

**Speaking Metaphorically:
Metaphor Use in Norwegian Media during COVID-19**

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Abstract

According to Lakoff and Johnson (1980a), metaphor is more than a stylistic device that is used in poetry. Instead, they argue metaphors are an unavoidable part of every day language and that in addition to it human thought is largely metaphorical. The choice of words have an impact on how and what part of reality is perceived, and on resulting actions. In regard to abstract concepts, metaphors play an important role as they help people to understand them. Previous research (e.g. Hendricks et al., 2018; Sontag, 1979,) has shown a negative effects of certain metaphors on especially people affected by the illness but also on the public's image of the disease. Metaphors that are connected to the concept of WAR, for example, were criticized for evoking the feeling of guilt. Also studies on the COVID-19 pandemic have shown that the virus is often framed as a war (e.g. Lacković et al., 2021; Semino, 2020; Wicke & Bolognesi) in different languages. According to Semino (2020), one could effectively frame covid using alternative metaphors that have a less negative effect. Among others she suggested the concept of FIRE.

In this thesis, the scope was the application of *krig* (engl. 'war') and *brann* (engl. 'fire') and related metaphors in Norwegian online articles during the pandemic. The aim of this research was to find out whether those concepts were used in Norwegian and if a relation between emotions and lexical units related to the concepts could be identified. Following null hypothesis (A) and alternative hypotheses (B) and (C) were formulated:

(A) *H0*:

- a) None of the articles uses either of the frames to discuss the pandemic.
- b) One cannot detect a grouping of emotions with words.

(B) *H1*:

- a) Either the BRANN or the KRIG concept is used to frame the pandemic.
- b) Negative emotions are grouped with the words of the corresponding frame.

(C) *H2*:

- a) The pandemic is framed as both: a war and a fire.
- b) Negative emotions are grouped with the lexical units of both frames.

To pursue the matter, two different types of analyses were applied for each frame. On the one hand, a Principal Component Analysis (PCA) and on the other hand an in-depth analysis. The former was used in order to study the relation between the connection of words. This is, the connection between words of emotions and frame-related lexical units, but also covid and vaccine-related terms. The in-depth analyses was applied to detect whether the lexical units within a frame were included metaphorically in Norwegian news articles or not.

The research was based on results of Google. The data used for each PCA was a table that contained frame-related lexical units and antonyms as row elements. The terms *covid*, *korona* (engl. 'corona'), *vaksine* (engl. 'vaccine'), *kur* (engl. 'cure'), and six words of emotions were the column elements. The data value was calculated from the logarithm of the estimated number of hits per search. Regarding the in-depth analyses, over 400 articles were studied. Those articles were collected by searching for a frame-related lexical unit and the terms *covid* and *korona*. Per search, the first ten articles that could be accessed for free on the first two pages were included in the analysis.

Based on the results of the analyses, a grouping of emotions with frame-related lexical units could not be detected. Hence, the null hypothesis (Bb) could not be rejected. The alternative hypotheses (Bb, Cb) were not supported by the findings. The results of the in-depth analyses did not support null hypothesis (Aa). (Ba) could not be rejected. Lexical units related to the KRIG frame were often used metaphorically in the analyzed articles. The results of the BRANN frame were minimal. Thus, one could not make a statement about whether or not (Ca) could be rejected.

Abstrakt

I følge Lakoff og Johnson (1980a) er metaforer mer enn et stilistisk virkemiddel som brukes i poesi. Det argumenteres for at det er en uunngåelig del av hverdagspråket, og at i tillegg til det er menneskelige tanker i stor grad metaforisk. Det vil si at valg av ord har innvirkning på hvordan og hvilken del av virkeligheten som oppfattes, og på resulterende handlinger. Når det gjelder abstrakte konsepter, spiller metaforer en viktig rolle i forståelsen av dem. I sammenheng med sykdommer, er metaforer ofte brukt. Tidligere forskning (f.eks. Hendricks et al., 2018; Sontag, 1979) har vist negative effekter av visse metaforer på spesielt mennesker som er rammet av tilstanden, men også på samfunnets bilde av sykdommen. Metaforer som for eksempel er knyttet til konseptet KRIG, har blitt kritisert for å fremkalle skyldfølelser. Studier knyttet til COVID-19-pandemien har også vist at viruset ofte er fremstilt som en krig (f.eks. Lacković et al., 2021; Semino, 2020; Wicke & Bolognesi) på forskjellige språk. I følge Semino (2020) finnes det alternative metaforer som har mindre negative effekter. Hun foreslo blant annet å ramme covid som BRANN.

I denne oppgaven ble bruken av krigs- og brannrelaterte metaforer i norske nettartikler under pandemien studert. Målet med forskningen var å finne ut om disse begrepene ble brukt på norsk og om en relasjon mellom følelser og leksikale enheter knyttet til begrepene kunne identifiseres. Følgende nullhypotese (A) og alternative hypoteser (B) og (C) ble formulert:

(A) H_0 :

- a) Ingen av artiklene bruker noen av rammene for å diskutere pandemien.
- b) Man kan ikke oppdage en gruppering av følelser med ord.

(B) H_1 :

- a) Enten BRANN- eller KRIG-konseptet brukes til å ramme pandemien.
- b) Negative følelser er gruppert med ordene i den tilsvarende rammen.

(C) H_2 :

- a) Pandemien er innrammet som både en krig og en brann.
- b) Negative følelser er gruppert med de leksikalske enhetene til begge rammer.

For å utforske hypotesene, ble det brukt to forskjellige typer analyser for hver ramme. På den ene siden en Principal Component Analysis (PCA) og på den andre siden en dybdeanalyse.

Førstnevnte ble brukt for å studere sammenhengen mellom ord. Dette er sammenhengen mellom følelsesord og rammerelaterte leksikale enheter, men også covid- og vaksinerelaterte termer. Dybdeanalysene ble brukt for å avdekke om de leksikale enhetene innenfor en ramme var inkludert metaforisk i norske nyhetsartikler eller ikke.

Undersøkelsene var basert på resultater fra Google. Dataene som ble brukt for hver PCA var en tabell som inneholdt rammerelaterte leksikale enheter og antonymer som radelementer. Begrepene *covid*, *korona*, *vaksine*, *kur* og seks ord med følelser var kolonneelementene. Dataverdien var logaritmen til det estimerte antallet treff per søk. Når det gjelder dybdeanalysene, ble over 400 artikler studert. Disse artiklene ble samlet inn ved å søke etter en rammerelatert leksikalsk enhet og begrepene *covid* og *korona*. Per søk ble de ti første artiklene som var gratis tilgjengelig på de to første sidene inkludert i analysen.

Basert på resultatene fra analysene, kunne en gruppering av følelser med rammerelaterte leksikale enheter ikke påvises. Derfor kunne ikke nullhypotesen (Bb) forkastes. De alternative hypotesene (Bb, Cb), ble ikke støttet av funnene. Resultatene av dybdeanalysene støttet ikke nullhypotese (Aa). (Ba) kunne ikke avvises. Leksikale enheter knyttet til KRIG-rammen ble ofte brukt metaforisk i de analyserte artiklene. Resultatene av BRANN-rammen var minimale. Dermed kan det ikke konkluderes om hvorvidt (Ca) kunne avvises.

Table of content

Acknowledgements	2
Abstract	3
Abstrakt	5
1. Introduction	9
1.1. Research Questions and Hypotheses	9
1.2 Outline of the Paper	11
2. Background	12
2.1 Traditional Metaphor Theories	12
2.1.1 The Substitution Theory	13
2.1.1 The Interaction View of Metaphor	13
2.1.3 The Network Theory of Meaning	15
2.1.4 The Hermeneutical Conception of Metaphor	16
2.1.5 Summary	17
2.2 Cognitive Linguistics	17
2.3 The Conceptual Metaphor Theory	19
2.3.1 Structural Metaphors, Ontological Metaphors and Orientational Metaphors	21
2.3.2 Grounding of conceptual metaphors	22
2.3.3 Coherence	23
2.4 Framing	24
2.5 Journalism	26
2.5.1 News Value Theory	26
2.5.2 Gatekeeper Theory	28
2.6 Covid and the News	28
2.7 Previous Research on COVID-19 and Metaphors	30
3. Methodology and Data	32
3.1 Background on Google	32
3.2 The Principal Component Analyses	34
3.2.1 Background on Principal Component Analysis	34
3.2.1 Data Collection	35
3.3 The in Depth-analyses	41
3.3.1 Procedure to Identify Metaphors	41
3.3.2 The Data	42
4. Results	43
4.1 PCA-Results	43
4.1.1 BRANN	43
4.1.2 KRIG	47
4.2 Results of the In-Depth Analyses	51

4.2.1 KRIG	51
4.2.2 BRANN	66
5. Discussion	72
5.1 PCA results and Implications	72
5.2 In-depth Analyses Results and Implications	74
5.2.1 BRANN	74
5.2.2 KRIG	75
5.2.3 Summary	76
6. Conclusion	77
Bibliography	79
List of Appendices	93
Appendix A: All KRIG frame related lexical units	93
Appendix B: All BRANN frame related lexical units	96
Appendix C: Logarithm of KRIG-units	98
Appendix D: Logarithm of BRANN-units	99
Appendix E: Overview of the Analyzed Articles	100

1. Introduction

According to BBC, former president Trump said in May 2020: “We went through the worst attack we’ve ever had on our country, this is the worst attack we’ve ever had” and “I view the invisible enemy [...] as a war [...] I don’t like how it got here, because it could have been stopped, but no, I view the invisible enemy like a war” (BBC, 2020a). In those quotes Trump personifies and frames the coronavirus metaphorically as a war, as he calls it an *invisible enemy* that *attacked* America. Similar to this, the French President Macron has stated in March 2020 that we were at war (BBC, 2020b) when the virus started to spread all over the world.

Generally, the use of metaphorical expressions, especially war-metaphors, related to diseases is common. The different kinds of metaphors and their effect on people have been studied over the last decades. For example, Sontag critically analyzed metaphors of tuberculosis, and cancer (Sontag 1979). She argues that the use of certain metaphors causes victim-blaming, which again has a negative effect on the patient, and affects people’s image of mentioned diseases. Hendricks et al. (2018) studied the emotional influence of *battle* and *journey* related frames in the context of cancer. They came to the conclusion that people cope differently with the disease situation depending on the metaphorical expressions. Chances that a person feels guilty are potentially higher when battle-related expressions are used compared to the journey ones (Hendricks et al., 2018).

Since the pandemic started, researchers (e.g. Lacković et al., 2021; Semino, 2020; Wicke & Bolognesi) have been studying different metaphors in the context of the coronavirus in different languages. The results show among others that war-related metaphorical expressions are also used extensively here. Furthermore, Semino (2020) argued that the frame of a *fire* would be a good alternative.

1.1. Research Questions and Hypotheses

Based on mentioned previous studies, the question arose if similar metaphorical frames are used in Norwegian to discuss the virus. This paper focuses specifically on the use of war- and fire-related metaphors in Norwegian online news articles. The research questions in this paper are:

(1) RQ1:

Is the pandemic metaphorically framed as a fire or a war in Norwegian online news articles?

(2) RQ2:

Can a grouping of certain emotions be identified with specific lexical units that are part of the frames?

To pursue those questions, two analyses per frame were applied, which were based on the results of *Google*. Firstly, a *Principal Component Analysis* (PCA), which was applied to study the relation between variables, in this case, between lexical units that were related to the frames, words of emotions, *covid*, *korona* (engl. ‘corona’), *vaksine* (engl. ‘vaccine’) and *kur* (engl. ‘cure’). This was especially relevant for (2). Secondly, an in-depth analysis, to approach (1). The three hypotheses to be considered were:

(A) H0:

- a) None of the mentioned frames are metaphorically applied to COVID-19 related articles in Norway.
- b) A grouping of emotions cannot be identified.

(B) H1:

- a) Only one of the frames is used metaphorically in the context of covid.
- b) A grouping of negative emotions with the lexical units of one of frame can be identified. This is based on previous research (Wicke & Bolognesi 2020).

(C) H2:

- a) Both frames are used metaphorically in the context of covid.
- b) One can identify a connection between negative emotions and the lexical units of both of the frames.

The results would reject H0a when a high count of frame related lexical units can be detected in the data. Is the count of frame related lexical units of both frames high, this would support H2a. If this applies to only one of the frames, the findings would reject H2a but support H1a. If the graphs of the PCAs do not show a relation between frame related lexical units and words of emotions, this would support H0b. One could expect to see a grouping of words of

negative emotions and frame related lexical units in the graphs. If this can be observed in only one of the frames H1b could not be rejected and H2b could be rejected. If both a grouping is visible in the graphs of both frames, H2b could not be rejected.

1.2 Outline of the Paper

This paper is structured in chapters. Chapter 2 focuses on the background of this study. In chapter 2.1, different metaphor theories are presented, starting with Aristotle and the *Substitution Theory*. Thereafter the *Interaction View of Metaphor*, *The Network Theory of Meaning* and the *Hermeneutical Conception of Metaphor* are presented. Most important for this study is the *Conceptual Metaphor Theory* by Lakoff and Johnson (1980a) (chapter 2.3) which is illustrated after an introduction into *Cognitive Linguistics* in chapter 2.2. Chapter 2.4 discusses the theory of *framing* which is about the subconscious associations linked to words. Chapter 2.5 has its focus on journalism. Thereby, an overview over the tasks of journalists is given and two theoretical theories are presented that discuss criteria for news selection. This involves the *Gatekeeper Theory* and *The Theory of News Values*. In chapter 2.6, background information on the COVID-19 pandemic is given. In chapter 2.7, previous research on metaphors in the context of diseases, especially the pandemic, is presented. Those studies inspired the choice of frames for the analyses in this paper. The methodology and data used in these analyses are presented in chapter 3. As the analyses involve Google Search, background information on it is given in chapter 3.1. The focus of chapter 3.2 is on the background of PCAs and the PCA data collection. In chapter 3.3, a description of the in-depth analysis is given and the used data is described. The results are presented in chapter 4, starting with the outcome of the PCA. Thereafter, the results of the in-depth analyses are displayed. A discussion on the results takes place in chapter 5. Chapter 6 provides a conclusion.

2. Background

This chapter contains background information on metaphor theories, framing, journalism, covid and previous research on metaphorical framing in regard to the pandemic.

2.1 Traditional Metaphor Theories

The origin of metaphor can be traced back to ancient Greece (Moran, 2017). Aristotle was the first person to discuss the concept of the metaphorical. He defines *metaphor* as “the application of an alien name by transference either from genus to species, or from species to genus, or from species to species, or by analogy” (Aristotle 2008, p. XXI). This is that a term is applied in an alien context, yet without its literal meaning as it is temporarily changed. He states that three characteristics are important in order to understand a metaphor. Firstly, *lucidity*: the transference should occur between things that are related, yet the relationship should not be obvious. Secondly, *strangeness*, which is due to the transference of a word into an unusual context, and thirdly, *pleasance*. The last two characteristics are linked to one another. Aristotle states that the inclusion of an element of strangeness (this is metaphors) into our language causes amazement which again leads to pleasance (Aristotle, 1989). An example of a metaphor is *my teacher is a walking dictionary*, which indicates that the teacher is a very knowledgeable person. *Teacher* and *dictionary* are not obviously related, as the former is a person and the latter an object. The similarity is knowledge. Strangeness is caused by the comparison of a human to an object which performs a human activity and it results in pleasance.

By designating metaphors as *strange* (Aristotle, 1989), Aristotle conveys that they are distinguished from ‘proper’ words or literal expressions. Metaphor is reduced to solely being part of the oratory that is used to support arguments, to decorate and to convince. Its function is highly poetical and political, yet not cognitive (Hesse, 1988). To learn the use of metaphorical expressions from anybody is impossible, according to Aristotle (1989). This implies that one has to be born gifted with the ability to use metaphorical expressions. Richards (1936) gives reasons against Aristotle’s assumption. Firstly, everybody has the ability to recognize resemblances, since everyone lives through them. Secondly, metaphor is not a stylistic figure, but used in everyday language. Lastly, the usage of metaphor is included in the language learning process as it is part of human language. Hence, an improvement of

this skill is possible with proper teaching. One could discuss if this gift applies cross-linguistically, since metaphors differ from language to language.

2.1.1 The Substitution Theory

Aristotle's understanding of metaphor was the basis for the so-called *Substitution Theory*. The metaphorical expression (substitute) substitutes the literal expression (substituent), caused by an analogy or a similarity between the substitute and substituent (Kurz 2004). Pielenz (1993) describes a metaphorical expression as the gestalt *A is B* which substitutes the literal expression *A is C*. For example, the literal equivalent to *my teacher is a walking dictionary* is *my teacher is knowledgeable, smart, informed*. It is the recipient's task to reverse the substitution. To understand the literal meaning of the substituent, it is helpful to use the literal meaning of the metaphor as an indicator (Black, 1954). Supporters of that theory assume that a metaphor can always be replaced by a literal expression (Hesse 1988). Pansegrau (2000) argues against it. She states that many so-called *dead metaphors* are part of our everyday vocabulary, for example *deadline* or *time is running out*. Finding literal equivalent would be complicated. Dead metaphors are previous *live metaphors* that became literal because their constant use exhausted their creativity (Hesse, 1988). Compared to 'proper' words, dead metaphors are not processed any differently regarding naturalness and speed (Pansegrau, 2000). Furthermore, Pansegrau (2000) points out that similarities of new live metaphors are not substitutive, because a context of meaning is created which did not exist prior.

2.1.1 The Interaction View of Metaphor

Richards (1936) criticizes the Substitution Theory for limiting metaphor to a replaceable stylistic figure. His and Black's works were the basis for the *Interaction View of Metaphor*, which regards metaphor as the merger of two ideas into a mutually active context. This is, a transaction between thoughts and contexts takes place. Every metaphorical expression consists of two aspects: *tenor* and *vehicle*. The former is the subject of metaphor and the latter the figure of speech. The vehicle embodies the tenor. In the previous example, *my teacher* is the tenor and *a walking dictionary* the vehicle. Richards (1936) believes that it is

impossible to avoid metaphorical expressions in our everyday language, as our thinking is shaped metaphorically and proceeds in a comparative way.

Black later elaborated Richards' theory and summarized the main aspects of the interaction theory in five points (Black, 1993):

1. A metaphorical expression contains a so-called *primary subject* and a *secondary subject*.
2. A secondary subject is an entire system.
3. A set of *associated implications* that is predicable of the secondary subject is projected onto the primary subject. The implicative complex contains those implications.
4. A metaphor can be viewed as a filter, through which some properties of the primary subject are being selected, emphasized and organized, while others are being ignored. This happens by "applying it to statements isomorphic with the members of the secondary subject's implicative complex" (Black 1993, 28).
5. An interaction between both subjects takes place, which can be divided into three steps. Every step is caused by the presence of the primary subject.
 - i. Some properties of the secondary subject are selected.
 - ii. Then a parallel implication-complex is constructed. This complex should also fit the primary subject.
 - iii. Finally, parallel changes in the secondary subject take place.

Black (1954, 1993) uses the example *man is a wolf* to describe the interaction between the subjects. The primary subject is *man*, which creates the frame of the metaphor. *Wolf* is the secondary subject and the focus of the metaphorical expression. Triggered by the interaction between the two domains, an extension of each term arises and changes one's perspective on the man and on the wolf. He explains that the implicative complex of each term is necessary in order to understand the metaphor, as both complexes connect with each other. The properties of the man interact with those of the wolf. The properties of the wolf that are related to those of the man are projected onto the man. This is that the man is perceived with wolf-properties (Black, 1954, 1993).

2.1.3 The Network Theory of Meaning

Hesse argues for the *Network Theory of Meaning*, an extension of the interaction view of metaphor, which views *all* language as metaphorical (Hesse, 1988). She explains that similarities and differences are key for metaphoric shifts in meaning.

The extensions of meaning that occur by means of similarities and differences in metaphor are only the more striking examples of something that is going on all the time in the changing and holistic network that constitutes language. In this sense metaphoric meaning is normal, not pathological, and some of the mechanism of metaphor is essential to the meaning of any descriptive language at all. This is what I mean by the thesis that 'all language is metaphorical' (Hesse, 1988, pp.2f.).

According to her, the original distinction between literal and metaphoric meaning is rather a pragmatic use. When people learn a language, they most likely first learn and manage the literal use of a word, as chances for misunderstandings are low. The reason for this is that the literal meaning can be understood more easily, since it is stable and often tangible (Hesse 1988).

The general understanding of Hesse's theory is that the meanings of words are connected to one another in a network which contains not only information on semantic and syntactic relations but also on the cultural aspects (Arbib & Hesse, 1986). Therefore, we express our beliefs in the process of communication. The connection between words is based on similarities and differences, which are "irreducible primary relations, prior even to application of the simplest predicate: they are *shown* not *said*" (Hesse, 1988, p.7, emphasis in original). One's perception of similarities and differences is essential for the meaning of words, as it influences the position of words within the network (Hesse, 1988). The use of language, and thus the interactions within the network, determines also an extension or a change of meaning of words. If a predicate is introduced to a new context, it affects the meaning of other words and sentences to a certain degree within that language. Thus, the application of an old meaning for a new context without shifting the meaning of the context is impossible. The attempt to paraphrase would eliminate the creativity of the metaphor and cause a positive instability (Hesse, 1988). The size of the semantic network of language is indefinite. When a new term is introduced into the network, it receives its meaning based on its place within it. Moreover, the meaning of old terms can change when involved in new metaphors (Arbib & Hesse, 1986).

2.1.4 The Hermeneutical Conception of Metaphor

Another extension of the interaction theory is Ricoeur's *Hermeneutical Conception of Metaphor*. He defines *hermeneutics* as a "theory that regulates the transition from structure of the work [its sense] to world of the work [its reference]" (Ricoeur, 2004, 260). This theory distinguishes between literal and metaphorical meaning. Every lexical unit has a potential literal meaning, yet the actual meaning depends on the context, this is the sentence in which it is used. In contrast to the literal meaning, the metaphorical one is not listed in dictionaries, as it is a result of contextual usage (Ricoeur, 1972).

Ricoeur's understanding of metaphor goes beyond the word or sentence level. Metaphor is viewed as a strategy of discourse "that, while preserving and developing the creative power of language, preserves and develops the *heuristic* power wielded by *fiction*" (Ricoeur, 2004, 5, emphasis in original). Shifting to discourse leads to the reference of metaphor being the main issue instead of its form (stylistic figure) or its sense (semantic relevance). Ricoeur (2004) argues that the reference of a metaphorical meaning (second-level reference) is achieved upon the *ruins* of the literal one (first-level reference). During the process of interpreting a metaphorical expression, the first-level reference is being suspended which sets the second-level reference free. The so-called *split reference*, a term he borrows from Jakobson (1981), creates a comparison between the metaphorization of meaning and that of reference. Furthermore, he argues that it is the copula *is* which carries the *tension* that is typical for metaphorical expressions. The copula of the verb *to be* is the place of metaphor. This implies not only *is like* but also *is not*. Since Ricoeur (2004) speaks of *ruins* upon which the reference of a metaphorical meaning is achieved and of a *tension* between the reference of different meanings, a difference between the heuristic view versus the interaction and network one is indicated: The former connotes a competition between the meanings, whereas the latter two imply an interaction.

Moreover, Ricoeur regards every metaphor as living and vivifying:

Metaphor is living not only to the extent that it vivifies a constituted language. Metaphor is living by virtue of the fact that it introduces the spark of imagination into a 'thinking more' at the conceptual level. This struggle to 'think more,' guided by the 'vivifying principle,' is the 'soul' of interpretation (Ricoeur, 2004, p.358).

According to him, every metaphor has an innovative power that redescribes reality. A living metaphor is simultaneously event and meaning, which makes it truly authentic. A dead metaphor on the other hand, can never be authentic since the majority of the speakers have

adopted it and it thus became a common meaning. Ricoeur (2004) concludes that dead metaphors do not exist as they are no more than an extension to the polysemy of a word and thus literal meaning.

2.1.5 Summary

If one compares the presented theories, one can see that the understanding of metaphor shifted over time. Aristotle and supporters of the Substitution Theory reduce the concept of metaphor to a stylistic figure, which can always be replaced by a literal expression (Richards, 1936). Metaphors are separated from ordinary language and their function is regarded as mere poetical but not cognitive (Hesse, 1988). The opposite is the case for supporters of the Interaction View of Metaphor and presented extensions of that theory. Not only do they acknowledge the cognitive value of metaphorical expressions, but they also assume that the usage of metaphors influences our thoughts. Black (1933) states that metaphors highlight and hide certain aspects of properties. Hesse assumes that cultural beliefs linked to words are shared when communicating (Airbib & Hesse, 1986). Ricoeur argues that metaphorical expressions influence our perception of reality outside of language (Ricoeur, 2004). The *Conceptual Metaphor Theory* (CMT) by Lakoff and Johnson (1980a) holds this view, too. This theory plays an important role in the development of metaphor theories and in Cognitive Linguistics.

2.2 Cognitive Linguistics

*Cognitive Linguistics*¹ is a branch of cognitive science which cannot be pinned down to a specific theory. Certain guiding principles exist on which many different theories are based on, of which some overlap (Geeraerts & Cuyckens, 2012). Cognitive Linguistics is concerned with the connection between language and cognition. Evans and Green (2006) state that the organization of our world knowledge and our sociocultural experiences is partially reflected in the structures of the human mind. It is believed that language and its patterns give insight into the organization of our conceptual system. The development of Cognitive Linguistics

¹ Cognitive Linguistics written in capital letters is to be distinguished from *cognitive linguistics*. The latter is an umbrella term for linguistic research related to cognitive science, such as generative grammar and Cognitive Linguistics (Geeraerts 2006).

was the result of a countermovement to formal linguistics, such as the *Generative Grammar* by Noam Chomsky (Evans & Green 2005; Geeraert & Cuyckens 2012). The assumptions of the Generative Grammar and the Cognitive Linguistics differ among others in the following aspects.

Firstly, cognitive linguists criticize the generativists' neglect of semantics, as Generative Grammar focuses on syntax. (Evans & Green, 2006; Geeraert & Cuyckens, 2012). Generative grammar is a rule-based system that is responsible for linking sentences and structural description. The mental processes involved take place on a subconscious level, thus one cannot be aware of the rules of grammar (Chomsky, 2015). Contrary, Cognitive Linguistics emphasizes the role of semantics. The branch can be further divided into cognitive semantics and cognitive grammar. However, it is assumed that cognitive grammar depends on cognitive semantics. A meaningful separation is not possible, as cognitive grammar is regarded as a meaningful system which shares fundamental features with the system of semantics (Evans & Green, 2006).

Secondly, Chomsky (2006) assumes that people are born with a genetic endowment for human language acquisition, the so-called *Universal Grammar* (UG), which interworks with other cognitive systems. The UG is an innate set of syntactic rules that presents the universal basis to all languages. It is independent from external experience. Influential factors to acquire a language, according to Chomsky, are UG, external experience and principles which are not reduced to the faculty of language, including efficient computation and general learning mechanism (Chomsky, 2006). Cognitive Linguistics does not support the hypothesis of UG. In an article, Evans and Levinson (2009) express their criticism. They state that the general problem with the hypothesis is that the idea of language uniformity is based on the misconception that all languages are similar to English and only differentiate in vocabulary and sound system. Results of linguistic typology show however a grand linguistic diversity. If the UG were to exist, the amount of information that would have to be present in a child's mind would be immense. Instead of speaking of *strict universals* the authors suggest that the term *tendencies* would be more suitable (Evans & Levinson, 2009).

Lastly, generativists support a modular view of mind, this is that the brain is composed of several modules and each of them has a different function. Chomsky regards the language faculty as an autonomous computational system that consists of several autonomous components, for example morphology and syntax (Friederici et al., 2017). Cognitive linguists

do not support the idea of language being an autonomous subsystem. Instead, they regard it as a part of human cognition. Thus, the conceptual structures of language and non-linguistic human cognition are the same (Croft & Cruse, 2004). Evans and Green (2006) argue that different areas of language are connected and thus have central structuring features in common. This can be illustrated using the example of the connection between polysemy and metaphor. *Polysemy* means that a word has several systematically related meanings. An example for polysemy is the word *over*, which can have among others following meanings: (3a) above (and across), (3b) covering, (3c) excess and (3d) control (Lakoff 1990). Examples for each meaning are presented in (3).

(3)

- a) Jordan jumped *over* the fence.
- b) My mother spread a blanket *over* the table.
- c) Yesterday, she *overdid* it.
- d) They had control *over* their dogs.

Lakoff (1990) states that they all attribute to *above* as central sense. Furthermore, he argues that metaphors play an important part in motivation meaning extension and thus polysemy. *Over* in (3a) and (3b) have a spatial sense, whereas (3c) and (3d) are metaphorical. Meaning extension is a key element of metaphorical expressions. Since this feature also can be observed in lexicon, one can see that it is not restricted to the phenomenon of metaphor. This is an indicator for shared central structuring features between different linguistic areas (Evans & Green, 2006).

2.3 The Conceptual Metaphor Theory

According to Lakoff and Johnson (1980a) metaphor is not only a matter of language but also of cognition. Reason for this is the metaphorical organization of the human conceptual system, on which human thought process and action are based. That system contains *non-metaphorical concepts* ('literal' (Lakoff, 1993)) as well as *metaphorical* ones (Lakoff & Johnson, 1980b). The former are concepts which can be understood directly, since they arise from our experience and are embodied. Those concepts can be divided into three different kinds (Lakoff & Johnson, 1980b), see (4), (5) and (6).

(4) *Structured experiences*, such as MOVING or TRANSFERING OBJECTS

(5) *Ontological concepts*, such as CONTAINER, PERSON or ENTITY

(6) *Spatial orientations*, such as FRONT-BACK or UP-DOWN

Contrary to this, metaphorical concepts, also called *conceptual metaphors* or *mappings*, cannot be comprehended per se. They are defined in terms of non-metaphorical concepts. This is, a mapping of characteristics of a *source domain* onto a *target domain* (Lakoff 1993). In most cases the former is a rather concrete concept, whereas the latter is abstract (Lakoff & Johnson 1980b). Concrete concepts are those that can be experienced through our senses, whereas abstract concepts cannot.

Mappings are partial and asymmetric, this is that one cannot simply reverse the conceptual metaphor (Lakoff, 1993). The usual form of mnemonic names of a conceptual metaphor is TARGET-DOMAIN IS SOURCE-DOMAIN (Lakoff 1993), following the formula A IS B (Lakoff and Johnson, 1980b). Concepts as well as conceptual metaphors are presented in small capital letters. An example, based on Lakoff and Johnson (1980a), is given in (7).

(7) TIME IS MONEY

- a) I *ran out* of time.
- b) Because of his mistake I *lost* so much time.
- c) She *spent* hours at the hair salon.

Metaphors² are not to be confused with *metaphorical expressions* (Lakoff, 1993). In (7), TIME IS MONEY is the cross-domain mapping and a. – c. are examples of metaphorical expressions³. The abstract concept TIME (target domain) is structured in terms of MONEY (source domain). Our culture regards time as a valuable commodity. Reason for this is our working culture, since payments are made on an hourly, monthly or yearly basis. As a result, we do not only talk about time in terms of money, we also act, experience and think about it accordingly. This is, we treat time like something we can *run out* of, *lose* and *spend* (Lakoff & Johnson, 1980a). Metaphorical concepts like this help us to understand abstract subjects. Thus, the conceptual system is a key element for our perception of reality and our actions. Without mappings, our understanding of the world would mostly be reduced to anything we can directly perceive physically (Lakoff & Johnson, 1980b). That system is part of our

² In this paper, metaphors mean mappings.

³ The same applies to all the following examples.

day-to-day life, largely unconscious and automatic, hence we cannot control it (Lakoff, 1993).

2.3.1 Structural Metaphors, Ontological Metaphors and Orientational Metaphors

Three different types of metaphorical concepts can be distinguished: *Structural metaphors*, *ontological metaphors* and *orientational metaphors* (Lakoff & Johnson, 1980a).

Structural metaphors implicate the *structuring* of an activity or experience through another activity or experience (Lakoff & Johnson, 1980b). (7) is an example of this type of metaphor.

In ontological metaphors, mental phenomena are framed as substances, objects or entities (Lakoff & Johnson 1980b). They make abstract concepts more tangible by giving them a physical shape. Often these metaphors are not immediately recognized as being metaphors, because their use is very natural to us (Lakoff & Johnson, 1980a). An example is given in (8), based on Lakoff and Johnson (1980a).

(8) THE MIND IS A BRITTLE OBJECT

- a) Justin's ego is not really *fragile*.
- b) The news will not *crush* him.
- c) After hearing the news, they were *shattered*.

In (8), characteristics of a BRITTLE OBJECT (source domain) are mapped onto the MIND (target domain). This metaphor focuses on the psychological strength of the mental experience. (Lakoff & Johnson, 1980). It helps us understand that the mind is breakable and that even if one puts the pieces back together perfectly, damaging it will leave its mark.

An extension of the ontological metaphor is the *personification*, this is, something non-human is treated as a living being. Yet, a personification "is not a single unified general process" (Lakoff & Johnson, 1980a), like X IS A PERSON, since each personification is very specific. See (9) for an example. It would be less adequate to generalize (9) as INFLATION IS A PERSON (Lakoff & Johnson, 1980a).

(9) INFLATION IS AN ADVERSARY

- a) Last year, my biggest *enemy was* inflation.
- b) Her father's savings *were robbed* by inflation.
- c) I fear inflation *will destroy* the euro.

Framing inflation as in (9) makes us regard it as a harm causing opponent. This influences our decisions on how to act toward it in order to protect ourselves. In this case, the government has to take economic and political action (Lakoff & Johnson 1980a). If inflation were framed differently, our acting would not be the same.

When an entire system of concepts is organized by a metaphorical concept, we speak of an orientational metaphor. It is linked to spatial orientation, like FRONT-BACK, DEEP-SHALLOW or UP-DOWN (Lakoff & Johnson, 1980a). Examples are given in (10) and (11).

(10) MORE IS UP; LESS IS DOWN

- a) Linn's income *rose*.
- b) The number of e-mails is going *up*.
- c) Can dad turn *down* the volume?

(11) HIGH STATUS IS UP; LOW STATUS IS DOWN

- a) Mia wants to *rise* in status.
- b) Dad's position is *high*.
- c) Ted had the *lowest* status.

The basis of (10) is our direct physical experience that the adding or removal of something corresponds with the level going up or down which is projected onto the abstract concept (Lakoff, 1993). In (11), the basis is physical and social. Our understanding of high (social) positions is linked to (physical) power. Reason for this is that it is common that the victor in a physical fight for dominance is on top of the loser (Lakoff & Johnson, 1980a).

2.3.2 Grounding of conceptual metaphors

Conceptual metaphors are not arbitrary as they depend on the cultural and physical experience (Lakoff & Johnson, 1980a). This is, the system of metaphors and the cultural values are coherent. Example (7) has a cultural basis. If we lived in a culture that had different values, our conceptual metaphors would be different, too (Lakoff and Johnson 1980a). Hence, the concept TIME could be structured in terms of DANCE. This is, it would be carried out and experienced in another way.

As previously stated, (10) and (11) are based on physical experience. Lakoff and Johnson point out that physical experience is not fully independent from cultural experience, as every human experience is influenced by cultural presuppositions:

Cultural assumptions, values, attitudes are not a conceptual overlay which we may or may not place upon experience as we choose. It would be more correct to say that all experience is cultural through and through, that we experience our "world" in such a way that our culture is already present in the very experience itself (Lakoff & Johnson 1980a, p.57).

Therefore, spatialization metaphors are not universal (Lakoff & Johnson, 1980a).

2.3.3 Coherence

Lakoff and Johnson stress that metaphors are coherent. This is the internal systematicity within a single metaphor and the coherence between multiple aspects and one concept.

Metaphorical expressions of a single metaphor are coherent, as they are not random or isolated but part of a system of a concept (Lakoff & Johnson, 1980a). Hence, *rise* and *high* in (11) both imply *more*. Furthermore, the internal systematicity refers also to metaphorical entailments of a single metaphor. In connection with example (7), TIME IS MONEY has the entailments TIME IS A LIMITED RESOURCE (*spend* or *cost*) and TIME IS A VALUABLE COMMODITY (*lose* or *give*), as money in our culture is regarded as a limited resource, which again is considered a valuable commodity. The two subcategories and the major category together form a coherent single system. Thus, the metaphorical expressions that are linked to either of the subcategories are also part of the major category. *Spent* in (7b), for example, refers to a limited resource and *lose* in (7c) to a valuable commodity. Thus both can be connected to money itself (Lakoff & Johnson, 1980a).

Overlappings within metaphors can occur. This is, a target domain is framed by different source domains which are not obviously related to one another (Lakoff & Johnson, 1980b). An example for this is given in (12) and (13).

(12) AN ARGUMENT IS A CONTAINER

- a) His arguments are *empty*.
- b) That argument has much *content*.
- c) There are *holes in* her argument)

(13) AN ARGUMENT IS A JOURNEY

- a) They finally *arrived at* a conclusion.
- b) Joan *got to the next point* of his argument.
- c) Let's continue *step-by-step*.

Those metaphorical concepts focus on two different aspects of the abstract concept ARGUMENT. The former (12) focuses on the content of an argument whereas the latter (13) highlights the goal and progress. An overlap between the source domains is possible. This can be for example seen in: “*At this point*, our argument doesn't have *much content*” (Lakoff & Johnson, 1980a, p.92). This overlap goes back to the understanding of the shared entailment that *more surface is created when an argument is made*. This is, more ground in regards to (13) and more bounding surface of the container (12).

Since each conceptual metaphor focuses only on a specific part of the abstract concept, a complex cluster of different metaphorical concepts is necessary, in order to get a more or less holistic image of the abstract concept (Lakoff & Johnson, 1980b). That means in reverse that by using a metaphor, certain parts of the concept are highlighted whereas others remain hidden. In general more is hidden than highlighted (Lakoff & Johnson, 1980b). This means that the choice of metaphors influences the perception of the concept, as only a part of reality is focused on. How much words influence people's perception is discussed in chapter 2.4.

2.4 Framing

Cognitive science and brain science has discovered that whenever one reads or hears a word, so-called *frames* can get activated. Frames can be understood as structures in the brain that are used subconsciously (Lakoff, 2010). The content and the structure of a frame are based on a person's experience and thus vary from person to person. Part of each frame are different semantic roles, the correlations between those roles and also other frames (Lakoff, 2010). As a result, subconscious mental conclusions are made that one is not aware of and cannot control (Wehling, 2016). For example, the frame of *university* involves semantic roles such as *professor, students, auditorium, exams, libraries* etcetera. Furthermore, there is a connection between many frame-circuits and regions of the brain that regulates emotions. Lakoff (2010)

argues that emotions are an important part of being rational, as we need them to make sense of things. This connection is important in regard to reasoning, which takes place largely subconsciously and is influenced by it. Thus, the ‘right’ framing of facts is highly relevant. Moreover, the repetition of certain words results in a strengthening of the synapses in neural circuits, as they are frequently activated. As a result, words can be normalized (Lakoff, 2010). This aspect is also important in regard to journalism, as the use of dramatic terms is common. In German media for example, the high usage of the word *Terrorismus* (engl. ‘terrorism’) and related terms have nowadays less negative frames than compared to the past, according to Ruß-Mohl (2016). The author explains that this is not only due to the frequent usage, but also because they are included in articles that are not addressing actual terrorism. For instance, in an article that criticises big companies such as Apple and Microsoft, those companies are referred to as *terrorists* in the headline (Schlumpf 2015). It is difficult to change existing frames and their systems that were built up over a long period of time. Firstly, it would require a lot of effort and time. Secondly, the ‘old’ frames do not disappear. This makes reframing more challenging, especially when the ‘old’ and the ‘new’ frames contradict one another. Including a negation with the pre-existing frame also does not change the frame. The frame still gets activated (Lakoff, 2010). In regard to new words, such as *COVID-19*, it is important to build up frames and their systems carefully.

How strongly metaphorical framing influences people’s perception becomes clear in the experiments performed by Thibodeau and Boroditsky (2011). In that study, the subjects dealt with texts about *crime*. The subjects were divided into two different groups and read an almost identical text. The only difference was a metaphorical word in the first sentence. In one group, *crime* was metaphorically framed as a *beast* and as a *virus* in the other group. The rest of the text was identical. The text is presented in (14)

(14) *Crime is a {beast/virus} ravaging the city of Addison. Five years ago Addison was in good shape, with no obvious vulnerabilities. Unfortunately, in the past five years the city’s defense systems have weakened, and the city has succumbed to crime. Today, there are more than 55,000 criminal incidents a year - up by more than 10,000 per year. There is a worry that if the city does not regain its strength soon, even more serious problems may start to develop* (Thibodeau & Boroditsky, 2011, p.3).

Afterwards the participants had to make suggestions as how crime could be reduced. They also had to make a statement on the role of a police officer and on what influenced their opinion (Thibodeau & Boroditsky, 2011). The results showed that the metaphor did affect the answers and moreover that most of them were not aware of it. Thibodeau and Boroditsky (2011) state that enforcement was more often suggested as a solution than reform (62%

versus 38%). 71% of the participants that had the *beast* metaphor suggested enforcement, whereas 54% of those who had the *virus* metaphor suggested the same. Regarding the role of the police officer, 31% were pro increasing the police force, whereby more people of the *beast*-group (59%) made the suggestion compared to the *virus*-group (37%). Only 7% stated that the metaphor influenced their opinion (Thibodeau & Boroditsky, 2011).

2.5 Journalism

Journalism has a big influence on society, as people's knowledge is among others based on what they are exposed to through the media (Luhmann, 1996). The topics that are discussed in the news as well as the wording around it again affects how people think and act on a daily basis. Besides informing people, journalism is also about creating transparency in society, according to Meier (2018). The opinion of people is not only to be shaped by facts that are shared, but also by criticism and control. Hence, he argues, journalists should share facts but also criticism by expressing opinions. Objectivity and independence are thus important. Moreover, the reports should be universal and current (Neuberger & Kapern, 2013).

The topics that are covered in the news vary. Some reports focus on special interests of a certain group of people, like youngsters or are linked specific topics to health. Those kinds of articles are usually not published on a daily basis, but still regularly. Daily news usually cover topics on sports, local happenings, regional events, politics, economy but also on culture (Neuberger & Kapern, 2013). Generally, events reports are made about events that are novel and of relevance for society (Neuberger & Kapern 2013). Novel means that the event occurred in a timeframe of the last few days to a few minutes ago, or in case of a live-reporting in that very moment (Meier, 2018). The event must also be real with credible sources. Regarding relevance, Meier (2018) argues that the topic should be of the current interest of the target group. Furthermore, topics that have a surprising effect or that are negative are more likely covered as they receive more attention (Neuberger & Kapern, 2013). Regarding the selection of news there are amongst others two theories: The *News Value Theory* and the *Gatekeeper Theory*.

2.5.1 News Value Theory

In 1934, Warren introduced the term *news factor*. He distinguishes eight different ones, which Staab (1990) summarizes as follows: *immediacy, proximity, prominence, oddity, conflict, suspense, emotions and consequence*. Those news factors determine the ‘value’ of a piece of news. The more factors an event fulfills, the higher the probability that it will be reported on (Schulz, 1976). They also affect how a piece of news is presented and edited (Dernbach, 2016).

Östgaard (1965) did some research in the 1960s on the impact of the news media on the perception of reality and the world. His research influenced the news value research. He distinguishes between factors that are foreign to the news process and factors that are inherent in the news process. The former are factors that are linked to economic as well as political factors, such as censorship (Östgaard, 1965). The latter are characteristics of events that are inherent with the flow of news, which are relevant to make news interesting and relevant for people (Östgaard, 1965). Östgaard distinguishes thereby three factors. Firstly, *simplification*, which means that either events are presented in a simplified way or that ‘simpler’ events are preferred to be reported about. Reason for this is that reporters want the people to easily comprehend the information (Östgaard, 1965). Secondly, *identification*. This is, several factors are being summarized to get attention and evoke interest. Some of these factors are high status, cultural proximity and geographical proximity (Östgaard, 1965). Lastly, *sensationalism*. That means, dramatic or emotional topics are more likely to evoke people’s interest, as they cause an emotional reaction. Hence, bad news such as accidents or conflicts are often reported (Östgaard, 1965).

Galtung and Ruge later extended the research done by Östgaard. They developed a theoretical concept. According to them, not only journalists themselves are being influenced by different selection criteria but also the reader. They state that “the journalist scans the phenomena [...] and selects and distorts, and so does the reader when he gets the finished product, the news pages, and so do all the middle-man“ (Galtung & Ruge, 1965, p.71). In total, they differentiate between twelve criteria (see (15) and (16)), the last four of which relate to the western part of the world and are culture-bound (Galtung & Ruge, 1965):

(15) Culture-free factors:

Frequency, amplitude, convention, meaning, consonance, unexpectedness, continuity and variation

(16) Culture-bound factors:

Elite nations, elite people, personification and negativity

Schulz (1976) made some empirical research on the connection between news values and news factors. He criticizes previously done studies, as their aim was to prove that they focused on how the reality presented by the media does not align with the ‘actual’ reality. Reason for his criticism is that one cannot compare those two kinds of reality, since it is impossible to grasp the intersubjective reality. Hence, a comparison or disconfirmation is impossible. Schulz comes to the conclusion that the media does not reflect the reality yet constructs it (Schulz, 1976).

2.5.2 Gatekeeper Theory

According to Schudson (1997), Lewin firstly defined the term *gatekeeping*. Shoemaker (1997) states that gatekeeping is the process of reducing and reconstructing the billions of messages of the world drastically, so that only a few hundred are left. The remaining are the ones that people receive at the end of the day. Because of the reconstruction, the final news are altered. Everyone involved in the creation process of news has an influence on the final report. This is, deciding whether elements of the story are relevant and how should they be presented. As a result, certain aspects are being left out, highlighted or downplayed, depending on the opinion of the respective person dealing with it (Shoemaker, 1997). Thus, news reports are always subjective and never able to accurately reflect reality. Overall, the process involves all aspects of news selection, handling and control, whether the news is communicated through the mass media or through interpersonal communication (Shoemaker 1997). Shoemaker and Reese structured a theoretical framework, called *Hierarchical of Influences*. It includes five different levels of influence on content and is organized from macro to micro level (Shoemaker & Reese, 2014): *social systems, social institutions, media organization, routine practices and individuals*.

2.6 Covid and the News

The media was involved in spreading information about the virus, prevention of the spread and the vaccines. Hence, one could argue that the work of the Norwegian journalists strongly

influenced the frames related to the pandemic. COVID-19 is a contagious disease caused by a virus called SARS-CoV-2, which is part of the coronavirus-family and has similarities with the SARS-virus (Severe Acute Respiratory Syndrome). The virus spreads mainly via droplet infection from an infected person to other people that are close by (FHI, 2021). According to FHI (2021), the virus was likely transferred from a bat or another animal to human. The Chinese city of Wuhan had identified the first known case, patient 0, December 8th 2019 (Page et al., 2021). That was the start of the COVID-19 pandemic, with 518,731,829 cases worldwide and 6,281,032 deaths (Worldometer, 2022a). In Norway 1,428,699 people got infected and 3,006 died of the disease (status: 11.05.2022, 21:44) (Worldometer, 2022b). Figure 1 illustrates the development of total cases from February 15th 2020 until April 17th 2022.

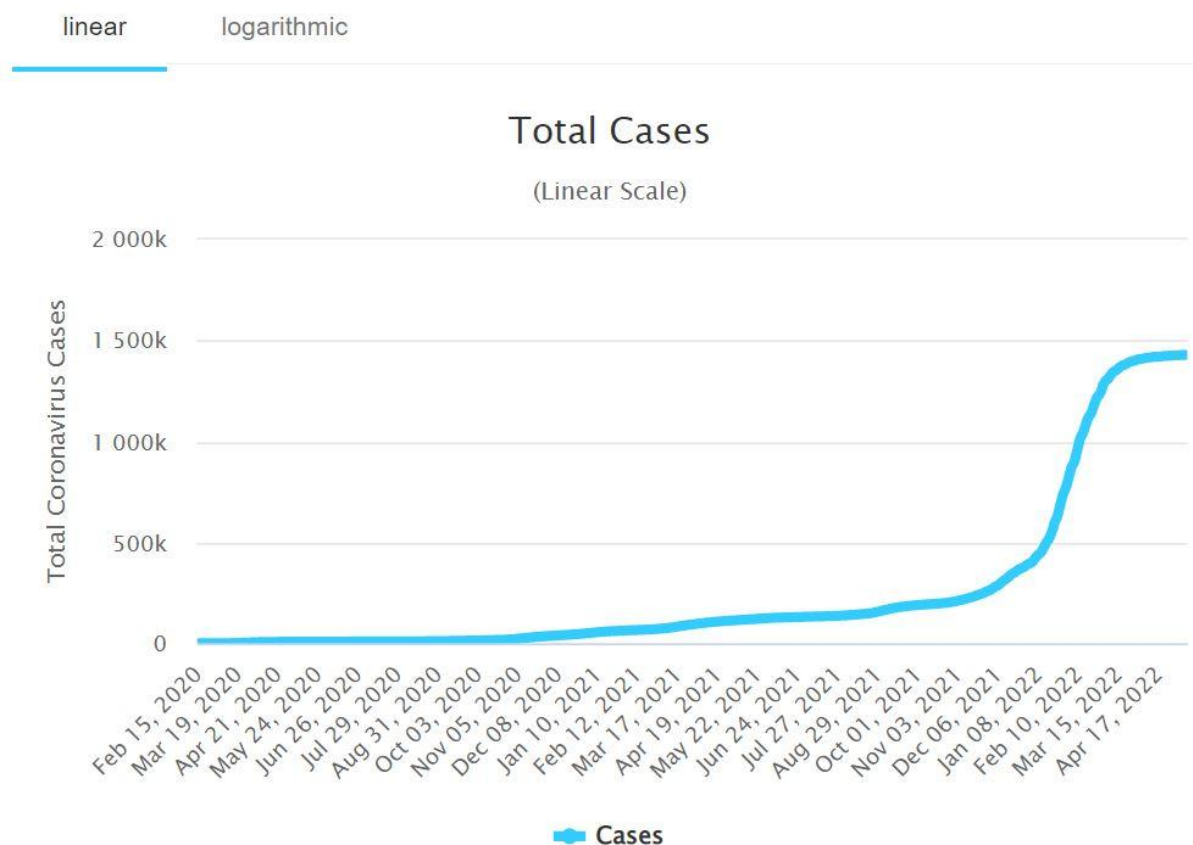


Figure 1: Overview cases Norway (Worldometer 2022b). The x-axis represents the time frame. The y-axis represents the amount of cases in Norway.

Measures have been taken to contain the spread of the virus as much as possible. Accordingly, in March 2020, people were asked to practice good hand hygiene, wear a mask, keep a minimum distance from other people and go into quarantine if they became infected,

had contact with an infected person or entered Norway. Schools, universities, offices, restaurants and kindergartens, among others, were also temporarily closed. Activities with larger crowds were cancelled (Lovdata 2020). The measures have been adjusted regularly over the years. On April 5th 2022, the Norwegian government decided that infected people no longer need to quarantine as the peak of infection had been reached and was declining. The only recommendation was that sick people, no matter if infected with the virus or otherwise, should stay at home. Also, testing for COVID-19 was no longer obligatory when symptoms started to show (Helsedirektoratet, 2022).

In addition, various vaccines have been developed in the hope that herd immunity could put an end to the pandemic. Worldwide, 65.5% have been vaccinated once (Our World in Data, 2022). In Norway, 93,1% of the population above the age of 18 have received their first shot and 90,7% their second [status: 13.05.22] (Fhi, 2021)

2.7 Previous Research on COVID-19 and Metaphors

As previously stated, Wicke and Bolognesi (2020), and Semino (2020) did some research on metaphors related to the pandemic. Their contribution inspired the choice of the frames in this thesis. Wicke and Bolognesi (2020) analyzed covid-related tweets on Twitter, in order to see how the pandemic was framed on that social media platform. The study involved an analysis of the topics that were related to the discourse as well as the metaphorical frames. The frames they looked into were WAR, MONSTER, TSUNAMI and STORM. A literal frame, FAMILY, was included as well. Their corpus contained 203,756 tweets from the period between March to April 2020. The results showed that 5.32% of the tweets involved the WAR frame, 1.49% the STORM frame, 0.68% the MONSTER frame, 1.13% the TSUNAMI frame and 12.06% the FAMILY frame. In regard to the former frame, *fight*, *fighting*, *war*, *combat*, *threat* and *battle* were the lexical units that were most commonly used. The authors argue, that the connotation of those words is highly negative. An explanation for the great use of those words is the stage of the pandemic at that time, which is why other results might be possible at a later point in time (Wicke & Bolognesi, 2020).

Semino's (2020) research discussed alternatives to the WAR frame in context of the pandemic, such as the FIRE frame. She states that it is a good alternative as it is image-rich and familiar. It could well be used to discuss, for example, the danger and the contagion of a

virus as well as the situation of healthcare workers during a pandemic. According to her, a virus, like a fire, can spread uncontrollably and quickly cause a lot of damage. Framing the pandemic as a fire could hence make people understand that fast reactions are required in order to prevent as much damage as possible, hence the danger. The danger of a virus can be illustrated by describing how trees (this is people) easily catch fire (the virus) when being too close to it, which stresses the importance of keeping distance to other people. Semino (2020) points out that a benefit of this metaphor is that the danger is communicated without causing the feeling of guilt. Regarding healthcare workers she says that they could be referred to as firefighters, which try to put out the pandemic-fire. This illustrates not only the importance of the job of a healthcare worker, but also conveys to have respect for the measures in order to support the workers. However, she points out that the FIRE frame is not recommended if the addressed location struggles with literal forest fires (Semino, 2020).

3. Methodology and Data

In regards to the previous research on metaphorical framing of COVID-19 in English the question arises what observations can be made in Norwegian. The metaphorical frames that were chosen for this thesis were WAR and FIRE, which translate to KRIG and BRANN in Norwegian. The aim of this research was (I) to find out if those frames are used in Norwegian online newspaper articles, (II) if a grouping of certain emotions with the lexical units of a frame can be identified. Possible outcomes are, the none, one or both frames are applied. Regarding the emotions, it could be possible that no grouping can be seen or that negative emotions are grouped with the lexical units of the of one or both frames.

To pursue the aim, two analyses were applied: A principal component analysis (PCA) and an in-depth analysis. The former was used to graphically visualize the relationship between frame related words, the virus, the vaccine and emotions. The goal of the latter was to identify metaphorical expressions that were frame related in Norwegian online newspaper articles on COVID-19. Both analyses were based on *Google News*.

3.1 Background on Google

Google Search or Google (n.d.) was chosen as the source for the data collection, as it is the largest and most used search engine and website in the world (Alexa, 2022b). Worldwide, approximately 1,2 trillion search queries are performed every year. In other words, on average 40,000 queries are conducted per second (Internet live stats, n.d.). According to Alexa (2022a), Google.com was the most visited website in Norway in February. In February 2022, Google's worldwide share of the *Global Search Engine Market* was 92.01% (StatCounter 2022a) and in Norway it was 94.63% (StatCounter 2022b). Figure 2 graphically displays the Norwegian share of different search engines in February 2022. The share in percentage is the x-axis and the y-axis is the different search engines. The red bar at the top represents Google's Search Engine Market Share of 94,6%. *Bing* (blue bar) has a share of 3.4%, *Yahoo!* (yellow bar) has a share of 1.19%, *DuckDuckGo* (grey bar) has a share of 0.52%, *Ecosia* (black bar) has a share of 0.09% and other search engines (bottom bar) have a share of 0.2%. This illustrates how essential Google is to access information compared to alternative search engines.

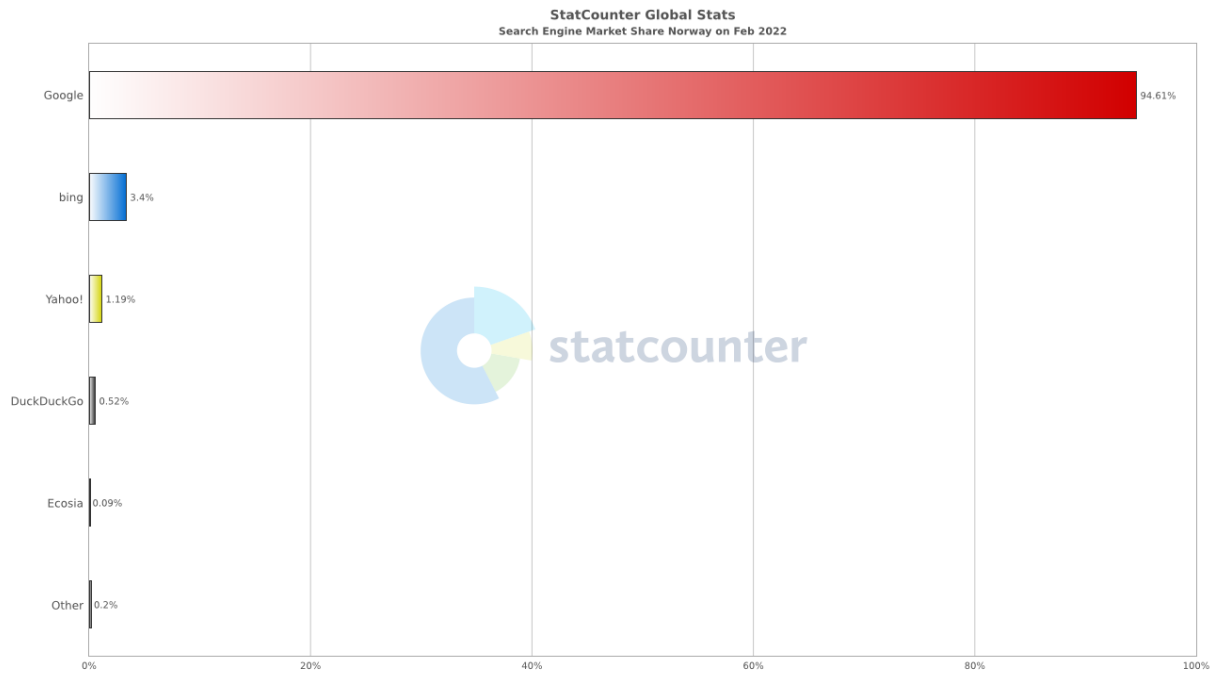


Figure 2: Google’s search engine market share Norway (StatCounter, 2022b). The x-axis represents the percentage of the market share. The y-axis represents the different search engines.

Google Search was fundamental to receive information on COVID-19 in Norway. According to the statistics provided by Google Trends (n.d.a), various Corona related queries were among the top search queries in 2020 in Norway. See (17), (18) and (19).

(17) Corona related queries in the general top ten list:

- a) *koronavirus* (engl. ‘Coronavirus’)
- b) *corona symptomer* (engl. ‘Corona symptoms’)
- c) *munnsbind* (engl. ‘mask’)
- d) *Coronavirus Norge* (engl. ‘Coronavirus Norway’).

(18) Corona related queries in the top ten list with *Hva* (engl. ‘what’):

- a) *Hva er en pandemic* (engl. ‘What is a pandemic’)
- b) *Hva er et virus* (engl. ‘What is a virus’)
- c) *Hva er coronavirus* (engl. ‘What is Coronavirus’)
- d) *Hva er epidemi* (engl. ‘What is epidemic’).

(19) Corona related queries in the top 10 list with *Hvordan* (engl. ‘How’):

- a) *Hvordan smitter coronaviruset* (engl. ‘How is the Coronavirus transmitted’)
- b) *Hvordan kjøpe munnbind* (engl. ‘How to by mask’)
- c) *Hvordan oppsto coronaviruset* (engl. ‘How did the Coronavirus originate’)
- d) *Hvordan teste seg for korona* (engl. ‘How to test for Corona’).

In 2021, none of those queries were among those three top ten rankings of search queries Google Trends (n.d.b). Reason for this might be that at that point the people were already informed about covid or that it no longer was a main concern, as vaccinations already started.

3.2 The Principal Component Analyses

In this subchapter the background information on PCAs is provided and the process of the creation of the contingency tables on which the PCAs are based is stated step-by-step.

3.2.1 Background on Principal Component Analysis

Bendixen (2003) argues that the more variables a contingency table contains, the more dimensions are theoretically needed to accurately represent the data. For example, a contingency table with 3x3 can be visualized in a two-dimensional space, whereas one with 10x10 would require a nine-dimensional space for a 100% accurate representation of the data. One way to graphically display the data of a multivariate data table in a two-dimensional space with as little loss as possible is by applying a PCA. At a PCA, the relations between the variables are identified, so that patterns can be detected and noise can be excluded (Kassambara, 2017). The extracted information is expressed as so-called *principal components* or *dimensions*, these are new variables. Their amount can be the same or less than the initial variables. Their correspondence to the initial variables is a linear combination (Kassambara, 2017).

For each frame, several graphs will be presented in the result section that give insight into the correlation between the different terms, this is between frame related words, as well as those terms versus the vaccine, the cure, Covid, corona and emotions. In other words, the aim is to detect similarities among the row elements and patterns among the column elements.

3.2.1 Data Collection

The data for the PCA was the estimated amount of Google Search results for the combination of different terms. For each frame, three different contingency tables were created. The first was the basis for the data collection. The most relevant data, this is, the results with the highest numbers of articles, was filtered and included in the second table. The PCA of each frame was based on the third contingency table that contained logarithmic data. The second table of each frame is included in this chapter. The first and last table of each frame can be found in the appendices.

The Rows of the First Table

Three different sources were used to select lexical units that are related to one of each of the two frames. *MetaNet Metaphor wiki* was the primary source. This website is part of the *MetaNet Project* and amongst the original MetaNet participants were researchers Boroditsky, Wehling and Lakoff (Metanet, n.d.). It contains a large inventory of frames and conceptual metaphors based on the CMT. In total there are over 650 conceptual metaphor entries and over 550 frame entries (MetaNet, 2018). Since the entries are exclusively in English the search items were *war* and *fire*.

Additionally, the Norwegian online dictionary *Synonymmer.no* (2022) and the German online dictionary *Duden* (2022) were used. The search queries were the Norwegian and German translation of war and fire, this is *krig* and *brann* (Synonymmer.no) and *Krieg* and *Feuer* (Duden).

The lexical items that were suggested by MetaNet (2018) were translated to Norwegian. It should be noted that translations are not always without problems. There are often several ways to translate lexical units and in some cases there is only one translation for several lexemes in the source language. The translations of MetaNet (2018) were made using the online dictionary *dict.cc* (2022) and double checked by a native speaker. See (20) and (21) for the lists of frame related items and their translations. Those were the final row elements of the first table.

(20) List of selected KRIG frame expressions from all three sources:

Krig (engl. 'war'), *slag* (engl. 'punch'), *soldat* (engl. 'soldier'), *tropp* (engl. 'troop'), *krigføring* (engl. 'warfare'), *kriger* (engl. 'warrior'), *erobre* (engl. 'conquer'), *erobring* (engl. 'conquest'), *fiende* (engl. 'enemy'), *trefning* (engl. 'skirmish'), *beseiret* (engl. 'defeated'), *våpen* (engl. 'weapon'), *beseiring* (engl. 'defeat'), *bakhold* (engl. 'ambush'), *slagmark* (engl. 'battlefield'), *kampsone* (engl. 'warzone'), *frontlinjen* (engl. 'front line'), *minefelt* (engl. 'minefield'), *alliert* (engl. 'ally'), *allianse* (engl. 'alliance'), *revolusjon* (engl. 'revolution'), *seier* (engl. 'victory'), *beleiring* (engl. 'siege'), *bombardere* (engl. 'bomb', v.), *bombe* (engl. 'bomb', n.), *blits* (engl. 'blitz'), *torpedo* (engl. 'torpedo'), *kampplan* (engl. 'battle plan'), *angrepsplan* (engl. 'plan of attack'), *angrepslinje* (engl. 'line of attack'), *lede* (engl. 'lead'), *borgerkrig* (engl. 'Civil War'), *tape* (engl. 'lose'), *utvise* (engl. 'exhibit'), *utbrudd* (engl. 'outbreak'), *ødelegge* (engl. 'destroy'), *terror* (engl. 'terror'), *slå* (engl. 'hit'), *uro* (engl. 'unrest'), *felt* (engl. 'field'), *kamp* (engl. 'combat'), *kniv* (engl. 'knife'), *stri* (engl. 'fight'), *vold* (engl. 'violence'), *feide* (engl. 'feud'), *kjempe* (engl. 'fight'), *strid* (engl. 'fight'), *angrep* (engl. 'attack'), *bombing* (engl. 'bombing'), *felttog* (engl. 'campaign'), *korstog* (engl. 'crusade'), *oppgjør* (engl. 'settlement'), *hevn* (engl. 'revenge'), *bakangrep* (engl. 'ambush'), *fiendskap* (engl. 'enmity'), *sverdslag* (engl. 'sword blow'), *grusomheter* (engl. 'atrocities'), *urolighet* (engl. 'unrestness'), *verdenskrig* (engl. 'World War'), *aggressivitet* (engl. 'aggression'), *motstand* (engl. 'resistance'), *vinne* (engl. 'win')

(21) List of selected BRANN expressions from all three sources:

Brann (engl. 'fire'), *flammer* (engl. 'flames'), *skogbrann* (engl. 'forest fire'), *flamme* (engl. 'flame'), *leirbål* (engl. 'campfire'), *bål* (engl. 'bonfire'), *glør* (engl. 'embers'), *brenne* (engl. 'burn'), *ulme* (engl. 'smolder'), *forbrenne* (engl. 'incinerate'), *forbrenning* (engl. 'incineration'), *røye* (engl. 'char'), *forkulle* (engl. 'char'), *svie* (engl. 'burn'), *brenne opp* (engl. 'burn up'), *brenne ned* (engl. 'burn down'), *gnist* (engl. 'spark'), *antenne* (engl. 'ignite'), *sett i brann* (engl. 'set on fire'), *glød* (engl. 'glow'), *brennende* (engl. 'burning'), *spre* (engl. 'spread'), *glo* (engl. 'glow'), *varme* (engl. 'heat'), *fyre opp* (engl.

‘fire up’), *fyre* (engl. ‘fire’), *slukke* (engl. ‘extinguish’), *blusse opp* (engl. ‘flare up’), *røyk* (engl. ‘smoke’, n.), *røyke* (engl. ‘smoke’, v.), *utbrudd* (engl. ‘outbreak’)

The Columns of the First Table

The columns of each table contained 10 terms, presented in (22), (23) and (24):

(22) Two terms for covid:

covid (engl. ‘covid’), *korona* (engl. ‘Corona’)

(23) Two terms for the cure:

vaksine (engl. ‘vaksine’), *kur* (engl. ‘cure’)

(24) Six emotional categories:

sinne (engl. ‘anger’), *avsky* (engl. ‘disgust’), *frykt* (engl. ‘fear’), *glede* (engl. ‘happiness’), *tristhet* (engl. ‘sadness’), *overraskelse* (engl. ‘surprise’).

The terms *covid* and *korona* were chosen to identify articles on Google Search which contain frame-related lexical units in the context of COVID-19. Other synonyms or spellings such as *covid-19*, *covid 19* or *koronavirus* were not added, as it was assumed that articles with alternative spellings would also be included by the chosen terms.

Vaksine and *kur* were included to create a contrast to covid and korona, since those terms are linked to a potential solution (positive) to the virus problem (negative).

Emotions and thoughts are closely linked. As part of the research is about the effect of metaphorical expressions relating to the pandemic, *sinne*, *avsky*, *frykt*, *glede*, *overraskelse* and *tristhet* were included. This choice was based on Ekman’s (1992) assumption that one can distinguish those named six different types of basic emotional categories. He calls them categories or families as he does not consider them to be single states. Each category contains several members (related emotional states) which share certain characteristics that differ from category to category (Ekman, 1999).

Data Values of the First Table

The next step was to add values to the first table of each frame. The values were based on the number of hits per combination of a row variable and a column variable on Google Search. The specified number, however, is only an estimate by Google and not 100% accurate. To make sure that the hits included only websites that contained *both* variables, each variable was written in quotation marks. All searches were performed on the news section of Google, as the focus of this analysis is on metaphorical expressions used in online newspaper articles. The timeframe was set to 01st January 2020 until 31st December 2021, to ensure that the number of hits stays stable. (It cannot be excluded that some changes might take place, for example when articles are deleted.) In the settings it was selected that only Norwegian pages would be included in the suggested results, as foreign news was irrelevant for this research. Norwegian was also selected as a general language setting for the entire website. Articles that were not available for free were excluded from the analysis.

After all numbers of hits were included, the sum of hits of each column variable was calculated. See appendix A and B for entire first table and the numbers of hits per combination for each frame.

The Second Table

The column variables stayed the same in the second table. Adjustments were made to the row elements. Based on the sum of hits, only the twelve lexical items that had the highest number of estimated hits were included. See (25) and (26)

(25) Row variables in KRIG-table:

krig, slag, seier, lede, slå, kamp, vold, kjempe, strid, angrep, vinne, utbrudd

(26) Row variables BRANN-table:

brann, flammer, bål, brenne, brennende, spre, røyke, varme, fyre, slukke, røyk, utbrudd

Additionally, six antonyms to some of the top twelve words were added as column variables. See (27) and (28) The reason was to create a contrast between them and the lexical units with the top number of hits in the PCA. The selection of antonyms was based on the results

suggested by *Thesaurus.com*. Since that website is in English, the English translation of the twelve words was used for the search. The proposed antonyms were translated to Norwegian afterwards.

(27) Antonyms KRIG-table:

fred (engl. ‘cold’), *harmoni* (engl. ‘harmony’), *overgivelse* (engl. ‘surrender’), *våpenhvile* (engl. ‘truce’), *rolig* (engl. ‘calm’), *vennlighet* (engl. ‘kindness’)

(28) Antonyms BRANN-table:

frossen (engl. ‘frozen’), *kaldt* (engl. ‘cold’, adj.), *vann* (engl. ‘water’), *is* (engl. ‘ice’), *kulde* (engl. ‘cold’, n.), *fryse* (engl. ‘freeze’)

The second table of each frame is shown in Table (1) and Table (2). Note that *utbrudd* is not included in Table (2), as it is already present in Table (1).

	covid	korona	vaksine	kur	sinne	avsky	frykt	glede	tristhet	overraskelse
krig	2630	5030	891	71	418	92	1400	1280	47	253
slag	1260	5650	457	65	250	33	739	2020	19	264
seier	5570	13800	1720	133	841	63	1830	5520	15	740
lede	5130	6130	3740	96	216	36	1380	1540	32	358
utbrudd	12100	8420	5220	90	313	38	983	979	3	295
slå	4230	7550	1390	92	775	79	1780	3090	101	825
kamp	3610	17400	941	151	1730	144	1900	4140	71	1060
vold	3910	5530	1660	160	877	351	2980	2210	86	630
kjempe	1580	5970	446	81	366	66	802	2080	94	406
strid	2450	6350	1220	36	330	70	1010	0	55	491
angrep	2220	7500	1050	48	669	148	2020	1550	94	431
vinne	2240	5930	838	69	617	55	874	2930	15	876
fred	2310	3570	782	43	571	128	1310	2130	50	470
harmoni	128	142	33	2	39	2	53	158	4	27
overgivelse	4	45	3	0	6	0	33	20	0	4
våpenhvile	103	66	61	0	19	1	63	27	0	23
rolig	1470	3870	768	61	316	51	797	2010	36	651
vennlighet	47	102	9	0	22	1	41	100	10	7

Table 1: KRIG top words and antonyms. The frame-related lexical units are the rows. The emotions as well as covid- and vaccine-related terms are the columns.

Metaphor ↓	covid	korona	vaksine	kur	sinne	avsky	frykt	glede	tristhet	overraskelse
brann	7560	36300	5140	140	737	49	1560	3810	30	759
flammer	182	381	126	2	37	4	85	136	0	30
bål	392	768	277	3	60	6	119	467	4	78
brenne	3080	4730	1460	111	460	201	2230	1520	18	447
brennende	241	569	74	19	95	10	285	473	4	98
spre	3430	4670	1880	297	230	67	1330	1940	16	238
varme	1370	3250	296	67	293	56	661	2660	42	431
fyre	108	451	38	3	34	8	93	232	1	41
slukke	246	510	137	3	39	5	89	126	1	27
røyk	1050	1620	713	75	197	7	430	636	8	91
røyke	138	267	79	37	34	1	72	154	5	37
frossen	48	125	35	1	3	0	14	44	0	18
kaldt	1200	2100	231	28	132	19	454	1240	13	285
vann	4350	7880	1860	155	482	78	1600	3620	30	695
is	5090	10100	1430	104	806	122	1910	3170	39	854
kulde	244	651	118	7	34	3	122	408	6	64
fryse	145	459	67	5	58	4	124	193	4	101

Table 2: BRANN top words and antonyms. The frame-related lexical units are the rows. The emotions as well as covid- and vaccine-related terms are the columns.

The Third Table

The rows and columns did not change in the third table, but the values did. The difference is that the logarithm of the values was taken. Prior to that, the number 5 was added to *all* cells of both tables, as there were multiple entries of 0 and 1. The logarithm was applied to reduce the scale. The third tables of each frame can be found in appendix C and D. The logarithmic values were the data used for the PCA. The results of the PCA are presented in the results section.

3.3 The in Depth-analyses

The method and data related to the in-depth analyses is presented in this subchapter.

3.3.1 Procedure to Identify Metaphors

A typical technique to identify metaphorical expressions in texts is the *Metaphorical Identification Procedure* (MIP) (Pragglejazz Group, 2007). Since the aim of this analysis is not to detect random metaphorical expressions in news articles, but to figure out if specific words are used metaphorically, a few adjustments to the MIP have been made. The final procedure of the analysis was the following:

1. The article had to be available for free for everyone with an internet connection. It had to be an online news article.
2. It was made sure that the lexical units that were searched for were included in the article itself and not otherwise on the website (such as in an excerpt from another suggested article).
3. The text was skimmed in order to comprehend its context. The context of the article must be related to the covid-topic.
4. The meaning of the frame-related lexical unit was identified based on the definition(s) provided by Ordbøkene (n.d.).
5. It was analyzed if the meaning of the lexical item provided by the dictionary could be taken literally in the context given.
6. In case of a negative answer, one can assume that it is a metaphor.

If step 1, 2 and 3 were not be fulfilled, the article was excluded from the analysis.

3.3.2 The Data

Analyzed were the following twelve words per frame (see (29) and (30)).

(29) BRANN:

brann, flammer, bål, brenne, brennende, spre, varme, varme, fyre, slukke, røyk, røyke

(30) KRIG:

krig, slag, seier, lede, utbrudd, slå, kamp, vold, kjempe, strid, angrep vinne

To find articles, Google Search was used. Each of the top words was searched for twice, once in combination with the term *covid* and once in combination with *korona*. As in the previous analysis, each word was written in quotation marks. Also the timeframe and language setting were the same. Analyzed were the first ten articles on the first two pages of Google News that fulfilled the requirements. In some cases less than ten articles per search were analyzed because less than ten articles on the first two pages fulfilled the stated requirements.

It should be kept in mind that the suggestions that Google Search returns are not fixed. Google Search uses algorithms to present personalized results with the ulterior motive that the suggestions are relevant for the respective user. Factors that the algorithms make use of are amongst others one's geographical information and one's cookies (Google Search, n.d.). This means that the same search may return different results when done on a different device, at a different location or at a different time. Furthermore, as opposed to the standard Google Search, journalists of articles ranked in Google News cannot influence the ranking of the article through advertising or payment (New Publisher Center, n.d.).

4. Results

In this chapter the results of the PCA and the in-depth analysis are presented.

4.1 PCA-Results

The PCA was computed and visualized using two packages of the statistical programming language *R*: *FactoMineR* and *factoextra* (RStudio Team, 2015). The former was used for the multivariate data analysis (FactoMineR, 2008) and the latter for the extraction and graphical ggplot2-based illustration of the PCA analysis (Kassambara, 2017).

4.1.1 BRANN

The scree plot (Figure 3) shows how much percent of variants the different dimensions explain. Each dimension contributes to the explanation of the distribution of the data points. The x-axis is dimensions 1-10 and the y-axis presents the percentage of explained variances for the dimensions. Most variances are explained by dimension 1, as its percentage totals up to 90.9%. Dimension 2 explains second most variances with a percentage of 3.5%. Since those two dimensions explain most variances, the other dimensions are not included in the graphs (4) - (6).

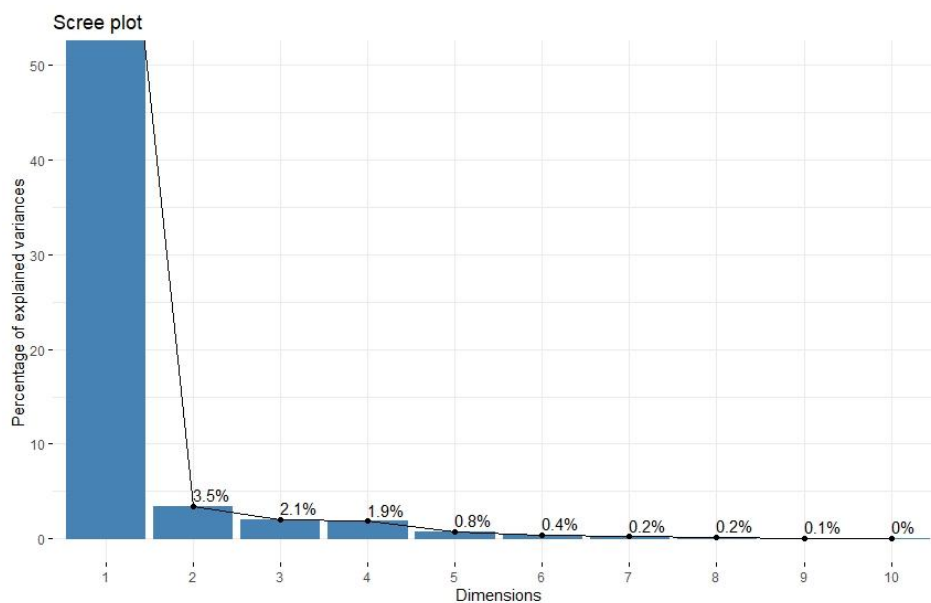


Figure 3: Scree Plot Brann explanation. The x-axis represents the ten dimensions. The y-axis represents the percentage of explained variances

The dimensions are created by the columns. In Figure 4 one can see the positive and negative correlations of the column elements to dimension 1 and 2. Dimension 1 is represented by the x-axis and dimension 2 by the y-axis. Variables placed on the right of the y-axis have a positive correlation to dimension 2. If they are placed on its left, their correlation to it is negative. Variables above the x-axis have a positive correlation to dimension 1, and a negative one if they are placed below it. This is, elements in the upper right quadrant have a positive relationship to dimension 1 and 2. Elements in the upper left quadrant have a positive relationship to dimension 2 and a negative one to dimension 1. Elements in the lower right quadrant have a positive relationship to dimension 1 and a negative one to dimension 2. Elements in the lower left quadrant have a negative relationship to both dimensions. This positive-negative correlation to the dimension applies to all other graphs as well. The color orange indicates a high contribution (>10%) to the dimension, whereas blue illustrates the opposite (<9.5%). A high contribution means that it is an outlier, either because of a relatively high or low number of search results. In this graph, all elements share a positive relation to dimension 1, since all are placed in the upper right and lower right quadrants. *Vaksine*, *kur*, *covid*, *korona* and *frykt* have a positive correlation with both dimensions. *Sinne*, *avsky*, *glede*, *overraskelse* and *tristhet* have a negative relation to dimension 2. See table (3) for more details on highest and lowest contribution. The relation between the columns is represented by the distance that lies between them. For example, *vaksine* is connected to *kur*, but far from *overraskelse*.

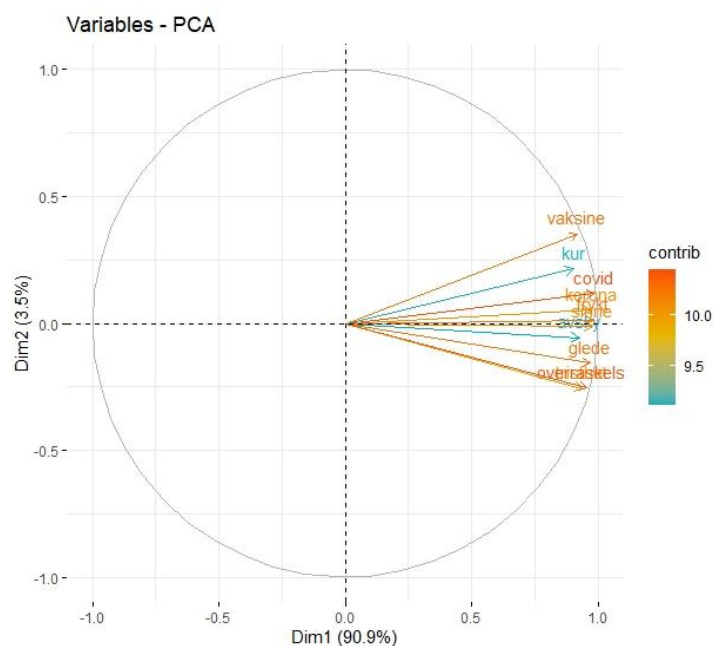


Figure 4: Variables PCA Brann. X-axis is dimension 1 and y-axis is dimension 2.

Table 3 shows the exact percentage that the columns (rows) contribute to dimensions 1-5 (columns). As indicated by the colors in Figure 4, the highest contribution in dimension 1 has *covid*, and the lowest has *kur*. In dimension 2, *vaksine* contributes the most, whereas *frykt* contributes the least.

	Dim.1	Dim.2	Dim.3	Dim.4	Dim.5
covid	10.687175	4.04242557	2.9400070	0.5063161	0.8878906
korona	10.416828	0.81882360	13.5267421	3.8352002	0.9427606
vaksine	9.279807	36.00045423	8.1977397	2.3057998	8.0529760
kur	8.961704	13.37543498	65.8233803	1.2565877	0.2284892
sinne	10.500826	0.04404081	1.3943591	0.3702094	35.0652393
avsky	9.426654	0.91763190	0.1510860	67.1309465	16.3344046
frykt	10.609777	0.05492604	0.1462400	7.8887375	20.5503469
glede	10.363089	7.17281445	0.2475953	4.0972596	2.7371292
tristhet	9.662586	19.00809014	6.6210873	12.0698660	15.0057949
overraskelse	10.091554	18.56535828	0.9517633	0.5390770	0.1949687

Table 3: Percentage of contribution. Frame related lexical units are the rows, the dimensions are the columns.

The rows contribute to the explanation of the variants. Figure 5 illustrates the row elements. The x-axis is dimension 1 and the y-axis is dimension 2. The meaning of the color is the same as in Figure 4, but with different percentages. A larger circle represents a high contribution and a smaller circle a low contribution. In this case, the contribution can be between <4% and >16%. Overall, *kaldt* has the highest contribution and *røyke* the lowest. *Røyke*, *spre*, *brenne*, *brann* and *is*, have a positive relationship to both dimensions. *Røyk*, *flammer*, *frossen*, *bål* and *kaldt* have a negative relationship to dimension 1 and a positive one to dimension 2. A negative correlation to both dimensions have *fryse*, *slukke*, *brennende* and *utbrudd*. *Kulde*, *vann*, *varme* and *fyre* have a negative relation to dimension 2 and a positive one to dimension 1. The distance between the different row elements implies how much they are related to one another or not. *Kaldt* and *brenne*, for example, are placed far away from each other and thus not closely connected.

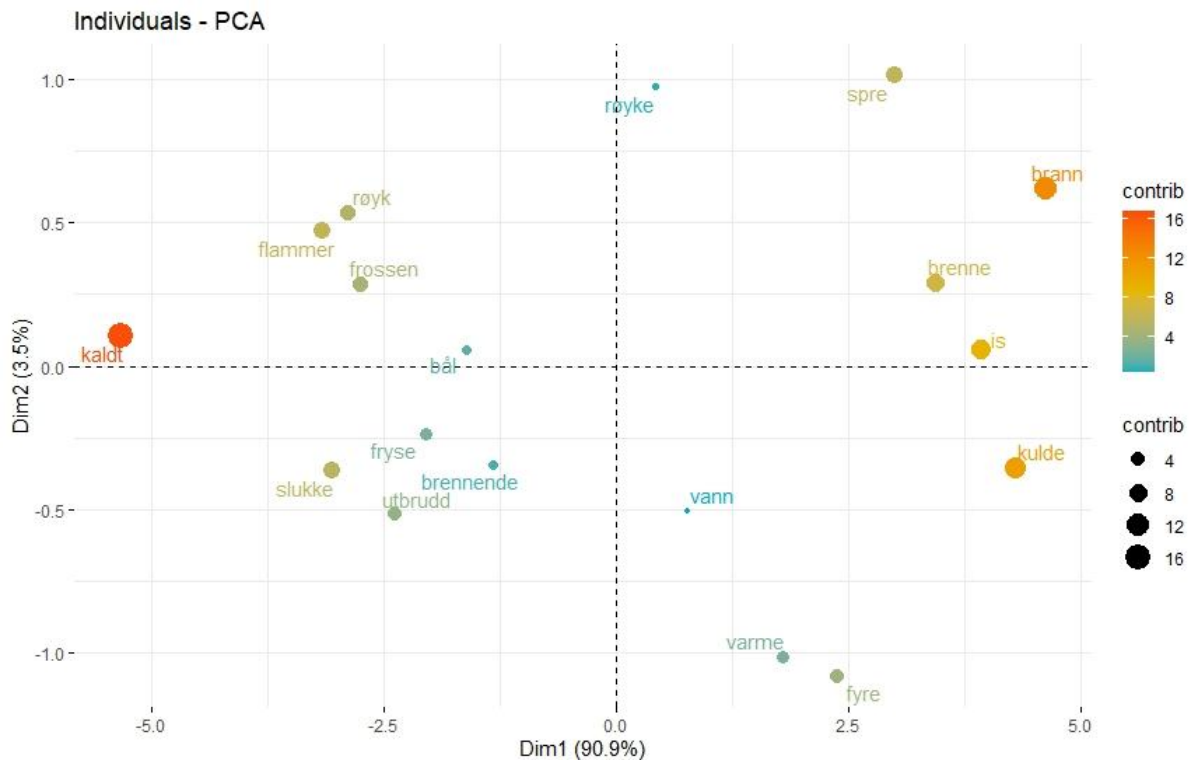


Figure 5: Individuals PCA Brann. X-axis is dimension 1, y-axis is dimension 2.

Figure 6 illustrates the combination of both the columns (blue) and rows (grey). The x-axis and y-axis represent dimension 1 and dimension 2. The exact distance between a column and a row element cannot be interpreted in this graph, (it would be, for example, incorrect to assume that *vaksine* correlates more with *is* than with *spre*), however the general displacement of the different elements in the quadrants has meaning. In this case, column elements are included in the quadrants on the right only. The upper right quadrant shows that *røyke*, *brann*, *spre*, *is* and *brenne* have a relation to *vaksine*, *kur*, *covid*, *korona* and *frykt*. The lower right quadrant illustrates that *kulde*, *vann*, *varme* and *fyre* correlate to *sinne*, *avsky*, *glede*, *overraskelse* and *tristhet*.

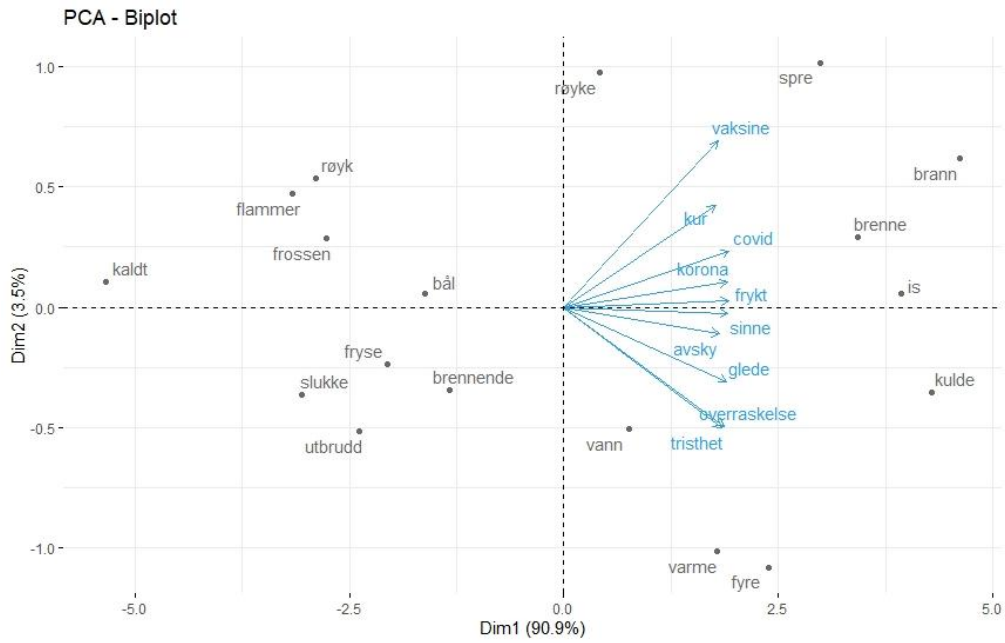


Figure 6: PCA Biplot Brann

4.1.2 KRIG

Similar to Figure 3, Figure 7 illustrates that dimension 1 and dimension 2 are those that have the highest percentage of explained variances. The percentage of explained variances of dimension 1 is 85.9, whereas that of dimension 2 is 5.9. Because of that, only those two are included in Figures (8) - (10).

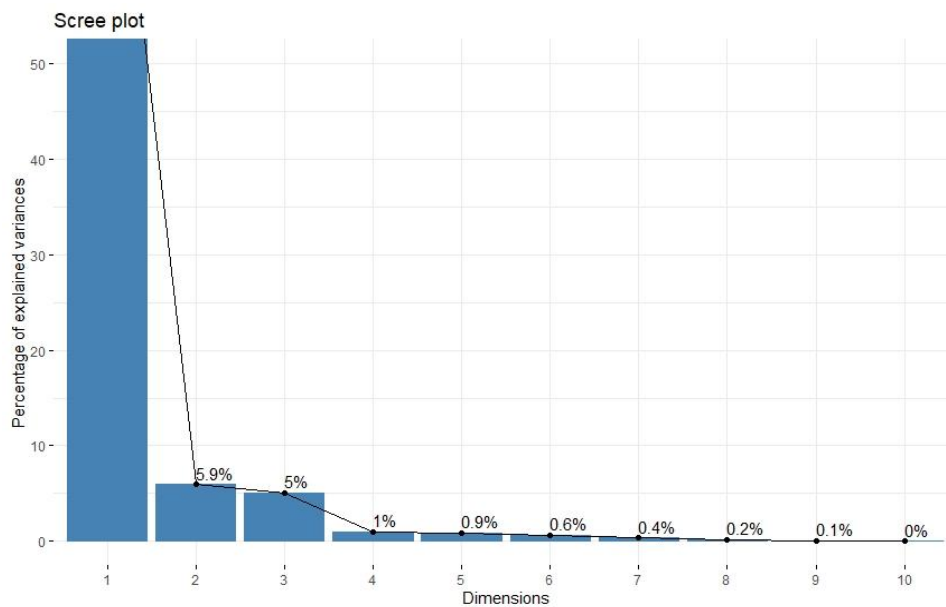


Figure 7: Scree Plot Krig. X-axis is the dimensions and the y-axis the percentage of explained variances.

In Figure 8, one can see the contribution of the column variables. All column elements are placed in the right quadrants. *Tristhet*, *avsky*, *sinne* and *frykt* correlate positively with both dimensions. *Overraskelse*, *korona*, *kur*, *covid*, *vaksine* and *glede* correlate positively with dimension 1 and negatively with dimension 2. See Table 4 for the exact percentage of contribution.

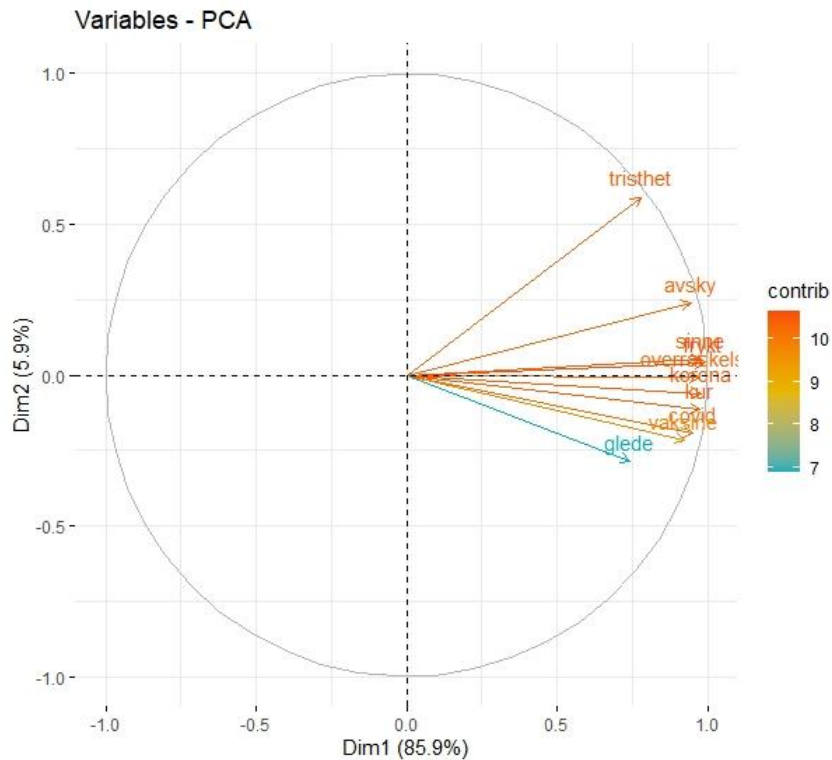


Figure 8: Variables PCA Krig. X-axis is dimension 1 and the y-axis is dimension 2.

Table 4 provides information on the percentage that the different column elements (rows) contributed to the different dimensions (columns). In dimension 1, *sinne* contributed the most and *glede* the least. *Overraskelse* had the lowest contribution percentage for dimension 2, and *tristhet* had the highest.

	Dim.1	Dim.2	Dim.3	Dim.4	Dim.5
covid	10.495223	6.36678642	6.951850310	10.63102585	0.10142468
korona	11.126229	0.61615885	1.202195024	0.86434390	15.25966333
vaksine	9.960399	7.86440852	14.753101317	16.22533993	2.30730445
kur	11.048327	2.19967971	0.115044969	0.02679702	0.01680149
sinne	11.153722	0.47324187	0.501283649	21.17231331	0.79713857
avsky	10.375145	9.66626517	0.005116189	8.24913537	46.48841902
frykt	11.377900	0.25126470	0.835651470	0.09618931	9.43362514
glede	6.409029	13.80278239	72.027430157	3.31876702	0.36815193
tristhet	7.054612	58.74615940	3.062172869	23.04312379	6.92139201
overraskelse	10.999414	0.01325299	0.546154046	16.37296451	18.30607938

Table 4: Percentage of contribution. Frame related words are displayed as rows. The dimensions are the columns.

Figure 9 illustrates the row elements. A large circle and dark orange color indicates that the contribution is >25%, and a small blue circle stands for <5% of contribution. The row variables that had the highest contribution to both dimensions were *overgivelse*, *våpenhvile*, *harmoni* and *vennlighet*, whereby that of the former is the highest. Their placement lies in the left quadrants. *Overgivelse* and *vennlighet* correlate positively to dimension 2 and negatively to dimension 1. *Harmoni* and *våpenhvile* have a negative relationship to both dimensions. The lowest contribution has *slag*, followed by *krig* and *rolig*. *Slag*, as well as *rolig*, *lede*, *vinne*, *seier* and *utbrudd* correlate positively to dimension 1 and negatively to dimension 2. *Strid*, *angrep*, *kjempe*, *fred*, *krig*, *vold*, *slå* and *kamp* correlate positively with both dimensions.

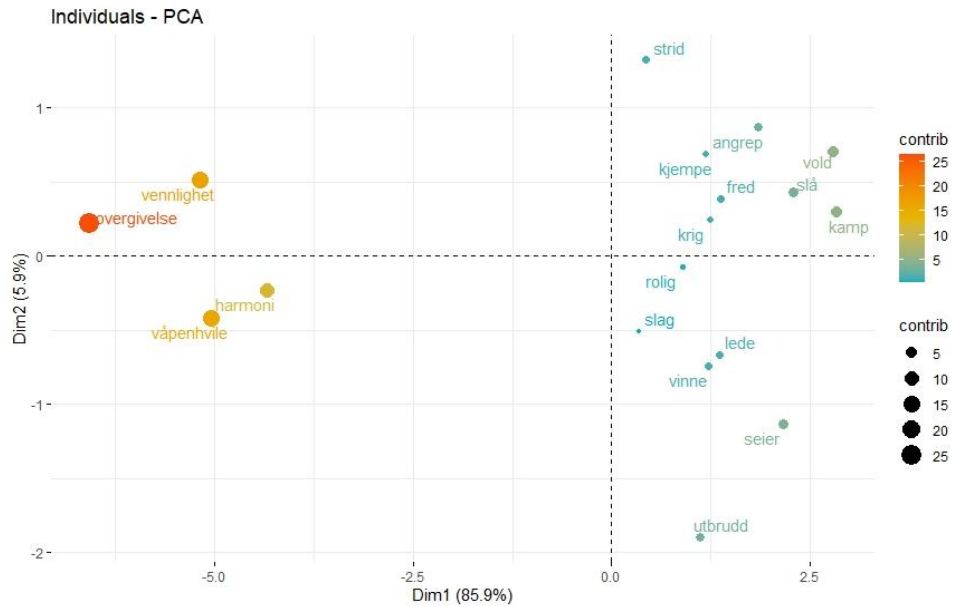


Figure 9: Individuals PCA Krig

In Figure 10 one can see the correlations between rows and columns. *Strid, kjempe, angrep, fred, krig, vold, slå* and *kamp* correlate with *tristhet, avsky, sinne* and *overraskelse*. All of them have a positive relationship to both dimensions. *Rolig, slag, lede, vinne, seier* and *utbrudd* are connected to *frykt, korona, kur, covid, vaksine* and *glede*. Those are positively connected to dimension 1, yet not to dimension 2. *Våpenhvile* and *overgivelse* are connected to each other, and their relation to dimension 1 is negative and is positive to dimension 2. *Harmonie* and *våpenhvile* are connected to each other and have a negative relationship to both dimensions.

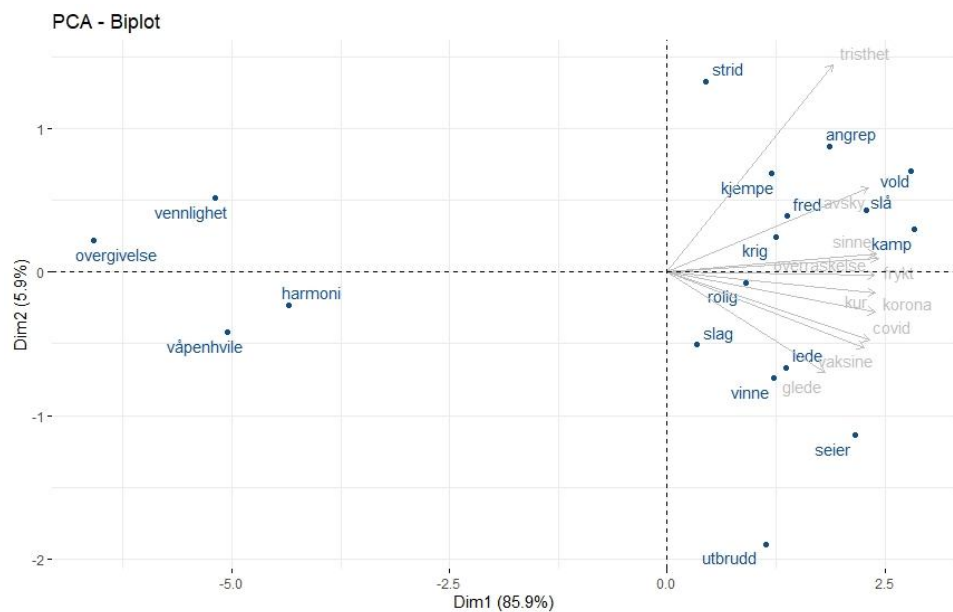


Figure 10: PCA Biplot Krig

4.2 Results of the In-Depth Analyses

Over 400 articles were analyzed. An overview of all analyzed articles is provided in appendix E. The following summary of metaphors found includes only those that framed corona either as FIRE or WAR. Hence, when speaking of *metaphor* or the like, it refers to the metaphorical usage that is connected to one of the frames. Other metaphors were disregarded. The definitions of the lexical units were all based on Ordbøkene (n.d.).

4.2.1 KRIG

Table 5 provides an overview of articles that contained the lexical unit as a metaphor per analyzed articles. The rows are the lexical units and the columns are the keywords *covid* and *korona*. In some cases, such as *utbrudd*, less than ten articles were analyzed. As previously stated, this is due to failure to meet the requirements. *Slå* and *kjempe* were the lexical units with most metaphorical uses.

Lexical unit	<i>Covid</i>: articles including metaphors/total analyzed articles	<i>Korona</i>: articles including metaphors/total analyzed articles
krig	4/10	5/10
slag	1/10	1/10
seier	1/10	1/7
lede	1/10	0/10
utbrudd	0/2	0/7
slå	9/10	4/10
kamp	4/10	5/10
vold	0/10	0/10
kjempe	10/10	7/10
strid	0/10	1/7
angrep	0/10	0/9
vinne	5/10	0/2

Table 5: In-depth results KRIG. The rows are the frame related lexical units. The columns *covid* and *korona*.

Krig

Sentences that included *krig* metaphorically (*covid* search) are presented in (31):

(31)

- a) “En pandemi var ikke det familien trengte nå – i alle fall ikke at jeg skulle lede krigen mot den” (Solbakken, 2021).
‘A pandemic was not what the family needed now - at least not that I should lead the war against it.’
- b) “Slike etiske dilemmaer skjer i krig, og vi var i krigsmodus” (Solbakken, 2021).
‘Such ethical dilemmas happen in war, and we were in war mode.’
- c) “I krig er det vanskelig å bygge beredskap” (Solbakken, 2021).
‘In war, it is difficult to build preparedness.’
- d) “ET VEL SÅ viktig spørsmål er hva vi gjør frem til neste krise, hvordan vi forbereder oss til neste krig mot neste virus” (Gulliksen Tømmerbakke, 2021).
‘A SO important question is what we do until the next crisis, how we prepare for the next war against the next virus.’
- e) “Den gode nyheten er at dette er en varslet krig” (Gulliksen Tømmerbakke, 2021).
‘The good news is that this is a foretold war.’
- f) “Full krig inne i kroppen min” (Halleracker, 2020).
‘Full war inside my body’
- g) “Det var full krig inne i kroppen min” (Halleracker, 2020).
‘There was full war inside my body’
- h) “Italienske helsearbeiderne har stått i krigen mot pandemien i over en måned” (Andreassen et al., 2020).
‘Italian health workers have been at war for more than a month.’
- i) “De føler seg som soldater i en krig” (Andreassen et al., 2020).
‘They feel like soldiers in a war.’
- j) “De kjemper for å vinne slagene i denne krigen for fedrelandet Italia, sier Walter De Caro, lederen for sykepleierforbundet i Italia” (Andreassen et al., 2020).
‘They are fighting to win the battles of this war for the fatherland of Italy, says Walter De Caro, the leader of the Italian Nurses' Association.’

Sentences that included *krig* metaphorically (*korona* search) are presented in (32):

(32)

- a) “På innsida av Italias korona-krig” (Brunland et al., 2020).
‘Inside Italy's corona war.’
- b) “Dette er krig, og da må eg samle dei beste folka rundt meg, og vi har berre eit mål” (Brunland et al., 2020).
‘This is war, and then I have to gather the best people around me, and we have only one goal.’
- c) “Sykepleiere er ikke kanonføde i en krig mot korona” (Husø & Strand, 2020).
‘Nurses are not cannon fodder in a war against the corona’
- d) “Full krig mot koronaviruset i Liege, Europas nye episenter” (Aftenposten, 2020).
‘Full war against the coronavirus in Liege, Europe's new epicenter.’
- e) “Nå er det skyttergravskrig, med den forskjellen at det ikke er bomber, men et virus” (Aftenposten, 2020).
‘Now there is a trench warfare, with the difference that it is not bombs, but a virus.’
- f) “Vi er i krig” (Solberg, 2020).
‘We are at war.’
- g) “I hvor stor grad vil denne vaksinekrigen endre oss som mennesker?” (Solberg, 2020).
‘To what extent will this vaccine war change us as human beings?’
- h) “Verden er i en krig de fleste av oss ikke så komme” (Kærup Bjørneboe, 2021).
‘The world is in a war most of us do not so come.’
- i) “Denne type krig vi nå opplever husker ingen, fordi det er mer enn hundre år siden vi hadde en tilsvarende krig” (Kærup Bjørneboe, 2021).
‘This type of war we are now experiencing no one remembers, because it is more than a hundred years since we had a similar war.’
- j) “Hvor lenge krigen kommer til å vare, vites ikke” (Kærup Bjørneboe, 2021).
‘How long the war will last is not known.’
- k) “Men som i de fleste grøsserfilmene, vet vi at menneskeheten vil vinne krigen til slutt” (Kærup Bjørneboe, 2021).

‘But as in most horror movies, we know that humanity will win the war in the end.’

- l) “I hvor stor grad vil denne krigen endre oss mennesker?” (Kærup Bjørneboe, 2021).

‘To what extent will this war change us humans?’

- m) “Nå er det viruskrigen. En krig som vårt konvensjonelle forsvar ikke var rustet for, fordi vi manglet de fleste forsvarsmidler mot covid-19” (Kærup Bjørneboe, 2021).

‘Now it's the virus war. A war for which our conventional defense was not equipped, because we lacked most means of defense against covid-19.’

- n) “Slik er det også i viruskrigen” (Kærup Bjørneboe, 2021).

‘This is also the case in the virus war.’

- o) “De land som er først ute med å forstå hva som skjer og får med innbyggerne på relevante tiltak, vil komme best ut av en slik krig” (Kærup Bjørneboe, 2021).

‘The countries that are the first to understand what is happening and get the citizens involved in relevant measures will get the best out of such a war.’

Krig is a battle involving weapons between different states or ethnic groups or a hard battle. Based on this understanding the usage of *krig* in the sentences listed in (32) is metaphorical, as a physical battle against a virus cannot be carried out in a literal sense. Other articles that did not contain metaphors were discussing for example a literal war during the pandemic.

Slag

Ordbøkene (n.d.) gives several different definitions for this lexical unit. Regarding war, it would be understood as an armed battle. None of the articles contained *slag* in that sense. It was included in the context of a physical fight between people or of a stroke.

Seier

Sentences that included *seier* metaphorically (*korona* and *covid* search) are presented in (33):

(33)

- a) “Erklærte seier over viruset - så eksploderte det i India” (Gullikstad, 2021).

‘Declared victory over the virus - then it exploded in India.’

- b) “I januar erklærte statsminister Narendra Modi seier over koronaviruset” (Gullikstad, 2021).

‘In January, Prime Minister Narendra Modi declared victory over the coronavirus.’

- c) “At lederne erklærte seier, fikk en sterk effekt” (Gullikstad, 2021).

‘The fact that the leaders declared victory had a strong effect.’

In the context of war, *seier* is defined as to win against someone. As one cannot literally win or lose against a virus, its usage in the sentences in (33) is metaphorical. Other articles included *seier* in nynorsk which translates to ‘say(s)’ and is hence unrelated to the given definition and the war frame.

Lede

None of the articles contained the lexical unit in a metaphorical sense that framed covid as war. Most commonly it was used as *lede studie* which translates to ‘lead a study’.

Utbrudd

Utbrudd is a lexical unit that is connected to both the KRIG and BRANN frame. Generally, it has different meanings. In the context of a fire or a war it is used to mark *the start of it*, yet the same applies for the context of diseases. The articles most commonly spoke of *korona utbrudd*, or the like, which per se is neither metaphorical nor clearly framing the virus as either of the concepts.

Slå

Sentences that included *slå* metaphorically (*covid* search) are presented in (34):

(34)

- a) “Her tester de ut en ny strategi for å slå ned koronaviruset” (Østfi & Hirsist, 2021).

‘Here they are testing a new strategy to kill the coronavirus.’

- b) “Nå har de startet utprøving av en egenutviklet teststrategi de hevder vil slå ned koronapandemien enklere, billigere og raskere enn dagens tiltak” (Østfi & Hirsist, 2021).

‘Now they have started testing a self-developed test strategy they claim will put an end to the corona pandemic easier, cheaper and faster than current measures.’

- c) “Vi kan slå ned R-tallet ganske mye” (Østfi & Hirsist, 2021).

‘We can beat down the R number quite a bit.’

- d) “Regjeringen sier nå at de satser på en stopp-strategi, der målet er å slå ned viruset og smitter færrest mulig” (Torgersen, 2020).

‘The government now says that they are investing in a stop strategy, where the goal is to kill the virus and spread as few as possible.’

- e) “Å slå hardt ned på alle virusutbrudd gjennom svært strenge, men kortvarige tiltak har vært strategien i Australia, New Zealand og flere asiatiske land” (TV2, 2021).

‘Strictly cracking down on all virus outbreaks through very strict but short-term measures has been the strategy in Australia, New Zealand and several Asian countries.’

- f) “Land som Kina og Taiwan har begge svært høy befolkningstetthet. De har likevel klart å slå ned covid-19, påpeker han” (TV2, 2021).

‘Countries such as China and Taiwan both have very high population densities. They have still managed to knock down covid-19, he points out.’

- g) “Bent Høies statssekretær Saliba Andreas Korkunc, som har fått jobben med koronahåndteringen, sier at tiden for nasjonale tiltak kan være over, men at regionale og nasjonale tiltak fortsatt er aktuelt for å slå ned utbrudd” (Blaker, 2021).

‘Bent Høie's State Secretary Saliba Andreas Korkunc, who has been given the job of coronation management, says that the time for national measures may be over, but that regional and national measures are still relevant to quell outbreaks.’

- h) “Lokale og regionale tiltak har vist seg å være effektive for å slå ned smitteutbrudd og hindre at smitten sprer seg videre i landet” (Blaker, 2021).

‘Local and regional measures have proven to be effective in reducing outbreaks and preventing the infection from spreading further in the country.’

- i) “Utvalget har også sett på kostnadsutviklingen for tre strategier for smittebekjempelse – ‘slå-ned-hold-nede’, ‘slå-ned’ og ‘brems’” (NRK, n.d.a).
 ‘The committee has also looked at the cost development for three strategies for infection control - ‘knock-down-hold-down’, ‘knock-down’ and ‘brake’:’
- j) “Regjeringen holder fast ved sin strategi om å «’lå til hardt og slå til tidlig’” (Kagge & Spence, 2021).
 ‘The government is sticking to its strategy of ‘hitting hard and hitting early’.’
- k) “‘Slå ned’ og hold nede til befolkningen er vaksinert!” (VG, 2021a).
 “‘Strike down’ and hold down until the population has been vaccinated!’
- l) “Regjeringen valgte 12. mars 2020 en «slå ned»-strategi, basert på klare råd fra Helsedirektoratet” (VG, 2021a).
 ‘On 12 March 2020, the government chose a "strike down" strategy, based on clear advice from the Norwegian Directorate of Health.’
- m) “Ny nedstenging må til om mutert virus skal slås ned!” (VG, 2021a).
 ‘New shutdown is needed if mutated virus is to be killed!’
- n) “Nå skal Norge forsøke å undertrykke og slå ned epidemien” (Bergskaug, 2020).
 ‘Norway will now try to suppress and quell the epidemic.’
- o) “Vi jobber med å slå ned spredningen av viruset” (Bergskaug, 2020).
 ‘We are working to reduce the spread of the virus.’
- p) “Folkehelsedirektør Camilla Stoltenberg sier til NRK onsdag at den samme rapporten har hatt stor betydning for Norges endrede strategi om å slå ned viruset” (Bergskaug, 2020).
 ‘Director of Public Health Camilla Stoltenberg told NRK on Wednesday that the same report has had great significance for Norway's changed strategy to put down the virus.’
- q) “Jeg tror det var en kombinasjon av ny informasjon om høy sykkelighet og sykehusbelastning, og at det ble skissert et annet alternativ – altså å «undertrykke» viruset, eller å slå det ned og holde det nede over tid, som endret tankesettet hos mange”. (Bergskaug, 2020).
 ‘I think it was a combination of new information about high morbidity and hospital burden, and that another alternative was outlined - that is, to ‘suppress’ the virus, or to shut it down and keep it down over time, which changed the mindset of many.’

- r) “Slå ned smitten” (Dagbladet, 2020).
‘Beat down the infection.’

Sentences that included *slå* metaphorically (*korona* search) are presented in (35):

(35)

- a) “Vil slå ned omikronutbrudd i Norge” (Nettavisen, 2021).
‘Will crack down on omicron outbreaks in Norway.’
- b) “Omikronutbrudd bør slås ned” (Nettavisen, 2021).
‘Omicron outbreaks should be turned down’
- c) “Det er ikke sikkert det er nødvendig med noen nedstenging for å slå ned et utbrudd” (Nettavisen, 2021).
‘A shutdown may not be necessary to shut down an outbreak.’
- d) “De fleste utbrudd det siste året har kommunene slått ned uten nedstenging, påpeker han” (Nettavisen, 2021).
‘Most outbreaks in the last year have been put down by the municipalities without closure, he points out.’
- e) “Vi mener fortsatt at vi bør forsøke å slå viruset ned i Norge” (Stavanger Aftenblad, 2021).
‘We still believe that we should try to kill the virus in Norway.’
- f) “Det er på appellere meir til sjølvet i oss alle når vi skal slå ned det som forhåpentlegvis er siste smittebølge” (Ostad, 2021).
‘It is about appealing more to the self in all of us when we are going to put down what is hopefully the last wave of infection.’
- g) “Norge slår ned korona, men dreper også arbeidsplasser og skaper masseledighet” (Stavrum, 2020).
‘Norway beats down the corona, but also kills jobs and creates mass unemployment.’
- h) “De aller fleste har høy tillit til myndighetene og støtter de knallharde tiltakene som har vart i seks uker for å slå ned koronasmitten” (Stavrum, 2020).
‘The vast majority have high confidence in the authorities and support the tough measures that have lasted for six weeks to reduce coronary heart disease.’
- i) “Dersom vi ikke får ny smitte utenfra, så har vi lykket i å slå ned

koronapandemien innenlands” (Stavrum, 2020).

‘If we do not get a new infection from outside, then we have succeeded in ending the corona pandemic domestically.’

- j) “Arbeiderpartiets helsepolitiske talsperson Ingvild Kjerkol var uklar på NRK Politisk kvarter om partiet nå ønsker å bytte fra slå ned-strategien til bremse-strategien” (Stavrum, 2020).

‘The Labor Party's health policy spokesperson Ingvild Kjerkol was unclear on NRK Politisk kvarter whether the party now wants to switch from the strike-down strategy to the braking strategy.’

Å slå means ‘to hit’. As one cannot literally hit a virus or the outbreak of Covid, one can say that the sentences given in (34) and (35) use the lexical unit in a metaphorical sense.

Kamp

Sentences that included *kamp* metaphorically (*covid* search) are presented in (36):

(36)

- a) “Manusforfatter Heidi Ferrer (50) mistet livet etter ett års kamp mot langcovid” (Robertsen, 2021a).
‘Screenwriter Heidi Ferrer (50) lost her life after a year of fighting langcovid.’
- b) “Det er med dypeste sorg at vi bekrefter at Marc Elliot Pilcher, ‘Academy Award’-nominert og ‘Emmy’-vinnende hår- og sminkedesigner/stylist, gikk bort etter en kamp mot covid-19 på søndag 3. oktober 2021, forteller familien i en uttalelse via hans agent” (Pilcher, 2021).
‘It is with deepest sorrow that we confirm that Marc Elliot Pilcher, ‘Academy Award’ nominee and ‘Emmy’ winning hair and makeup designer/stylist, passed away after a match against covid-19 on Sunday 3 October 2021, says the family in a statement through his agent.’
- c) “Kina til kamp mot ny koronabølge før OL i Beijing” (Strømmen, 2021).
‘China to fight against new corona wave before the Olympics in Beijing.’
- d) “Natt til tirsdag bekreftet dog artisten via Facebook Live at han hadde testet positivt for viruset, og at han hadde tilbragt de siste ti dagene i en kamp for å beholde livet” (Zerener, 2021).

‘On Tuesday night, however, the artist confirmed via Facebook Live that he had tested positive for the virus, and that he had spent the last ten days in a fight to stay alive.’

A summary of the sentences that included *kamp* metaphorically (korona search) is given in (37).

(37)

- a) “Merkels korona-kamp” (Svarstad, 2020).
‘Merkel's corona battle’
- b) “Røttingen i kamp mot korona” (Vartdal, 2020).
‘The root in the fight against the corona.’
- c) “Slik kan immunforsvaret til slutt vinne kampen på eiga hand” (Vartdal, 2020).
‘In this way, the immune system can finally win the battle on its own.’
- d) “Vaksinefrykt hemmer kamp mot korona i India” (NRK, n.d.b)
‘Vaccine fears hamper fight against corona in India.’
- e) “Grenselaus kamp mot korona” (Gåsemyr, 2020).
‘Boundless battle against the corona.’

In the context of war, *kamp* means to fight against an enemy. As one cannot physically fight the virus, the usage of the lexical unit in the sentences given in (37) is metaphorical. The lexical unit has also other meanings, amongst others *competition*. Other uses of that lexical unit were in combination with sports, as in *fotballkamp* (engl. ‘soccer match’).

Vold

None of the articles used *vold* metaphorically. The lexical unit was either included in the context of literal physical violence (during the pandemic) or as a last name (Line Vold).

Kjempe

Sentences that included *kjempe* metaphorically (*covid* search) are presented in (38):

(38)

- a) “Du må kjempe” (Andreassen, 2021).
‘You have to fight’
- b) “Afrika har ikke vaksinerne eller ressursene til å kjempe mot covid-19 som de har i Europa eller USA, men på et eller annet vis gjør de det tilsynelatende bedre, sier hun til nyhetsbyrået AP” (Nordhagen Walnum, 2021).
‘Africa does not have the vaccines or resources to fight covid-19 that they have in Europe or the United States, but somehow they do it apparently better, she tells the news agency AP.’
- c) “Likevel ødela sykdommen hans lunger, som ikke lengre klarte å kjempe mot infeksjonen, sa hans far til Jyllands-Posten i juli.” (Lea, 2021).
‘Nevertheless, the sickness ruined his lungs, which could no longer manage to fight against the infection, his father said to Jyllands-Posten in July.’
- d) “Stephen Fu ville hjelpe Norge med å bekjempe koronaviruset” (Strøm, 2021).
‘Stephen Fu wanted to help Norway fight the coronavirus.’
- e) “Han ville kjempe uten respirator” (Strøm, 2021).
‘He wanted to fight without a respirator.’
- f) “Der kjempet legene for livet hans i flere uker” (Strøm, 2021).
‘There the doctors fought for his life for several weeks.’
- g) “En fersk studie advarer om at vi kan måtte ha restriksjoner for å kjempe mot COVID-19 helt fram til 2022” (Dagbladet, 2020b).
‘A recent study warns that we may have to have restrictions to fight COVID-19 until 2022.’
- h) “Antistoffer får man når immunforsvaret prøver å kjempe mot viruset” (Øystesen & Nyhammer Olsen, 2021).
‘Antibodies are obtained when the immune system tries to fight the virus.’
- i) “Jeg er lei av å ikke bare kjempe mot sykdommen, men også folks idioti, sier lege” (Setten, 2021).
‘I am tired of not only fighting the disease, but also people's idiocy, says the doctor.’
- j) “Moltsjanov sier de ikke bare er sliten av å kjempe mot viruset” (Setten, 2021).
‘Molchanov says they are not just tired of fighting the virus.’

- k) “Vi jobber på grensa til det vi klarer, men vi er lei av å ikke bare kjempe mot sykdommen, men også folks idioti, sier han” (Setten, 2021).
 ‘We work on the border of what we can do, but we are tired of not only fighting the disease, but also people's idiocy, he says.’
- l) “Jeg vet hun hadde ønsket at vi fortsetter å kjempe videre, sier mannen Travis Feltner til den lokale nyhetskanalen WLWT, gjengitt av blant andre People” (Løvik, 2021).
 ‘I know she would have liked us to continue fighting, says her husband Travis Feltner to the local news channel WLWT, reproduced by, among others, People.’
- m) “Vi har latt dem fortelle hvordan det er - og har vært, å kjempe i front mot en pandemi de færreste av oss så komme: Korona” (Wærp, 2020).
 ‘We have let them tell how it is - and has been, to fight in front against a pandemic few of us then come: Korona.’
- n) “Men først må vi kjempe en enda viktigere kamp: Covid-19” (Wærp, 2020).
 ‘But first we have to fight an even more important battle: Covid-19.’
- o) “At bekjempelsen av covid-19 er en kamp, og at vi må kjempe den sammen” (Kuhlberg, 2020).
 ‘That the fight against covid-19 is a battle, and that we must fight it together.’

A summary of the sentences that included *kjempe* metaphorically (*korona* search) is given in (39).

(39)

- a) “Nå samler stipendiatene seg for å kjempe om korona-forlengelser” (Fanghol, 2020).
 ‘Now the fellows are gathering to fight for corona extensions.’
- b) “De eldre og syke har ofte ikke like sterk motstandsdyktighet til å kjempe mot dette og i ytterste konsekvens kan det være dødelig” (Guldhaug, 2020).
 ‘The elderly and sick often do not have as strong resilience to fight against this and in the extreme consequence it can be fatal.’
- c) “Det er ikke annet å gjøre enn å bite tennene sammen og kjempe videre” (Ballovara, 2021).
 ‘There is nothing to do but bite your teeth together and fight on.’
- d) “Slik kan PC-en din kjempe mot korona mens du sover” (Helland Urke, 2020).

- ‘This is how your PC can fight corona while you sleep.’
- e) “Nå har prosjektet begynt på jobben med å bekjempe korona-viruset Covid-19” (Helland Urke, 2020).
 ‘Now the project has started on the job of fighting the corona virus Covid-19.’
- f) “På den måten kan du donere datakraft til å bekjempe korona-viruset” (Helland Urke, 2020).
 ‘That way, you can donate computing power to fight the corona virus.’
- g) “Grafikkort-produsenten Nvidia oppfordret fredag alle gamere til å bidra med sin ubrukte datakraft til å bekjempe Covid-19” (Helland Urke, 2020).
 ‘Graphics card maker Nvidia on Friday urged all gamers to contribute their unused computing power to combat Covid-19.’
- h) “Stephen Fu ville hjelpe Norge med å bekjempe koronaviruset” (Strøm, 2021).
 ‘Stephen Fu wanted to help Norway fight the coronavirus.’
- i) “Han ville kjempe uten respirator” (Strøm, 2021).
 ‘He wanted to fight without a respirator.’
- j) “Der kjempet legene for livet hans i flere uker” (Strøm, 2021).
 ‘There the doctors fought for his life for several weeks.’
- k) “Skal kjempe mot korona” (Varden, 2020).
 ‘Will fight against the corona.’
- l) “Antistoffer får man når immunforsvaret prøver å kjempe mot viruset” (Øystese & Olsen, 2021).
 ‘Antibodies are obtained when the immune system tries to fight the virus.’

The meaning of this lexical unit is *combat*. In the sentences given in (39), the lexical unit is used in a sense that cannot be taken literally as a physical combat against a virus is impossible. *Kjempe* can also be used as an adverb translating to *very*. This was one of the other non-metaphorical usages that could be identified. In other cases, the lexical unit was used as a name (Kjempe-Jo) or in the context of sports (*kjempe sport* (engl. ‘fighting sports’)).

Strid

A summary of the sentences that included *strid* metaphorically (covid search) is given in (40):

(40)

- a) “Mener koronaforbud er i strid med menneskerettighetene” (Vestrum Olsson, 2021).
‘Believes corona ban is a violation of human rights.’
- b) “Han er også uenig i at regjeringens bruk av smittevernloven kan ha vært i strid med Grunnloven” (Svaar, 2020).
‘He also disagrees that the government's use of the Infection Control Act may have been contrary to the Constitution.’
- c) “Gran kommune anmeldte sammenkomsten som et anstatt arrangement i strid med covid-19 forskriften” (Moshagen, 2021).
‘Gran municipality reported the gathering as an alleged event in violation of the covid-19 regulations.’

A summary of the sentences that included *strid* metaphorically (korona search) is given in (41):

(41) Korona-strid (Venli et al., 2020).

‘Corona-fight.’

Ordbøkene.no states that *strid* is a synonym for fight or war. There were several instances where that term was used metaphorically, however it did not frame COVID-19 directly, moreover the law-circumstances around the pandemic. Hence, the virus/pandemic was not framed and it did not count as a proper result.

Angrep

None of the articles used the term *angrep* in a metaphorical sense that framed corona as a war. Generally, it means that someone violently attempts to harm another. The lexical unit was included for example as hacker attack or a physical attack. None of those usages framed covid as a war.

Vinne

In combination with *korona*, only two articles could be analyzed as most required a paid subscription or did not include *korona* in the article itself (but for example in recommended further readings). None of those articles used *vinne* metaphorically that framed corona as a war.

In combination with *covid*, following articles were found, see (42):

(42)

- a) “Vaksinemotstand hindrar oss å vinne over covid” (Hotved, 2021).
‘Vaccine resistance prevents us from winning over covid.’
- b) “De vil vinne kampen mot kornoaviruset” (Torgersen, 2020).
‘They want to win the battle against the coronavirus’
- c) “Det langsiktige målet for alle som tar beslutninger knyttet til koronakrisen, er å vinne kampen mot covid-19” (Torgersen, 2020).
‘The long-term goal for anyone making decisions related to the corona crisis is to win the battle against covid-19.’
- d) “Enten det er å vinne en krig eller bekjempe viruset” (Torgersen, 2020).
‘Whether it's winning a war or fighting the virus.’
- e) “Ansatte i Tromsø kommune jobber som et fotballag, hvor alle er like viktig for å vinne kampen mot covid-19 og fortsette med å levere en god tjeneste for befolkningen” (Montalvao, 2021).
‘Employees in Tromsø municipality work as a football team, where everyone is equally important to win the match against covid-19 and continue to provide a good service for the population.’
- f) “Det er absolutt nødvendig om verden skal vinne krigen mot COVID-19” (Nordiceditor, 2020).
‘It is imperative that the world wins the war against COVID-19.’
- g) “Ikke vær redd for det, vi kommer til å vinne kampen mot det, sier Trump blant annet i videoen” (Karlsen, 2020).
‘Do not be afraid of it, we will win the battle against it, Trump says in the video, among other things.’

Those sentences use the lexical unit metaphorically, as it is not possible to win (or lose) against a virus. In other cases, the lexical unit was either used as a metaphor, but framing something else other than corona as war, or literally in the context of sports or of winning something.

4.2.2 BRANN

Table 6 below provides an overview of the amount of articles that were found and how many included the lexical unit in a metaphorical way that framed corona as a fire. The rows are the lexical units and the columns are the keywords *covid* and *korona*. If less than ten articles were analyzed per search, that was due to lack of fulfillment of the previously stated requirements. *Utbrudd* is not included as it was already part of Table 6. *Utbrudd* was excluded, as it was already discussed in the previous section.

Lexical unit	<i>Covid</i>: articles including metaphors/total analyzed articles	<i>Korona</i>: articles including metaphors/total analyzed articles
brann	1/10	0/10
flammer	0/4	0/4
bål	0/6	0/5
brenne	1/6	1/10
brennende	2/4	1/7
spre	0/10	0/10
varme	0/10	0/10
fyre	0/10	0/5
slukke	5/10	5/10
røyke	0/10	0/10
røyk	0/10	0/7

Table 6: In-depth results BRANN. The frame related lexical units are the rows, *covid* and *korna* are the columns.

Brann

Only one article was found in the *covid* search used *brann* metaphorically that framed Covid as a fire. This was the sentence in (43):

- (43) “Nå sprer brannen seg raskt” (Hagen & Claudi, 2021).
‘Now the fire is spreading fast.’

Brann means that an uncontrollable fire is spreading. In this case, it is used as a synonym to the disease. In all other cases, the lexical unit was used to either refer to a literal fire or to the norwegian soccer team called *Brann* or to a person called Øyvinn Brann.

Flammer

None of the articles used the lexical unit metaphorically in a sense that corona was framed as a fire. Instead, *flammer*, meaning *flames*, was used in reports of a fire or in a romantic context.

Bål

In none of the articles *bål* was used in a metaphorically that framed covid as a fire. Its inclusion was solely literal, this is in the context of an actual campfire.

Brenne

One and the same article for both searches used the lexical unit metaphorically that framed Covid as a fire. See (44) for the sentence that contained the metaphor.

- (44)
- a) “Nå har vi valget mellom å stenge helt ned eller å brenne inne med covid og overbelaste sykehusene med covid-pasienter i korridorene” (Solli, 2022).
‘Now we have the choice between shutting down completely or burning inside with covid and overloading the hospitals with covid patients in the corridors.’

In all other cases, the lexical unit was used in a literal sense that something was burning.

Brennende

Sentences that included *brennende* metaphorically (*covid* search):

(45)

- a) “Andre har en konstant brennende fornemmelse i munnen. De føler det svir som om de har spist chili” (Stranden, 2021).
‘Others have a constant burning sensation in the mouth. They feel it stings as if they have eaten chili.’
- b) “De som forfekter gjenåpningen av skoler for personlig og tilstedeværende undervisning krever faktisk sett at barn skal sendes inn i brennende bygninger” (Blake & North, 2021).
‘In fact, those who advocate the reopening of schools for personal and present teaching demand that children be sent to burning buildings.’

A summary of the sentences that included *brennende* metaphorically (*korona* search) is given in (46).

(46) “Vi står i et brennende hus” (Stordalen, 2021).

‘We are standing in a burning house.’

In the given sentences in (46), Covid is framed as a fire that causes a burning sensation in the mouth as a symptom. In (45a,b) the spread of the disease results in buildings to burn. In all those sentences, the usage of the lexical unit is non-literal, as there is no actual fire in the mouth as a symptom nor does the virus cause buildings to be on fire. In other articles, the lexical unit was used literally as the context was about something that was burning.

Spre

None of the articles analyzed included the lexical unit metaphorically, as *pre* was used in the sense that the virus or the disease was spread.

Varme

The lexical unit was not used in a metaphorical sense that framed Covid as a fire. Its inclusion was either literal, this is physical warmth, or in a different metaphorical sense that was unrelated to the interest of this analysis.

Fyre

None of the articles included the lexical unit in a metaphorical way that framed covid as a fire. It was used in the context of either firework, oven, toast star or fire.

Slukke

Sentences that included *slukke* metaphorically (*covid* search) are presented in (47).

(47)

- a) “Det gjelder å slukke små utbrudd så tidlig som mulig” (Hagen & Claudi, 2021).
‘It is important to extinguish small outbreaks as early as possible.’
- b) “Hvis du ikke vet hvor det brenner, kan du heller ikke slukke brannen” (Paust, 2020).
‘If you do not know where it is burning, you can not put out the fire either.’
- c) “Alarmen gikk allerede i 2015, men ingen forsøkte å slukke brannen” (Robertsen, 2021b).
‘The alarm went off already in 2015, but no one tried to put out the fire.’
- d) “Mens legene og sykepleierne løp rundt for å slukke branner, satt vi de pårørende til å følge med på oksygenivået i sylindrerne” (VG, 2021b).
‘While the doctors and nurses ran around to put out the fires, we put the relatives to monitor the oxygen level in the cylinders.’

A summary of the sentences that included *slukke* metaphorically (*korona* search) is given in (48).

(48)

- a) “Vi kan derfor ikke regne med at været alene skal slukke epidemien i sommer, sier han” (Flølo, 2020).

‘We can therefore not expect the weather alone to put out the epidemic this summer, he says.’

- b) “Vi ser imidlertid at situasjonen er sårbar, når vi ser på smitteutbruddet blant russen. Vi vil derfor søke å slukke det som er brann i Oslo” (Ruggesæter Ertesvåg & Neira Torres, 2021).

‘However, we see that the situation is vulnerable, when we look at the outbreak among the Russians. We will therefore seek to extinguish what is a fire in Oslo.’

- c) “Jeg har jobbet med utbrudd i mange verdensdeler. Og da gjelder regelen om å slukke brannen der den er” (Bludd, 2021).

‘I have worked with outbreaks in many continents. And there the rule is to extinguish the fire where it is’

(49) shows the same result for both searches:

- (49) “Det prioriteres å slukke branner i stedet for å forebygge dem” (Lundegaard, 2021)

‘It is a priority to put out fires instead of preventing them.’

The pandemic and outbreak of the virus is framed as a fire that has to be put out. Hence, the sentences include the lexical unit metaphorically. In the other articles, *slukke* was included amongst others in the context of putting out an actual fire or in turning of the light (*slukke lyset*).

Røyke

None of the articles used the lexical unit in a metaphorical way that framed covid as a fire. It was included when the act of smoking was discussed in connection to covid.

Røyk

No metaphors that framed covid as fire could be found in any of the articles. *Røyk* was used in the context of smoking.

5. Discussion

The aim of this thesis was to analyze the use of the KRIG and the BRANN frames in Norwegian online news articles about the pandemic which were published in the timeframe of 01.01.2020 - 31.12.2021. For each frame, two analyses were performed. The PCA was applied in order to see the relation between different words. In each in-depth analysis it was looked into whether lexical units connected to a frame were used metaphorically. The data for the PCA was the logarithm of the estimated number of Norwegian news articles suggested by Google. The data for the in-depth analysis was based on the content of over 400 articles. The exact data and methodology were stated in chapter 4.

5.1 PCA results and Implications

As previously stated, the dimensions within the graphs were created by the columns of each table. In regard to the BRANN frame in Figure 4, *covid* has the highest contribution to dimension 1 and *vaksine* has the highest contribution to dimension 2. This is, both terms were outliers in the dataset. It should be noted that a high contribution does not correlate with a high number of hits. It means that the contribution to the variance is high, which is also the case of the number of hits was very low. The distance between the individual terms gives an indication for the relationship between them. Of special interest here is how the emotions correlate with the rest. As *covid*, *korona*, *sinne* and *frykt* are closely grouped together, one can assume that there is a connection between the words. In other words, the pandemic related terms have a connection to especially those two negative emotional states. More positive emotions, like *glede* and *overraskelse*, are further away which could be interpreted as them not being as strongly associated with the pandemic. Interestingly, *glede* is far away from *vaksine*, which indicates that there is no direct correlation even though *vaksine* as the cure to the pandemic is positive. A possible explanation for this is the skepticism of people towards the vaccines. This would also explain why *frykt* is closer to *vaksine* and *kur* in Figure 4.

The distribution of the column elements of the KRIG frame is different. *Frykt*, *avsky* and *korona* have the highest contribution to dimension 1. In dimension 2, *tristhet* has a high contribution. *Glede* has the lowest contribution and in the opposite direction in dimension 2. This shows the contrast between *glede* and *tristhet*. Furthermore, the grouping of the lexical units is different compared to the results for BRANN. In this case, *vaksine* and *kur* are not next to one another and neither are *korona* and *covid*. *Glede*, however, is related to *vaksine*, as

the distance between the terms is little. An interpretation of this would be that the emotions that are evoked when discussing the vaccines in connection to the KRIG frame are different from those linked to the BRANN frame. All negative emotions are grouped together, which indicates a relation between them. Of all emotions, *overraskelse* is closest to *korona*. A possible explanation for this would be that the outbreak of the pandemic came as a surprise. Overall, it seems like less lexical units associated with KRIG metaphors are also closely associated with emotions in comparison to BRANN metaphors.

What is interesting about the distribution of the row elements of the BRANN frame (Figure 5) is that BRANN-related words like *brann* or *flammer* and antonyms are randomly distributed. This is, for instance, *flammer* is close to *kaldt* (left) whereas *brenne* is close to *is*. One could have expected the heat and cold related words to each be more grouped as that would show that the words within a ‘group’ are related to one another and unrelated to the other ‘group’. Regarding the contribution, one can also not draw a line between the *is*, *brann*, *brenne* and *kulde*, as all of them have a somewhat higher contribution, even though *kaldt* stands out for contributing the highest. At the same time, *kaldt* and *brann* are the most distantly related as they are the furthest outliers.

If one compares that distribution to that of the row elements of the KRIG frame (Figure X), there is a clear distinction between the antonyms and the frame related lexical units. The antonyms, besides *rolig*, are all grouped together on the left of the graph and have a high contribution due to an outstanding low number of results. The distance shows an unrelatedness between the antonyms and the original lexical units.

The biplots give among others an indication of how emotions and lexical units are related. Regarding the biplot of BRANN (Figure 6), one cannot detect a clear grouping of (negative) emotions with the lexical units. This is because the lexical units are randomly spread over the graph, the negative emotions are not grouped together in one quadrant and more positive and negative emotions are not separated from one another. In the KRIG frame (Figure 10), there is a distinction between almost all antonyms and the frame-related lexical units. Even though the negative emotions are more distinct from the more positive emotions, not all negative emotions are grouped in the same quadrant. Hence, a clear grouping of negative emotions and lexical units is not visible. Based on those results, H0b (Ab), which stated that a grouping of negative emotions with frame related lexical units cannot be identified, could not be rejected.

The results do not support neither H1b (Bb) nor H2b (Cb), which both said that a grouping of negative emotions and lexical units can be identified within one or both frames.

Moreover, the results in the Biplots imply which lexical units are more likely to occur as metaphors used to describe the covid situation. The BRANN biplot (Figure 6) shows that the lexical units (excluding the antonyms) *røyke*, *spre*, *brann* and *brenne* are in the same quadrant as *covid* and *korona* and on the right handside of the y-axis. That placement means that there is a positive correlation between the row and column elements and that they both have the same relation to the dimensions. That again implies that those lexical units are more likely to be used metaphorically in the context of the pandemic. In the KRIG Biplot, Figure (10), *slag*, *lede*, *vinne*, *seier* and *utbrudd* are placed on the right handside of the y-axis and in the same quadrant as *covid* and *korona*. Thus, those lexical units might occur more often as metaphors in covid-articles.

5.2 In-depth Analyses Results and Implications

The results of the in-depth analyses show that the KRIG frame was used more frequently in a metaphorical manner than the BRANN frame. The fact that the KRIG frame was heavily used correlates with the results of the study of Wicke and Bolognesi (2020). One might speculate that the similar usage of that frame could be linked to similarities within the language family, since English and Norwegian are both Germanic languages. This is that the concept of DISEASE is thought about in a similar manner in both languages.

5.2.1 BRANN

None of the frame-related lexical units that were placed in the same quadrant in the BRANN-Biplot turned out to be used metaphorically to frame the pandemic as a fire. *Slukke* stood out in the amount of times it was metaphorically used, as half of the articles found included it non-literally. That lexical unit was mainly used to refer to outbreaks of the disease which had to be ‘put out’. Almost all of the other lexical units within that frame were not or were barely included metaphorically. Semino (2020) pointed out that fire metaphors could be effective because they, among others, convey the danger of the situation which again helps people understand the importance of following the measurements in order to avoid the fire spreading. If one compared it for example to *slå*, one could argue that their effect on people

might be different, even though both lexical units refer to actions to ‘fight’ the virus. As Semino (2020) and Hendrick et al. (2019) have stated, WAR metaphors, and hence *slå*, have the potential of causing a feeling of guilt in the case of not succeeding to ‘defeat’ a disease. Hence, *slukke* as part of the FIRE frame focuses less on the blame (Semino 2020). Another interesting aspect regarding those two lexical units is that *slå* is often combined with adjectives such as *hard* (engl. ‘hard’). One could argue that as a result the negative connotation of the action itself is emphasized. *Slukke* on the other hand is not combined with any adjectives. The overall act of hitting something or someone *hard* implies that something gets damaged or hurt. To put out a fire on the other hand does not convey the result of damage, but rather the prevention of it.

5.2.2 KRIG

The lexical units of the KRIG frame that were most used metaphorically were *krig*, *slå*, *kamp* and *kjempe*, whereby the latter stood out the most, as almost all of the analyzed articles included that word metaphorically. Thus, those results do not accord with the speculations uttered in chapter 5.2. *Angrep*, *vold* and *utbrudd*⁴ were not used metaphorically in any of the found articles. Interestingly, *seier* and *vinne* had a low number of articles that included them metaphorically. Since one could assume that those words have a more positive connotation than *krig*, *slå*, *kamp* and *kjempe*, one could argue that *vinne* and *seier* are used less often as journalists focus more on the negative (Ruß-Mohl, 2016). The fact that *vinne* was barely used metaphorically also correlates with the results of the study performed by Wicke and Bolognesi (2020). Moreover, one could argue that the usage of such negatively connoted words might also make people feel a ‘togetherness’. Meaning, that people become motivated to come together to *hit* and *fight* the disease. Wicke and Bolognesi (2020) state, as previously mentioned, that *war*, *fight*, and *fighting* (*hit* was not included in their research) were applied the most within the WAR frame of their research, which coincides with the results of this analysis. Regarding the authors statement that a possible reason for why those words might be applied so frequently is the point in time of the pandemic (Wicke & Bolognesi 2020), it could be interesting to further investigate and compare the uses of the mentioned words in the years of 2020 and 2021 in Norwegian news.

⁴ *Utbrudd* was also not used metaphorically in regard to the BRANN frame.

5.2.3 Summary

The results of the KRIG frame make clear that war-related metaphors were heavily used in Norwegian media during the pandemic. As H0a (Aa) stated that none of the frames were metaphorically applied, that hypothesis can be therefore rejected. H1a (Ba) suggested that one of the frames was used metaphorically. This hypothesis cannot be rejected. Regarding the BRANN frame, the results were minimal. Hence, one cannot make a clear statement whether only one frame, the KRIG frame, was metaphorically used or both. This would require further research. It can therefore not be said whether H2a (Ca) can be rejected or not.

6. Conclusion

The study presented in this thesis includes two PCA analyses and two in-depth analyses. The aim was to research (I) the use of the BRANN and KRIG frames in Norwegian online articles about the covid pandemic, and (II) the relation between emotions and lexical units within each frame. Both studies were based on the results of Google Search. The data for each PCA analysis was the logarithm of the estimated numbers of search results suggested by Google. Regarding the in-depth analyses, the data was articles that were found on the news section on the first two pages of Google.

H0a can be rejected, since the results indicate that the lexical units within the KRIG frame were used metaphorically. This again supports H1a. A clear statement as to whether H2a can be rejected or not, cannot be made, as the results of the BRANN frame are minimal. H0b cannot be rejected, as a clear grouping of emotions with lexical units in neither of the frames could be detected. Hence, H1b and H2b are not supported by the results of the analyses.

What stood out was the heavy usage of the KRIG frame in contrast to the BRANN frame. The lexical units of the former frame that were used the most as metaphors were *krig*, *slå*, *kamp* and *kjempe*. Regarding the latter frame, only *slukke* occurred frequently as a metaphor in articles. Another interesting observation was that none of the words that showed a connection to *covid* and *korona* in the PCA Biplots turned out to be applied the most often metaphorically in the articles. Furthermore, the PCA showed that the distribution of emotions and *covid*, *korona*, *vaksine* and *kur* was different for each frame.

There were a few limitations to the presented study. One of them was that not an equal amount of articles per lexical unit could be analyzed in the in-depth analysis, due to required pay subscription or other factors that did not fulfill the requirements. Furthermore, some of the lexical units, such as *brann*, *seier* and *slag*, had several meanings which were not related to the frame but dominant on Google. A distinction between different meanings when collecting the data for the PCA could not be made. One could criticize that the choice of lexical units analyzed in the in-depth analyses was based on their number of hits. This said, there might have been other lexical units that occurred more often metaphorically that were excluded from the in-depth analyses.

There are many possibilities on how one could extend the presented study. As stated in the discussion chapter, further research is required in order to make a clear statement on whether

BRANN is metaphorically applied as a frame in Norwegian articles about covid. A larger number of articles and the inclusion of more lexical units related to that frame is recommended, as the scope of this study was limited. In this regard, one could also extend the study on KRIG metaphors and make a comparison of the usage of those metaphors over the years. This would not only give more precise insight into the usage of the frames, but also into whether the application of metaphorical lexical units changed over time. Moreover, it could be interesting to design an experiment that studies the relation of evoked emotions in regard to the pandemic depending on the applied metaphorical frame. This could give more insight into, for example, whether or not the feeling of guilt is more present within the KRIG frame compared to BRANN. Also that experiment could be extended by including several other frames, which, for example, have a strong contrast to each other. A final idea for a future project is to make a cross-linguistic study. Thereby, one could compare the effect of the same metaphorical frames in context of the pandemic in languages that are not related.

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List of Appendices

Appendix A: All KRIG frame related lexical units

	covid	korona	vaksine	kur	sinne	avsky	frykt	glede	tristhet	over-raskelse	TOTAL
krig	2 630	5030	891	71	418	92	1400	1280	47	253	9482
slag	1 260	5650	457	65	250	33	739	2020	19	264	9497
soldat	317	918	97	6	68	16	232	284	6	128	2072
tropp	220	1130	43	3	40	2	80	0	3	90	1611
krigføring	101	115	46	2	27	5	89	0	1	28	414
kriger	223	657	54	6	51	16	170	158	5	59	1399
erobre	41	226	59	1	19	1	39	84	1	27	498
erobring	10	8	0	0	3	2	20	19	0	6	68
fiende	283	387	119	32	111	18	237	224	6	78	1495
trefning	2	3	1	0	0	0	1	2	0	1	10
besei-ret	68	132	10	1	58	9	91	0	0	14	383
våpen	1440	4990	627	36	218	96	956	846	10	200	9419
beseiring	0	0	0	0	0	0	0	0	0	0	0
bak-hold	4	3	1	0	0	0	3	0	0	1	12
slagmark	17	41	3	0	19	1	25	0	1	8	115
kampsoner	1	2	1	0	5	2	4	1	0	0	16
front-linjen	49	366	331	2	21	2	103	108	4	23	1009
minefelt	0	0	0	0	0	0	0	0	0	0	0
alliert	202	333	40	3	41	5	119	93	0	39	875
allianse	332	153	133	28	37	3	114	61	0	45	906
revolusjon	239	380	79	61	136	18	220	288	1	111	1533

seier	5570	13800	1720	133	841	63	1830	5520	15	740	30232
beleiring	57	8	20	0	5	3	15	3	0	1	112
bombardere	8	10	4	0	2	0	2	1	0	0	27
bombe	443	958	154	3	92	22	295	320	6	112	2405
blits	5	9	0	0	0	0	1	6	0	0	21
torpedo	41	48	1	0	4	1	10	0	0	6	111
kampplan	4	22	0	0	1	0	4	0	0	4	35
angrepsplan	0	1	0	0	0	0	1	0	0	0	2
angrepslinje	0	0	0	0	0	0	0	0	0	0	0
lede	5130	6130	3740	96	216	36	1380	1540	32	358	18658
borgerkrig	168	119	39	0	78	14	194	51	4	22	689
tape	872	1910	187	23	105	23	404	829	4	271	4628
utvise	222	196	45	1	24	4	67	71	4	8	642
utbrudd	12100	8420	5220	90	313	38	983	979	3	295	28441
ødelegge	811	2140	323	67	370	49	619	883	17	182	5461
terror	487	612	213	8	212	56	689	258	19	63	2617
slå	4230	7550	1390	92	775	79	1780	3090	101	825	19912
uro	1810	2180	506	73	295	41	1270	859	56	175	7265
felt	1180	2430	439	39	158	29	661	1100	12	369	6417
kamp	3610	17400	941	151	1730	144	1900	4140	71	1060	31147
kniv	612	1490	304	5	126	31	343	292	3	130	3336
stri	107	171	34	4	17	0	41	85	1	37	497
vold	3910	5530	1660	160	877	351	2980	2210	86	630	18394
feide	139	192	35	4	40	7	83	184	2	24	710
kjempe	1580	5970	446	81	366	66	802	2080	94	406	11891

strid	2450	6350	1220	36	330	70	1010	0	55	491	<i>12012</i>
angrep	2220	7500	1050	48	669	148	2020	1550	94	431	<i>15730</i>
bombing	37	117	6	0	35	3	55	28	1	4	<i>286</i>
felttog	3	20	0	0	5	2	6	8	0	1	<i>45</i>
korstog	8	54	4	0	8	2	19	19	0	3	<i>117</i>
oppgjør	733	3590	281	28	293	52	643	944	17	238	<i>6819</i>
hevn	94	8	17	13	105	19	162	170	2	41	<i>631</i>
bakan- grep	0	0	0	0	0	0	0	0	0	0	<i>0</i>
fiendskap	8	22	4	0	3	1	31	6	1	3	<i>79</i>
sverdslag	1	49	1	1	0	0	4	4	0	2	<i>62</i>
grusom- heter	17	55	4	0	4	4	38	29	0	6	<i>157</i>
urolig- heter	52	78	8	0	61	1	29	20	1	8	<i>258</i>
verdens- krig	842	1610	311	27	235	91	584	777	9	162	<i>4648</i>
aggres- sivitet	8	118	1	2	29	2	23	39	2	5	<i>229</i>
motstand	1240	2370	714	59	287	82	738	910	39	298	<i>6737</i>
vinne	2240	5930	838	69	617	55	874	2930	15	876	<i>14444</i>
forsvar	1130	1860	319	19	145	44	450	1080	8	228	<i>5283</i>
trussel	1270	2320	508	42	189	57	864	629	21	158	<i>6058</i>
strategi	3200	2780	1050	34	234	24	750	795	15	250	<i>9132</i>
motan- grep	98	432	55	2	19	3	63	44	1	31	<i>748</i>
true	579	1240	177	6	129	67	535	288	6	219	<i>3246</i>
drepe	611	717	242	25	177	50	671	473	6	129	<i>3101</i>

Table 7: All KRIG lexical units. Frame related words are the rows. Emotions, *covid* and *vaccine* related words are the columns.

Appendix B: All BRANN frame related lexical units

	covid	korona	vaksine	kur	sinne	avsky	frykt	glede	tristhet	over-raskelse	TOTAL
brann	7560	36300	5140	140	737	49	1560	3810	30	759	56085
flammer	182	381	126	2	37	4	85	136	0	30	983
skogbrann	83	132	23	0	14	1	45	37	1	6	342
flamme	98	144	24	5	47	9	62	191	1	43	624
leirbål	4	28	1	0	1	0	2	41	0	1	78
bål	392	768	277	3	60	6	119	467	4	78	2174
glør	4	212	0	0	3	1	8	59	0	3	290
brenne	3080	4730	1460	111	460	201	2230	1520	18	447	14257
ulme	10	25	5	0	5	1	6	4	0	2	58
forbrenne	9	30	0	0	0	0	8	15	0	5	67
forbrenning	75	111	8	4	5	1	10	42	0	8	264
røye	10	236	0	0	3	0	3	22	0	7	281
forkulle	0	0	0	0	0	0	0	0	0	0	0
svie	39	98	8	3	4	0	36	21	0	2	211
brenne opp	7	72	38	2	3	109	10	8	0	2	251
brenn ned	0	9	1	0	0	0	0	1	0	0	11
gnist	50	147	17	0	18	0	24	96	1	17	370
antenne	25	99	4	0	1	1	14	18	0	6	168
sett i brann	0	1	0	0	0	0	3	0	0	0	4
glød	37	134	10	5	38	0	76	150	0	9	459
brennende	241	569	74	19	95	10	285	473	4	98	1868
spre	3430	4670	1880	297	230	67	1330	1940	16	238	14098
glo	6	39	6	0	1	0	6	17	0	3	78
varme	1370	3250	296	67	293	56	661	2660	42	431	9126

fyre opp	51	243	20	2	45	6	43	136	1	22	569
fyre	108	451	38	3	34	8	93	232	1	41	1009
slukke	246	510	137	3	39	5	89	126	1	27	1183
blusse opp	102	135	61	1	8	1	39	57	1	2	407
royk	1050	1620	713	75	197	7	430	636	8	91	4827
utbrudd	12100	8420	5220	90	313	38	983	979	3	295	28441
royke	138	267	79	37	34	1	72	154	5	37	824

Table 8: All BRANN lexical units. Frame related words are the rows. Emotions, *covid* and *vaccine* related words are the columns.

Appendix C: Logarithm of KRIG-units

Note: This is the exponential form of the logarithm.

	covid	korona	vaksine	kur	sinne	avsky	frykt	glede	tristhet	over-raskelse
krig	30,59	40,53	19,15	6,56	13,82	7,29	23,28	22,40	5,5,6	11,15
slag	22,44	42,62	14,36	6,33	11,10	4,85	17,66	27,29	3,98	11,36
seier	42,36	62,81	25,45	8,50	18,68	6,25	26,14	42,20	3,67	17,68
lede	40,88	44,16	35,64	7,42	10,43	5,02	23,14	24,26	4,80	12,93
utbrudd	59,32	50,68	41,19	7,23	12,21	5,12	19,98	19,95	2,47	11,91
slå	37,59	48,34	23,21	7,29	18,03	6,85	25,83	32,81	7,58	18,52
kamp	35,10	69,45	19,61	8,96	25,52	8,79	26,57	37,25	6,56	20,64
vold	26,33	42,23	25,06	9,18	19,02	12,83	32,30	28,37	7,09	16,49
kjempe	25,53	43,66	14,21	6,92	13,06	6,37	18,30	27,64	7,36	13,65
strid	29,67	44,84	21,94	5,02	5,02	6,52	20,22	2,01	5,92	14,81
angrep	28,43	48,20	20,56	5,61	16,92	8,89	27,29	24,33	7,36	14,00
vinne	28,54	43,53	18,65	6,48	16,34	5,92	18,99	32,06	3,67	19,01
fred	28,92	34,93	18,10	5,37	15,81	8,36	22,62	27,92	5,70	14,54
harmoni	8,36	8,73	4,85	2,33	5,17	2,33	5,83	9,14	2,60	4,50
over-givelse	2,60	5,49	2,47	2,01	2,83	2,01	4,85	4,05	2,01	2,60
våpen-hvile	7,64	6,37	6,17	2,01	3,98	2,18	6,25	4,50	2,01	4,25
rolig	23,78	36,17	17,96	6,17	12,26	5,74	18,25	27,23	5,02	16,72
vennlig-het	5,56	7,61	3,15	2,01	4,18	2,18	5,27	7,55	3,24	2,94

Table 9: KRIG exponential form of logarithm of top 12 words and antonyms. Frame related words are the rows. Emotions, *covid* and *vaccine* related words are the columns.

Appendix D: Logarithm of BRANN-units

Note: This is the exponential form of the logarithm.

	covid	korona	vaksine	kur	sinne	avsky	frykt	glede	tristhet	over-raskelse
brann	48,37	95,58	40,91	8,68	17,64	5,65	24,40	35,93	4,68	17,87
flammer	9,70	13,28	8,31	2,33	5,07	2,60	7,06	8,58	2,01	4,68
bål	13,45	17,96	11,59	2,47	6,13	2,83	8,11	14,50	2,60	6,81
brenne	32,76	39,46	23,71	7,88	14,40	10,11	28,48	24,13	3,90	14,22
brennende	10,92	15,78	6,67	3,98	7,39	3,24	11,73	14,58	2,60	7,48
spre	34,33	39,24	26,45	11,94	10,71	6,41	22,77	26,81	3,75	10,87
varme	23,06	33,53	11,92	6,41	11,87	5,96	16,84	30,74	5,32	14,01
fyre	7,79	14,28	5,12	2,47	4,91	3,05	7,32	10,75	2,18	5,27
slukke	11,02	15,06	8,60	2,47	5,17	2,72	7,19	8,31	2,18	4,50
royk	20,56	24,80	17,39	6,71	10,03	2,94	13,99	16,56	3,05	7,26
royke	8,63	11,41	6,85	5,07	4,91	2,18	6,60	9,04	2,79	5,07
frossen	5,61	8,28	4,96	2,18	2,47	2,01	3,59	5,42	2,01	3,90
kaldt	21,78	27,75	10,73	4,57	8,47	3,98	14,32	22,09	3,51	11,73
vann	38,05	49,24	26,33	9,06	14,70	6,81	24,67	35,14	4,68	17,20
is	40,74	54,85	23,50	7,60	18,34	8,20	26,63	33,17	5,17	18,80
kulde	10,98	16,72	8,08	2,94	4,91	2,47	8,20	13,68	2,83	6,29
fryse	8,81	14,39	6,41	2,79	6,05	2,60	8,25	9,94	2,60	7,58

Table 10: BRANN exponential form of logarithm of top 12 words and antonyms. Frame related words are the rows. Emotions, *covid* and *vaccine* related words are the columns.

Appendix E: Overview of the Analyzed Articles

KRIG Frame-Articles

Covid, Krig

1. <https://forskning.no/krig-og-fred-partner-psykologi/pandemien-har-fellestrekk-med-krig/1758854>
2. <https://www.nrk.no/ytring/i-krig-og-kjaerlighet-1.15732320>
3. <https://forskning.no/sykdommer-virus/dette-dor-folk-av-i-verden/1686490>
4. <https://unric.org/no/fn-erklaerer-krig-pa-desinformasjon-om-covid-19/>
5. <https://www.dagbladet.no/nyheter/som-en-krig/74626861>
6. <https://www.aftenposten.no/meninger/debatt/i/1A2JA3/konturer-av-en-ny-kald-krig-boerge-brende>
7. <https://www.dagensmedisin.no/artikler/2021/12/09/kampen-mot-viruset-er-en-krig.-pa-tide-a-ruste-opp/>
8. <https://www.vg.no/nyheter/utenriks/i/Blgqpw/kina-usa-forholdet-man-har-allerede-havnet-i-en-kald-krig>
9. <https://www.dagbladet.no/kultur/full-krig-inne-i-kroppen-min/73039581>
10. <https://www.aftenposten.no/verden/i/AdwRAq/i-norge-passer-en-sykepleier-paa-en-koronapasient-i-italia-er-det-fire>

Korona, Krig

1. <https://forskning.no/krig-og-fred-partner-psykologi/pandemien-har-fellestrekk-med-krig/1758854>
2. https://www.nrk.no/urix/xl/pa-innsida-av-italias-korona-krig_-her-ligg-folk-og-blir-kvelte-i-sjukesengene-1.14973228

3. <https://www.nettavisen.no/okonomi/kraftig-advarsel-til-erna-gjor-du-dette-blir-det-krig/s/12-95-3424125775>
4. <https://www.abcnyheter.no/nyheter/verden/2021/12/22/195811835/kongresstorming-korona-krig-kollaps-dette-var-nyhetsaret-2021>
5. https://www.nrk.no/norge/_-sykepleiere-er-ikke-kanonfode-i-en-krig-mot-korona-1.14968768
6. <https://www.dagsavisen.no/nyheter/verden/2020/04/16/advarer-om-mer-krig-og-konflikt-som-folge-av-koronaviruset/>
7. <https://www.aftenposten.no/verden/i/Allzpq/full-krig-mot-koronaviruset-i-liege-europas-nye-episenter>
8. <https://www.bistandsaktuelt.no/flyktninger-korona-pandemien-krig-og-konflikt/syria-korona-faren-truer-den-krigsrammede-befolkningen/158793>
9. <https://www.nettavisen.no/nyheter/donald-trump-om-koronasmitten-i-usa-vi-er-i-krig/s/12-95-3423941940>
10. <https://www.nettavisen.no/norsk-debatt/livet-etter-koronaviruset-veien-tilbake/o/5-95-181794>

Slag, Covid

1. <https://www.dagsavisen.no/nyheter/verden/2020/05/04/ser-slag-og-blodpropp-hos-ynge-koronapasienter/>
2. <https://www.aftenposten.no/verden/i/GG4Rr4/flere-studier-viser-at-koronapasienter-faar-blodpropp-og-nerveskader-n>
3. <https://www.dagensmedisin.no/artikler/2020/07/21/farre-hjerneslag-under-pandemie>
4. <https://debatt.h-a.no/2021/debatt/langtids-covid-19-er-et-problem-som-ma-loses-na/>
5. https://www.nrk.no/trondelag/stor-hunt-undersokelse-pa-covid-19-_kan-gi-svar-pa-hvordan-korona-og-vaksine-har-pavirket-oss-1.15615625

6. <https://www.vg.no/nyheter/utenriks/i/28ybar/frankrikes-utelivsbransje-raser-mot-corona-innstramminger-et-slag-i-magen>
7. <https://www.nettavisen.no/nyheter/kina-frigir-den-storste-coronavirus-studien-av-sitt-slag/s/12-95-3423925071>
8. https://www.nrk.no/viten/studie_-covid-og-korona-kan-gi-alvorlige-senskader-pa-hjernen-og-vil-pavirke-helsevesenet-i-lang-tid-1.15446460
9. <https://www.abcnyheter.no/helse-og-livsstil/helse/2020/10/14/195712229/nytt-symptom-oppdaget-covid-19-kan-forarsake-plutselig-horselstap>
10. https://www.nrk.no/viten/who-studie-om-remdesivir_-medisinen-trump-har-fatt-gir-liten-effekt-mot-covid-19-1.15194306

Korona, Slag

1. <https://www.aftenposten.no/verden/i/GG4Rr4/flere-studier-viser-at-koronapasierter-faar-blodpropp-og-nerveskader-n>
2. <https://www.tv2.no/a/14426470/>
3. <https://www.nettavisen.no/nyheter/forskere-advarer-mot-en-bolge-av-korona-hjernesker/s/12-95-3423992289>
4. <https://www.nettavisen.no/nyheter/sykehus-frykter-at-akutt-syke-venter-for-lenge-med-a-ta-kontakt/s/12-95-3423943892>
5. <https://www.abcnyheter.no/helse-og-livsstil/helse/2020/10/14/195712229/nytt-symptom-oppdaget-covid-19-kan-forarsake-plutselig-horselstap>
6. https://www.nrk.no/viten/studie_-covid-og-korona-kan-gi-alvorlige-senskader-pa-hjernen-og-vil-pavirke-helsevesenet-i-lang-tid-1.15446460
7. <https://forskning.no/medisinske-metoder-musikk-om-forskning/465-var-pa-innendørs-konsert-og-ingen-ble-smittet-i-forste-koronastudie-av-sitt-slag/1872045>
8. https://www.nrk.no/nordland/tette-ror_-ribbefett_-pinnekjottfett-og-stearin-tetter-ror-i-jula-1.15785978

9. <https://www.nrk.no/vestfoldogtelemark/ny-koronastudie-viser-at-antistoffer-er-i-kropp-en-ett-ar-etter-1.15774674>
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Covid, Seier

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