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Emotions between physicality and acceptability. A Contrast of the German Anger Words *Wut* and *Zorn*

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Abstract

In this paper, a corpus-based approach is used in order to provide an in-depth analysis of two German emotion words (*Wut* and *Zorn*) that roughly correspond to the English lexical unit anger, establishing their similarities and differences on different levels of meaning. For the corpus study, data from two very large corpora of contemporary German texts (fiction, non-fiction, scientific and newspaper) are used, DWDS (*Digitales Wörterbuch der deutschen Sprache des 20. Jhs.*) and the collocation database CCDB, through which collocation profiles extracted from the German Reference Corpus (DeReKo). As a first step, the metaphorical and metonymical conceptualizations of both items are analysed and compared. Other aspects that are relevant for the description of these emotions and can be described by means of co-occurrence analysis are their conceptual proximity to other emotion words and the way they are described or evaluated (their semantic prosody). In a third step, looking at the semantic subsets the co-occurrences belong to from the point of view of syntagmatic relations between the emotion concept and its surroundings in the text (semantic preference), information can be extracted about causes of anger, about its consequences and about who experiences it. The results show that, taking both words together, the metaphorical conceptualization of the concept of anger proves to be very similar to that which has been described for other Western languages like English or Spanish. Going into more detail, however, the corpus analysis allows us to explore how each word specializes in certain aspects of the emotion and to corroborate, contradict or complement previous studies on this.

1. Introduction: Anger as a complex emotion category[1]

Anger is among the emotions that have attracted most interest from linguists. This is especially so in the cognitive linguistic tradition, starting with Kövecses' in-depth work (e.g. Kövecses, 1986; Lakoff and Kövecses, 1987). This type of research has been applied to a great variety of languages (for an overview, cf. for example Kövecses (2000b) or Al-Hadlaq & Maalej's (2012) recent list of works in a wide array of languages). Many of these studies follow a conceptual metaphor approach (for example, Barcelona, 1989; Soriano-Salinas, 2003; Philip, 2006; Soriano, 2013; Türker, 2013) or Wierzbicka's Natural Semantic Metalanguage (Wierzbicka, 1998; Durst, 2001; Harkins, 2001; Kornacki, 2001); others are based on a more traditional linguistic lexical description (Weigand, 1998) or make use of experimental psycholinguistic methods like the labelling of emotion scenarios (Ogarkova et al., 2012; Soriano et al., 2013; Soriano, 2013). Additionally, a number of them adopt a contrastive point of view, mainly using English as a point of comparison. Many of these descriptions, contrastive or not, look either at the category of anger as a whole or, if they follow a lexical approach, they concentrate on one salient member of the category. However, not all languages have such a straightforward candidate for a central member as English "anger". This is the case of Spanish (where we find "ira", "rabia", "enojo", "enfado", etc.) or German. The aim of this paper is to apply a corpus-based approach in order to provide an intralingual contrastive description of some of the core members of the emotion category of anger in one language —German in this case—, and to show how they differ from each other.

2. The concept of anger in German

The overall category of anger is expressed in German through many different emotion words, each of them highlighting different aspects of the feeling with a varying degree of intensity (cf., for example, Weigand's comparative schema of subsets of anger words (Weigand, 1998: 51) including *Empörung, Entrüstung, Anstoß, Raserei, Wut, Zorn, Groll, Grimm, Verbitterung, Verdruß, Unwille, Ärger, Ärgerlichkeit, Verärgerung*). The first step of this study will therefore look at previous research on anger words in German in order to discern the most central members of the category. These studies evidence considerable agreement. For example, in a cross-cultural study (Ogarkova et al., 2012), *Wut* is identified as the most frequent German term corresponding to the emotional situation named anger by the English-speaking group. According to Durst (2001), the three German emotion words most closely related to English anger are *Ärger, Wut* and *Zorn*. Weigand (1998), on the other hand, in a comparison of different types of anger in German and English, situates both *Zorn* and *Wut* within the same subset of anger words, namely that of INTENSIFICATION. This is also consistent with Durst's conclusion that *Wut* and *Zorn* are semantically very close and even interchangeable in most contexts (2001: 131). I will therefore concentrate on these two items.

Some of the aforesaid studies try to define the differences and similarities between *Wut* and *Zorn*. For Durst (2001: 138), the main difference between the two is the fact that "...the triggering event seems to be more present for Wut". From a diachronic perspective furthermore, he claims that one salient characteristic for *Wut* is the prototypical component 'I have to do something now', whereas for Zorn it is 'I want to do something bad to someone'.

Fries (2004: 10-11) seeks the difference between the two in the "introspectively perceivable states" transmitted by these words. According to this point of view, *Wut* is focused on the state of pleasure (*Behagen*), i.e. whether the per-

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son feels good or not, while *Zorn* is focused on judging the actions of another (*Wertschätzung*). In both cases the orientation is clearly negative. The primary goal of *Zorn* is thus the regulation of human behaviour through the expression of esteem[2], while the primary goal of *Wut*, on the other hand, is the expression of displeasure. Fries (2004) describes the emotional scenes of *Wut* and *Zorn* in a way that is similar to Wierzbicka's (1990) universal semantic primitives:

X feels ***Wut*** if (1)-(6) apply:
(1) X thinks that negative events Z {EM–}[3] are going to happen now or have happened.
(2) X does not want Z {EM–} to happen.
(3) Therefore, X wants to do something so that Z {EM–} does not happen.
(4) X does not know what to do to prevent Z {EM–} from happening.
(5) Therefore, X wants to do something negative {EM–}.
(6) X is thus in an introspectively perceivable state of pleasure {EM–}, {EMINT>0}.

X feels ***Zorn*** if (1)-(7) apply:
(1) X thinks that Y causes negative events Z {EM–}.
(2) Z {EM–} affects normative values.
(3) X does not want Y to cause Z {EM–}.
(4) Therefore, X wants to do something to prevent Y from causing Z {EM–}.
(5) X does not know what to do to prevent Y from causing Z {EM–}.
(6) Therefore, X wants to do something that is negative for Y {EM–}.
(7) X is thus in the introspectively perceivable state of esteem {EM–}, {EMINT>0}.
(Fries, 2004: 13-14, my translation).

Because of the focus of *Zorn* on the intention of doing something about somebody else's infringement of normative values, Fries comes to the conclusion that the acceptability of *Zorn* is higher than that of *Wut*, which in turn is seen as more irreflective. The differentiating traits of *Wut* and *Zorn* described in these studies are summarised in table 1.

Methodologically, both authors rely on a combination of native speaker intuition and data from corpus material. One of the aims of my study is finding evidence that might corroborate, contradict or complement these findings through a systematic corpus-driven analysis of the use of the main emotion words denoting anger in German. In doing so, *Wut* and *Zorn* are treated separately in order to establish a contrast between them and globally in order to serve as a basis for comparison with data from other languages.

3. Corpus study

3.1. Corpus description

For the corpus study, data from two very large corpora of contemporary German texts (fiction, non-fiction, scientific and newspaper) were used. The first resource is the collocation database CCDB, through which collocation profiles of approximately 220,000 node words (lemmas) can be accessed. The collocation profile of a lemma shows us with which other words it is combined in an especially frequent way. The information CCDB offers is based on a 2.2 billion word subset of the German Reference Corpus (DEREKO), compiled by the *Institut der Deutschen Sprache* (IDS). The second is the corpus DWDS (*Digitales*

2 "Die Regulierung menschlichen Verhaltens mittels Ausdruck der Wertschätzung" (Fries, 2004: 11).
3 EM are "emotional attitudes" (*emotionale Einstellungen*), {EM} referring to a positive or negative emotional reaction to something, {EMINT} to its degree of intensity.

TABLE 1
Differentiating traits of *Wut* and *Zorn* according to Durst (1998) and Fries (2004)

Wut	*Zorn*
The urge to take action (Durst).	The desire to hurt another (Durst).
The cause of *Wut* is some negative event (Fries), with the triggering event being more present (Durst).	The cause of *Zorn* is another's infringement of normative values (Fries).
The main focus is the experiencer feeling bad (Fries).	The main focus is the experiencer emitting a negative judgement on another's action (Fries).
It is perceived as irreflective (Fries).	It is perceived as more acceptable (Fries).

Wörterbuch der deutschen Sprache des 20. Jhs.), consisting of 120 million words, compiled by the *Berlin-Brandenburgische Akademie der Wissenschaften*[4]. Both resources provide similar output: lists of lexical items that typically co-occur with the search word. They also give access to the individual contexts of each co-occurrence (concordance lines), although some of these are partly restricted due to copyright regulations.

3.2. Procedure

The procedure followed in the corpus analysis is described in detail in Oster (2010a) and includes the analysis of several aspects. A main focus is placed on describing the metaphorical conceptualisation of the emotion, following the lexical approach developed mainly by Kövecses (1986, 1990, 1998, 2000a, etc.) within Conceptual Metaphor Theory. Additionally, four other aspects are included in order to differentiate more clearly between *Wut* and *Zorn* and to shed light on how each of these emotion words is used.

In the first place, we look for expressions that evidence physical effects of or behavioural reactions to the emotion. This yields similar results as those presented under the heading of conceptual metonymy in the lexical approach (physiological effects of an emotion or the behavioural reactions to it as representing the emotion itself, like in BLUSHING STANDS FOR LOVE). In a corpus-based approach, however, the claim cannot go this far as it is only possible to find instances of physiological effects if the emotion itself is also mentioned. The data obtained this way does not prove the existence of conceptual metonymy. However, the list of co-occurrences that evidence various physical effects of the emotion is interesting in itself and may give us insights into the question of which effects are prevalent for each emotion word.

Secondly, as there seems to be a strong tendency for emotion words to co-occur with other lexical units expressing feelings, I also look at *Wut* and *Zorn*'s co-occurrence with other emotion concepts, either similar or contradicting ones, which gives us insight into the strength of their connection with other feelings.

Additionally, I make use of two closely-related concepts that are basic to corpus linguistic analyses: semantic preference and semantic prosody. Although quite simple in essence, both concepts have given rise to various interpretations and definitions (see Oster, 2010a for an overview). In this study, semantic preference is

4 CCDB is accessible at http://corpora.ids-mannheim.de/ccdb/ (cf. also Kupietz et al., 2010). DWDS is accessible at http://www.dwds.de/. The older "retro" version of this corpus has been used for its access to lists of co-occurrences in addition to concordance lines. The searches were carried out from May to October 2012 and reflect the state and possibilities of both resources during that period.

understood as the semantic field that a word's collocates predominantly belong to. The analysis and classification of co-occurrences from this point of view serves two purposes. In the first place, it shows how the emotion word combines with (groups of) other lexical units from a functional point of view. In this case, causes, experiencers and consequences of the emotion have proven to be especially frequent. And secondly, classifying co-occurrences with descriptive content (mainly adjectives) allows us to determine the way the emotion is described most frequently. Semantic prosody, on the other hand, is a connotation transferred to a word if it co-occurs frequently with items carrying a positive or negative evaluative load. Therefore, co-occurrences that seem to carry an evaluative load are classified separately with the aim of assessing a potential positive or negative connotation transferred to the emotion word.

The procedure includes the following main steps:

a) Carrying out the searches in the corpora. These provide us with the data for analysis: the lists of co-occurrences with access to concordance lines[5].

b) Identifying (following the core of the procedure proposed by the Pragglejaz Group (2007)) and classifying relevant co-occurrences, i.e. deciding whether they are relevant for one or more of the aspects under analysis.

c) Quantification of relevant expressions, both for *Wut* and *Zorn* together and separately.

The categories used for the classification derive from a combination of top-down and bottom-up approaches. Especially in the case of emotion metaphors, there have been numerous previous studies and classifications that have greatly influenced the list of main metaphor categories I have used here and elsewhere (Oster, 2010a, 2010b, 2012), but its main input comes from the analysis of co-occurrences. For those aspects where there are hardly any methodological precedents (semantic preference and prosody, conceptual proximity) the categories were established in a bottom-up process.

The qualitative filtering of co-occurrences consists in a manual analysis of the concordances, taking into account individual contexts[6], and addresses two important issues:

a) It is used to adjust the quantitative results. This means that when a co-occurrence is classified into one of the categories, only those that are actual instances of it are counted.

→ "Den Wolf packt die Wut…" (CCDB) [*Wut* grabbed the wolf…] was classified as an instance of ANGER IS AN ATTACKER.

→ "…betritt Sepps Vater die Stube, packt seinen Sohn, bebend vor Wut,… " (CCDB) [Sepp's father enters the room, grabs his son, trembling with *Wut*…] was not classified.

b) In some cases, one single lexical item can be used in different ways and be evidence of several metaphorical conceptualisations, as in the following cases:

→ "Doch in der Übertreibung tobt nicht nur die Wut …" (CCDB) [But it is not only the exaggeration that *Wut* is raging in…]. Here, *Wut* itself is seen as a destructive force and is therefore classified as such.

5 DWDS and CCDB are different resources so different strategies have to be employed to obtain the information we need. The results of both processes were recorded separately and then aligned for reporting quantitative findings.

6 When there are more than 50 contexts for a co-occurrence, the total number of metaphorical contexts is estimated on the basis of the proportion found in the first 50 instances. The same procedure is applied if not all concordance lines are displayed for copyright reasons, as happens in CCDB.

→ "...der Mann tobte vor Wut..." (CCDB) [...the man was raging with *Wut*...]. *Wut* affects the man in a way that makes him act as if he were insane[7], which leads to these instances being classified in the category ANGER IS INSANITY.

4. Results

4.1. Overall picture of metaphors structuring the conceptual domain of anger in German

Initially, the results of both *Zorn* and *Wut* were brought together in order to obtain a general impression of the major metaphors used to conceptualise anger in German. For this purpose, the individual metaphors have been grouped according to six main categories that are shown in table 2 together with the absolute frequency of co-occurrence expressing each metaphorical conceptualisation (tokens)[8] and the number of different expressions used for this (types).

If we look at the quantitative distribution of tokens and types, the overall results can be summarised as follows:

- ANGER IS AN ENTITY IN A CONTAINER (THE BODY) and ANGER IS AN AUTONOMOUS FORCE are by far the most frequent conceptual metaphors. Together, they cover close to 70% of tokens and more than 75% of types.
- While the metaphor ANGER IS AN ENTITY IN A CONTAINER (THE BODY) has the largest number of tokens (39.1%), the conceptualisation of anger as AN AUTONOMOUS FORCE is expressed through more types, i.e. different linguistic expressions (46.2% at 71).
- Compared to these, the metaphors ANGER IS AN OBJECT, ANGER IS AN OPPONENT, ANGER IS ILLNESS/INSANITY and ANGER IS A PLACE/CONTAINER are represented on a much smaller scale with a maximum proportion of approximately 10% of tokens.

TABLE 2
Overall results of conceptual metaphors for *Wut/Zorn*

Conceptual metaphor	Tokens per billion words[9]	%	Types	%
1) ANGER IS AN ENTITY IN A CONTAINER (THE BODY)	5360.2	39.1%	52	30.8%
2) ANGER IS AN OPPONENT	1375.0	10.0%	11	5.9%
3) ANGER IS AN AUTONOMOUS FORCE	4155.0	30.3%	71	46.2%
4) ANGER IS ILLNESS/INSANITY	256.4	1.9%	3	1.8%
5) ANGER IS AN OBJECT	1069.9	7.8%	21	13.6%
6) ANGER IS A PLACE/CONTAINER	1485.2	10.8%	3	1.8%
Total	**13701.5**		**169**	

7 Cf. Duden Online's definition for *toben*: "sich wild, wie wahnsinnig gebärden" [to act wildly, like mad].
8 Following Gevaert (2001, 2005) and for the sake of brevity, I have adopted the corpus-linguistic concepts "token" and "type" for this slightly different but sufficiently comparable context.
9 With the two corpora contrasting in size (2.2 billion vs. 120 million words), the quantitative results regarding the frequency of metaphorical expressions (tokens) have been normalised for both corpora to tokens per billion words before adding them. In absolute terms, there was a total of 10,904 tokens, with 7,147 for *Wut* and 3,757 for *Zorn*.

4.2. Metaphor subtypes

The six categories above are, in some cases, materialized through a number of subtypes or metaphorical mappings. Table 3 shows this subdivision of conceptual metaphors together with some of the most typical examples of linguistic expressions for each subtype[10]. Literal English translations are provided in square brackets.

There is a very small number of infrequent expressions that could not be classified into any of these categories, but did not seem to justify establishing additional metaphor types. One of them is *außer sich vor Zorn sein* (approximating to "being beside oneself"), which can be interpreted as a manifestation of the metaphor of the split self (Lakoff, 1996). Others are *abflauen* (suggesting a wind that calms down), or *verfliegen* ("fly away", i.e. go into the air). Probably it is neither possible nor desirable to try to force every single figurative expression into some metaphorical or metonymical mapping. This is also the stance of Folkersma (2010), who, in a corpus-based study on the bodily basis of emotion expressions, concludes that not all expressions used to denote anger can be explained metaphorically or metonymically. There are some expressions that are opaque from a synchronic point of view and for which explanations can be cultural or related to folk theories and such. For example, expressions like *Gift und Galle spucken* ("to spit venom and bile") could be explained through the

TABLE 3
Metaphor subtypes of *Wut* and *Zorn*

Conceptual metaphor	Subtypes / metaphorical mappings / entailments	Examples of linguistic expressions	% of tokens	% of types
1. ANGER IS AN ENTITY IN A CONTAINER (THE BODY)	Anger is located in the body or affects specific body parts	*voll/voller* [full of], *erfüllen* [to fill with], *innerlich* [inner] *im Leib* [in one's body], *im Bauch* [in one's belly], *im Herz* [in one's heart]	19.2%	6.8%
	Keeping control is keeping anger inside or down	*hinunterschlucken* [to swallow], *unterdrückt* [repressed]	2.3%	3.1%
	Losing control is substance going out of the container	*auslassen an* [to take out on someone], *Ausbrechen* [outbreak]	9.0%	12.4%
	Intensity is heat: Anger causes boiling	*kochen* [to boil], *aufwallen* [to boil briskly], *Siedepunkt* [boiling point]	4.4%	6.2%
	Intensity is amount: Increase in intensity is the rising of liquid	*steigen* (*hoch/auf*) [to go up], *hochkommen* [to come up]	3.6%	1.9%
	Intensity is amount: Degree of intensity is the depth of the container	*tief* [deep]	0.5%	0.6%
	Anger is a substance that is active in the body	*rumoren in* [to rumble], *gären* [to ferment]	0.1%	1.2%
2. ANGER IS AN OPPONENT	Anger is an attacker	*packen* [to grip], *überkommen* [to attack]	9.0%	5.0%
	Anger is something that dominates	*herrschen* [to dominate], *bemächtigen* [to take possession of someone]	1.0%	1.9%

10 The complete lists of co-occurrences for each metaphor subtype as well as for the other aspects under analysis are available at academia.edu

3. ANGER IS AN AUTONOMOUS FORCE	An autonomous force	*sich breitmachen* [to expand], *weichen* [to go away]	3.2%	2.5%
	A living being / plant	*wachsen* [to grow], *sich nähren* [to get nourishment]	1.6%	2.5%
	A beast (quiet unless provoked)	*erregen* [to excite], *wecken* [to awaken]	6.6%	5.6%
	A beast (you try to keep under control)	*zügeln* [to rein], *im Zaum halten* [keep a rein on], *besänftigen* [to appease]	1.6%	3.1%
	A beast (out of control)	*zügellos* [reinless], *wild*	3.6%	4.3%
	A natural force: Fire	*entflammen* [to ignite], *schüren* [to stoke]	8.9%	13.0%
	A natural force: Water	*Welle* [wave], *aufgestaut* [dammed up]	1.9%	6.2%
	Electricity	*Entladung* [discharge]	0.2%	2.5%
	A destructive force	*rasend* [raging], *toben* [to rampage]	2.6%	1.9%
	A positive / driving force (motivator)	*Triebkraft* [driving force], *beseelt von* [driven by], *treiben* [to drive]	0.2%	2.5%
4. ANGER IS ILLNESS / INSANITY		*rasen vor Wut* [to rage with], *toben vor Wut* [to rampage with]	1.9%	1.9%
5. ANGER IS AN OBJECT	A physical object	*aufspeichern* [to store up], *ansammeln* [to accumulate]	0.8%	1.9%
	A possession	*kriegen* [to get], *loswerden* [to get rid of]	2.3%	3.1%
	A load	*(sich) entladen auf* [to unload on], *abladen* [to unload]	3.4%	3.1%
	A weapon targeted at someone	*richten gegen* [to direct against], *entgegenschleudern* [to hurl against]	1.3%	5.0%
6. ANGER IS A PLACE / CONTAINER		*in Wut geraten* [to get into], *versetzen in* [to put into],	10.8%	1.9%

theory on body humours in Gevaert's (2005) diachronic study, which reflects important changes in the metaphorical conceptualisation of anger in English after the popularization of the humoral doctrine in the 15th century.

Let us now examine the most important subtypes in more granular detail. Space limitations prevent them all being exemplified and explained here, but it seems plausible that the most characteristic metaphors for the understanding of the emotion are those that score high both on overall frequency and in the number of different expressions[11]. I therefore briefly mention the most frequent subtypes or metaphorical mappings.

Within the metaphor ANGER IS AN ENTITY IN A CONTAINER (THE BODY), many of the metaphorical expressions refer to the basic fact that this

11 Cf. Schmid (2010) for a crititcal discussion on the relation between frequency of occurrence and cognitive entrenchment.

container is the human body. Therefore, ANGER IS LOCATED IN THE BODY OR AFFECTS SPECIFIC BODY PARTS accounts for 19.2% of tokens and 6.8% of types with expressions like *voll* [full of], *Leib* [body], *Bauch* [belly] or *Herz* [heart].

On the other hand, there is considerable emphasis on the aspects of control or intensity of the emotion. For example, LOSING CONTROL is seen as the substance going out of a container (9.0% of tokens and types). The "going out" of the container can be spontaneously provoked by the emotion itself like in *platzen* or *zerplatzen* [to burst], *Ausbruch* [outbreak], or *Ausbrechen* [breaking out]. It can also take the form of an active expulsion: *auslassen an* [to take out on someone], *Luft machen* [to vent, "make air"], *(he)rauslassen* [to let out], *(he)rausschreien* [to yell out], *hinausschreien* [to yell out], *ausleben* [to live out], *austoben* [to "rage out"], *ablassen* [to let off], or *ausspucken* [to spit out].

Then, in combination with the generic metaphor INTENSITY IS HEAT, we find the metaphor subtype ANGER IS A BOILING LIQUID. Apart from the various words related to the concept of boiling itself, there are also some expressions referring to side-effects like the presence of foam or steam (*schäumen* [to foam], *Ventil* [valve], *überschäumen* [to foam over]).

Within the ANGER IS AN OPPONENT metaphor, anger is conceived of most frequently as an ATTACKER (9.0% of tokens and 5.0% of types).

Finally, in the conceptual metaphor ANGER IS AN AUTONOMOUS FORCE, the emphasis lies in the "autonomy" of the emotion; anger is conceived of as an entity acting independently and not controlled by the person. Apart from expressions relating to this general idea of AUTONOMOUS FORCE, as in expressions like *sich breitmachen* [to expand], *weichen* [to go away], there is a whole series of more specific conceptualisations.

The most frequent one is that of anger as a kind of dangerous beast. Three aspects are distinguished here:

- A BEAST THAT IS QUIET UNLESS PROVOKED, for example *anstacheln* [to spur on], *aufstacheln* [to goad], *reizen* [to irritate], with 6.6% of tokens and 5.6% of types;
- A BEAST YOU TRY TO KEEP UNDER CONTROL, like in *im Zaum halten* [to keep a rein on] or *besänftigen* [to appease], having 1.6% of tokens and 3.1% of types;
- A BEAST YOU DO NOT OR CANNOT CONTROL, as in *zügellos* [reinless] or *ungebändigt* [untamed], with 3.6% of tokens and 4.3% of types.

Then there are several metaphors that can be interpreted as a conceptualisation of the emotion as kinds of natural force (cf. Omori's (2008, 2012) EMOTION IS A NATURAL PHENOMENON). The metaphor ANGER IS FIRE (8.9% of tokens and an exceptionally high 13.0% of types) is used in an especially creative way as it explores several different aspects of fire, for example:

- the process of making fire and keeping it going (*schüren* [to stoke], *entfachen* [to spark], *anheizen* [to fuel], *anfachen* [to kindle], entzündet [inflamed]);
- flames or ways of burning (*Flamme* [flame], *lodern* [to blaze]);
- smoke (*verrauchen* [to go up in smoke], *qualmen* [to smoulder]),
- or ways of a fire going out (*verpuffen* [to blow out]).

A second natural force is that of WATER (1.9% of tokens and 6.2% of types). For this metaphor also, two different aspects are emphasized:

- the uncontrolled force of water in the form of a wave (*Welle* [wave], *branden* [to surge]);
- and the obstruction of the natural flow of anger by means of some kind of canal or dam (*aufgestaut* [banked up], *kanalisieren* [to channel]).

4.3. Differences between *Wut* and *Zorn*

Section 2 has demonstrated that the emotion words *Wut* and *Zorn* are perceived by speakers of German as similar but not entirely interchangeable. A closer look will further expose what the corpus data can reveal about the relationship between the two from the complementary points of view of conceptual metaphor, physical and physiological manifestations, proximity to other emotion words, description and evaluation (semantic prosody) as well as the semantic subsets they are combined with (semantic preference).

4.3.1. Frequency of conceptual metaphors

If *Wut* and *Zorn* are analysed separately, the picture becomes clearer even on the general level of metaphor types. Generally speaking, *Wut* is much more frequently used with metaphorical expressions than *Zorn*, with almost twice as many instances in DWDS and CCDB (7035 for *Wut* and 3757 for *Zorn*). This is remarkable if we consider the global frequency of *Wut* and *Zorn* occurrence in the corpora, which is rather similar for both words, as shown in table 4.

TABLE 4
Global frequency of *Wut* and *Zorn* in the corpora

	Wut	*Zorn*
DWDS	2388	2444
DEREKO (COSMAS II)	34302	27896

With regard to conceptual metaphors, the following conclusions can be drawn (cf. table 5):

- ANGER IS AN ENTITY IN A CONTAINER (THE BODY) and ANGER IS AN AUTONOMOUS FORCE are still the most frequent conceptual metaphors, but each of the two words seems to specialize on one conceptualisation. As regards tokens, the CONTAINER metaphor almost doubles the FORCE metaphor for *Wut*, whereas the opposite is true in the case of *Zorn*. This means that *Wut* is much more frequently seen as an ENTITY IN A CONTAINER than *Zorn* (45.9% of tokens versus 29.4%). Similarly, 46.2% of the instances of metaphorical expressions used for *Zorn* depict the emotion as kinds of FORCE, while only 18.7% of those found for *Wut* do.
- The other metaphors roughly maintain their distribution, with only minor differences.

TABLE 5
Contrast of the overall results of conceptual metaphors for *Wut* and *Zorn*

Conceptual metaphor	Tokens		%		Types		%	
	Wut	*Zorn*	*Wut*	*Zorn*	*Wut*	*Zorn*	*Wut*	*Zorn*
1) ANGER IS AN ENTITY IN A CONTAINER (THE BODY)	3655.8	1704.4	46.2%	29.4%	42	23	36.2%	23.0%
2) ANGER IS AN OPPONENT	877.0	498.0	11.1%	8.6%	6	8	5.2%	8.0%
3) ANGER IS AN AUTONOMOUS FORCE	1481.1	2674.0	18.7%	46.2%	50	48	43.1%	48.0%
4) ANGER IS ILLNESS/INSANITY	251.4	5.0	3.2%	0.1%	3	1	2.6%	1.0%
5) ANGER IS AN OBJECT	710.5	359.3	9.0%	6.2%	9	11	7.8%	11.0%
6) ANGER IS A PLACE/ CONTAINER	933.1	552.1	11.8%	9.5%	3	2	2.6%	2.0%
Total	**7908.8**	**5792.7**			**116**	**100**		

The higher overall frequency of metaphorical expressions for *Wut* also results in a larger number of metaphor subtypes / metaphorical mappings. Consequently, there are some minor subtypes that are only present for *Wut*, but not for *Zorn*:

- INTENSITY IS AMOUNT: DEGREE OF INTENSITY IS THE DEPTH OF CONTAINER
- ANGER IS A SUBSTANCE THAT IS ACTIVE IN THE BODY
- ANGER IS A PHYSICAL OBJECT

In order to ascertain whether *Zorn* is combined at all with the lexical items found for *Wut* in these metaphor subtypes, an additional search was carried out with the COSMAS II[12] search engine for both words in combination with the expressions originally found for these metaphors.

TABLE 6
Frequency of minor metaphor subtypes in COSMAS II

		Wut	*Zorn*
ANGER IS A PHYSICAL OBJECT	*Portion*	305	5
	ansammeln [to accumulate]	7	2
	aufspeichern [to store up]	1	0
DEGREE OF INTENSITY IS THE DEPTH OF CONTAINER	*tief* [deep]	216	3
ANGER IS A SUBSTANCE THAT IS ACTIVE IN THE BODY	*gären* [to ferment]	27	1
	rumoren [to rumble]	5	1

The results show very clearly that these expressions indicating ANGER IS A PHYSICAL OBJECT, DEGREE OF INTENSITY IS THE DEPTH OF CONTAINER and ANGER IS A SUBSTANCE THAT IS ACTIVE IN THE BODY are common for *Wut* but very marginal for *Zorn*. Although there might be other lexical items present in COSMAS II expressing these metaphors, the fact that—if they exist—they are too infrequent to make it into CCDB allows the conclusion that, while it is not impossible for *Zorn* to be conceived of through these metaphors, it is not a common thing to do.

A more differentiated picture results if we examine the data regarding frequency (tokens) and variety (types) not in an isolated manner, but related to one another. The idea is that if a conceptual metaphor is expressed through few but highly frequent linguistic expressions, this can be considered as an indication that it is very conventional. On the other hand, if there are many different expressions of varying frequency, language users seem to use this metaphor in a more creative way[13].

In the case of the conceptual metaphors found for *Wut* and *Zorn*, there are some metaphor subtypes that are much more conventional for one than for the other. For example, with respect to the metaphor ANGER IS LOCATED IN OR AFFECTS SPECIFIC BODY PARTS, *Wut* is very frequently located in the body (*Leib*), the heart

12 COSMAS II (http://www.ids-mannheim.de/cosmas2/) is the search engine that can be used to query the German Reference Corpus DEREKO, on which CCDB is based. Among many other features, COSMAS II allows complex queries with combinations of search words, making it possible to find out whether a given combination is present in the corpus, even if its frequency is very low. The reason for these instances not being reflected in the collocation database CCDB, despite it being based on very similar text material, is that these very low frequencies do not pass the statistical filters the program uses to establish its collocation profiles.

13 An attempt at quantifying results in terms of productivity and creativity, which has not been done here, is described in Oster (2010, 2012).

(*Herz*), or especially the belly (*Bauch*). *Zorn*, on the other hand, is also related to other body parts (*Gesicht* [face], *Herz* [heart], *Bauch* [belly], *Lippen* [lips], *Kopf* [head]), but with much lower individual frequencies.

Regarding natural forces, it is interesting to see that the ANGER IS FIRE metaphor is much more frequently used for *Zorn* (18.8% of tokens) than for *Wut* (1.7%), whereas ANGER IS WATER seems more closely related to *Wut* (3.0% vs. 0.5% for *Zorn*).

Within the conceptualisation of anger as a dangerous beast, we also find a certain specialisation of both lexical units on the different aspects. Whereas there is a somewhat stronger tendency of *Wut* to be combined with expressions referring to the emotion being out of control (4.3% of tokens for *Wut* vs. 2.5% for *Zorn*), *Zorn* is more often than *Wut* understood as something dangerous that can be provoked (12.7% of tokens for *Zorn* vs. 2.1% for *Wut*) or that is kept under control (2.7% vs. 0.8%).

4.3.2. Physical and behavioural reactions to anger

From the point of view of the frequency of physical manifestations of anger (cf. table 7), the effects most often mentioned are screaming or crying, facial or vocal expression, agitation and change of colour. Let us look at some examples:

→ "Sie packt ihn am Arm, zittert vor Wut." (CCDB) [She grabs his arm, trembling with *Wut*.]

→ "Schließlich habe ich vor Wut geheult." (DWDS) [I finally cried with *Wut*.]

→ "...klangen laute, von Wein und Wut heisere Stimmen..." (DWDS) [loud voices could be heard, hoarse with wine and *Wut*...]

The overall numerical difference between *Wut* and *Zorn* is even more pronounced here than in conceptual metaphor, with the number of co-occurrences for *Wut* being 2.5 times larger. This shows that *Wut* is seen as an emotion that affects a person more directly and causes them to let their feelings show. This is especially so for the physical effect of screaming or crying (for example, *Träne* [tear] is by far the most frequent co-occurrence with 337 instances), comprising more than a third of the expressions in the case of *Wut*, but much less in the case of *Zorn*.

One effect that is especially productive both in number of co-occurrences and in types of linguistic expressions is the causation of a change of colour. This is especially true for *Zorn*, which is combined predominantly with dark colours (*rot* [red], *schwarz* [black], *dunkel* [dark], *hochrot* [dark red]), whereas, for *Wut*, half of the co-occurring colour words refer to paleness (*bleich* [pallid], *blass* [pale], *weiß* [white])[14].

An especially interesting case is the opposing effects of falling and rising temperatures. Both are present in combination with both lexical items, but in different ways. *Wut* is more frequently related to coldness, but only through a single, extremely frequent co-occurrence (*kalt* [cold]), while there are much fewer tokens for heat (38 versus 203 for cold), but more types (6). *Zorn*, on the other hand, is clearly more closely related to the idea of heat, with many more tokens (73) and types (5) than for coldness (5 tokens and 1 type).

Most of these physical effects can be related to the physiological reactions of the body documented in psychological studies (cf. Folkersma (2010: 156-158), who notes increased heartbeat

14 From an interlingual contrastive point of view, Philip (2006: 78-79) detects differences in Italian *rabbia* and English anger in colour terms, the latter showing a stronger preference for reddish colours and for white as the emphatic form.

TABLE 7
Conceptual metonymy

	Examples of co-occurrences	*Wut*		*Zorn*	
		Tokens	Types	Tokens	Types
Anger causes screaming or crying	*Träne* [tear], *weinen* [to cry], *heulen* [to wail]	754	13	122	3
Anger shows in the face	*Gesicht* [face], *Blick* [look], *funkeln* [to glare]	347	3	179	5
Anger causes agitation	*zittern* [tremble], *beben* [to quiver], *stampfen* [to stomp]	175	8	125	2
Anger affects the voice	*heiser* [hoarse], *zischen* [to hiss], *sprachlos* [speechless]	140	4	114	3
Anger causes a change of colour	*rot* [red], *bleich* [pale], *röten* [to redden]	118	6	125	10
Anger causes the temperature to sink	*kalt* [cold]	203	1	5	1
Anger causes the temperature to rise	*heiß* [hot], *glühen* [to glow], *brodeln* [to seethe]	38	6	78	6
Anger causes contraction	*verzerren* [to distort], *Stirnfalte* [frown], *Fäuste ballen* [to clench one's fists]	38	2	11	2
Anger disturbs breathing	*schnauben* [to snort], *schnaufen* [to gasp]	23	2	8	1
Anger causes swelling	*schwellen (Halsschlagader)* [to swell (carotid artery)]	0	0	2	1
Total		**1836**	**45**	**769**	**34**

frequency (→ agitation), blood pressure, body temperature (→rising temperature), breathing frequency (→ disturbed breathing), and the dilation of blood vessels (→ change of colour[15]). However, these physiological reactions do not seem to provide a basis for sinking temperature (*kalte Wut* [cold]) or paleness (*bleich* [pallid], *blass* [pale], *weiß* [white]). Results from similar studies in other languages could provide evidence as to whether coldness and paleness are related to *Wut* for culture-specific reasons (if no such effect were to be found in other languages or cultures) or whether there might be other, not so obvious physiological or psychological reactions[16].

4.3.3. Conceptual proximity

With respect to proximity to other words related to feelings, states or attitudes, both *Wut* and *Zorn* are most frequently found in combination with other negative emotions (in around 90% of cases, cf. table 8). The largest group is that of feelings related to sadness (*Trauer* [grief], *Enttäuschung* [disappointment], *Verzweiflung* [dispair], at about 30%), followed by other emotion words expressing anger (*Frust* [frustration], *Ärger* [annoyance], *Empörung* [indignation]), fear (*Schreck* [fright], *Panik* [panic], *Angst* [fear]) or the inability to act (*Hilflosigkeit* [helplessness], *Ohnmacht* [impotence], *Resignation* [resignation]).

15 Conversely, priming experiments have shown that evoking anger leads individuals to be more likely to perceive the colour red (Fetterman et al., 2011).

16 Ogarkova & Soriano (2012: 24) interpret the existence of expressions related to coldness in English (for example, cold anger) as indication that the expression of anger is seen as controlled.

TABLE 8
Co-occurrence of *Wut* and *Zorn* with other emotion words

		Wut				*Zorn*			
		Types	**Tokens**	**%**			**Types**	**Tokens**	**%**
negative emotions	oriented towards others: anger (*Zorn, Ärger*)	24	1630	14.9%	92.1%	89.3%	15	869	22.9%
	oriented towards others: hate (*Hass* [hatred], *Abscheu* [loathing])	6	470	4.3%			4	254	6.7%
	other emotions oriented towards others (*Misstrauen* [mistrust], *Neid* [envy], etc.)	10	507	4.6%			8	183	4.8%
	oriented towards oneself (*Scham* [shame], *Schuldgefühl* [guilt])	9	264	2.4%			3	92	2.4%
	fear	14	1617	14.8%			6	396	10.4%
	sadness	17	3427	31.3%			15	1075	28.4%
	pain	5	411	3.8%			2	149	3.9%
	inability to act	15	1496	13.7%			10	270	7.1%
	other negative emotions (*Ungeduld* [impatience], *Einsamkeit* [loneliness])	12	261	2.4%			0	0	0%
positive emotions	positive emotions oriented towards others (*Liebe* [love], *Sehnsucht* [longing])	4	339	3.1%	5.2%	7.1%	3	250	6.6%
	positive feelings as a reaction to good things in the present or future (*Freude* [happiness], *Hoffnung* [hope])	5	225	2.1%			2	20	0.5%
ambivalent or neutral emotions (*Lust* [lust], *Verblüffung* [astonishment]		20	298	2.7%	2.7%	3.6%	4	233	6.1%
Total		**140**	**10945**					**72**	**3791**

The distribution is rather similar in both cases, the only remarkable difference being that *Wut* is found much more often in combination with words expressing the inability to act (13.7% versus 7.1%). Also striking is the difference in overall frequency. As happens with the number of metaphorical co-occurrences and expressions related to physical reactions, *Wut* is also more frequently found in combination with other emotion words: *Zorn* is combined with 72 types and 3791 tokens, whereas for *Wut* the number of types roughly doubles (140) with almost three times as many tokens (10945).

4.3.4. Causes, experiencers, consequences of anger

If we look at the semantic preferences of *Wut* and *Zorn*, i.e. the subsets the co-occurrences belong to from the point of view of syntagmatic relations between the emotion concept and its surroundings in the text, information can be

TABLE 9
Causes, experiencers and consequences of *Wut* and *Zorn*

		Wut			***Zorn***		
Causes	A blow to one's personal self-image	*Kränkung* [slight], *verschmäht* [disdained]	79	44.1%	*Ungerechtigkeit* [injustice]	17	43.6%
	Attitudes or behaviors of others	*Ignoranz* [ignorance], *Untätigkeit* [inaction]	38	21.2%	*Indiskretion* [indiscretion]	5	12.8%
	Feelings of dissatisfaction with one's situation	*Perspektivlosigkeit* [lack of prospects], *Unfreiheit* [lack of freedom]	21	11.7%	*Missgeschick* [mishap]	5	12.8%
	Authorities or people in power, and their actions	*Peiniger* [tormentor], *Staatsmacht* [authorities]	41	22.9%	*Obrigkeit* [authorities], *Establishment*	12	30.8%
	Total		179			39	
Experiencers	Individuals in general	*Mensch* [human being], *Mann* [man], *Frau* [woman]	407	85.7%	*Mensch*, *Frau*, *Vater* [father]	91	8.8%
	Groups or members of a specific group	*Volk* [people], *Mob*, *Anwohnerin* [neighbor]	68	14.3%	*Volk* [people], *Bürger* [citizen], *Wähler* [voter]	568	54.7%
	Deities	---			*Gott* [god], *Jahwe*, *Zeus*	379	36.5%
	Authorities	---			*König* [king], *Obrigkeit* [authority]	126	12.1%
	Total		475			1038	
Consequences	Acts of destruction	*Brandlegung* [arson], *zerknüllen* [to scrunch up], *zustechen* [to stab]	70		*zerschmettern* [to smash]	3	

found about causes of anger, about its consequences and about who experiences it. On closer look, we find important differences between the two lexical items (cf. table 9).

In the case of *Zorn* we find an obvious emphasis on who experiences the emotion (1038 experiencers vs. 39 causes and just 3 consequences). The picture drawn for *Wut* is a more balanced one: experiencers are mentioned most frequently (475 instances), but there are also 179 items denoting causes and 70 that indicate a consequence.

The causes for *Wut* include all kinds of blows to one's personal self-image, attitudes or behaviours of others, feelings of dissatisfaction with oneself or one's situation, or the actions of someone who is in power.

With respect to who experiences anger, for *Wut* they are overwhelmingly common individuals (85.7%) whereas *Zorn* is more frequently related to groups of people (54.7%). Especially remarkable is the fact that *Zorn* shows a strong preference for deities or authorities, which is not the case for *Wut*.

On the other hand, regarding the consequences of anger, *Wut* occurs alongside a long list of items that denote acts of destruction. For *Zorn*, only one co-occurrence was found that expresses a kind of consequence, also referring to destruction. However, in contrast to many of the co-occurrences of *Wut*, *zerschmettern* [to smash] is a kind of destruction that can only be carried out with a particularly superior force or power. This is consistent with the prototypical experiencer being a god or authority.

4.3.5. Description and evaluation

The second aspect related to semantic preference that I use in this analysis is that of descriptive co-occurrences. The results on this issue are presented together with those on semantic prosody (evaluative co-occurrences), for both aspects are expressed mainly through adjectives and are not always easy to separate. As can be seen in table 10, there are remarkable differences between *Wut* and *Zorn*. The two main aspects that are highlighted for *Wut* are extension (*grenzenlos* [boundless], *groß* [big], with 46% of all instances) and irrationality (*wahnsinnig* [insane], *hemmungslos* [uninhibited], 15%). Both aspects are marginal in the case of *Zorn*, for which the overwhelming number of adjectives (74%) is related to the emotion being justified (*heilig* [holy], *gerecht* [just], *verständlich* [understandable]).

TABLE 10
Description and evaluation of *Wut* and *Zorn*

Description							
		Wut			***Zorn***		
		Tokens	**%**	**Types**	**Tokens**	**%**	**Types**
Intensity:							
bad, dangerous	*furchtbar* [terrible]	126	7.1%	7	39	3.3%	4
strong	*höchste* [highest]	11	0.6%	2	14	1.2%	1
weak, small	*verhalten* [restrained]	16	0.9%	1	7	0.6%	1
Quality:							
pure	*blank* [sheer]	157	8.8%	4	33	2.8%	3
Form:							
vague	*unbeschreiblich* [indescribable]	44	2.5%	7	0	0%	0
Extension:							
big	*grenzenlos* [boundless]	562	31.6%	5	83	7.0%	3
Duration:							
long	*alt* [old]	0	0	0	5	0%	2
sudden	*jäh* [sudden]	27	1.5%	1	7	0.6%	1
Evaluation							
justified	*gerecht* [just]	156	8.8%	3	854	71.6%	5

irrational	*sinnlos* [meaningless]	627	35.2%	13	55	4.6%	5
negative	*unheilig* [unholy]	16	0.9%	2	23	1.9%	3
potentially shameful	*unverhohlen* [unconcealed]	39	2.2%	4	72	6.0%	5
Total		**1781**		**48**	**1192**		**33**

5. Conclusions

As regards the analysis of the emotion category of anger in German, the systematic corpus-based analysis of the two emotion words *Wut* and *Zorn* has put us in a position to confront the conclusions of previous research (Durst, 2001; Fries, 2004) with further evidence and to reach some additional conclusions:

- The data on descriptive and evaluative co-occurrences (see section 4.4.5) provides clear evidence for the claim that *Wut* is perceived as more irreflective and *Zorn* is seen as a more acceptable emotion (Fries, 2004). This is also in line with the fact that the experiencer is likely to be an "authority".
- The analysis also confirms that the cause behind *Wut* is usually some negative event (Fries, 2004), a trigger more present than for *Zorn* (Durst, 2001). The analysis and classification of the semantic subsets combined with *Wut* (see section 4.4.6) draw a clear picture of what types of events are predominant. The claim that what underlies *Zorn* is someone's infringement of normative values, on the other hand, is more difficult to prove and not supported by the data of this study, as hardly any co-occurrences indicative of a cause for *Zorn* could be found.
- *Wut* appearing in combination with a much larger number of other emotions, around 90% of which are negative, can be interpreted in favour of Durst's hypothesis that the main focus of *Wut* lies in the fact that the experiencer is feeling bad. The focus of *Zorn* being the emission of a negative judgement, however, could not be proven.
- As regards the consequences of the emotion, there is strong evidence that *Wut* leads to an urge to destroy things, which is a little more specific than Durst's formulation of "taking action". On the other hand, as evidenced by the data on relations with other emotion words, *Wut* can also be associated with an "inability to act", which seems to oppose the urge to act[17]. However, Durst's claim that *Zorn* leads to a desire to hurt another could not be proven.
- On the whole but in addition to the aspects already mentioned, the quantitative and qualitative findings converge on a single trait that clearly differentiates the two emotion words: The experience of *Wut* is a more irrational and physical one than that of *Zorn*, with a much larger proportion of the metaphor ENTITY IN A CONTAINER (THE BODY), and with many more expressions evidencing physical reactions, both physiological (temperature, breathing, colour) and expressive (facial and vocal expression, crying). The strong association to *Bauch* (belly) is especially indicative of this, *Bauch* being the place where folk theory locates the most emotional and intuitive part of the self.

This kind of corpus-based description thus allows to differentiate clearly between two similar lexical items and to describe in what way

17 This is interesting from an intercultural point of view, since Ogarkova, Soriano and Lehr (2012: 275) found that Spanish *impotencia* (i.e. impossibility to act) and *rabia* were the two words used most often to describe emotion scenarios related to anger. This seems to indicate that "inability to act" is an important aspect in the overall concept of anger.

each of them specializes in certain uses or situations. A combination of this intralingual contrast and a comparison between several languages would result in a more complete picture of how languages differ in cutting up the conceptual domain of an emotion, and what semantic correspondences can be established between the individual items. For example, it is interesting to see that among these two German anger words there is a very marked contrast regarding the three dimensions analysed in Ogarkova & Soriano's (2014) study on intercultural differences among English, Spanish and Russian anger words: negativity of the emotion (which in our case seems to be stronger for *Wut* than *Zorn*), control and regulation (more pronounced in the case of *Zorn*) and emphasis on the somatic/physiological aspects (much stronger for *Wut*). However, our results in this respect can only be seen as preliminary and deserving closer analysis.

Furthermore, these emotion-specific findings lead us to a more general conclusion regarding corpus methodology. In examining the data, the combining of diverse perspectives (metaphorical and metonymical conceptualisations, proximity to other emotion concepts, semantic preferences and semantic prosodies) leads us to a rich account of the semantic and pragmatic make-up of a concept. This can provide evidence for or against linguistic intuitions, although it is not meant to put into question the value of such intuition, an essential part of linguistic research and a necessary starting point for most corpus-based analyses. Yet in many cases, electronic corpora as well as the material and conceptual tools developed by corpus linguistics provide us with the means to corroborate these ideas.

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