

Commonly Confused Words in Contrastive and Dynamic Dictionary Entries

Petra Storjohann

Institut für Deutsche Sprache, Mannheim

E-mail: storjohann@ids-mannheim.de

Abstract

This paper discusses changes in lexicographic traditions with respect to contrastive dictionary entries and dynamic, on-demand e-lexicographic descriptions. The new German online dictionary *Paronyme - Dynamisch im Kontrast* is concerned with easily confused words (paronyms), such as *effektiv/effizient* and *sensibel/sensitiv*. New approaches to the empirical analysis and lexicographic presentation of words such as these are required, and this dictionary is committed to overcoming the discrepancy between traditional practice and insights from language use. As a corpus-guided reference work, it strives to adequately reflect not only authentic use in situations of actual communication, but also cognitive ideas such as conceptual structure, categorization and knowledge. Looking up easily confused lexical items requires contrastive entries where users can instantly compare meaning, contexts and reference. Adaptable access to lexicographic details and variable search options offer different foci and perspectives on linguistic information, and authentic examples reflect prototypical structures. These are essential in order to meet all the different interests of users. This paper will illustrate the contrastive structure of the new e-dictionary and demonstrate which information can be compared. It also focusses on various dynamic modes of dictionary consultation, which enable users to shift perspectives on paronyms accordingly.

Keywords: paronyms, dynamic lexicography, contrastive entries, generating information on demand

1 Introduction

In German, as in other languages, there are lexical items with related morphological roots and similarities in sound, spelling and/or meaning. These are easily confused by native speakers and language learners. They are referred to as paronyms, and examples include *effektiv/effizient*, *legal/legitim*, *autoritär/autoritativ* and *sensibel/sensitiv*. Paronyms have so far only been documented in two printed dictionaries (Müller 1973; Pollmann & Wolk 2010)¹. Both reference books base their descriptions on introspection and arbitrary evidence taken from fiction. They are traditional dictionaries, prescriptive in nature, their entries are limited to specific aspects of meaning, and they do not cover polysemous items in detail. Their central aim is to guide users to the allegedly correct use and describe a clear distinction between the items in question.

With respect to German, there is no empirically sound and user-friendly dictionary covering paronyms in contemporary language use. The aim of the project “Paronymwörterbuch” has been to carry out a thorough examination of paronyms, based on their usage in context, using contrastive corpus-linguistic methods. It takes a descriptive and empirical approach, and documents easily confused words in German with respect to their actual use in public discourse. Its analyses and descriptions are corpus-based and cover contemporary German. The results of this work are explanatory, contrastive entries in a new dynamic and multifunctional e-dictionary called *Paronyme - Dynamisch im Kontrast (Paronyms*

¹ As well as paronyms, both dictionaries also contain a number of other cases of confusable words, e.g. homophones, synonyms, homographs etc.

– *Dynamic in Contrast*). To date, some 100 paronym pairs/sets, mostly adjectives, have been compiled. The corpus-derived list of paronyms has revealed that the phenomenon of paronymy is much larger than previously thought, including almost 2,000 cases which range from commonly known word pairs to specific technical terms and a large number of compounds (cf. Schnörch 2015).² Since 2018, the new online resource has been freely accessible via the linguistic platform OWID^{plus}.³ This reference work breaks new ground with respect to the following four issues:

Firstly, as a corpus-guided dictionary, it is descriptive in nature, documenting conventionalized patterns and use, including more recent language changes. It also provides information about preferences and tendencies rather than following prescriptive traditions. Secondly, in order to meet meta-lexicographic demands (cf. Rundell 2012; Kövecses & Csábi 2014) it combines corpus-based methods with cognitive semantics. Entries contain linguistic details which are consistently paired up with conceptual-encyclopedic information (cf. Storjohann 2017). It strives to adequately reflect ideas such as conceptual structure, categorization and knowledge. In this way, the linguistic findings correlate better with how users conceptualize language. Thirdly, an entry can consist of up to three lexical items (e.g. *effektiv/effizient/effektiv*, *unsozial/asozial/antisozial*, *praktisch/praktikabel/praktizierbar*) and it is exclusively designed for contrastive consultation processes. Paronyms are directly compared with each other in visual and explanatory ways. This enables readers to discriminate between definitions, collocates, citations, constructions, sense-related terms and conceptual categories designated by the paronyms, as well as the referential domains in which they predominantly occur. Fourthly, the project analyzed users' needs before developing the dictionary and compiling the data. These investigations revealed that usage modalities needed to be rethought and a flexible approach to information adopted, to enable different needs to be met. As a consequence, information can be flexibly adapted and dynamically generated following different navigation and menu options.⁴

The objective of this paper is to introduce the new dictionary and illustrate its essential functions with the help of examples. While the integration of corpus-linguistic findings and cognitive features has been explored in Storjohann (2017a, 2017b), this paper is concerned with the realization of contrastive meaning descriptions and dynamic e-lexicographic entries. The contrastive structure of the entries will be elucidated, and I will also show how this dictionary has moved away from static to dynamic e-presentation by incorporating flexible dictionary consultation options.

2 Why Contrastive and Dynamic Structures?

In recent years, the focus of numerous meta-lexicographic studies of German electronic dictionaries has been on users. These studies have helped lexicographers to develop a better understanding of the needs of users and their dictionary consultation behavior (e.g. Müller-Spitzer 2014). By scrutinizing a variety of language forums, the project “Paronymwörterbuch” has been able to answer numerous questions regarding its users in advance. As Storrer (2013) argues, “professional lexicographers may learn about their users' needs by studying the topics discussed in these projects” (Storrer 2013: 1251). Today, online forums are widely used social media sources, where people share their concerns about easily confused words and heterogeneous user groups consult the community about their linguistic problems. Through the study of language blogs, we have gained detailed insights into the specific linguistic problems of users, their consultation routines and their needs. They all face situations of linguistic doubt and many are familiar with well-established dictionaries. Nonetheless, in a number

2 Most paronyms are adjectives, but there are also verbs (e.g. *beenden/beendigen*) and nouns (e.g. *Methode/Methodik/Methodologie*).

3 OWID^{plus} is a platform for multilingual lexical-lexicographic data, quantitative lexical analyses and interactive lexical applications.

4 To the best of our knowledge, there is no usage-based lexical resource in other languages that is similarly concerned with paronyms (or synonyms, antonyms for that matter) in the same comparative way.

of cases, we have learned that they consult online forums because existing dictionaries do not provide them with satisfactory answers to their linguistic problems:

[...] these days people wanting to know about word usage may well tweet their question to hundreds of followers, ask it on an internet forum, or email it to a language blogger. Sometimes they do so after encountering ‘dictionary-based problems’. (Murphy 2013: 287)

In a more or less detailed way, native users and language learners explain whole contextual situations in which their uncertainties occur. Studying these, we have learned that their interests in commonly confused words vary. They look for answers as to specific lexical use, usual contexts, possible constructions, and conceptual as well as encyclopedic issues. The answers of the language community are just as diverse and revealing (cf. Storjohann 2015). Overall, we have found that speakers have good intuitions as to what linguistic and extra-linguistic information is required to form essential parts of authentic communication. As a result, this new project was able to adjust its lexicographic concept and include features which otherwise would not have been part of the dictionary. These concern both the type of linguistic and encyclopedic information⁵ and the forms of presentation of paronyms. In order to compile a dictionary which can answer all of the questions raised by users, a number of challenges were encountered when documenting usage-based findings. These concerned two aspects in particular: firstly, how to accommodate all interests in lexical use in an efficient contrastive description and secondly, how to flexibly account for different approaches and requirements. In the following, both aspects will be illuminated in more detail.

2.1 Concise Entry Overview and Detailed View

Traditionally, users have had to laboriously look up individual entries when learning about paronym behavior from general monolingual reference guides. One lexical entry had to be compared with another lexical entry in the same or another dictionary, with the user switching between the two. Alternatively, users could consult existing paronym reference books, provided they were familiar with these, where they usually encountered brief normative descriptions of single uses of two confusable words. The central aim of the new German paronym dictionary is to offer contrastive entries of two (or sometimes three) lexical items. In concise and clearly arranged comparative entries, users can instantly familiarize themselves with contextual similarities and differences.

As Figure 1 demonstrates, different types of context and degrees of similarity are visibly marked using a specific ordering system and a color scheme.⁶ Contextual instances/uses are divided into categories based on semantic features. The more frequent term of a pair or set occurs at the top of the entry, with all its contextual semantic instances organized in a line. Directly underneath, the second, often less frequent, paronym term is listed with its contextual uses. For example, in Figure 1, each ‘box’ represents a specific contextual use of the adjectives *sportlich* (meaning sporty, sporting, sportsman-like) and *sportiv* (sporty, athletic). Identical semantic contexts (blue) between the two adjectival items occur to the left of the monitor, followed by similar contexts (green), which in turn are followed by different contexts (grey). Instantly, in this entry overview, users can capture semantic parallels (overlaps), which contexts they occur in and which meanings are attributed individually. The purpose of this meaning spectrum is to gain an immediate general overview. The information a user obtains at this point includes a minimum of lexical and encyclopedic details, such as a short definition, a conceptual reference and prototypical examples (a selection of up to five collocates), exemplifying lexical patterns and the reference itself. This concept-driven navigation structure offers a large amount of knowledge about contextual behavior, parallels or differences, meanings and concepts.

⁵ For details and examples, see Storjohann (2017a, 2017b).

⁶ The color scheme will not be visible in a black-and-white print of this paper.

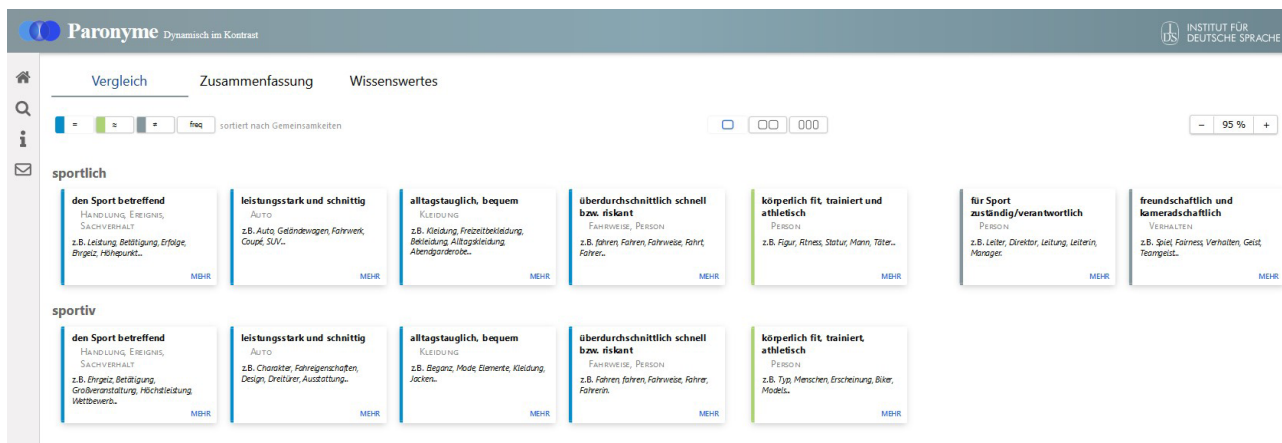


Figure 1: Concise default view with identical contexts first

Among other criteria, it is the referential/ontological categories underneath the short definitions (e.g. HANDLUNG (PROCESS), EREIGNIS (EVENT), AUTO (CAR), KLEIDUNG (CLOTHES), FAHRSTIL (STYLE OF DRIVING) PERSON (PERSON), VERHALTEN (BEHAVIOR)) that enable users to distinguish patterns and help them to encode/decode contexts and identify metonymic and metaphoric mappings (cf. Fillmore & Atkins 1992). Users can more easily relate the adjectives to their meanings and then relate these to the preferred contextual reference (here modified nouns), e.g.

- *sportlich* means ‘concerning sports’ with respect to a PROCESS, EVENT OR MATTER, for example *performance, pursuit, success, ambition, highlight*,
- *sportlich* means ‘powerful and sleek’ with respect to a CAR, for example *car, Sport Utility Vehicle, chassis, SUV, coupé*,
- *sportlich* means ‘comfortable’ with respect to CLOTHES, for example *clothing, leisure wear, apparel, casual clothes, evening dress*.

Optionally, more data can be expanded for each contextual use. In addition, an explanatory definition, more typical lexical combinations, corpus examples, synonyms/antonyms and typical constructions in different contexts can be looked up in a more complex detailed view (see Figure 2). The conceptual references representing encyclopedic ideas [e.g. EVENT, CAR, PERSON] are then explicitly integrated into the more complex definition:

sportlich, leistungsstark und schnittig / powerful and sleek

charakterisiert meist ein Auto bzw. dessen Erscheinungsbild dahingehend, dass es z. B. ein tiefergelegtes Fahrwerk sowie stärkere Motorleistung aufweist und optisch schnittig bzw. dynamisch wirkt

Engl.: often characterizes a car or its general appearance as being sleek or seeming dynamic, because of its lowered chassis and stronger engine output

z. B.: Auto, Geländewagen, Fahrwerk, Coupé, SUV, Limousine, Dreitürer, Flitzer, Optik, Aussehen.

e.g.: car, Sport Utility Vehicle, chassis, coupé, SUV, limousine, three-door car, sports car, look, appearance.

The relevant ontological category (in this context CAR) is specifically illustrated by up to ten collocates, which function as examples of lexical preferences in actual contexts.⁷

⁷ In some cases, the conceptual/ontological reference is more a domain. This is often the case for nouns and verbs.

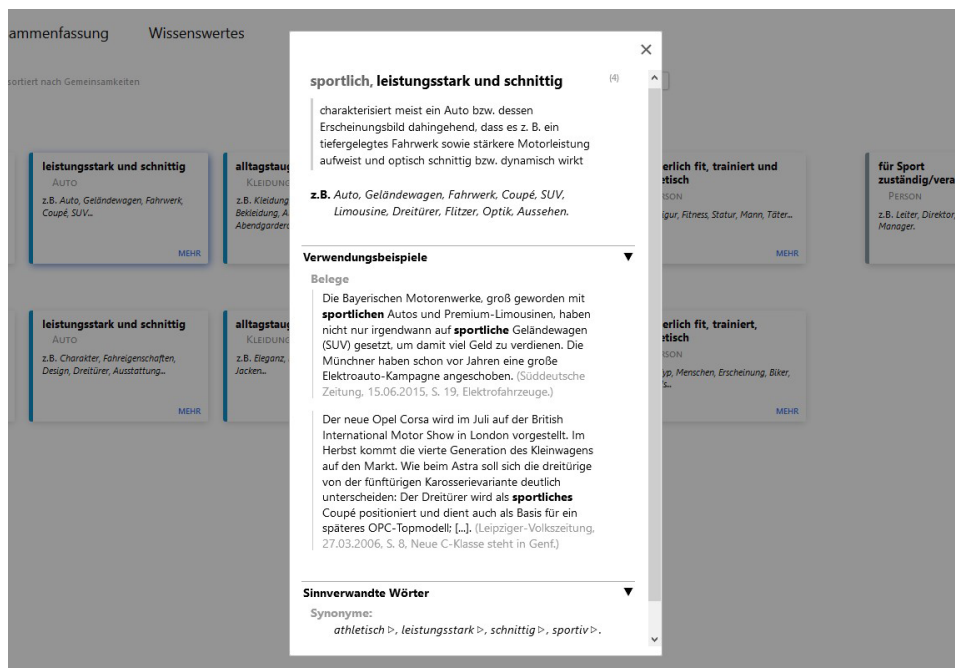


Figure 2: Detailed contextual view

The listed collocates (up to 10) are the result of the interpretation of statistically significant co-occurrences as extracted by the underlying corpus (see Section 4). In essence, they are prototypical domain elements and structured mental representations of human experience. They shed light on strong affinities to constructions and contextual preferences, and show cognitive processes in which conceptual elements motivate the configuration of another semantically related conceptual entity (cf. Kövecses & Csabi 2014). The objective of this detailed presentation is not only to provide more information, but also to combine lexical and encyclopedic details which can then be consulted and mentally stored together.⁸

2.2 Dynamic Consultation of Overview

It is commonly agreed that electronic dictionaries in particular should make more use of adaptive structures in order to solve problems of strict macrostructural ordering and to meet users' needs more effectively (e.g. Kwary 2012; Fuertes-Olivera 2013). Once we knew the needs of our potential users, a flexible presentation and visualization of linguistic data for different purposes was a central aim of our project. This meant breaking with a traditional, strictly linear and rigid organization and looking for innovative, flexible and multi-functional forms of presentation.

Different lexicographic products could be created based on one XML-data set relating its presentation for example to different user groups. Realizing tailor-made user-adaptivity is technologically feasible but only realistic once we know more about the users. Contents can be arranged dynamically changing linguistic focus to allow users to recreate and re-represent their own dictionary data. (Fuertes-Olivera 2013: 330)

As users have different concerns about typically confused words, the paronym dictionary took a crucial step back from a static reference guide and moved towards a dynamic reference guide, providing and generating specific information on demand. As can be seen in Figures 1 and 3, two different menu options are visible at the top of an entry beneath the main headings of the sections **Vergleich** (comparison), **Zusammenfassung** (summary) and **Wissenswertes** (other interesting facts). On the left, there is a choice of sorting options with regard to contextual information. These are: sort by identical use (Figure 1), sort by similar use, sort by distinct use and sort by frequency (see Figure 3).

⁸ For other dictionary examples, see Storjohann (2017a, b).

Figure 3: View of contexts listed by frequency

For instance, some users are more interested in the differences between easily confused words and address a primary interest in conceptual distinction. In such cases, it is possible to re-arrange contextual details according to distinct features first instead of semantic similarities. Alternatively, users might want to know about prototypical contexts and more infrequent occurrences of use and list all contexts according to frequency. Clicking the frequency button will display the most frequent use of each paronym first, and allows the predominance of features between the paronyms in question to be compared (cf. Figure 3). This means that different information can be obtained through the choice of different linguistic parameters. Generally, these needs to be an adaptation to dictionary consultation processes and a dynamic re-organization of information on demand.

2.3 Dynamic Consultation of Two Detailed Views

As a contrastive dictionary, it is also of importance to be able to compare the detailed view between two or three contexts dynamically. For this purpose, a menu feature has been implemented for user-specific selection of contexts of interest.

Figure 4: Two dynamically selected contexts in contrast

These contrastive views cover lexical information ranging from definitions at the top to synonyms at the bottom. Therefore, they can be studied comparatively one after another, enabling users to set both terms and their usages in direct comparison with one another. It is the user who selects the individual contexts he/she wishes to compare. Relevant topic areas, conceptual categories and prototypical domains can be consulted in parallel without switching between information or even entries. As a consequence, it is possible to answer questions such as *Can sportlich be used for people who drive a car in a high-risk way?*, *Is friendly behavior and fair play between people in competitions denoted by sportlich or sportiv?* and *Can both terms synonymously refer to people's physical appearance?* The answers to these questions can be derived successfully simply by consulting and comparing contrastive explanations.

2.4 Dynamic Consultation of Three Detailed Views

The contrastive detailed display is not restricted to the comparison of two contextual uses: it is also possible to individually select three contexts (see for example the triplet *regulatorisch/regulativ/regulierend* in Figure 5). Again, semantic information concerning the definition, referential domain, co-occurrences, constructional patterns and examples which are part of the detailed view are listed together in a tabular form to allow for direct comparison. Slight differences can thus be detected. These might relate, for example, to the typical domains in which the adjectives occur. *Regulatorisch* is often attested in contexts concerning the FINANCIAL ECONOMY and POLITICS, *regulativ* is frequently used in POLITICS and PHILOSOPHY, and *regulierend* typically occurs in texts reporting on POLITICS and the JUDICIARY. We also learn that all three adjectives can refer to a state of affairs or processes and denote these as controlling or intervening in terms of development and procedures. Only *regulierend* can also refer to institutions.

A contrastive dictionary consultation is, however, not restricted to contexts of different lexical items. It is also possible to individually select two or three contexts for the same word and contrast these in detail. It is then possible, for example, to examine metonymically or metaphorically related contexts of the lexical item in question.

regulatorisch, steuernd	regulativ, steuernd	regulierend, steuernd
bezeichnet einen Sachverhalt oder einen Prozess in Bezug auf Entwicklungen und Abläufe als steuernd oder als eingreifend	bezeichnet einen Sachverhalt oder einen Prozess in Bezug auf Entwicklungen und Abläufe als steuernd oder als eingreifend	bezeichnet einen Sachverhalt, einen Prozess oder eine Institution in Bezug auf Entwicklungen und Abläufe als steuernd bzw. eingreifend
häufig in FINANZWIRTSCHAFT, POLITIK	häufig in POLITIK, PHILOSOPHIE	häufig in POLITIK, JUSTIZ
z.B. Anforderungen, Rahmenbedingungen, Vorgaben, Umfeld, Maßnahmen, Eingriffe, Veränderungen, Auflagen, Vorschriften.	z.B. Idee, Eingriffe, Maßnahme, Politik, Funktion, Rahmen.	Sachverhalte und Prozesse Eingriffe, Maßnahmen, Instanz, Funktion, Rolle, Gesetze, Vorschriften. Institutionen Institutionen, Behörde, Anstalt.
Verwendungsbeispiele Kontextmuster – durch regulatorische Eingriffe – <i>frochtlich / politisch</i> und regulatorisch – aus regulatorischer Sicht – regulatorisch eingreifen	Kontextmuster – durch regulative Eingriffe – regulativ eingreifen	
Belege Die WZG Bank stellt sich auf ein schwieriges Jahr ein. 'Die neuen regulatorischen Anforderungen würden das Ergebnis ebenso belasten wie der in Teilen nach wie vor verzerrte Wettbewerb.' (Rheinische Post, 12.02.2011, WZG Bank: 2011 wird eine große Herausforderung.) Die deutsche Stromwirtschaft hat sich gestern auf Regeln zur Preisfindung bei der Durchleitung von Strom durch fremde Leitungen verständigt. [...] Die privatwirtschaftliche Lösung zeige, daß es möglich sei, den kommenden Wettbewerb im Strommarkt ohne regulatorische Eingriffe des Staates zu gestalten, hieß es. (Mannheimer Morgen, 04.04.1998, Einigung in der Stromwirtschaft.) Auf mehr Transparenz und ein Frühwarnsystem für künftige Kreditkrisen haben sich die Staats- und Regierungschefs Deutschlands, Großbritanniens, Frankreichs und Italiens bei ihrem Treffen in London geeinigt. 'Es gibt Lücken, die geschlossen werden müssen', sagte Bundeskanzlerin Angela Merkel. Wenn	Belege Dass Gegenstände und Sachverhalte in unterschiedlichen Sinnfeldern erscheinen, trägt dem Umstand Rechnung, dass sie einerseits für uns real sind, andererseits vielfach interpretierbar. Es gilt für Gabriel nicht 'die Welt', sondern nur Ausschnitte. Aber in denen können wir Wahres sehr wohl erkennen. Ausdrücklich wendet sich der Neue Realist auch gegen Jürgen Habermas' regulative Idee einer universellen Vernünftigkeit, die wir angeblich immer schon voraussetzen müssen, wenn wir koordiniert handeln und dabei auch noch moralisch bleiben wollen. (Die Zeit, 10.04.2014, Die Wirklichkeit ist anders) Politische Anreize sind die wesentlichen Treiber für saubere Technologie: Emissionsvorschriften, Einsparvergütungen und Steueranreize regulieren heute schon den Markt. Stärkere regulative Eingriffe sind auch für Transport und Mobilität zu erwarten. (Stuttgarter Zeitung, 18.05.2007, S. 2, DWS legt ersten Klimafonds auf.)	Belege Staatliche regulierende Eingriffe sind dort sinnvoll, wo sie nicht oder nur schlecht funktionierenden Märkten zur Funktionsfähigkeit verhelfen. (Die Zeit, 08.08.2001, Für den Drei-Generationen-Vertrag, S. 22.) Trotz der leichten Regenfälle im April stehe das Land vor der gleichen Situation wie im vergangenen Jahr, sagte Royal. Er wies darauf hin, daß in einigen Gegenden der Wasserverbrauch durch regulierende Maßnahmen in der Landwirtschaft um rund ein Drittel gedrosselt worden sei. (Nürnberger Nachrichten, 19.05.1992, S. 6, Frankreich will Dürre mit Sparmaßnahmen begegnen.) Wie an Börsen stellen Anleger Risikokapital bereit, das komplett verloren gehen kann. In den USA tobt aktuell eine Debatte darüber, wie regulierende Behörden dieses Risiko transparent machen können. (VDI nachrichten, 24.05.2013, S. 16, Crowd.)

Figure 5: Three dynamically selected contexts in contrast

3 Corpus, Methods and Editorial Practice

The empirical examination of paronym pairs/sets necessarily incorporates both a suitably large corpus and contrastive meaning analyses. The corpus is a purpose-built collection of data, covering a range of linguistic material between 1995 and 2015. In order to make all lexicographic description transparent, this corpus can be accessed via the corpus system COSMAS II⁹. All entries are based on findings from the underlying corpus. However, they are by no means computer-retrieved compilations. In fact, computational procedures performing collocation analyses support systematic structuring of linguistic data with respect to patterns and contexts. These patterns are interpreted lexicographically; citations and examples are chosen editorially. Usage-based studies and corpus-linguistic tools constantly assist editorial processes. It is argued that a reliable reference guide cannot do without comprehensive corpus material and corresponding software exploring patterns, as well as lexicographic and linguistic expertise in interpreting the retrieved data.

As well as well-established computational methods, this project also uses a corpus-linguistic method which is capable of measuring semantic similarities (or distance) between pairs of words by contrasting contextual profiles to systematically detect slight differences in terms of collocational behavior. This procedure is referred to as the Contrasting-Near-Synonyms method and was developed by Belica (2001 ff.) (see Figure 6).¹⁰ It is implemented in a corpus-linguistic collocation research and development workbench (CCDB) (see Belica 2001 ff.; Keibel & Belica 2007) and it offers a visual representation of collocates which resemble the search words to varying degrees in terms of common contexts. This method assigns a color to each word. Here, for instance, yellow is assigned to *unsozial* (*unjust*), and red is assigned to *asozial* (*ruthless, antisocial*). On the basis of collocation profiles, semantic structures are analyzed, clustered and visualized in a two-dimensional lattice reflecting different degrees of similarity between various words by using a graded colour system. These organizing feature maps (henceforth SOMs) cluster all these items together so that proximity on the grid reflects semantic similarity between semantic profiles. The more their colors differ, the more semantic differences can be found with regard to their uses. The more similar the colors of two neighboring groups, the more similar are their collocation profiles although a strict separation is not suggested, as SOMs imply a continuum of semantic shades. The feature maps break down unstructured patterns and complex semantic properties of the two items in question and set them in relation to each other. They arrange specific aspects of meaning which the items in question share and those they do not have in common.¹¹ Essentially, this method compares how two words behave by observing all those words that show similar collocation profiles.

In 2009, Vachková and Belica suggested that this approach to collocational patterning might be applicable to the lexicographic investigation of synonyms. They argued

that salient SOM features stimulate lexicographers' associative awareness and encourage guided mental imagery leading to valuable insights into both the word semantic structure and the process of discourse-based negotiation of lexical meaning (Vachková & Belica 2009: 239).

Since 2015, this contrastive method has played an essential role in the examination of pairs of paronyms. The interpretation of such topographic maps has turned out to be a useful device for lexicographers for detecting salient thematic domains or categories of key semantic fields associated with

9 The Paronym-Corpus is freely accessible via the corpus management system COSMAS II: <http://www.ids-mannheim.de/cosmas2/>. Information on the Paronym-Corpus can be found here: <http://www1.ids-mannheim.de/lexik/paronymwoerterbuch/dasparonymkorpus.html>.

10 A number of studies of synonymy have successfully employed this method (e.g. Marková 2012).

11 A similar contrasting method is offered by the feature "Word Sketch differences" within the tool "Sketch Engine" (<https://www.sketchengine.co.uk/>).

© Cyril Belica: Modelling Semantic Proximity - Contrasting Near-Synonyms (version: 0.21, init tau: 0.4, dist: x, iter: 10000)

unsozial	asozial			
kurzsichtig	kontraproduktiv	pervers	anrühlich	feige
unlogisch	unzumutbar	widerwärtig	unhöflich	feig
unklug	untragbar	niederträchtig	respektlos	dumm
bezeichnen		herzlos	ekelhaft	blöd
schlichtweg		zynisch	irrelevant	blöde
empörend		verlogen	gedankenlos	faul
unethisch		unerträglich	landläufig	bescheuert
beschämend		Schande	kindisch	Trottel
unsinnig	unmoralisch	frauenfeindlich	renitent	desinteressiert
widersinnig	verantwortungslos	feindselig	unberechenbar	ungebildet
unvertretbar	menschenverachtend	destruktiv	vorbildlich	uncool
unwirtschaftlich	vernünftig	korrupt	unpolitisch	abartig
unrealistisch	verwerflich	intolerant	unzuverlässig	unreif
schädlich	unsolidarisch	egoistisch	auffällig	apathisch
ineffizient	unverantwortlich	opportunistisch	egozentrisch	unfähig
vernünftig	unanständig	irrational	unauffällig	unangepasst
unausgegoren	geißeln	kriminell	anarchisch	entfremdet
unfinanzierbar	zentralistisch	faschistoid	undeutsch	zerrüttet
unsolid		gemeingefährlich	dekadent	abgleiten
unsolide		verbrecherisch	animalisch	zerrütten
familienfeindlich		rassistisch	bourgeois	entfremden
wirtschaftsfeindlich		staatsfeindlich	selbstzerstörerisch	verwahrlost
Mogelpackung		konterrevolutionär	verpönen	verwahrlosen
beschäftigungspolitisch		antidemokratisch	Rücksichtslosigkeit	drogensüchtig
Bundesregierung	Haushaltssanierung	rigid	diskriminieren	stigmatisieren
rundweg	Gesundheitspolitik	rigide	benachteiligt	stigmatisiert
strikt	Steuerpolitik	solidarisch	Ausgrenzung	Zigeuner
Sozialverband	Sparpolitik	abwürgen	Unterschicht	ausgegrenzt
Bundesfinanzminister	neoliberal	sozial	benachteiligen	Asoziale
Flickwerk	Rentenpolitik	radikal	erniedrigen	rassistisch
Bundesgesundheitsmin	Haushaltskonsolidierung			minderwertig
Abschiebep Praxis	Arbeitsmarktpolitik			diskriminiert
Sparpaket	mittragen	Budgetsanierung		Feigling
Regierungsplan	unpopulär	Gesundheitswesen		Verräter
Sozialreform	Sozialabbau	Leistungskürzung		diffamiert
Steuerplan	Bildungsbereich	Gesundheitssystem		Schmarotzer
Eichel	Sparbeschluß	Wohlfahrtsstaat		abgestempelt
Sparplan	Sparbeschluß	Kündigungsschutz		abstempeln
Gesundheitsreform	rigoros	Grundrente		Untermensch
Reformplan	Sozialbereich	einkommensabhängig		Psychopath

Figure 6: Contrasting *unsozial* and *asozial* with SOMs

paronyms (for an example of this, see Teichmann, forthcoming). The major advantage is that we gain an immediate insight into the thematic topics or contextual domains in which the lexical items predominantly occur. As outlined in Storjohann and Schnörch (2014) and in Teichmann (forthcoming) in more detail, feature maps guide lexicographers to those contextual patterns which will provide further evidence, for example, through the study of collocations that can be attributed to specific thematic domains. Generally speaking, the investigation of paronyms often results in a fruitful methodological combination of SOM-based analysis and collocation analyses.

To have the corpus material, tools and corpus-analytic methods at hand, it was, however, still necessary to develop a lexicographic concept with an underlying linguistic theory, as well as a manageable editorial workload. In particular, the appropriate description of a two/three-lemma entry, together with a dynamic reshuffling of lexicographic information, required an ambitious lexicographic concept. Access to information and navigation structures needed to be straightforward, well thought-through and intuitive. In addition to reliability of information, we wanted to guarantee comfortable usability, both for users in their consultation routines and for lexicographers in their daily practical work. For this, the writing system presents the lexicographers with a number of different tasks within a complex, elaborate XML architecture. The most demanding task is to unite two or three single-lemma descriptions into one homogenous contrastive entry with all its relational elements for comparing and optional (re-)arranging. After all, it is the interaction between editorial conventions,

data requirements and lexicographic expertise that makes the perfect dictionary entry. Compiling and analyzing the data as well as writing the dictionary quickly settled into a daily routine. In the end, the structures, menu options and lexicographers' ideas about the design still held numerous challenges for the hypertext programming, some of which are still unresolved.

4 Summary

The new dictionary *Paronyme – Dynamisch im Kontrast* represents a radical change from existing German lexicographic conventions. Users can expect direct access to meaning and use of two or three easily confused words together in concise contrastive overviews or in detailed contrastive descriptions. As an e-dictionary, the new guide can go far beyond the depth of information found in the two existing printed paronym dictionaries. In situations of linguistic doubt, native speakers and learners can learn about thematic domains and semantic environments in which readily confusable words are likely to occur, together with their natural lexical preferences. Synonyms and corpus samples illustrate the information provided, while explicit definitions present details which are important for understanding and encoding. The depth of information is realized as a two-level consultation view, i.e. a short overview and an optional detailed view.

It has implemented dynamic search options, which have replaced rigid structures. With regard to the dynamicity of lexical details, we have shown the options offered by the dictionary in order to flexibly adapt information within an entry. Indeed, “an online dictionary can be adapted to the needs of each dictionary user” (Kwary 2012: 35). Adaptive access and variable search options allow different foci and perspectives on paronymy. Accordingly, the organization of elements changes, and different facets of structural knowledge can be activated. In this way, this reference guide includes alternative access routes to language in authentic usage events involving paronyms. As a digital resource, the aim of the new dictionary is to exploit the possibilities of the electronic medium in order to create a flexible, informative and user-friendly instrument which will enable users to make correct choices. Our dictionary will reflect language-oriented descriptions which show how paronymy works in real communication. We hope to create a reliable source of linguistic and encyclopedic information for situations of language doubt.

References

- Belica, Cyril (1995). *Statistische Kollokationsanalyse und -clustering. Korpuslinguistische Analysemethoden*. Mannheim: Institut für Deutsche Sprache.
- Belica, Cyril (2001ff.). *Kookkurrenzdatenbank CCDB - V3.3. Eine korpuslinguistische Denk- und Experimentierplattform*. Institut für Deutsche Sprache: Mannheim. Accessed at: <http://corpora.ids-mannheim.de/ccdb/> [30/03/2018].
- COSMAS II: *Corpus Search, Management and Analysis System*. Mannheim: IDS. Accessed at: <https://www.ids-mannheim.de/cosmas2/web-app/> [30/03/2018].
- Fillmore, Charles, J. & Atkins, B. T. Sue (1992). Toward a Frame-based Lexicon: The Semantics of RISK and its Neighbors. In Adrienne Lehrer, Eva Feder Kittay (eds.) *Frames, Fields and Contrast. New Essays in Semantic and Lexical Organization*. Hillsdale & London: Erlbaum, pp. 75-102.
- Fuertes-Olivera, Pedro A. (2013). e-lexicography: The Continuing Challenge of Applying New Technology to Dictionary-Making. In Howard Jackson (ed.) *The Bloomsbury Companion to Lexicography*. London: Bloomsbury, pp. 323-340.
- Keibel, Holger & Belica, Cyril (2007). CCDB. A Corpus-Linguistic Research and Development Workbench. In *Proceedings of the 4th Corpus Linguistics Conference, CL 2007, 27-30 July 2007*. University of Birmingham, UK.

- Kövecses, Zoltán & Csábi, Szilvia (2014). Lexicography and cognitive linguistics. In *Revista Española de Lingüística Aplicada* 27(1), pp.118-139.
- Kwary, Deny Arnos (2012). Adaptive hypermedia and user-oriented data for online dictionaries: A case study on an English dictionary of finance for Indonesian students. In *International Journal of Lexicography* 25(1), pp. 30-49.
- Marková, Věra (2012): *Synonyme unter dem Mikroskop. Eine korpuslinguistische Studie*. Tübingen: Narr.
- Müller, Wolfgang (1973). *Leicht verwechselbare Wörter*. Duden Taschenwörterbücher Bd. 17. Mannheim: Bibliographisches Institut.
- Müller-Spitzer, Carolin (ed.) (2014). *Using Online Dictionaries*. Berlin/Boston: de Gruyter.
- Murphy, Lynne (2013). *What we talk about when we talk about synonyms (and what it can tell us about thesauruses)*. In *International Journal of Lexicography* 26(3), pp. 279-304.
- Rundell, Michael (2012). It works in practice but will it work in theory? The uneasy relationship between lexicography and matters theoretical. In Ruth Vatvedt Fjeld, Julie Matilde Torjusen (eds.) *Proceedings of the 15th EURALEX International Congress in Oslo/Norway, 7.-11.August 2012*, pp. 47-92.
- OWID^{plus}: Accessed at: <http://www.owid.de/plus/> [30/03/2018].
- Paronyme – Dynamisch im Kontrast: coming soon at <http://www.owid.de/plus/> [14/05/2018].
- Pollmann, Christoph & Wolk, Ulrike (2010). *Wörterbuch der verwechselten Wörter. 1000 Zweifelsfälle verständlich erklärt*. Stuttgart: Pons.
- Sketch Engine: Accessed at: <https://www.sketchengine.co.uk/>. [30/03/2018].
- Schnörch, Ulrich (2015). Wie viele Paronympaare gibt es eigentlich? Das Zusammenspiel aus korpuslinguistischen und redaktionellen Verfahren zur Ermittlung einer Paronymstichwortliste. In *Sprachreport* 2015(4), pp.16-26.
- Storjohann, Petra (2017a). Cognitive features in a corpus-based dictionary of commonly confused words. In Iztok Kosem, Caroline Tiberius, Milos Jakubíček, Jelena Kallas, Siomon Krek, Vít, Baisa (eds.) *Electronic lexicography in the 21st century. Proceedings of the 5th eLex 2017 conference in Leiden* (19.09.-21.09.2017). Brno: Lexical Computing CZ s.r.o, pp. 138-154.
- Storjohann, Petra (2017b). Cognitive descriptions in a corpus-based dictionary of German paronyms. In Anatol Stefanowitsch/Stefan Hartmann (eds.) *Yearbook of the German Cognitive Linguistics Association* 5, Boston: de Gruyter, pp. 107-118.
- Storjohann, Petra (2015). Was ist der Unterschied zwischen sensitiv und sensibel? In *Zeitschrift für Angewandte Linguistik* 62(1), pp. 99-122.
- Storjohann, Petra & Schnörch, Ulrich (2014). Empirical approaches to German Paronyms. In Andrea Abel, Chiara Vettori, Natascia Ralli (eds.) *Proceedings of the XVI EURALEX International Congress: The User in Focus*. 15.- 19. July 2014, Bolzano/Bozen, pp. 463-476.
- Storrer, Angelika (2013). Representing dictionaries in hypertextual form. In Rufus. H. Gouws, Wolfgang Schweickard, Herbert Ernst Wiegand (eds.) *Dictionaries. An International Encyclopedia of Lexicography*. Suppl. Vol.: Recent Developments with Focus on Electronic and Computational Lexicography. Boston/Berlin: de Gruyter, pp. 1244-1253.
- Tarp, Seven (2009). Reflections on Lexicographical User Research. In *Lexikos* 19, pp. 275-296.
- Teichmann, Mareike (forthcoming). SOM und CNS als korpuslinguistische Methoden zur Analyse von Paronymen am Beispiel technisch/technologisch. In Petra Storjohann (ed.) (forthcoming): *Paronymie im deutschen Sprachgebrauch*. Sonderheft Deutsche Sprache 1/2019, Berlin: Erich Schmidt.
- Vachková, Marie & Belica, Cyril (2009). Self-Organizing Lexical Feature Maps. Semiotic Interpretation and Possible Application in Lexicography. In *Interdisciplinary Journal for Germanic Linguistics and Semiotic Analysis*,13/2, pp. 223-260.