, džiaugsmas, 1, gera, 1, inovacija, 1, išaiškėjo, 1
61	idėjų	24	16	10	0,125	0,125	gausa, 3, lietus, 3, bankas, 2, generavimas, 2, kupinas, 2
62	imtis	67	28	20	0,269	0,164	darbo, 18, veiksmų, 11, veiklos, 6, darbų, 4, iniciatyvos, 2
63	informaciją	65	32	23	0,231	0,108	gauti, 15, suteikti, 7, rinkti, 5, perduoti, 4, teikti, 3

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64	iniciatyvą	65	32	24	0,231	0,123	rodyti, 15, parodyti, 8, imtis, 7, daryti, 3, perimti, 2
65	išbandyti	59	34	25	0,186	0,085	naujoves, 11, save, 5, jėgas, 3, naujovę, 3, sėkmę, 3
66	išduoti	67	31	23	0,224	0,209	draugą, 15, paslaptį, 14, paslaptis, 4, žmogų, 3, leidimą, 2
	Cue	NR	NDR	IR	FA	SA	First 5
67	išeina	19	15	14	0,263	NA	namo, 5, ateina, 1, atostogų, 1, durys, 1, grįžta, 1
68	išeiti	21	12	8	0,286	0,143	namo, 6, ateiti, 3, lauk, 2, laukan, 2, durys, 1
69	išeitį	65	15	11	0,492	0,231	rasti, 32, surasti, 15, rado, 5, atrasti, 2, durys, 1
70	išėjo	24	17	14	0,250	0,083	namo, 6, grįžo, 2, parėjo, 2, anksčiau, 1, gerai, 1
71	įsipareigojimus	66	27	16	0,364	0,076	vykdyti, 24, įvykdyti, 5, prisiimti, 4, tesėti, 3, atlikti, 2
72	iškovojo	68	21	12	0,324	0,176	pergalę, 22, laisvę, 12, medalį, 7, pergalė, 4, teisę, 3
73	iškvietė	66	18	11	0,348	0,182	policiją, 23, pagalbą, 12, policija, 8, namo, 5, taksi, 3
74	išlaikyti	68	26	17	0,221	0,103	egzaminą, 15, šeimą, 7, egzaminus, 6, teises, 6, dėmesį, 5
75	įspūdį	66	27	17	0,167	0,152	padaryti, 11, palikti, 10, sukelti, 6, sudaryti, 5, susidaryti, 4
76	išspręsti	66	19	8	0,227	0,212	problema, 15, uždavinį, 14, problemas, 6, užduotį, 5, galvosūkį, 3
77	iššūkį	65	22	16	0,431	0,169	priimti, 28, mesti, 11, įveikti, 4, išsikelti, 2, priėmė, 2
78	įstatymą	65	40	30	0,123	0,092	išleisti, 8, priimti, 6, keisti, 4, sulaužyti, 4, pažeisti, 3
79	išvadą	65	23	16	0,308	0,154	padaryti, 20, daryti, 10, priėti, 7, padarė, 4, pateikti, 4

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80	išvengė	21	16	13	0,190	0,095	bausmės, 4, avarijos, 2, bėdos, 2, duobių, 1, klaida, 1
81	išvengia	24	20	16	0,083	0,083	atsakomybės, 2, bausmės, 2, bėdos, 2, susiduria, 2, avarijos, 1
82	išvengti	86	48	32	0,116	0,070	atsakomybės, 10, bausmės, 6, bėdos, 4, kliūtis, 4, problemų, 4
83	įtaką	65	21	14	0,508	0,077	daryti, 33, daro, 5, turėti, 5, pajusti, 2, patirti, 2
	Cue	NR	NDR	IR	FA	SA	First 5
84	įtakos	66	32	22	0,197	0,106	turėti, 13, sfera, 7, daryti, 5, darymas, 4, turi, 4
85	įtampą	62	41	30	0,113	0,065	jausti, 7, kelti, 4, mažinti, 4, jaučia, 3, didelę, 2
86	įvartį	66	15	8	0,515	0,121	įmušti, 34, įmušė, 8, futbolas, 6, mušti, 4, pelnyti, 2
87	jaučiasi	24	14	11	0,375	0,083	gerai, 9, laimingas, 2, serga, 2, apkabinimas, 1, blogai, 1
88	jaustis	19	15	14	0,263	NA	gerai, 5, blogai, 1, emocija, 1, gyventi, 1, iracionalumas, 1
89	jautėsi	21	11	6	0,238	0,143	gerai, 5, blogai, 3, laimingas, 3, prastai, 2, puikiai, 2
90	jėgą	65	41	34	0,108	0,108	naudoti, 7, panaudoti, 7, rodyti, 5, demonstruoti, 4, parodyti, 4
91	jėgas	65	41	29	0,077	0,077	atgauti, 5, kaupti, 5, sutelkti, 5, atimti, 3, prarasti, 3
92	kaklą	21	14	12	0,333	0,095	skauda, 7, galva, 2, išsinarino, 1, kasosi, 1, kūną, 1
93	kaklas	23	14	11	0,261	0,174	galva, 6, ilgas, 4, nulūžo, 2, apvyniotas, 1, kaklas, 1
94	kaklo	19	14	11	0,211	0,105	slankstelis, 4, ilgis, 2, pakabukas, 2, arterija, 1, gysla, 1
95	kalbasi	19	15	12	0,158	0,105	draugai, 3, tyliai, 2, šnekasi, 2, bendrauja, 1, diskutuoja, 1

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96	kalbėjosi	24	18	14	0,125	0,125	tarpusavyje, 3, tyliai, 3, dviese, 2, tylėjo, 2, aiškiai, 1
97	kalbėtis	21	18	16	0,143	0,095	tyliai, 3, šnekėtis, 2, atvirumas, 1, bendrauti, 1, diskutuoti, 1
98	kaltę	60	31	23	0,233	0,083	jausti, 14, pripažinti, 5, prisiimti, 5, suversti, 4, išpirkti, 3
99	katina	21	14	10	0,238	0,095	šunį, 5, gauda, 2, glosto, 2, glostyti, 2, Garfildas, 1
100	katinas	23	13	9	0,217	0,217	juodas, 5, šuo, 5, murkia, 2, rainas, 2, balta, 1
	Cue	NR	NDR	IR	FA	SA	First 5
101	katino	19	14	10	0,158	0,105	dienos, 3, šuns, 2, šuo, 2, ūsai, 2, ausis, 1
102	keičiasi	21	20	19	0,095	NA	metai, 2, budėti, 1, charakteris, 1, daiktais, 1, gyvenimas, 1
103	keistis	24	20	17	0,125	0,083	dovanomis, 3, išvaizda, 2, žmogui, 2, apsisukeisti, 1, bet nepasikeisti, 1
104	keitėsi	19	16	15	0,211	NA	laikai, 4, daiktai, 1, dienos, 1, evoliucionavo, 1, ilgai, 1
105	kėlė	24	19	16	0,167	0,083	dėžę, 4, kėdę, 2, reikalavimus, 2, grėsmę, 1, kompetencijas, 1
106	kelia	85	68	59	0,047	0,047	galvą, 4, klausimą, 4, ranką, 4, traukia, 3, ūpą, 3
107	kelia	61	37	25	0,148	0,082	tiesti, 9, rodyti, 5, ilgą, 3, rasti, 3, grįsti, 2
108	kelti	21	20	19	0,095	NA	mesti, 2, akmenį, 1, aukštis, 1, dėžę, 1, hantelį, 1
109	klaidų	60	31	20	0,167	0,117	taisydas, 10, nedaryti, 7, daryti, 5, daug, 4, darymas, 2
110	klausimą	66	21	12	0,288	0,136	užduoti, 19, atsakyti, 9, kelti, 8, uždavė, 7, atsakymą, 3
111	konkursą	67	17	14	0,701	0,060	laimėti, 47, laimėjo, 4, surengė, 2, atšaukė, 1, diplomą, 1

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112	laiką	67	33	21	0,119	0,104	leisti, 8, skaičiuoti, 7, praleisti, 5, taupyti, 5, atsukti, 4
113	leidimą	67	20	12	0,433	0,075	gauti, 29, duoti, 5, išduoti, 5, turėti, 5, gavo, 4
114	lengvas	199	57	39	0,276	0,116	sunkus, 55, pūkas, 23, darbas, 20, būdas, 8, uždavinys, 6
115	likimą	21	17	15	0,143	0,143	lemtis, 3, pakeisti, 3, duoda, 1, gelbėti, 1, gerbti, 1
116	likimas	23	22	21	0,087	NA	ateitis, 2, davė, 1, gyvenimas, 1, iliuzija, 1, keistas, 1
117	likimo	19	16	13	0,105	0,105	broliai, 2, dovana, 2, ironija, 2, deivė, 1, duobė, 1
	Cue	NR	NDR	IR	FA	SA	First 5
118	mėlynas	199	47	32	0,558	0,060	dangus, 111, raudonas, 12, geltonas, 6, autobusiukas, 5, žalias, 5
119	mesti	19	13	11	0,263	0,158	rūkyti, 5, mokslus, 3, akmenį, 1, aukštyn, 1, daiktą, 1
120	meta	24	15	13	0,375	0,083	kamuolį, 9, akmenį, 2, išmeta, 1, iššūkį, 1, kamuolys, 1
121	metė	87	35	21	0,287	0,069	kamuolį, 25, kamuolys, 6, mokslus, 5, darbą, 4, pagavo, 4
122	miestą	24	18	15	0,167	0,125	kaimą, 4, Vilnių, 3, statyti, 2, apžiūrėjo, 1, atrado, 1
123	miestas	18	11	9	0,278	0,222	kaimas, 5, didelis, 4, Vilnius, 1, ant kalno, 1, graikai, 1
124	miesto	21	15	11	0,143	0,143	kaimo, 3, meras, 3, gatvė, 2, gatvės, 2, aikštė, 1
125	mišką	21	19	18	0,143	NA	kirsti, 3, auginti, 1, baimę, 1, eina žmonės, 1, gesina, 1
126	miškas	24	18	13	0,125	0,083	tankus, 3, gūdus, 2, medis, 2, pieva, 2, tamsus, 2
127	miško	19	19	19	NA	NA	bendrija, 1, dievas, 1, gatvė, 1, grožis, 1, grybai, 1

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128	mokesčius	60	18	11	0,517	0,083	mokėti, 31, pinigai, 5, sumokėjo, 4, moka, 3, apmokėti, 2
129	mokėti	63	27	21	0,270	0,206	mokesčius, 17, pinigus, 13, pinigai, 6, kalbą, 2, paskolą, 2
130	mylimas	208	50	34	0,361	0,144	žmogus, 75, vyras, 30, šuo, 12, katinas, 10, nemylimas, 8
131	nagrinėti	60	38	30	0,133	0,117	bylą, 8, tekstą, 7, užduotį, 4, temą, 3, klausimą, 2
132	namą	59	27	20	0,271	0,169	statyti, 16, pastatyti, 10, pastatė, 4, pirkti, 3, griauti, 2
133	naudoja	19	17	15	0,105	0,105	priemonės, 2, vartoja, 2, automobilį, 1, energiją, 1, ima, 1
134	naudojo	24	22	20	0,083	0,083	padėjo, 2, telefoną, 2, degtukus, 1, dirbo, 1, išmetė, 1
	Cue	NR	NDR	IR	FA	SA	First 5
135	naudoti	21	21	21	NA	NA	automobilį, 1, centrifūgą, 1, daiktus, 1, daiktą, 1, internetą, 1
136	nesėkmę	67	32	25	0,328	0,104	patirti, 22, išgyventi, 7, patyrė, 5, atnešti, 2, išverti, 2
137	nuomonė	19	16	14	0,158	0,105	laisvė, 3, gera, 2, asmeninė, 1, idėja, 1, išsiskirti, 1
138	nuomonę	82	46	32	0,110	0,073	turėti, 9, išsakyti, 6, pakeisti, 5, reikšti, 5, išreiškė, 4
139	nuomonių	21	14	11	0,238	0,143	skirtumas, 5, išsiskyrimas, 3, minčių, 2, daug, 1, karas, 1
140	nuostolių	65	35	25	0,215	0,092	patirti, 14, atlyginimas, 6, turėti, 4, išvengti, 3, padengimas, 3
141	nusikaltimą	66	28	17	0,258	0,121	padaryti, 17, įvykdyti, 8, padarė, 6, atlikti, 3, daryti, 3
142	nutraukti	66	29	20	0,258	0,167	santykius, 17, sutartį, 11, ryšius, 4, pokalbį, 3, pradėti, 3
143	padarė	66	43	37	0,136	0,121	klaidą, 9, darbą, 8, darbus, 4, nusikaltimą, 4, klaida, 2

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144	pagalbą	65	21	14	0,477	0,108	suteikti, 31, teikti, 7, suteikė, 5, gauti, 2, kviesti, 2
145	pagrindinis	198	67	42	0,101	0,066	išsilavinimas, 20, tikslas, 13, šalutinis, 13, kelias, 12, puslapis, 12
146	pajamas	67	29	23	0,358	0,134	gauti, 24, skaičiuoti, 9, deklaruoti, 4, pinigai, 3, gavo, 2
147	palaikyti	61	36	24	0,098	0,082	draugą, 6, komandą, 5, paremti, 4, morališkai, 3, ryši, 3
148	panaudoti	59	47	41	0,102	0,051	daiktą, 6, daiktai, 3, ginklą, 3, galimybę, 2, pinigus, 2
149	pareiškė	59	34	27	0,220	0,102	nuomonę, 13, norą, 6, kaltinimus, 3, pasakė, 3, prašymą, 3
150	parodymus	67	21	13	0,478	0,075	duoti, 32, teikti, 5, davė, 4, pateikti, 4, teismas, 3
151	pasiekti	61	22	15	0,475	0,049	tikslą, 29, aukštumas, 3, aukštumų, 3, tikslas, 3, tikslus, 3
	Cue	NR	NDR	IR	FA	SA	First 5
152	pasirašė	65	27	22	0,462	0,077	sutartį, 30, sutartis, 5, parašas, 4, aktą, 2, dokumentus, 2
153	paskaitą	61	31	21	0,279	0,066	vesti, 17, veda, 4, praleisti, 3, skaityti, 3, universitetas, 3
154	paslaugas	66	29	23	0,364	0,152	teikti, 24, suteikti, 10, gauti, 3, mokėti, 2, suteikė, 2
155	pastangas	61	31	25	0,361	0,066	dėti, 22, įvertinti, 4, dedu, 3, įdėti, 3, rodyti, 2
156	pateikti	59	34	26	0,136	0,136	atsakymą, 8, paraišką, 8, prašymą, 5, prašymas, 4, klausimą, 2
157	patirtį	21	18	16	0,143	0,095	kaupiti, 3, dalinti, 2, amžius, 1, dalina, 1, dalintis, 1
158	patirties	19	17	15	0,105	0,105	stoka, 2, trūksta, 2, darbas, 1, finansai, 1, individualizmas, 1
159	patirtis	23	18	13	0,087	0,087	amžius, 2, byloja, 2, didelė, 2, gera, 2, padėjo, 2

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160	patyrė	68	37	22	0,132	0,103	traumą, 9, nesėkmę, 7, išgyveno, 3, nuoskaudą, 3, nuostolių, 3
161	pelnę	60	30	20	0,133	0,133	apdovanojimą, 8, pagarbą, 8, pripažinimą, 5, apdovanojimas, 4, garbę, 3
162	perėmė	68	39	31	0,191	0,132	pareigas, 13, valdžią, 9, darbą, 5, atėmė, 2, darbus, 2
163	pergalę	62	31	23	0,177	0,161	pasiekti, 11, švęsti, 10, laimėti, 6, iškovojo, 3, pelnyti, 3
164	pirkėją	19	16	13	0,105	0,105	kapitalizmas, 2, pardavėjas, 2, rasti, 2, apgaut, 1, apgauti, 1
165	pirkėjas	21	13	11	0,381	0,095	pardavėjas, 8, piktas, 2, geras, 1, išėjo, 1, kaina, 1
166	pirkėjo	24	16	11	0,125	0,125	nuomonė, 3, parduotuvė, 3, poreikiai, 3, pardavėjo, 2, pinigai, 2
167	policiją	60	36	31	0,217	0,150	kviesti, 13, iškviesti, 9, gerbti, 3, iškviētė, 2, žalia, 2
168	pradėti	66	34	22	0,152	0,091	darbą, 10, dirbti, 6, baigti, 5, mokytis, 4, pabaigti, 4
	Cue	NR	NDR	IR	FA	SA	First 5
169	praleido	20	14	12	0,300	0,100	paskaitą, 6, raidę, 2, filmą, 1, laboratorinis, 1, nespėjo, 1
170	praleidžia	24	19	17	0,167	0,125	paskaitas, 4, pamokas, 3, išleidžia, 1, laiką, 1, leidžia, 1
171	praleisti	19	15	12	0,158	0,105	paskaitą, 3, laiką, 2, neateiti, 2, akis, 1, atgauti, 1
172	prarado	68	51	40	0,074	0,044	nekaltybę, 5, amą, 3, darbą, 3, sąmonę, 3, draugą, 2
173	prasideda	24	13	8	0,208	0,167	baigiasi, 5, paskaita, 4, diena, 3, gyvenimas, 2, pamoka, 2
174	prasidėjo	20	12	8	0,200	0,200	karas, 4, paskaita, 4, baigėsi, 2, pasibaigė, 2, atšilimas, 1
175	prasidėti	19	16	15	0,211	NA	pasibaigti, 4, dienai, 1, ilgai, 1, koncertas, 1, kovoti, 1

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176	prezidentą	19	14	11	0,158	0,158	išrinkti, 3, rinkti, 3, Grybauskaitė, 2, Lietuva, 1, gerbti, 1
177	prezidentas	21	14	8	0,143	0,095	valdžia, 3, Grybauskaitė, 2, Obama, 2, sąžiningas, 2, valdo, 2
178	prezidento	24	14	10	0,208	0,167	kalba, 5, rinkimai, 4, dukra, 3, patarėjas, 2, kabinetas, 1
179	prielaidą	65	27	20	0,462	0,062	daryti, 30, padaryti, 4, padarė, 3, darau, 2, iškelti, 2
180	priėmė	61	38	30	0,180	0,082	sprendimą, 11, įstatymą, 5, atėmė, 4, į darbą, 3, iššūkį, 2
181	priimti	67	38	28	0,194	0,104	sprendimą, 13, dovaną, 7, atsakomybę, 3, dovana, 3, svečią, 3
182	principą	19	16	14	0,158	0,105	užsispyrimas, 3, suprasti, 2, asmenybė, 1, ignoruoti, 1, keisti, 1
183	principas	21	17	14	0,143	0,095	kvailas, 3, geras, 2, paprastas, 2, aukščiau, 1, didelis, 1
184	principo	24	6	5	0,792	NA	reikalas, 19, aiškinimas, 1, iš, 1, leidimas, 1, taisyklė, 1
185	prisiimti	67	18	14	0,493	0,149	atsakomybę, 33, kaltę, 10, atsakomybė, 8, sau, 2, akimirkas, 1
	Cue	NR	NDR	IR	FA	SA	First 5
186	problema	24	14	11	0,333	0,125	išspręsta, 8, sprendimas, 3, didelė, 2, bėdos, 1, išeitis, 1
187	problema	81	25	17	0,358	0,160	spręsti, 29, išspręsti, 13, sprendimas, 7, išsprendė, 6, sprendžia, 3
188	problemų	19	16	14	0,158	0,105	daug, 3, sprendimas, 2, bėdos, 1, depresija, 1, iškilo, 1
189	procesą	24	20	18	0,125	0,125	valdo, 3, vykdyti, 3, Filadelfija, 1, Kafka, 1, apgalvojo, 1
190	procesas	19	16	14	0,158	0,105	ilgas, 3, darbas, 2, Kafka, 1, eiga, 1, gaminys, 1
191	proceso	21	16	14	0,238	0,095	eiga, 5, metu, 2, aprašymas, 1, ciklas, 1, daiktavardis, 1

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192	projektą	19	17	15	0,105	0,105	daryti, 2, grupė, 2, atlieka, 1, darė, 1, komanda, 1
193	projektas	21	18	16	0,143	0,095	sunkus, 3, sėkmingas, 2, X faktorius, 1, asmeninis, 1, baigti, 1
194	projekto	24	16	14	0,333	0,083	vadovas, 8, dalyvis, 2, X faktorius, 1, darymas, 1, išvados, 1
195	puikus	185	72	47	0,114	0,076	oras, 21, geras, 14, darbas, 12, žmogus, 12, šaunus, 10
196	rado	67	47	36	0,075	0,075	lobį, 5, pametė, 5, raktą, 4, monetą, 3, būdą, 2
197	ramybė	21	18	16	0,143	0,095	tyla, 3, dorybė, 2, aš, 1, bažnyčia, 1, brangi, 1
198	ramybės	24	16	14	0,292	0,125	būseną, 7, oazė, 3, akmuo, 1, aplinka, 1, beieškant, 1
199	ramybę	19	17	15	0,105	0,105	poilsis, 2, turėti, 2, duoti, 1, iškęsti, 1, laisvė, 1
200	rasti	60	33	22	0,133	0,117	pamesti, 8, atsakymą, 7, pinigų, 4, daiktą, 3, ieškoti, 3
201	rezultatų	61	40	31	0,115	0,082	siekti, 7, laukti, 5, gerų, 4, pasiekti, 4, egzaminas, 2
202	ryšį	65	36	27	0,215	0,092	palaikyti, 14, užmegzti, 6, nutraukti, 5, telefono, 3, palaikė, 2
	Cue	NR	NDR	IR	FA	SA	First 5
203	ryškus	187	89	58	0,091	0,064	blankus, 17, dangus, 12, vaizdas, 9, mėnulis, 7, spalva, 7
204	sąmonę	60	35	28	0,267	0,083	prarasti, 16, sąmonę, 5, atgauti, 3, atgaivinti, 2, atgavo, 2
205	santykius	64	37	32	0,250	0,109	puoselėti, 16, palaikyti, 7, kurti, 4, turėti, 3, nutraukti, 2
206	saugumą	60	25	15	0,250	0,183	užtikrinti, 15, jausti, 11, garantuoti, 5, palaikyti, 2, policija, 2
207	sėdėjo	24	20	16	0,083	0,083	gulėjo, 2, kėdė, 2, lauke, 2, vienas, 2, ant lovos, 1

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208	sėdėti	20	15	11	0,150	0,100	stovėti, 3, kėdė, 2, ramiai, 2, šalia, 2, ant kėdės, 1
209	sėdi	19	15	12	0,158	0,105	stovi, 3, guli, 2, skauda, 2, ant, 1, kalėjimas, 1
210	šeimą	66	30	22	0,182	0,106	mylėti, 12, kurti, 7, sukurti, 7, turėti, 6, sukūrė, 5
211	senas	188	55	41	0,213	0,133	jaunas, 40, namas, 25, žmogus, 22, naujas, 15, draugas, 8
212	serga	24	18	16	0,167	0,167	gripu, 4, liga, 4, AIDS, 1, asmuo, 1, blogai, 1
213	siekė	19	13	9	0,158	0,158	tikslas, 3, tikslo, 3, naudos, 2, tikslų, 2, aukštai, 1
214	siekia	21	11	7	0,238	0,190	tikslų, 5, tikslo, 4, aukštumų, 3, tikslas, 2, karjeros, 1
215	siekti	92	21	16	0,489	0,174	tikslo, 45, tikslų, 16, tikslas, 8, aukštumų, 4, pasiekti, 3
216	sirgo	21	15	12	0,190	0,143	pasveiko, 4, gripu, 3, liga, 2, artimas žmogus, 1, depresija, 1
217	sirgti	19	16	14	0,158	0,105	gripu, 3, liga, 2, gripas, 1, gulėti, 1, imunitetas, 1
218	skaitė	66	16	10	0,470	0,136	knygą, 31, knyga, 9, knygas, 5, laikraštį, 4, rašė, 4
219	skirti	60	31	21	0,283	0,050	laiko, 17, duoti, 3, lėšų, 3, pinigų, 3, premiją, 3
	Cue	NR	NDR	IR	FA	SA	First 5
220	sprendimą	65	24	19	0,462	0,123	priimti, 30, rasti, 8, pateikti, 3, priėmė, 3, padaryti, 2
221	statyti	67	16	11	0,567	0,104	namą, 38, namas, 7, namus, 7, griauti, 2, pastatą, 2
222	stiklą	18	16	14	0,111	0,111	permatomas, 2, sudaužė, 2, Skandinavija, 1, baltą, 1, dailė, 1
223	stiklas	21	17	14	0,143	0,095	dūžta, 3, langas, 2, plonas, 2, dužo, 1, ledas, 1

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224	stiklo	24	20	17	0,125	0,083	šukės, 3, pluoštas, 2, šalis, 2, balerina, 1, dužo, 1
225	sudaryti	67	31	20	0,179	0,149	sutartį, 12, sąrašą, 10, sąlygas, 5, tvarkaraštį, 4, planą, 3
226	sukėlė	67	45	35	0,090	0,075	gaisrą, 6, sumaištį, 5, sąmyšį, 4, nerimą, 3, pavojų, 3
227	sukurti	59	43	33	0,068	0,051	kūrinį, 4, dainą, 3, eilėraštį, 3, istoriją, 3, šeimą, 3
228	sulaukė	21	16	12	0,143	0,095	dėmesio, 3, atsako, 2, laikas, 2, svečių, 2, anūkų, 1
229	sulaukia	24	19	15	0,125	0,083	svečių, 3, grįžtančio, 2, pagyrų, 2, vaiko, 2, atpildo, 1
230	sulaukti	19	16	14	0,158	0,105	atsakymo, 3, vaiko, 2, atsakymas, 1, atsakymą, 1, autobuso, 1
231	sumažinti	66	36	24	0,106	0,091	padidinti, 7, kainas, 6, mokesčius, 5, išlaidas, 4, kainą, 4
232	susidaryti	69	20	15	0,362	0,232	įspūdį, 25, nuomonę, 16, planą, 5, nuomonė, 4, tvarkaraštį, 4
233	susitarimą	61	45	37	0,066	0,066	sulaužyti, 4, tesėti, 4, vykdyti, 4, įvykdyti, 4, laikytis, 2
234	sutartį	66	18	12	0,545	0,091	pasirašyti, 36, sudaryti, 6, pasirašė, 5, sudarė, 3, darbas, 2
235	suteikia	60	43	28	0,050	0,050	duoda, 3, jėgų, 3, atima, 2, galimybes, 2, galimybę, 2
236	suteikti	67	35	22	0,179	0,090	pagalbą, 12, galimybę, 6, laimės, 3, pagalba, 3, paramą, 3
	Cue	NR	NDR	IR	FA	SA	First 5
237	suversti	66	13	9	0,712	0,091	kalnę, 47, kaltė, 6, kalnas, 2, krūva, 2, apkaltinti, 1
238	šventė	67	39	32	0,194	0,090	kalėdos, 13, švęsti, 6, gimtadienis, 4, Velykos, 3, gimtadienį, 3
239	teikti	67	26	14	0,224	0,119	paslaugas, 15, pagalbą, 8, paraišką, 7, paslaugą, 5, paramą, 3

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240	teisę	62	36	27	0,290	0,048	turėti, 18, studijuoti, 3, duoti, 2, prarasti, 2, rinktis, 2
241	teršia	67	17	11	0,507	0,134	aplinką, 34, gamtą, 9, aplinka, 5, orą, 4, gamta, 2
242	tikslo	66	19	16	0,500	0,227	siekti, 33, siekimas, 15, kelias, 2, aplinkybės, 1, aspektas, 1
243	turėjo	19	16	13	0,105	0,105	katina, 2, pinigų, 2, šunį, 2, dovana, 1, draugų, 1
244	turėti	24	18	13	0,125	0,083	prarasti, 3, daug, 2, pinigų, 2, tikslą, 2, vaikų, 2
245	turi	88	51	39	0,136	0,102	pinigų, 12, neturi, 9, laiko, 5, draugą, 4, darbą, 3
246	tylus	188	63	42	0,160	0,160	ramus, 30, žmogus, 30, garsus, 17, vakaras, 16, vaikas, 10
247	tyrimą	88	36	30	0,398	0,080	atlikti, 35, daryti, 7, atliko, 6, vykdyti, 4, atlieka, 3
248	tyrimas	24	17	13	0,208	0,083	atliktas, 5, parodė, 2, rezultatai, 2, sėkmingas, 2, apklausa, 1
249	tyrimo	19	13	8	0,158	0,105	rezultatas, 3, duomenys, 2, eiga, 2, eksperimentas, 2, rezultatai, 2
250	užduoti	61	23	19	0,525	0,066	klausimą, 32, klausimas, 4, namų darbus, 3, paklausti, 3, atsakyti, 1
251	užkirsti	68	10	7	0,765	0,103	kelį, 52, kelias, 7, kelia, 2, atrakinti, 1, blogis, 1
252	užleisti	66	10	7	0,758	0,106	vietą, 50, vieta, 7, užuolaidas, 2, daržą, 1, eilė, 1
253	užtikrinti	66	32	24	0,318	0,091	saugumą, 21, saugumas, 6, tvarką, 4, laisvę, 3, ateitį, 2
	Cue	NR	NDR	IR	FA	SA	First 5
254	užuojautą	66	32	25	0,258	0,136	pareikšti, 17, reikšti, 9, išreikšti, 5, suteikti, 4, išreiškė, 2
255	vairuoti	61	18	13	0,311	0,311	automobilį, 19, mašiną, 19, automobilis, 5, mašina, 3, važiuoti, 2

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256	valdyti	67	38	29	0,149	0,104	šali, 10, įmonę, 7, karalius, 5, pasaulį, 3, pinigus, 3
257	valstybę	61	36	25	0,164	0,082	ginti, 10, mylėti, 5, valdyti, 4, kurti, 3, Lietuva, 2
258	vandenį	24	18	16	0,250	0,083	gerti, 6, ledą, 2, geria, 1, išgerti, 1, išgėrė, 1
259	vandens	21	19	18	0,143	NA	parkas, 3, aparato, 1, bakelis, 1, difuzija, 1, fobija, 1
260	vanduo	19	12	8	0,263	0,105	gyvybė, 5, skaidrus, 2, teka, 2, šaltas, 2, H ₂ O, 1
261	variklį	21	15	12	0,190	0,143	užvesti, 4, automobilis, 3, užkurti, 2, akumuliatorių, 1, energiją, 1
262	variklio	18	14	11	0,167	0,111	dangtis, 3, garsas, 2, gausmas, 2, automobilis, 1, aušinimas, 1
263	variklis	24	18	15	0,208	0,083	mašina, 5, automobilis, 2, užgeso, 2, Periklis, 1, automobilyje, 1
264	važiavo	19	12	8	0,211	0,158	automobilis, 4, ėjo, 3, mašina, 2, namo, 2, autobusu, 1
265	važiuoja	21	14	11	0,238	0,143	mašina, 5, namo, 3, lėtai, 2, automobilis, 1, automobiliu, 1
266	važiuoti	24	15	11	0,167	0,167	mašina, 4, namo, 4, greitai, 3, eiti, 2, automobilis, 1
267	veiksmų	65	26	19	0,338	0,154	imtis, 22, planas, 10, seka, 6, eiga, 2, galia, 2
268	verslą	60	29	18	0,167	0,100	kurti, 10, pradėti, 6, sukurti, 5, pinigai, 4, kuria, 3
269	vesti	66	37	24	0,152	0,091	moterį, 10, žmoną, 6, laidą, 4, nuotaka, 3, šunį, 3
270	vietą	61	43	31	0,082	0,066	rasti, 5, užimti, 4, nurodyti, 3, keisti, 2, kėdė, 2
	Cue	NR	NDR	IR	FA	SA	First 5
271	vykdyti	67	38	31	0,224	0,119	užduotį, 15, užduotis, 8, nurodymus, 4, pareigas, 3, apklausą, 2

Vilkaitė-Lozdienė, L. 2019. First steps towards the Lithuanian word association database. *Taikomoji kalbotyra*, 12: 226–258, www.taikomojikalbotyra.lt.

272	žmogaus	21	20	19	0,095	NA	gyvūno, 2, amžius, 1, anatomija, 1, asmens, 1, baimės, 1
273	žmogų	24	20	17	0,125	0,083	gyvūną, 3, mylėti, 2, pažinti, 2, aktorė, 1, daro, 1
274	žmogus	19	17	15	0,105	0,105	geras, 2, gyvybė, 2, asmuo, 1, aš, 1, drugelis, 1
275	žurnalą	24	12	9	0,250	0,250	skaito, 6, skaityti, 6, skaitau, 3, laikraštį, 1, mamai, 1
276	žurnalas	18	16	14	0,111	0,111	laikraštis, 2, skaityti, 2, Panelė, 1, knyga, 1, lapas, 1
277	žurnalo	21	10	9	0,571	NA	viršelis, 12, antraštė, 1, autorius, 1, knygos, 1, laikraščio, 1

NR: number of responses

NDR: number of different responses

IR: number of idiosyncratic responses

FA: first association strength

SA: second association strength

First 5: first five most frequent associates with their frequencies