

Negative polarity items in negative and non-negative licensing contexts

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This is a slightly revised version of my doctoral dissertation that was accepted by the Faculty of Arts and Humanities of the University of Cologne in July 2024.

Acknowledgments

Writing a dissertation is no easy undertaking; nor is it quick. Over the years that I've been shackled up in my office or at home thinking about negation and its little friends, negative polarity items, I have received a plethora of interesting input, advice, and encouragement from my supervisors and colleagues and friends at the University of Cologne.

First and foremost, I would like to thank my first supervisor Sophie Repp. She has not only taught me a lot over the years, be it on theoretical linguistics or practical teaching lessons and navigating life in academia. She has also provided me with encouragement and advice on my dissertation project when I needed it. I especially want to thank her for entrusting me with the rather messy undertaking of digging around in the field of negative polarity items and allowing me to be creative in the shaping of my PhD project. And last, but not least, I want to thank her for the opportunity to uproot my life and turn into as much of a Kölsche Jeck as a Berliner could ever hope to be.

I also want to thank Maribel Romero from the University of Konstanz for agreeing to be my second supervisor. Even though the pandemic got in the way of us meeting more often in person, I have received nothing but valuable advice and wise words from her. Thirdly, I would like Petra Schumacher for agreeing to be part of my dissertation commission and for her helpful feedback and interesting questions during my defence as well as for brightening the day with her infectious laughter. I also thank Christiane Ackermann for agreeing to be the chair of my defence.

I have been lucky to work with some wonderful people at the University of Cologne who I hope to stay in touch with as time goes by. Special thanks go to Heiko Seeliger and Max Bonke for countless shared office hours, (non-)smoking breaks overlooking the different stages of the never vanishing construction site in front of our building, interesting conversations, help with statistics, brain dumps, and silly jokes. I also want to thank our former colleagues Constantin Freitag and Anna Marlijn Meijer not only for their intellectual input and statistical help, but also for their friendship and moral support over the years. I would also like to thank Regina Zieleke, Elyesa Seidel, Lukasz Jędrzejowski, and Frederike Weeber for their ongoing friendship and support. Special thanks go to Eric Engel. We met back in the day as Bachelor students and have, through incredibly lucky turns of fate, managed to align our linguistic careers and cities

of residence to this day. Without his encouragement, I possibly would not have dared to start a PhD project.

There are countless other people whom I would like to thank for their input and interesting conversations at talks, workshops and conferences over the years, but one honourable mention has to go to Manfred Sailer from the University of Frankfurt. Obviously, his research on German NPIs has massively inspired and fed into my PhD project, and I hope that he will find my dissertation useful for future research on NPIs.

Lastly, this project would not have been possible without help with data collection: 400 participants don't just stumble into a linguist's office, neither do 10 000 corpus hits fall onto anyone's desk. Huge thanks to Marlon Siewert, Jonilla Ried, Hannah Maurer, Robin Boost, Sven Weber, and Franziska Busche for their help in collecting the experimental and corpus data presented in this dissertation. I quite literally couldn't have done it without you!

Abstract

This thesis is concerned with the licensing conditions of negative polarity items (NPIs) in negative and non-negative contexts. NPIs are, generally speaking, (groups of) words that are licensed in the scope of negative operators. NPIs exhibit a large amount of variation with respect to what particular licensing contexts they can appear in, ranging from NPIs that require the strongest type of negation (*not*) to be licensed to NPIs that can appear in questions, which are not straightforwardly a negative environment. The goal of this thesis was to gain a better empirical overview of the licensing conditions of NPIs in German. In two experiments, 60 German NPIs were tested in different licensing conditions in order to classify them into groups of superstrong, strong, weak, and superweak NPIs according to their distributional patterns. Secondly, a corpus study investigated the licensing contexts of 31 German verbal NPIs. The corpus data revealed a wider range of licensing contexts than previously described in the literature, first and foremost contrastive licensing contexts that do not exhibit any form of negative operator that could license the NPIs. On the ground of this data, I argue for the assumption of a secondary, pragmatic licensing mechanism via negative implicature that can explain the presence of NPIs in contexts without any overt licensor.

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1 Introduction

Negative polarity items (NPIs) are words or groups of words that – generally speaking – appear in the scope of negative operators. Their presence has been attested cross-linguistically and inspired a long line of research. It has been observed that in principle, all NPIs can appear in the scope of “classical”, sentential negation, i.e. *not*. A large number of NPIs are also licensed in the scope of other negative operators such as *nobody* and *never*. Some NPIs can also appear in the scope of downward entailing operators such as *few* or *rarely*, and some can even appear in questions (see (1)-(4)). NPIs show remarkable variation with respect to what (negative) contexts they can appear in, but what unifies them is that they are unacceptable without any sort of negative licenser, see (5)-(6):¹

- (1) Konstantin didn’t buy **any** flowers.
- (2) Nobody has bought **any** flowers **yet**.
- (3) Few people have **ever** been to the Galapagos Islands.
- (4) Q [Has Konstantin **ever** been to the Galapagos Islands?]
- (5) *Konstantin bought **any** flowers.
- (6) *Konstantin has **ever** been to the Galapagos Islands.

The licensing contexts of NPIs are not limited to environments that look negative at first sight. One such example are questions, but aside from that, (some) NPIs have been observed to appear inter alia in the scope of the particle *only*, in the antecedent of conditional clauses, in the restrictor of universal quantifiers, in comparative clauses, and in the scope of “negative” verbs such as *to doubt*. The peculiar licensing conditions of NPIs have inspired a long tradition of research regarding their distribution. However, we are faced with two problems regarding the research on NPIs. Firstly, (theoretical) research often appears to limit its scope to the investigation of very few NPIs such as English *any*, *ever*, and *yet*, or German *jemals* “ever”, *sonderlich* “particularly”, or *keine müde Mark* “no red cent”. A closer look at the empirical picture, however, reveals that there is a vast landscape of NPIs in different shapes and forms. It is an open question whether all these NPIs can be accounted for by theories that rely on the analysis of a few token NPIs. Looking at a larger number of NPIs in a given language is an important step towards fully understanding the phenomenon of negative polarity sensitivity.

¹ Throughout this thesis, NPIs in examples will be in bold print, and their licensors will be underlined.

A second problem we face is that NPIs are sometimes used to explore or diagnose certain characteristics of negation or other potential licensing environments. However, experiments or linguistics tests in this area are not always backed up with control studies that explore the precise licensing conditions of the specific NPIs that are used as diagnostic. Yet, if we do not know the precise licensing conditions of an NPI, it cannot function as a reliable diagnostic, which leads to possible confounds. For example, NPIs as well as their counterparts, positive polarity items (PPIs; elements that cannot appear in the scope of negation) are often used to distinguish the type of negation present in polar questions with high negation such as *Doesn't Mary like dogs?*. There is a line of research that claims that questions like the above are ambiguous between two readings: double-checking p (whether Mary likes dogs) and double-checking $\neg p$ (whether Mary doesn't like dogs) (Ladd, 1981). This ambiguity sometimes gets attributed to two different types of negation: propositional and non-propositional negation (Repp, 2013; Romero, 2015). NPIs and PPIs serve as diagnostics to distinguish the two readings: if an NPI can felicitously be inserted into the question, the negation must be propositional because NPIs require a type of propositional negation as a licensor. If a PPI can be inserted, the negation must be non-propositional because if the negation was propositional, it would anti-license the PPI. However, there is an obstacle in this approach: given that some NPIs can also be licensed in (non-negative) questions, it is not always clear whether an NPI is licensed by the negation or by the question itself in high-negation polar questions. For example, in (7)(a), the interpretation of the negation (non-propositional vs. propositional) should be disambiguated by either inserting the PPI *ziemlich* “pretty” (non-propositional reading) or the NPI *sonderlich* “particularly” (propositional reading), resulting in the non-propositional PPI reading in (7)(b) or in the propositional reading in (7)(c):

- (7) a. Mag Marie Hunde nicht **ziemlich** / **sonderlich** gerne?
 likes Marie dogs not pretty / particularly with.pleasure
 b. “Isn't it true that Marie likes dogs pretty much?”
 c. “Does Marie not like dogs particularly?”

However, it is not quite clear whether the NPI *sonderlich* is also licensed in questions. If it were licensed in questions, there would be two potential licensors for *sonderlich* in (7): the negation and the question operator. Thus, unless we know the exact licensing conditions of *sonderlich*, we cannot draw reliable conclusions with regard to the type of negation present in (7). In sum, I believe that broader knowledge on the exact li-

censing conditions of a larger set of NPIs can contribute to more stable empirical results in future research.

A look at the empirical landscape of German NPIs shows a hardly uniform picture with regards to various linguistic aspects. NPIs can be single words or groups of words, which do not seem to be very restricted with respect to what syntactic category they belong to, ranging from adverbs to like *sonderlich* to noun phrases (NPs), prepositional phrases (PPs), or verbal phrases (VPs), see (8)-(10). They also range from being semantically transparent (see (9)), to being fully idiomatic, see (10):

(8) Mia macht keinen **Pieps**. NP
 Mia makes no beep
 “Mia doesn’t make a beep.”

(9) Sarah weiß die Antwort **beim besten Willen** nicht. PP
 Sarah knows the answer with.the best will not
 “Even with the best will in the world Sarah doesn’t know the answer.”

(10) Maria **hat** mit Fußball nichts **am Hut**. VP
 Maria has with football nothing on.the hat
 “Maria doesn’t have any interest in football.”

German NPIs also show a lot of variation with respect to their licensing environments. Some NPIs, like *sonderlich* “particularly”, appear to be licensed by different negative elements, like *niemals* “never” (11) and *kaum* “hardly” (12), but their status in questions is not quite clear (13): some speakers accept *sonderlich* in questions, while others reject it. Other NPIs, like *zur Sache tun* “to matter”, however, can appear in questions without a problem, see (14):

(11) Paul wird niemals **sonderlich** gut singen können.
 Paul will never particularly well sing can
 “Paul will never be able to sing particularly well.”

(12) Kaum jemand hier kann **sonderlich** gut singen.
 hardly anybody here can particularly well sing
 “Hardly anybody here can sing particularly well.”

(13) %Kann Paul **sonderlich** gut singen?
 can Paul particularly well sing
 “Can Paul sing particularly well?”

- (14) Tut das was **zur** **Sache?**
 does this something to.the cause
 “Does this matter in any way?”

This heterogeneous picture of NPIs, as illustrated here for German, shows that gaining a deeper understanding of the precise licensing conditions of NPIs is necessary, particularly if we want to use them as a diagnostic tool in other areas of linguistic research. Hence, the goal of the research conducted for and presented in this doctoral thesis is just that: to systematically explore the licensing conditions of a great variety of NPIs in German.

For this dissertation project, I have conducted two major empirical research projects in order to gain a deeper insight into the licensing conditions of German NPIs. The present work builds on, and complements corpus studies which have provided a database of German NPIs through (semi)automated extraction of NPI candidates from corpora: the CoDII corpus (<https://www.english-linguistics.de/codii/>) (Sailer & Trawiński 2006a, 2006b; Trawiński & Soehn, 2008; Trawiński et al., 2008). All German NPIs investigated in this dissertation project were taken from the CoDII corpus.

The first research project conducted for this dissertation project consisted of two acceptability studies that sought to classify 60 German NPIs from the CoDII corpus with regards to their distribution across different licensing contexts. For these experiments, I adopted the view by Zwarts (1986, 1998) and van der Wouden (1994) that NPIs largely fall into three groups of *superstrong*, *strong*, and *weak* negative polarity items, depending on whether they are licensed in antimorphic, anti-additive or downward entailing contexts. Additionally, I adopted the view of Zwarts (1995) and Giannakidou (1997, 1998, 2002, 2011) that what lies behind the acceptability of NPIs in questions is not downward entailment, but nonveridicality. In this regard, I follow Hoeksema’s (2012) suggestion to assume a fourth class of NPIs, namely “superweak” NPIs, to grasp the subset of NPIs that can appear in questions. The goal of Experiment 1 was thus to classify these NPIs into superstrong, strong, weak, and nonveridicality-licensed (superweak) NPIs by means of an acceptability study with the NPIs being rated in different licensing conditions. Experiment 2 explored some unexpected findings from Experiment 1: Experiment 1 revealed a cluster of NPIs that received high acceptability ratings only under the antimorphic operator *nicht* “not” and in polar questions, which

is not predicted by the above theories. Experiment 2 explored whether the unexpected rating pattern could be due to rhetorical interpretations of the questions.

The second major empirical study conducted within this dissertation project is a large-scale corpus study that sought to explore the licensing contexts that verbal NPIs in particular appear in. The corpus study investigated 31 verbal NPIs, uncovering not only familiar NPI licensing contexts, but also contexts that have, to my knowledge, not been described in the previous literature and were thus not expected. Overall, 59 different licensing contexts were annotated in the corpus study. While the majority of the data appeared in negative licensing contexts, there were several licensing contexts that are non-negative: nouns which are not semantically negative but carry negative emotional valence such as *Dreck* “dirt” or *Teufel* “devil”, adverbial modifiers expressing a low degree of difficulty (*leicht* “easily”, for example), and three types of non-negative clauses: “than”-comparative clauses, temporal clauses, and final clauses. While comparatives and temporal clauses have been previously described as NPI licensors, the appearance of NPIs in final clauses is, to my knowledge, a relatively new finding. As these contexts cannot easily be shown to be downward entailing or negative, I argue that there must be a secondary, pragmatic licensing mechanism for NPIs, as has been suggested by Linebarger (1987), Sedivy (1990), Giannakidou (2006), and Sailer (2022). Most interestingly, from the corpus data I identified 65 cases of NPIs in contrastive contexts: that is, contexts with a contrastive flavour in which the NPIs were not licensed by an overt licensor. To my knowledge, contrastive cases like these have not been identified as NPI hosting contexts in the previous literature. Among the contrastive contexts, two different types of contrast can be distinguished: overt and non-overt contrast. In overtly contrastive contexts, an unlicensed NPI appears in a clause which stands in contrast to another clause that contains an overt licensor which cannot take scope over the unlicensed NPI. In non-overt cases, no such overt licensor is present. Instead, I argue, these contexts give rise to negative implicatures which contrast with the assertions that the unlicensed NPIs appear in. Since there is no overt licensor present to explain the presence of the NPI, it must be sanctioned by a pragmatic mechanism, i. e. by negative implicatures. The data presented in this thesis thus provides new evidence to back up the assumption of a secondary, pragmatic licensing mechanism of NPIs.

The thesis is structured as follows: in Section 2, I present the theoretical background on NPI licensing: Section 2.1 presents the semantic theory of NPI licensing based on downward entailment, which was prominently developed by Zwarts (1986, 1998) and van der Wouden (1994), building on work by Fauconnier (1975a, b) and Ladusaw (1979). Since downward entailment has been shown not to capture the whole distribution of NPIs, it has been suggested to weaken the notion of downward entailment, notably by von Stechow (1999) in the form of Strawson downward entailment, which will be described in Section 2.1.2. In Section 2.2, I present the nonveridicality approach to NPI licensing, which has been suggested by Zwarts (1995) and Giannakidou (1997, 1998, 2002, 2011) to explain the presence of (a subclass of) NPIs in questions. In Section 2.3, I present an approach to NPI licensing that deals with a subclass of NPIs, namely scalar NPIs: those are e.g. NPIs that denote small amounts at the low points of a scale, e.g. *a drop* in *Leo doesn't drink a drop*. Lastly, in Section 2.4 I present several accounts that have argued that there must be a secondary, pragmatic NPI licensing mechanism on the basis that purely semantic theories fail to capture the distributional facts of NPIs fully. In Section 3, I give an overview of NPIs in German: Section 3.1 presents the CoDII corpus, which the present empirical work builds on. In Section 3.2, I give an overview of previous experimental evidence on German NPIs, and in Section 3.3 I present a classification of the German NPIs in the CoDII corpus based on morphosyntactic and semantic criteria. In Sections 4 and 5, I present the empirical work conducted for this dissertation: in Sections 4.1 and 4.2, Experiment 1 and 2 are presented, respectively. Section 5 will present the corpus study on 31 German verbal NPIs, with the negative licensing contexts discussed in Section 5.3, and the non-negative licensing contexts discussed in Section 5.4. The implications of the research presented in this thesis are discussed in the General discussion in Section 6. Section 7 concludes.

2 Theoretical background: licensing of NPIs

There is a variety of syntactic, semantic, and pragmatic approaches to NPI licensing. Semantic and pragmatic approaches have proven fruitful to explain the curious distributional patterns of NPIs, inspiring a long line of research. For this reason, I will focus on semantic and pragmatic approaches to NPI licensing in the present thesis.² In Section 2.1, I present the downward-entailment approach to NPI licensing, which posits different strengths of negative contexts and different classes of NPIs that can be characterised according to their distribution under licensors of varying negativity, with downward entailment being the weakest level of negation. In Section 2.2, the nonveridicality approach is presented, which posits that not downward entailment, but rather nonveridicality is the final layer that underlies the distributional pattern of NPIs. A strong argument for this assumption is the ability of questions to license (certain) NPIs: questions are not downward entailing, but nonveridical in nature. The third account of NPI licensing, presented in Section 2.3, focuses on a particular class of NPIs, namely *any* and scalar NPIs. These are so-called minimizer NPIs that denote minimal amounts at the lower end of a scale and can be used to strengthen the assertions they appear in: for example, *a drop* in *Leo doesn't drink a drop*. Lastly, in Section 2.4 I present various approaches to pragmatic licensing strategies for NPIs.

2.1 Semantic approaches: downward entailment, different strengths of negation, and Strawson downward entailment

One of the approaches to NPI licensing that has proven the most fruitful is the semantic approach put forward most notably by Zwarts (1986, 1998) and van der Wouden (1994). This approach essentially captures the distributional picture of NPI licensing by stating that different strengths of negation correspond to different classes of NPIs. Since there are NPI-hosting environments that the classical downward-entailing approach cannot explain easily such as NPIs in the scope of *only*, the downward-entailment approach has later been extended by von Stechow (1999) to capture such data. Both the former, classical approach to downward entailment and its extension, Strawson downward entailment, are discussed in the following two sections.

² For syntactic approaches, see Klima (1964), Progovac (1994), and Den Dikken (2002), amongst others.

2.1.1 Zwarts (1986, 1998) and van der Wouden (1994): Different strengths of negation and different classes of NPIs

Zwarts (1986, 1998) and van der Wouden (1994) build a theoretical framework for NPI licensing that is based on the notion of downward entailment and different levels of strength for different negative licensors. This approach builds on Fauconnier's (1975a, b) and Ladusaw's (1979) work on polarity sensitivity and downward entailment. Based on extensive observations of the distributional patterns of a large number of English and Dutch and some German NPIs, Zwarts (1986, 1998) and van der Wouden (1994) suggest that NPIs largely fall into three distributional classes, depending on what type of negative contexts they are licensed in. Van der Wouden (1994: 64) illustrates these three classes for English NPIs with the following examples:

- (15) a. Chomsky wasn't **a bit** happy about these facts.
b. Chomsky didn't talk about these facts **yet**.
c. Chomsky didn't talk about **any** of these facts.
- (16) a. *No one was **a bit** happy about these facts.
b. No one has talked about these facts **yet**.
c. No one talked about **any** of these facts.
- (17) a. *At most three linguists were **a bit** happy about these facts.
b. *At most three linguists have talked about these facts **yet**.
c. At most three linguists have talked about **any** of these facts.

van der Wouden (1994: 64)

The NPI *a bit* is only licensed by *not*, while the NPI *yet* is additionally licensed by *no one*, and the NPI *any* is licensed by the two aforementioned licensors as well as by *at most*. Van der Wouden's (1994) examples presented above illustrate that the NPI *a bit* is more distributionally restricted than the NPIs *yet* and *any*, and the NPI *any* is less restricted than the NPI *yet*. *Yet* thus underlies a medium level of restriction, while *any* seems to be a fairly liberal NPI with regards to its distribution.

Zwarts (1986, 1998) and van der Wouden (1994) explain these different licensing patterns with the semantic properties of the contexts the NPIs can occur in. Zwarts (1986, 1998) suggests that there is a hierarchy of negative expressions, such that some negative contexts are stronger than others and consequently can license more NPIs. The strength of a negative context depends on the form of negation it contains, which impacts the logical properties of the respective sentence. Van der Wouden's (1994: 64) examples contain three different types of negative expressions: *not*, *no one*, and *at most*. The basic idea is that the more restricted an NPI is distributionally, the stronger

the type of negative licenser it requires. Zwarts (1986, 1998) and van der Wouden (1994) define three levels of strength of negation: the strongest type of negation is so-called “classical negation”, i.e. *not*. Contexts containing classical negation are logically “antimorphic”. The second strongest type of negation is so-called “minimal negation”, i.e. expressions like *nobody* and *never*. Contexts containing minimal negation are logically “anti-additive”. And thirdly, the weakest type of negation, “subminimal negation”, are logically “monotone decreasing” (= downward entailing) expressions such as *few* and *hardly* (Zwarts, 1986, 1998; van der Wouden, 1994).³ The stronger types of negations are subsets of the weaker type: antimorphic operators are also anti-additive and downward entailing (or monotone decreasing); anti-additive operators are also downward entailing. Next to anti-additivity, there is another subclass of downward monotonicity, namely antimultiplicativity. Antimultiplicative expressions are “composite expressions” such as *not every* and *not always* (van der Wouden 1994: 33). Van der Wouden (1994: 36) defines downward monotonicity and its more negative sub-classes anti-additivity, antimultiplicativity and antimorphicity as follows:

monotone decreasing $f(X \subseteq Y) \rightarrow f(X) \subseteq f(Y)$ <i>few, seldom, any</i>	
antimultiplicative $f(X \cap Y) = f(X) \cup f(Y)$ <i>not every, not always</i>	anti-additive $f(X \cup Y) = f(X) \cap f(Y)$ <i>nobody, never, nothing</i>
antimorphic $f(X \cap Y) = f(X) \cup f(Y)$ $f(X \cup Y) = f(X) \cap f(Y)$ <i>not, not the teacher, not Judas</i>	

Table 1: Monotone decreasing functions and their subtypes according to van der Wouden (1994: 36)

Van der Wouden (1994: 36) states “that antimorphic functions are defined as the intersection of antimultiplicative and anti-additive ones, i.e., by the validity of the equivalences” of the anti-additive and antimultiplicative functions. “These equivalences are

³ Zwarts (1986) uses the terms “classical negation”, “regular negation”, and “minimal negation”. Van der Wouden (1994) and Zwarts (1998) use the terms introduced here, namely classical, minimal, and subminimal negation. Both sets of terms refer to the same levels of negative strength, respectively: antimorphic, anti-additive, and downward entailing operators. For the present thesis, I will use the latter set of terms, as used by van der Wouden (1994) and Zwarts (1998).

a generalization from the complement function $\neg$ to arbitrary functions f of DeMorgan's laws known from classical logic, i.e., the proposition calculus and set theory" (van der Wouden 1994: 36). That is, an antimorphic function is a function that is both anti-additive and antimultiplicative, i.e., where the first and second DeMorgan's laws apply. The English classical negative operator *not* can be shown to be antimorphic: the anti-additive (18) as well as the antimultiplicative (19) equivalences apply, see (20) and (21), respectively. The same can be shown for German *nicht* "not", see (22) and (23). By definition, the antimorphic operator *not* and German *nicht* are also downward entailing (DE for short), or monotone decreasing, see (24) and (25):

- (18) $f(X \cup Y) \leftrightarrow f(X) \cap f(Y)$ (1st DeMorgan's law: anti-additive)
 (19) $f(X \cap Y) \leftrightarrow f(X) \cup f(Y)$ (2nd DeMorgan's law: antimultiplicative)
- (20) It is not the case that [[Paul went into the garden]_X or [into the park]_Y]
 $\Leftrightarrow$ [Paul did *not* go into the garden]_X and [Paul did not go into the park]_Y
- (21) It is not the case that [[Paul went into the garden]_X and [into the park]_Y]
 $\Leftrightarrow$ [It is not the case that Paul went into the garden]_X, or [it is not the case that Paul went into the park]_Y
- (22) Es ist nicht der Fall, dass [[Paul in den Garten]_X oder [in den Park]_Y gegangen ist]
 $\Leftrightarrow$ [Paul ist nicht in den Garten gegangen]_X und [Paul ist nicht in den Park gegangen]_Y
- (23) Es ist nicht der Fall, dass [[Paul in den Garten]_X und [in den Park]_Y gegangen ist]
 $\Leftrightarrow$ [Paul ist nicht in den Garten gegangen]_X, oder [Paul ist nicht in den Park gegangen]_Y
- (24) Paul hat Peter nicht berührt.
 $[[\text{schlagen}]] \subseteq [[\text{berühren}]]$
 $\rightarrow$ Paul hat Peter nicht geschlagen.
- (25) Paul has not touched Peter.
 $[[\text{hit}]] \subseteq [[\text{touch}]]$
 $\rightarrow$ Paul has not hit Peter.

The second class of negation ("minimal negation") identified by van der Wouden (1994) and Zwarts (1986, 1998) are anti-additive expressions such as *nobody*. These expressions are downward entailing and anti-additive (see (28)), but not antimultiplicative (see (29)) and hence not antimorphic. The German counterpart *niemand* "nobody" behaves analogously, see (30) and (31). By definition, these anti-additive operators are also downward entailing, see (32) and (33). Other anti-additive expressions in German and English are expressions like *nichts* and *niemals* and their German counterparts *nothing* and *never*. Their anti-additivity is demonstrated in Section 5.3.2.

- (26) $f(X \cup Y) \leftrightarrow f(X) \cap f(Y)$ (anti-additive)
 (27) $f(X \cap Y) \leftrightarrow f(X) \cup f(Y)$ (antimultiplicative)
- (28) Nobody [[went into the garden]_X or [into the park]_Y].
 $\Leftrightarrow$ [Nobody went into the garden]_X and [nobody went into the park]_Y.
 (29) Nobody [[went into the garden]_X and [into the park]_Y].
 $\nLeftrightarrow$ [Nobody went into the garden]_X or [nobody went into the park]_Y.
 (30) Niemand [[ist in den Garten]_X oder [in den Park gegangen]_Y].
 $\Leftrightarrow$ [Niemand ist in den Garten gegangen]_X und [niemand ist in den Park gegangen]_Y.
 (31) Niemand [[ist in den Garten]_X und [in den Park gegangen]_Y].
 $\nLeftrightarrow$ [Niemand ist in den Garten gegangen]_X oder [niemand ist in den Park gegangen]_Y.
 (32) Nobody touched Peter.
 $\llbracket \text{kiss} \rrbracket \subseteq \llbracket \text{touch} \rrbracket$
 $\rightarrow$ Nobody kissed Peter.
 (33) Niemand hat Peter berührt.
 $\llbracket \text{küssen} \rrbracket \subseteq \llbracket \text{berühren} \rrbracket$
 $\rightarrow$ Niemand hat Peter geküsst.

The last class of negative expressions that van der Wouden (1994) and Zwarts (1986, 1998) identify are downward entailing expressions, which are neither anti-additive nor anti-multiplicative and thus not antimorphic. These expressions include, but are not limited to, operators like *hardly*, *few*, and *rarely*, and their German counterparts *kaum*, *wenig*, and *selten*. The downward monotonicity of *hardly* and its German counterpart *kaum* will be demonstrated here (see (34) and (35)). The lack of anti-additivity and antimultiplicativity (and thus antimorphicity) of both German *kaum* and English *hardly* is demonstrated in (36)-(39), respectively. For other downward entailing German operators, see Section 5.3.3.⁴

- (34) Emily isst kaum Gemüse.
 $\llbracket \text{Karotten} \rrbracket \subseteq \llbracket \text{Gemüse} \rrbracket$
 $\rightarrow$ Emily isst kaum Karotten.
 (35) Emily hardly eats vegetables.
 $\llbracket \text{carrots} \rrbracket \subseteq \llbracket \text{vegetables} \rrbracket$
 $\rightarrow$ Emily hardly eats carrots. (downward entailing)
- (36) Emily isst kaum [[Karotten]_X oder [Spinat]_Y].

⁴ The logical mirror image to downward entailing or monotone decreasing functions and their subgroups anti-additivity, antimultiplicativity and antimorphicity are monotone increasing or upward entailing functions, which can be subdivided into additive, multiplicative and homomorphic functions, see van der Wouden (1994: 35). Monotone increasing or upward entailing functions are the opposite of downward entailing functions: they project entailments from subsets to supersets: *Emily often eats carrots.* $\rightarrow$ *Emily often eats vegetables.* For the definitions of the subgroups of upward entailing functions, see van der Wouden (1994: 35).

- $\nRightarrow$ [Emily isst kaum Karotten]_X und [Emily isst kaum Spinat]_Y.⁵
 (37) Emily hardly eats [[carrots]_X or [spinach]_Y].
 $\nRightarrow$ [Emily hardly eats carrots]_X and [Emily hardly eats spinach]_Y.
 (not anti-additive)
- (38) Emily isst kaum [[Karotten]_X und [Spinat]_Y].
 $\nRightarrow$ [Emily isst kaum Karotten]_X oder [Emily isst kaum Spinat]_Y.
- (39) Emily hardly eats [[carrots]_X and [spinach]_Y].
 $\nRightarrow$ [Emily hardly eats carrots]_X or [Emily hardly eats spinach]_Y.
 (not antimultiplicative)

NB: Operators that are antimultiplicative, but not anti-additive such as *not always* and *not every* (see Table 1) do not license NPIs in English (van der Wouden 1994: 59 ff.), see (40)-(41). For German, this is also the case. The examples in (42)-(43) demonstrate that the antimultiplicative German counterparts *nicht immer* “not always” and *nicht jede/r* “not every” also do not license NPIs. Van der Wouden (1994: 1995 ff.) remains agnostic on why exactly this is the case, stating that it is possible that we simply have not found NPIs that are licensed by antimultiplicative operators. However, in the examples given here, there is always a quantifier (*always*, *every*) that intervenes between the negation *not* and the NPI. It is a known fact that intervening quantifiers lower the acceptability of an NPI significantly (e.g. Richter/Radó, 2014), see Sections 2.4 and 3.2 for discussion. Hence, the fact that we have not so far found NPIs that are licensed by antimultiplicative operators may simply be due to the fact that those antimultiplicative operators consist of a negation and an intervening quantifier.

- (40) *Not every member of parliament has **ever** questioned a witness.
 (41) *Lily has not always made **any** contributions to the party.

- (42) *Nicht jeder Nachbar im Haus hat **jemals**
 not every neighbour in.the house has ever
 den Hausflur geputzt.
 the corridor cleaned
 “Not every neighbour in the house has ever cleaned the corridor.”

- (43) Lily hat nicht immer **einen Finger gerührt**,

⁵ At first glance, it may be tempting to view the sentences in (36) and (37) as equivalent, which they are not: they are not perfect paraphrases of each other, as the first disjunction that “hardly carrots or spinach” does not necessarily entail that it is true that **both** “hardly carrots” **and** “hardly spinach” are eaten. The sentence that “Emily hardly eats carrots or spinach” is also true if Emily hardly eats carrots, but eats spinach regularly, and vice versa.

Lily has not always a finger lifted
um ihren Schwestern zu helfen.
to her sisters INF.PART help
“Lily has not always lifted a finger to help her sisters.”

Turning back from the logical properties of the licensors to the licensee question, recall the narrow vs. wider distribution of English NPIs in van der Wouden’s (1994) examples cited in (15)-(17). These examples represent exemplars of three types of NPIs: 1) NPIs like *a bit*, which are only licensed in antimorphic contexts, 2) NPIs like *yet*, which are licensed in antimorphic and anti-additive contexts, and 3) NPIs like *any*, which are additionally licensed in downward entailing contexts. Van der Wouden (1994: 42 ff.) demonstrates the validity of this pattern with a large amount of different NPIs in Dutch, suggesting that there are different classes of NPIs which can be distinguished by the type of negative context they are licensed in, making the following generalizations:

- d. *Weak NPIs are expressions which can felicitously occur in monotone decreasing contexts [...]*
- e. *NPIs of medium strength may be licensed by anti-additive contexts but not by downward monotonic ones [...]*
- f. *Strong NPIs may only be licensed by antimorphic contexts [...]*

(van der Wouden 1994: 56)

- a. *Minimal negation prohibits the occurrence of strong PPIs and licenses the occurrence of weak NPIs*
- b. *Regular negation prohibits the occurrence of PPIs of medium strength and licenses the occurrence of NPIs of medium strength*
- c. *Classical negation prohibits the occurrence of all PPIs and licenses the occurrence of all NPIs*

(van der Wouden 1994: 56)

Zwarts (1998) essentially makes the same generalization, using slightly different terminology for the different strengths of NPI classes:

Laws of negative polarity

- a Only sentences in which a monotone decreasing expression occurs, can contain a negative polarity item of the weak type.*
- b Only sentences in which an anti-additive expression occurs, can contain a negative polarity item of the strong type.*
- c Only sentences in which an antimorphic expression occurs, can contain a negative polarity item of the superstrong type.*

(Zwarts 1998: 191)

For the present thesis, I will adopt the terminology used by Zwarts (1998) for the different types of NPIs. The generalisations by van der Wouden (1994) and Zwarts (1998) are subsumed in Table 2:

Class of NPIs	Licensing contexts		
	antimorphic	anti-additive	downward entailing
superstrong	+	-	-
strong	+	+	-
weak	+	+	+

Table 2: The distribution of three classes of NPIs in three types of negative contexts according to van der Wouden (1994) and Zwarts (1998)

2.1.2 Von Fintel (1999): Strawson downward entailment

Whilst being a very elegant theoretical approach to NPI licensing which captures a lot of the distributional data, the downward-entailment approach has been shown to be insufficient in explaining the distribution of NPIs in several environments, e.g. in questions and in the scope of *only*. I will turn to questions in Section 2.2 when I discuss nonveridicality. In the current section, I will briefly discuss a weakened notion of downward entailment that was suggested by von Fintel (1999) in order to deal with some of the empirical shortcomings of downward entailment, namely Strawson downward entailment. Von Fintel (1999) proposed the notion of Strawson downward entailment specifically to capture the appearance of NPIs in the scope of *only*. The focus particle *only* has been known to be an NPI licensor since Klima (1964), both in association with a DP and in association with the VP, see (44) and (45), respectively:

(44) Only Lisa gave **any** food to the dogs.

(45) Lisa only gave **any** food to Mary's dogs.

Whether *only* is downward entailing, however, has been cause for some debate. Zwarts (1993: 196) claimed *only* in conjunction with NPs to be downward entailing. Linebarger (1987: 372), however, claimed *only* to be downward entailing in its scope (see (46)), but not in its focus, as the entailment in (47) does not seem to hold:

(46) Only John walked. → Only John walked slowly.

(47) Only people who have had a debilitating illness themselves can appreciate what an ordeal it was. ↗ Only people who have had polio themselves can appreciate what an ordeal it was.
(Linebarger 1987: 372)

The claim that *only* is downward entailing in its scope has since been challenged by data such as the following (von Fintel 1999: 101):

(48) Only John ate vegetables for breakfast. ↗ Only John ate kale for breakfast.

The entailment in (48) clearly does not hold, which is challenging to the theory of NPI licensing by DE environments. In addition, unlike questions, which are also not DE, the context in (48) is veridical, which rules out nonveridicality as the true source of NPI licensing in contexts with *only* (see Section 2.2 for discussion of nonveridicality). To address this problem and explain the appearance of NPIs in the scope of *only*, von Fintel (1999) suggests extending the notion of downward entailment to Strawson downward entailment: “To establish the DE-ness of *only*, we need to be convinced that in a situation where it is true that only John ate vegetables for breakfast it is also strictly

speaking true that only he ate kale for breakfast.” (von Fintel 1999: 103) That is, the listener needs to know and be convinced that John had kale for breakfast, and from this knowledge the listener can infer that “only John ate kale” if the statement “only John ate vegetables” is encountered and taken to be true. Von Fintel (1999) himself acknowledges that such a conclusion may seem counterintuitive: “It may be misleading and odd to actually assert the conclusion but that does not necessarily mean that it isn’t *true*.” (von Fintel 1999: 103) Von Fintel (1999) describes Strawson downward entailment as a notion of DE that presupposes the truth of its conclusion. According to von Fintel (1999: 103), this weakened notion of DE “will only check whether an inference is truth-preserving *under the assumption* that all the conventional implicatures and presuppositions of premises and conclusion are satisfied”. Strawson downward entailment is thus defined as follows:

- (49) “Strawson Downward Entailingness
 A function f of type $\langle \sigma, \tau \rangle$ is Strawson-DE
 iff for all x, y of type σ such that $x \Rightarrow y$ and $f(x)$ is defined: $f(y) \Rightarrow f(x)$.”
 Von Fintel (1999: 104)

In contrast to regular downward entailment, this weakened notion of downward entailment has the “additional premise that the conclusion has a defined semantic value” (von Fintel 1999: 103), meaning that we must assume that the proposition in the conclusion is true:

- (50) $\llbracket \text{only} \rrbracket (x) (P)$ is defined only if $P(x) = \text{True}$
 If defined, $\llbracket \text{only} \rrbracket (x) (P) = \text{True}$ iff $\neg \exists y \neq x: P(y) = \text{True}$
 Von Fintel (1999: 104)
- (51) $P \Rightarrow Q$
 $\llbracket \text{only John} \rrbracket (P)$ is defined
 $\llbracket \text{only John} \rrbracket (Q) = \text{True}$
 $\therefore \llbracket \text{only John} \rrbracket (P) = \text{True}$
 Von Fintel (1999: 104)

Under the assumption that *only John is P* is defined if *John is P* is true, von Fintel (1999) shows that *only* is Strawson DE as follows:

- (52) $P \Rightarrow Q$
 John is P
Only John is Q
 $\therefore$ Only John is P
 Von Fintel (1999: 104)
- (53) Kale is a vegetable.
 John ate kale for breakfast.
Only John ate vegetables for breakfast.
 $\therefore$ Only John ate kale for breakfast.
 Von Fintel (1999: 104)

Note, however, that it has been debated whether Strawson downward entailment is truly the determining factor for the licensing of weak NPIs. Giannakidou (2006) notes that Strawson DE overgenerates and is thus not predictive or explanatory of the distributional pattern for NPIs.⁷ Giannakidou (2006) suggests to instead attribute the licensing power of *only* to a secondary pragmatic licensing mechanism via negative implicatures, which will be discussed in Section 2.4 “Pragmatic approaches: licensing via negative implicatures”. Regarding Strawson downward entailment, Giannakidou (2006) explicitly argues against von Stechow’s (1999) weakened notion of DE as underlying the licensing of NPIs in the scope of *only*. Giannakidou (2006: 578) states that “weakening DE overgenerates [...] and predicts general licensing across PIs [polarity items] and languages, contrary to fact”. Giannakidou (2006: 581) argues that “if we allow the context-givenness of a valid subset inference to influence DE, even positive sentences become DE. And if we allow this form of DE to sanction PIs, then we predict PIs in positive sentences too, as long as the subset inference is part of shared knowledge.” This is demonstrated in (54):

- In a context in which (54)(b) is known to be true, (54)(c) Strawson-downward entails (54)(b). This can also be demonstrated with an upward entailing operator like *some*:

- ⁶ Hoeksema (1986) also noted that “only” is not strictly DE and made a similar attempt at extending the notion of DE to weak DE.

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- b. Some student ate broccoli.
- c. Some student ate a vegetable.

In a situation where I know that broccoli has been eaten (as evidenced, for example, by the missing broccoli on the kitchen table on a class trip) and another person tells me that some student ate a vegetable, then I can infer that some student ate broccoli, and an upward entailing environment thus becomes Strawson downward entailing. Giannakidou (2006: 581) argues that if this type of entailment were to hold, and if Strawson downward entailment was truly what underlies the licensing of NPIs, one would expect sentences like (54)(b) or (55)(b) to be able to host NPIs, which they evidently cannot:

- (56) *John **ever** ate broccoli.
- (57) *Some student ate **any** broccoli.

Therefore, Giannakidou (2006: 578) concludes “that weakening DE systematically fails to capture the correct set of facts and must therefore be abandoned.” She argues that weakening the notion of DE to match the reality of the distributional facts of NPIs equals “trying to bend the semantics of *only* and emotive verbs backwards in order to make them fit” (Giannakidou 2006: 578). Instead, Giannakidou (2006: 578) argues that these elements in question are not downward entailing in any shape or form, as is evidenced by their inability to license NPIs. Regarding the licensing power of *only* and emotive factives specifically, Giannakidou (2006) instead proposes a secondary pragmatic licensing mechanism that is not tied to downward entailment in any way: rescuing by nonveridicality, where an otherwise unlicensed NPI in the scope of *only* is not classically licensed by a DE operator, but rather “rescued” by a nonveridical implicature that arises from the context. Linebarger (1987) makes a somewhat similar criticism of systematically weakening DE on the basis that such a weakened notion of DE fails to grasp the correct empirical picture of NPI licensing patterns. Like Giannakidou (2006), Linebarger (1987) instead attributes the ability of *only* to license NPIs to a secondary pragmatic licensing mechanism. I will discuss both proposals in Section 2.4 on pragmatic licensing mechanisms.

Regarding the analysis of *only* as an NPI licenser, Liu (2010) takes yet another different approach: Liu (2010) assigns the licensing power of *only* to its conventional meaning, which is analysed as a conjunction of a positive explicature and a negative implicature, which in turn is DE and can thus license NPIs. I believe that Giannaki-

dou's (2006) approach and Liu's (2010) approach may possibly be unified, since they both involve licensing via negative implicatures, see Section 6.1 in the General Discussion.

To conclude this section, it needs to be said that the status of Strawson downward entailment and the role it might play in NPI licensing is not settled to this day. While some researchers rely on Strawson DE as a component of weak negativity in the analysis of polarity phenomena, others reject it as an NPI licensing mechanism. The reason for this is mostly that the predictions made with regard to Strawson downward entailment fail to capture the actual empirical picture, i.e., the real-world licensing patterns we see with NPIs. While I tend to favour the latter view, I do not want to claim that Strawson downward entailment plays no role in polarity land, and I will remain somewhat agnostic on this issue throughout this thesis.

2.2 Nonveridicality

While the threefold classification of NPIs presented in Section 2.1 has been successful in capturing the distribution of a large number of NPIs, it does not capture the fact that some NPIs can also appear in questions like (58)-(61).

(58) Have you seen the new “Barbie” movie **yet**?

(59) When has John **ever** been funny?

(60) **Kann** Paul etwas **dafür**?
can Paul something for.that
“Is that Paul’s fault?”

(61) Was **tut** das **zur** **Sache**?
what does that to.the cause
“What does it matter?”

There is no negation in (58)-(61), but still, the English NPIs *yet* and *ever* and the German NPIs *dafürkönnen* “to be one’s fault” and *zur Sache tun* “to matter” are licensed. This cannot be easily explained in terms of downward entailment. A direction that has proven fruitful in explaining the presence of NPIs in questions is the nonveridicality approach first suggested by Zwarts (1995) and developed into a comprehensive account of NPI licensing and polarity phenomena by Giannakidou (1997, 1998, 2002, 2011). While Zwarts (1995) explores the relationship between (non)veridicality and monotonicity as described in Section 2.1, Giannakidou (1997 ff.) considers a large amount of crosslinguistic polarity phenomena and NPIs, but focuses on Greek. Giannakidou (1997, 1998, 2002, 2011) observes that crosslinguistically NPIs often appear in a variety of environments that are not downward entailing, such as modal environments, imperatives, and questions. The common feature that these environments share is nonveridicality, which Giannakidou (1997, 1998, 2002, 2011) takes as the crucial notion that underlies NPI licensing. Giannakidou (1997 ff.) and Zwarts (1995) suggest that NPI distribution can be explained as follows: NPIs appear in nonveridical environments and cannot appear in veridical ones (Giannakidou 2011: 1674). What are veridicality and its counterpart nonveridicality, then? Giannakidou (2011: 1674) defines veridicality as follows: “Veridicality is a property of sentence embedding functions: such a function F is veridical if Fp entails or presupposes the truth of p .” In other words, when uttering a veridical sentence, a speaker is committed to the truth of its proposition p . Conversely, nonveridicality is defined as follows: “If inference to the truth of p under F is not possible, F is nonveridical.” (Giannakidou

2011: 1674) In other words, when uttering a nonveridical sentence a speaker does not commit to the truth of p , or as Giannakidou (2011: 1674 f) puts it: “More specifically, veridical operators express certainty and an individual’s commitment to the truth of a proposition, but nonveridical expressions express uncertainty and lack of commitment.” To illustrate, let’s consider an example. Take the proposition $p = (\textit{pick up (John, kids)})$:

- (62) John picked up the kids.
- (63) Did John pick up the kids?
- (64) Pick up the kids, John!
- (65) Maybe John picked up the kids.

If a speaker utters the assertion in (62), the speaker commits to the truth of the proposition p because the assertion is veridical. If, on the other hand, a speaker asks the question in (63), there is no truth commitment to p : when p is embedded in a polar question like in (63), the speaker is asking whether or not p is true. The question is thus nonveridical. Similarly, in the imperative in (64) there is no truth commitment to p . When a speaker utters an imperative, the speaker is trying to change the world so that p becomes true, which presupposes that p is not true yet. Imperatives are thus nonveridical. Lastly, the sentence in (65) is an assertion, but contains the nonveridical lexical operator *maybe*, which turns an otherwise veridical assertion into a nonveridical one. Since a propositional operator F is nonveridical if $F(p)$ does not entail or presuppose that p is true in some individual’s epistemic model, if a sentence contains a nonveridical operator, there is no truth commitment on the part of the speaker (Giannakidou 1998: 112; Giannakidou 2011: 1676). Importantly, Giannakidou (1998: 107) states that a nonveridical operator $F(p)$ does not entail that p is untrue. The function of marking falsity is fulfilled by antiveridical operators. Thus, next to veridicality and nonveridicality, antiveridicality is the third basic notion used to describe the distribution of negative polarity items: “A nonveridical operator F is antiveridical iff Fp entails *not* p in some individual’s model” (Giannakidou 2011: 1676). If a speaker utters the following assertion in (66) that contains the antiveridical operator *not*, the speaker does not only not commit to the truth of p (=nonveridicality), but more specifically commits to the non-truth of p : the speaker commits to $\neg p$ (antiveridicality):

- (66) John did not pick up the kids.

Giannakidou (2011: 1680 f.) distinguishes a class of NPIs that is restricted to antiveridical contexts, i.e. “negation and the antiveridical connective *without*” (Giannakidou 2011: 1680) and labels them as “strong” or “strict” NPIs. As examples of this subclass of strong NPIs (or “strict” NPIs, in her terminology), Giannakidou (2011: 1680 f.) names the following cases: English *either*, Greek, Japanese, and Korean minimizer NPIs, NPI-*even* (like Greek *oute*, see Giannakidou (2011: 1681)), and lastly, “N-words” in “strict negative concord languages” like Italian *nessuno* “nobody” (Giannakidou 2011: 1682). This distinction of “strong” or “strict” NPIs possibly draws different lines in the empirical landscape of NPIs than the weak/strong/superstrong distinction by Zwarts (1986, 1998) and van der Wouden (1994). In defining this more restricted class of NPIs, Giannakidou (2011) uses the terms “strong” and “strict” interchangeably. This use of terminology may be confusing since in other contexts, the term “strict NPI” is used to describe NPIs that require a licenser within the same clause as the NPI, unless the embedding predicate is neg-raising (cf. Zeijlstra, 2018). In that sense, strict NPIs are NPIs that generally cannot be licensed by non-clausemate negation. For the purpose of this thesis, I will use the term “strong NPI” in the sense defined by Zwarts (1986, 1998) and van der Wouden (1994) (see Section 2.1) as an NPI that can only appear in anti-additive and antimorphic environments, and the term “strict NPI” in the sense of Zeijlstra (2018) to describe NPIs that require a licenser within the same clause unless the embedding predicate is neg-raising.

For the present thesis, I follow Giannakidou (1997, 1998, 2002, 2011) in assuming that not downward entailment, but nonveridicality is the final layer needed to explain the distribution of NPIs, particularly in questions. In order to also keep to the finer-grained distinction of NPI classes suggested by Zwarts (1986, 1998) and van der Wouden (1994), I adopt Hoeksema’s (2012) proposal of an extended Zwarts/van der Wouden hierarchy with nonveridicality added as an outer layer (see Hoeksema 2012: 3 f.). This extended hierarchy results in a fourth class of negative polarity items, namely “super-weak” NPIs (Hoeksema 2012: 3). This final layer is intended to capture the NPIs that cannot only appear in downward entailing, but also in nonveridical contexts such as questions. Table 3 shows the extension as proposed by Hoeksema (2012: 5). Crucially, the assumption here is concentric licensing: if an NPI is licensed in a weaker context, it should also be licensed in all the stronger contexts. Figure 1 shows a visualisation of this assumption, similar to a figure presented in Hoeksema (2012: 4).

Class of NPIs	Licensing contexts			
	antimorphic	anti-additive	downward entailing	nonveridical
superstrong	+	-	-	-
strong	+	+	-	-
weak	+	+	+	-
superweak	+	+	+	+

Table 3: Extension of the negation hierarchy by Zwarts (1986, 1998) and van der Wouden (1994) by the layer of nonveridicality in the sense of Giannakidou (1997, 1998, 2002, 2011)

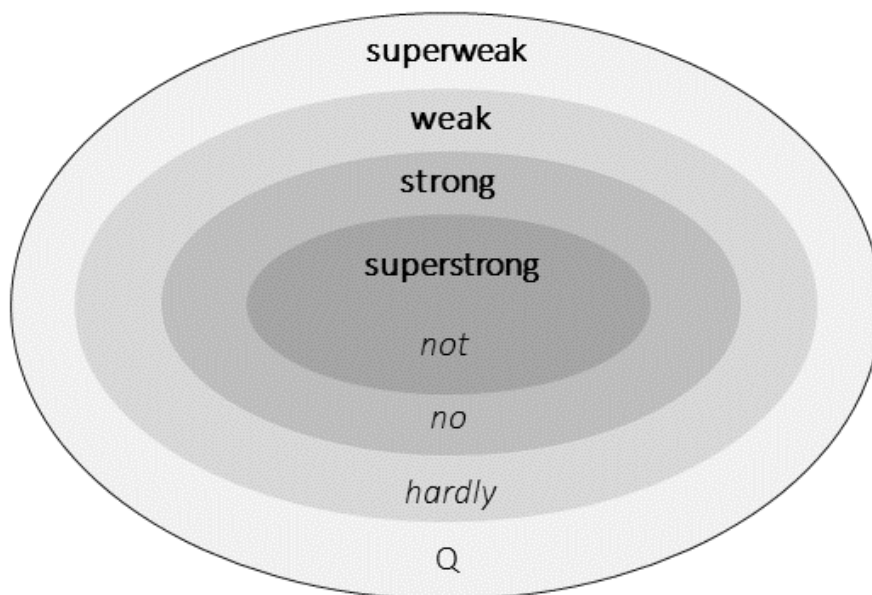


Figure 1: Visualisation of concentric NPI licensing as suggested by Hoeksema (2012)

2.3 Scalar approaches

Scalar approaches to NPI licensing are grounded in the analysis of the NPI *any* and NPIs that denote minimal amounts on the lower end of a scale: so-called minimizer NPIs like *a beep*, *a drop*, *bat an eyelid*, *budge an inch*. The following examples illustrate these polarity items:

- (67) Peter wanted to cook dinner, but he didn't have **any** food at home.
- (68) Jenny was really quiet, she didn't make **a beep**.
- (69) Clemens is a teetotaller, he doesn't drink **a drop**.
- (70) Lori didn't **bat an eyelid** when she heard the bad news.
- (71) Max didn't **budge an inch** when he was challenged on his controversial decisions.

2.3.1 Kadmon and Landman (1993): Domain widening and strengthening

The interaction of scalarity and NPIs was first described by Fauconnier (1975a, b). Building on Fauconnier's (1975a, b) observations, Kadmon and Landman (1993) developed a scalar theory of *any*: they build on the downward-entailment approach for NPIs but go further in asking **why** NPIs appear in downward entailing contexts. Kadmon and Landman (1993) give an analysis of the NPI *any* specifically, providing a unified analysis of the NPI *any* and the free-choice item (FCI) *any*. Unlike NPI *any*, FCI *any* is not subject to the distributional restrictions of negative polarity. In contrast to NPI *any*, which Kadmon and Landman (1993) take to be an indefinite existential quantifier, FCI *any* is analysed as a universal quantifier (Kadmon/Landman 1993: 354). Some examples for FCI *any* are given below:

- (72) Any owl hunts mice.
- (73) Any lawyer could tell you that.
- (74) I would dance with anybody. (Kadmon/Landman 1993: 354)

Kadmon and Landman (1993) give a unified analysis of existential NPI and universal FCI *any*, arguing that both types should be analysed as “an expression which indicates reduced tolerance of exceptions” (Kadmon/Landman 1993: 354). They corroborate this claim with the following examples:

- (75) A: Do you have dry socks?
B: I don't have ANY socks.
- (76) A: Perhaps some dry socks would help?
B: ANY socks would help. (Kadmon/Landman 1993: 356)

Kadmon and Landman (1993: 356) take B's utterance in (75) to mean that B "doesn't even have wet socks" and that "B is saying that she doesn't have socks, and that wet socks are no exception to this claim". In the scenario in (75), with A asking for dry socks specifically, B's answer could be taken as conveying to A that she cannot help A with **any** kind of socks **at all**: not the dry ones that A requested, not wet ones, not socks with so many holes in them that they would make them entirely useless in their purpose as socks, not even socks that are infested with moths, and so on. In a similar fashion, the FCI *any* in B's utterance in (76) is taken to convey that what is needed are socks, and even wet socks would be helpful. In this case, B's answer to A's request be taken to indicate that it does not matter which type of socks, any would be of use: even socks that would normally be regarded as less useful like wet socks, socks with holes in, or socks infested with moths. The "reduced tolerance of exceptions" that NPI and FCI *any* convey serves as the basis of Kadmon's and Landman's (1993) analysis of *any* as widening the domain of quantification. (Kadmon/Landman 1993: 354) They propose that "an NP of the form *any CN* (*any potato*, *any potatoes*) should be regarded semantically as the corresponding indefinite NP (*a potato*, *potatoes*) with some additional characteristics contributed by *any* (WIDENING and STRENGTHENING [...])" (Kadmon/Landman 1993: 357). The widening effect of *any* is defined as follows: "In an NP of the form *any CN*, *any* widens the interpretation of the common noun phrase (CN) along a contextual dimension." (Kadmon/Landman 1993: 361). (77) and (78) illustrate the widening function of NPI *any*⁸ using the following contrasting examples:

(77) I don't have potatoes.

(78) I don't have any potatoes.

(Kadmon/Landman 1993: 359)

According to Kadmon and Landman (1993: 359), "[a] context of utterance sets up a domain of quantification, from which all sorts of things are excluded." If a speaker is asked in a setting in which the conversation is about what to cook for dinner, for example, rotten potatoes are excluded from the relevant contextual domain of quantification, as rotten food is not usually used for cooking. Kadmon and Landman (1993: 359) argue that in such a setting, the assertion in (77) could be uttered without the speaker being considered to be untruthful, even if the speaker did in fact have rotten potatoes somewhere, because in a cooking scenario rotten potatoes are usually irrelevant. The addition of *any* in the assertion in (78) has the effect of widening the domain

⁸ I will concentrate here on Kadmon and Landman's (1993) analysis of NPI *any*, since the exact analysis of FCI *any* is less relevant for the topic of the present thesis.

of quantification beyond the cases that would usually be included in the discourse expectation. That is, even something that would normally be viewed as excluded from the relevant domain of quantification (such as rotten potatoes in a cooking scenario) is included in the domain of quantification after the domain widening effect of *any* has done its work (Kadmon/Landman 1993: 359). Adding NPI *any* to the NP *potatoes* extends the domain of quantification from the usual and expected types of potatoes to the less usual and less expected types. An assertion like (78) can thus be taken to convey that the speaker does not have any potatoes at all: not even rotten or mouldy ones or half potatoes that are covered in paint because they have been used as stamp in a crafting scenario. In sum, this effect of ruling out exceptions that would normally be considered irrelevant is what Kadmon and Landman (1993) describe as the domain-widening effect of *any*.

While widening is conceptualised as the meaning of or the “semantic operation associated with *any*” (Kadmon/Landman 1993: 368), strengthening is conceptualised as a “semantic constraint which is lexically associated with *any*” (Kadmon/Landman 1993: 368): Kadmon and Landman (1993: 369) propose that “*any* is an element that must STRENGTHEN the statement it occurs in”. Strengthening is defined as an entailment from stronger to weaker assertions: “*any* is licensed only if the statement it’s in on the interpretation induced by its widening effect entails this same statement as it would be interpreted without widening.” (Kadmon/Landman 1993: 369) In other words, the assertion in (78) with *any* and a widened domain of quantification is stronger than the assertion in (77) without *any* and without domain widening because (78) entails (77). So, in a setting that is about cooking one could assume that the relevant domain of quantification for types of potatoes in (77) only extends to cooking potatoes. In contrast, in (78) the domain of quantification is widened to more “unusual” or contextually less expected types of potatoes such as rotten potatoes or half potatoes covered in paint. The latter assertion is stronger than the former because the latter widened scenario entails the former scenario without domain widening. Importantly, Kadmon and Landman (1993: 369) view strengthening as a semantic trait that not only comes with the NPI *any*, but one that is also associated with other NPIs such as *budge an inch* or other minimizer NPIs – NPIs that denote minimal amounts of something on the lower end of a scale. That is, a statement that contains a minimizer NPI like *budge an inch* or *lift a finger* is considered a stronger statement than an alternative statement with similar semantics:

(79) Fred didn't help his brother move house last weekend.

(80) Fred didn't even **lift a finger** to help his brother move house last weekend.

In principle, both assertions in (79) and (80) are semantically very similar and both express that Fred didn't help his brother. However, the statement containing the minimizer NPI in (80) is stronger than the one without the NPI in (79): the assertion in (79) simply states that Fred didn't help in any shape or form that is usually expected from someone whose brother is moving house and who has the means to help (e.g. help carry boxes, drive the moving van, make sandwiches, etc.). The strengthened assertion in (80) with the minimizer NPI *budge an inch*, however, additionally expresses that Fred didn't even help in ways that would be considered less than what can reasonably be expected in such a social setting. (80) can be taken to express that Fred did not even help to a minimal extent, for example, that he didn't even hold the door open for his brother while the brother was struggling past with a particularly heavy box. In that sense, the statement in (80) is stronger than the statement in (79), and (80) entails the weaker (79).

2.3.2 Krifka (1995): Strength, assertions, and scales

In another scalar approach to NPI licensing, Krifka (1995) seeks to explain why NPIs appear in the environments they appear in by taking into consideration the semantics of NPIs and the pragmatics of their licensing contexts. According to Krifka (1995), weak NPIs like *anything* introduce alternatives and induce alternative-based implicatures. Consider the following examples:

(81) *Mary saw anything.

(82) Mary didn't see anything.

(Krifka 1995: 221)

Comparing the semantics of *anything* in the unlicensed case in (81) to the licensed case in (82), Krifka (1995: 222) states that in the unlicensed case, the proposition is “WEAKER than any alternative proposition [...]: The set of worlds where Mary saw something or other is a proper superset of every set of worlds where Mary saw something that is described in more specific terms”. In the licensed case, in contrast, the proposition is “STRONGER than any alternative proposition, as the set of worlds where Mary didn't see anything is a proper subset of the set of worlds where Mary didn't see something that is described in more specific terms” (Krifka 1995: 222). In short, a positive assertion with the NPI *anything* makes a very weak statement because it induces stronger, more specific alternatives that are being ruled out by asserting that someone saw anything. In reverse, a negative assertion containing *anything* like (82) makes a strong statement by ruling out all its weaker alternatives. Krifka (1995: 222 ff.) attributes this effect to the pragmatics of assertions and scalar implicatures. He introduces an operator **Scal.Assert**:

“[The] triggering condition [of Scal.Assert] is that the proposition actually asserted, and the alternative assertions are informationally ordered with respect to each other” and the “semantic impact is that all propositions that are semantically stronger than the proposition made are negated”

(Krifka 1995: 224).

Krifka (1995: 225) emphasises that a sentence like *Mary saw anything* in (81) is not just odd because of its very unspecific meaning with regards to what Mary actually saw. Rather, it is unacceptable because what (81) expresses stands in direct contradiction to its own implicatures: “The assertion made by [(81)] says that Mary saw something, but the implicatures deny that Mary saw anything in particular.” (Krifka

1995: 225). The proposition in (81) is thus “at least as weak as any alternative proposition” (Krifka 1995: 225). In the case of the licensed weak NPI in (82), on the other hand, the proposition “is at least as strong as any alternative” (Krifka 1995: 225). That is, *Mary didn’t see anything* is at least as strong an expression as its weaker alternatives such as *Mary didn’t see a glimpse* or *Mary didn’t see much*.

After giving this analysis of weak NPIs like unstressed *any*, Krifka (1995) turns to strong NPIs⁹ like stressed *any* (*at all*). In Krifka’s (1995: 226 ff.) analysis, weak NPIs appear in regular, non-emphatic assertions like (83), while strong NPIs occur in emphatic assertions like (84):

(83) Mary didn’t get anything for her birthday.

(84) Mary didn’t get ANYthing (at ALL) for her birthday. (Krifka 1995: 226)

The assertion in (83) simply means that Mary did not get a present for her birthday, according to Krifka (1995: 226). The assertion with the strong NPI in (84), on the other hand, is stronger, as it indicates that not only did Mary not get a regular present, she did not get any presents at all: not even presents that would maybe be considered to be minor presents like a birthday card, or possibly even things that would normally not be considered gifts at all like a packet of tissues. This effect is akin to the domain widening described by Kadmon and Landman (1993). For the analysis of stressed *any* in cases like this, Krifka (1995: 226) “assume[s] a slightly different interpretation of *anything* that highlights the special role of borderline cases, and a special type of assertion that carries the implicature expressed by the word *even*”, namely emphatic assertions. Krifka (1995: 227) illustrates the function of focus in emphatic assertions with examples like the following:

(85) Mary knows every place on earth. She has (even) been to BORneo!

(Krifka 1995: 227)

According to Krifka (1995: 227), “[t]he function of emphatic focus is to indicate that the proposition that is actually asserted is *prima facie* a particularly unlikely one with respect to the alternatives”. That is, in Krifka’s (1995) example in (85), Borneo would be considered an unlikely place to travel in contrast to its alternatives. This function of

⁹ Note that Krifka’s (1995) distinction between weak and strong NPIs is not quite the same as the previously introduced distinction between classes of weak to (super)strong NPIs by Zwarts (1986, 1998) and van der Wouden (1994). Krifka’s (1995) distinction between weak and strong NPIs also relies on a wider or narrower distribution of the NPIs, but the distinction is not explicitly made on the basis of the logical properties of the context.

marking improbability can be explicitly expressed by the particle *even*, which comes with the presupposition of unlikelihood. In relation to the example in (85), this means that the proposition asserted that *Mary (even) went to Borneo* is considered unlikely. In other words, Borneo is considered to be a less likely travel destination than the relevant alternatives, say Rome, Paris, Mallorca, and the Canary Islands, as expressed by the added emphasis on the word *Borneo*.

Krifka's (1995: 227 ff.) posits two felicity conditions for emphatic assertions such as (85): (a) the "proposition actually asserted [...] must be stronger than every alternative proposition" (Krifka 1995: 228). The second felicity condition (b) is that the proposition expressed in emphatic assertions must be "less likely in c [the common ground] than the conjunction of all the alternative assertions" (Krifka 1995: 227 f). That is, in the example above, the assertion that Mary went to Borneo must be a) stronger than its alternatives and b) considered less likely than the conjunction of the alternative assertions that [*Mary went to {Rome|Paris|Mallorca|Canary Islands|...}*] in order to be felicitous. Applying these conditions to assertions containing strong NPIs like stressed *any*, which generate the alternatives, Krifka's (1995: 228 f.) analysis goes as follows:

(86) Mary didn't get ANYthing. (Krifka 1995: 228)

Both the felicity conditions cited above are fulfilled if (86) is uttered in a context where it is less likely that Mary got nothing at all for her birthday than it is likely that she got at least something small for her birthday (Krifka 1995: 229). That is, an assertion like (86) is only felicitous if the common ground "support[s] the expectation that Mary got at least something minor" (Krifka 1995: 229). If (86) was uttered in a context where there is no expectation whatsoever that Mary would get a birthday card or even just a muttered "congratulations" or a lump of coal, (86) would be infelicitous because it widens the domain of what one could expect to get for one's birthday and denies even the minimal alternatives.

Krifka (1995: 237 ff.) applies this analysis of strong NPIs in emphatic assertions to minimizer NPIs such as *a drop*, *a red cent*, or *lift a finger*, which denote minimal amounts of something on the lower end of a scale, e.g. liquid, money, or effort, respectively, in the examples given above. He takes minimizer NPIs to be strong NPIs because "they bear heavy stress and can easily be combined with *even*" (Krifka 1995:

239). Comparing the assertions with an unlicensed vs. licensed minimizer NPI in (87) and (88), Krifka (1995: 238 f.) derives the (in)felicitousness of the (un)licensed NPI via the felicitousness conditions for strong NPIs in emphatic assertions:

(87) *Mary drank a drop.

(88) Mary didn't drink a drop. (Krifka 1995: 238)

The unlicensed minimizer in (87) is infelicitous because “the proposition asserted [...] is at most as strong as any alternative assertion [...], and in fact weaker if *c* is a natural common ground” in which we assume that it's less likely that someone would just drink a minimal amount instead of a more substantial amount of liquid (“principle of extremity”) (Krifka 1995: 239). It is not normally very plausible to assume that anyone would just drink a tiny amount of liquid, a literal drop of something, and hence the assertion in (87) is weaker than its alternatives. This outcome contradicts the felicity condition for emphatic assertions cited above that the “proposition actually asserted [...] must be stronger than every alternative proposition” (Krifka 1995: 228). The assertion in (87) with the unlicensed minimizer is thus infelicitous. In contrast, the minimizer NPI under negation in (88) is felicitous because the assertion in (88) is stronger than its alternative assertions due to the abovementioned “principle of extremity” and in turn satisfies the felicity conditions for emphatic assertions (Krifka 1995: 239).

NB: Regarding the meaning of minimizer NPIs, Krifka (1995: 240) acknowledges that they also have a literal meaning under which e.g. the example in (87) would not be considered ungrammatical or infelicitous. He views the “polarity use” as “a case of grammaticization [...] from a rather specific meaning to a much wider meaning that is related to semantic sorts” (Krifka 1995: 240). I share this view and want to acknowledge that throughout the present thesis, if a minimizer NPI is marked as infelicitous in linguistic examples, this infelicitousness regards the NPI reading rather than the literal meaning of a given minimizer NPI.

Overall, the domain-widening- and scalarity approaches to NPI licensing have proven fruitful for the analysis of *any* and its derivatives (such as *anybody*, *anywhere*, ...) as well as scalar NPIs in general: not just NPIs that denote minimal amounts, but also NPIs that denote maximal amounts and can be placed at the high end on a scale, such as *in weeks* or *in a million years* (see Krifka 1995: 239 ff. for discussion).

(89) We will not know the truth {in weeks/in a million years}. (Krifka 1995: 239)

As Krifka (1995) noted, NPIs in emphatic assertions associate quite freely with the focus particle *even*, which comes with the presupposition of unlikelihood described above that is central for Krifka's (1995) analysis. This observation was already made by Heim (1984), who suggested that NPIs largely fall into two classes: ones that associate with a covert *even* and ones that don't. This association between minimizers and *even* is by now well-established in the literature, see Lahiri (1998) for the association between NPIs and overt *even* in Hindi, and Crnič (2014a, 2014b), Guerzoni (2004), and Chierchia (2013) for minimizer NPIs associated with covert *even*.

2.3.3 Van Rooy (2003): Rhetorical questions, scales, and minimizers

Scalar approaches to NPI licensing are, of course, not only relevant to the licensing of NPIs in assertions, but also in questions. It has long been observed that there is an interaction between scalar and domain widening NPIs in questions and the reading such questions receive, ranging from neutral, information-seeking questions to rhetorical questions. To illustrate, view the following examples:

- (90) a. Does Viktor have friends?
b. Does Viktor have **any** friends?
c. Does Viktor have **ANY** friends?
- (91) a. Has Richard helped Anita with the cooking?
b. Has Richard **ever** helped Anita with the cooking?
c. Has Richard **EVER** helped Anita with the cooking?

If we compare the questions in (90)(a) and (91)(a), which do not contain NPIs, to their counterparts in (90)(b) and (91)(b), we can see that the addition of the NPIs *any* and *ever* in the latter two questions have the same effect those NPIs have in assertions: they widen the domain of quantification. That is, the questions in (90)(b) and (91)(b) are more general than their NPI-free counterparts (Krifka 1995: 251 ff.; van Rooy 2003: 7f.). For example, a question like (90)(b), in contrast to its NPI-free counterpart, may indicate that the speaker wants to know if Viktor has any type of friend that would be considered “less typical” in a relevant scenario – for example, a friend from very long ago or a friend that lives very far away, as opposed to a friend nearby that he sees on the regular. Importantly, both questions in (90)(b) and (91)(b) can serve as neutral, information-seeking questions. This stands in contrast to the questions in (90)(c) and (91)(c), which contain the same NPIs, but those NPIs are stressed. The emphasis on the NPIs has the effect that the respective questions are no longer neutral, information-seeking – the questions are at least biased towards the negative answer, if not rhetorical. The effect of emphatic *any* and *ever* in questions is again similar to the effect of emphatic *any* and *ever* in assertions: the domain of quantification is widened and the tolerance for exceptions is reduced. For example, the question in (90)(c) can be used to ask if Viktor has anybody in his life that could remotely be seen as a friend but that one would not normally describe as a “friend”, perhaps a bus driver that he is friendly with on his daily commute. Likewise, in (91)(c), the speaker wants to know if there was “ever ever” an occasion where Richard helped cooking, perhaps even back in the 80s for five minutes.

Inserting minimizer NPIs into questions has a similar effect to inserting stressed domain-widening NPIs: minimizer NPIs can make questions rhetorical. Take the following examples (92)-(94): it is very hard to conceive those questions with a neutral, information-seeking reading. The presence of minimizer NPIs seems to force them into rhetoricity:

- (92) Has Richard **ever lifted a finger** to help Anita?
- (93) Did Julian even **bat an eyelid** when he fired Richard?
- (94) Did Hannah **make a beep** when her colleague was bullied by the boss?

For example, the polar question containing the minimizer *lift a finger* in (91) cannot be used as a neutral, information-seeking question with which the speaker wants to enquire from a neutral perspective whether p or $\neg p$ applies. Instead, the question carries a rhetorical reading which conveys that the speaker thinks – or at least leans towards the answer – that $\neg p$, i.e. that Richard did not help Anita. The minimizer cannot be used felicitously to simply ask whether or not Richard helped Anita. The same goes for the other two polar questions containing the minimizers *bat an eyelid* and *make a beep* in (93) and (94). The minimizer questions cannot convey a neutral, information-seeking reading and instead seem to cause a rhetorical reading of the question they appear in: instead of asking whether or not Julian batted an eyelid or whether or not Hannah made a beep, they convey that the speaker leans towards the answer that $\neg p$ – i.e. that Julian didn't bat an eyelid and Hannah did not make a beep. The minimizer questions thus reverse the polarity of the prejacent of the questions: formally, they ask *whether p*, while conveying that the speaker thinks that $\neg p$.

The interactions between unstressed domain-widening NPIs, stressed domain-widening NPIs and minimizer NPIs and the rhetoricity of questions can be generalised as follows: “regular” NPIs, i.e. unstressed domain-widening non-minimizers like *any* and *ever*, can appear in neutral, information seeking questions. Stressed domain-widening non-minimizer NPIs like *ANY* and *EVER* and minimizer NPIs like *lift a finger* and *budge an inch*, on the other hand, can turn a neutral question into a rhetorical question (Krifka 1995: 253; van Rooy 2003: 8).

Van Rooy (2003) is concerned with the question of **why** minimizer NPIs can only appear in rhetorical questions, and how the effect of rhetoricity is induced by the minimizer NPIs. Van Rooy (2003) attributes this effect to two factors. According to van Rooy (2003: 10 f.) the rhetorical effect of minimizers in questions arises a) because

minimizer NPIs denote minimal values and b) because they share the presupposition of unlikelihood that comes with *even* (as described above). Van Rooy (2003: 11 ff.) describes this *even*-like presupposition of unlikelihood that minimizers carry as follows: a minimizer NPI presupposes that there are salient alternatives to its denotation, and these alternatives are relevant for the interpretation of the minimizer-containing questions. In van Rooy's (2003) analysis, a question with a minimizer NPI presupposes that the question is already settled for the salient alternatives, but not for the minimal value that the minimizer NPI denotes. For example, the question in (92) is settled for all salient (higher) alternatives to the minimum: it is clear that Richard hasn't helped often/regularly/sometimes/occasionally/twice when he was in a good mood. The question is only still open for the minimal value of help that is denoted by *lift a finger*. Hence, the question in (92) can only be asked to settle the issue of whether Richard never helped, or whether there is perhaps one exception to Richard's habit of not helping, i.e., whether he ever once helped to a minimal degree. In van Rooy's (2003) analysis, this is exactly the rhetorical effect that a question with a minimizer NPI has: to settle whether nothing applies at all, or if there is a minimal amount that applies. Since this minimal amount amounts to practically nothing, the question receives a rhetorical interpretation. Van Rooy's (2003) theory of minimizer NPIs and their effect on questions will be put to an empirical test in Section 4.2, where Experiment 2 investigates the interaction of rhetoricity, polar questions, and (non-) minimizer NPIs in German.

The scalar and domain-widening approaches to NPI licensing have gained a lot of traction over the years, and they certainly have a lot of explanatory power when it comes to the distribution and effects of scalar and minimizer NPIs. They do, however, have their limitations. Penka (2020: 655) notes that domain-widening accounts do not cover all empirical grounds regarding NPI licensing – particularly with respect to the licensing of NPIs in neutral (non-rhetorical) questions, and also regarding types of NPIs that do not denote small amounts at the lower end of a scale, i.e. non-minimizer NPIs, and NPIs that are not domain-widening like *any* and *ever*. This limitation of scalar approaches in terms of which type of NPIs they can capture in an empirically satisfactory manner has also previously been noticed by van der Wouden (1994), who stated that despite the fact that many NPIs are scalar in nature, not all of them are, naming “Dutch *hoeven* ‘need’ and its German counterpart *brauchen*” as examples for clearly non-scalar NPIs (van der Wouden 1994: 12). The empirical research presented

in Sections 3-5 on NPIs in German will reveal a large number of NPIs that cannot be analysed as scalar, unless we force implausible ad-hoc scales. For example, what scale would the German verbal NPIs *verdenken können* “to hold sth. against/blame sb.” or *wahrhaben wollen* “to want to acknowledge” in (95) and (96) be located on? It is not conceivable that these NPIs should be classed as scalar unless we force a scale of how much we want to hold something against somebody or how little someone wants to acknowledge something – an undertaking that seems less plausible than simply to admit that not all NPIs are scalar.

(95) Man **kann** dem FC Köln seinen Frust nicht **verdenken**.
 one can the FC Cologne POSS frustration not blame
 “One can’t blame FC Cologne for being frustrated.”

(96) Rita **will** das Ende ihrer Beziehung nicht **wahrhaben**.
 Rita wants the end POSS relationship not acknowledge
 “Rita does not want to acknowledge the end of her relationship.”

To conclude: the scalar approaches to NPI licensing presented in the present section have proven to be very useful in explaining the distributional facts and pragmatic effects of a large group of NPIs, namely scalar and domain widening NPIs. This, however, does not cover the full empirical picture of the distribution of NPIs as a class that also contains non-scalar elements.

2.4 Pragmatic approaches: licensing via negative implicatures

The scalar approaches to NPI licensing described in the previous section can be viewed as pragmatic approaches insofar that they do not only take the semantic, but also the pragmatic properties of NPIs and their licensing contexts into consideration. The approaches described in the current section, however, are pragmatic in nature in a different way: they are all grounded in the empirical fact that there are licensing contexts that cannot be shown to be downward entailing or explained by classical semantic licensing in the sense of Zwarts (1986, 1998) and van der Wouden (1994). In order to deal with these cases, a secondary licensing mechanism via negative implicatures has been proposed by several scholars. Linebarger (1980, 1987) proposes a secondary licensing mechanism via negative implicatures in cases in which there is no licenser scoping over the NPI in the LF structure. Sedivy (1990) suggests a pragmatic licensing mechanism for “lexical” NPIs, in contrast to “regular” NPIs, which Sedivy (1990) assumes to be licensed syntactically. Giannakidou (2006) follows a semantic approach to licensing instead (see Section 2.2 on Nonveridicality) and proposes an alternative sanctioning mode for NPIs that appear in contexts that are neither nonveridical nor downward entailing: “rescuing by nonveridicality”, i.e. the sanctioning of an otherwise unlicensed NPI by a negative implicature that arises from the context. Sailer (2021, 2022) approaches licensing contexts that prove to be challenging for a purely downward-entailment approach of NPI licensing by factoring in use-conditional meaning of different licensing contexts and allowing different types of NPIs to be licensed at different levels of utterance content (primary, truth conditional vs. conventional content).

2.4.1 Linebarger (1980, 1987): Negative implicatures for *only* and adversative predicates

Building on previous work by Baker (1970), Linebarger (1980, 1987) suggests a two-way mode of licensing negative polarity items: a primary, syntactic one based on NPIs appearing in the immediate scope of a licenser at LF, and a secondary pragmatic one based on negative implicatures. In Linebarger's (1987) analysis, NPI distribution can be understood as lying in the realm of the syntax-pragmatics interface. In her view, the "contextual requirements" of NPIs are "used quite freely by speakers of English to induce negative implicature" (Linebarger 1987: 326 f.). NPIs have a requirement to be canonically licensed by a negation taking scope over the NPI at LF – a licensing requirement that is encoded in the grammar (Linebarger 1987: 331). In the absence of such a canonical licenser, Linebarger (1987: 331) argues, the acceptability of NPIs is dependent on pragmatic factors that do not lie in the realm of grammar and logical form, but are "extragrammatical" in nature. That is, Linebarger (1987) suggests two ways of licensing: a) licensing in grammar on LF, which is named "the paradigm case"; and b) licensing by negative implicatures, namely "derivative licensing" (Linebarger 1987: 336).

For the "paradigm case", i.e. the primary strategy of syntactic-semantic NPI licensing, Linebarger (1987: 338) formulates "the immediate scope constraint":

(97) "The immediate scope constraint"

"A negative polarity item is acceptable in a sentence S if in the LF of S the subformula representing the NPI is in the immediate scope of the negation operator. An element is in the immediate scope of NOT only if (1) it occurs in a proposition that is the entire scope of NOT, and (2) within this proposition there are no logical elements intervening between it and NOT."

(Linebarger 1987: 338)

This licensing constraint captures the run-of-the-mill assumptions on general NPI licensing: (1) the NPI must occur in the scope of negation like in (98), and (2) there can be no intervening quantifier or other operator that takes scope between the negation and the NPI. Such intervening quantifiers are known to reduce the acceptability of NPIs: in (99), the quantifier *every* intervenes between the licenser *n't* and the NPI *lift a finger*, rendering the sentence unacceptable (see Section 3.2 on Previous experimental evidence for discussion of experimental data on the effect of intervening quantifiers).

(98) I don't think that Peter will **lift a finger** to help Mary.

- (99) *I don't think that every senator will **lift a finger** to help Mary.
(examples taken from Richter and Rado (2014: 54); emphasis added)

For “derivative licensing”, i.e., licensing by negative implicature, Linebarger (1987: 341) proposes that the “negative implicatum” (NI) does not have to be entailed by the sentence that contains the NPI – contrary to Baker (1970), who suggested a secondary licensing mechanism based on just entailments. In contrast, in Linebarger’s (1987: 341) account, the “negative implicatum” can also be an implicature of the NPI-containing sentence. Linebarger (1987: 345 f.) sets up her account of secondary licensing by negative implicature (“NI account”) as follows:

(i) Expectation of negative implicatum is itself a conventional implicature. A negative polarity item contributes to a sentence S expressing a proposition P the conventional implicature that the following two conditions are satisfied.

(ii) Availability of negative implicatum. There is some proposition NI (which may be identical to P) which is implicated or entailed by S and which is part of what the speaker is attempting to convey in uttering S. In the LF of some sentence S' expressing NI, the lexical representation of the NPI occurs in the immediate scope of negation. In the event that S is distinct from S', we may say that in uttering S the speaker is making an allusion to S'.

(iii) NI strengthens P. The truth of NI, in the context of the utterance, virtually guarantees the truth of P.

(Linebarger 1987: 346)

With the NI account, Linebarger (1987) sets out to explain the distribution of NPIs in contexts that are not straightforwardly downward entailing. Examples of this are NPIs in the scope of *only* (see (100)) or of “adversative predicates” such as *refuse* and *to be surprised* (see (101) and (102)), whose DE status has been some cause for debate (see Sections 2.1.2 and 5.3.3 for specific discussion of the individual licenser types).

(100) Only John has **a hope in hell** of passing.

(101) He refused to **budge an inch**.

(102) She was surprised that there was **any** food left.

(Linebarger 1987: 328; emphasis added)

(103) Whoever is not John does not have **a hope in hell** of passing.
 (Linebarger 1987: 347; emphasis added)

In the case of *only*, Linebarger (1987: 347) argues that a sentence like (100) gives rise to an implicature like (103), which she takes to be a paraphrase of (100), assuming the of the run-of-the-mill analysis of the meaning of the exclusive operator *only*. To Linebarger (1987: 347) the NPI in (100) seems to “*emphasiz[e]* the negativity of an entailment of the sentence.”

Linebarger (1987: 362 ff.) argues that there are cases in which NPIs appear in a context that is not downward entailing, including adversative predicates, *after*, *only*, and *exactly*, see (100) and (104)-(106):

- (104) Mary was surprised that her father-in-law **budged an inch** when it came to their latest political discussion.
 (105) Ruth kept all her drawings long after **anyone** had asked to see them.
 (106) Exactly three neighbours had **ever** asked to see Ruth’s drawings.

Furthermore, Linebarger (1987: 362 ff.) argues that there are cases of NPIs in which they appear in downward-entailing environments, but negative implicatures still play a “critical role”, such as “NPI licensing in the non-immediate scope of negation [...], in comparatives [...], under ‘before’ [...], in the antecedent of conditionals [...], and in relative clauses” (Linebarger 1987: 362). Note that the downward-entailment status of the latter licensor types has been cause for debate in the literature, see Section 2.1.2 on Strawson downward entailment. For discussion of the individual licensor types, see Section 5.3 and 5.4. Every type of licensor mentioned here (except for relative clauses) will be discussed in the results sections 5.3 and 5.4 of the corpus study presented in Section 5.

As described above, Linebarger (1987) suggests negative implicatures to be the source of licensing of NPIs in the scope of *only*. In this analysis, the two sentences in (107) and (108), which contain the NPI *ever*, give rise to a negative implicature like in (109), “where the NPI is contained in *P* [the predicate]” (Linebarger (1987: 372):

- (107) Only John has **ever** been there.
 (108) Only the students who had **ever** read **anything** about phrenology attended the lectures.
 (109) $Ax(\text{NOT}[x = \text{John}] \rightarrow \text{NOT}(P(x)))$
 (Linebarger 1987: 372; emphasis added)

That is, in Linebarger's (1987) proposal, the sentence in (107) gives rise to the negative implicature in (110), and the sentence in (108) gives rise to the negative implicature in (111):

(110) For all x that are not John: x has not **ever** been there.

(111) For all x who are not students who have **ever** read **anything** about phrenology:
x did not attend the lectures.

Linebarger (1987: 362 ff.) furthermore argues that adversative predicates like *to be surprised* are not downward entailing but can host NPIs if they project negative implicatures. The lack of downward monotonicity can be shown in the following examples: (112) does not entail (113).

(112) Mary was surprised that John bought a car.

(113) Mary was surprised that John bought a Mercedes. (Linebarger 1987: 364)

On the topic of the non-downward entailment of *to be surprised* Linebarger (1987: 365) writes: "Ladusaw (personal communication) argues that the relevant entailment of [(112)] 'would be 'Mary was surprised that John bought a Mercedes' minus the commitment to the truth of 'John bought a Mercedes'". Linebarger (1987: 367) proceeds to call this weakened notion "psychological downward entailment", a concept which seems to be very akin to von Stechow's (1999) Strawson downward entailment (cf. Section 2.1.2). Linebarger (1987: 367 ff.) rejects this weakened approach to DE though, as weakening DE would also make predicates like *to be glad* (weakly) downward entailing, which do, in fact, not host NPIs:

(114) *Padma was glad she **ever** went to London.

(115) *Miko was glad that he caught **any** fish.

Weakening downward entailment from a logical to a psychological notion would thus lose its predictive power, fail to capture the distributional patterns of NPIs correctly, and "be inadequate to the task of simply distinguishing between triggers and non-triggers [of NPIs]." (Linebarger 1987: 369)

Instead, Linebarger (1987: 362 ff.) argues that adversative predicates give rise to a negative implicature that can license NPIs, and such implicatures cannot be cancelled if the sentence hosts an NPI. If they could be cancelled in the presence of an NPI, it would be hard to conceive how such a volatile implicature should be able to license an NPI: if an implicature can just be cancelled at the will of the speaker without rendering

the discourse incoherent, it can hardly serve as an empirical basis for a grammatical phenomenon such as NPI licensing.

For example, Linebarger (1987: 363) argues that the assertion in (116), which contains the adversative predicate *to be amazed* and the NPI *any*, gives rise to the negative implicature in (117), which in turn licenses the NPI. Importantly, this implicature cannot be cancelled, as shown by the infelicitous continuation in (118), due to the presence of the NPI:

(116) She was amazed that there was **any** food left.

(117) She had expected that there wouldn't be **any** food left.

(Linebarger 1987: 362 f.; emphasis added)

(118) ... #even though she had expected that there would be food left.

Additionally, Linebarger (1987: 363) argues, the negative implicature can also arise in the absence of an NPI, as the implicature depends on the presence of the adversative predicate. This is illustrated by the examples in (119) and (120), where the sentence in (119) contains the adversative predicate *to be amazed*, but no NPI, and gives rise to the negative implicature in (120):

(119) Martha was amazed that she could still do a deep squat at eight months pregnant.

(120) Martha had not expected that she could still do a deep squat at eight months pregnant.

Linebarger (1987: 363) further argues that implicatures like this do not necessarily arise from assertions without NPIs, but if there is an NPI present it “seems actually to *compel* this implicature, by virtue of the fact that the NPI would be unacceptable without it.” She illustrates this claim by showing that the assertion without an NPI in (121)(a) may give rise to the implicature in (121)(b), but does not arise obligatorily and is not “particularly salient” Linebarger (1987: 363). In addition, it could easily be cancelled by the continuation in (121)(c).

(121) a) I was surprised that John had (some) llamas in his apartment.

b) I had expected that John would not have llamas in his apartment.

c) I had no idea that such creatures existed. (Linebarger 1987: 363)

In contrast, Linebarger (1987: 363 f.) argues that the assertion in (122)(a), which contains the NPI *any*, necessarily gives rise to the negative implicature in (122)(b) and cannot felicitously be cancelled by the continuation in (122)(c):

(122) a) I was surprised that John had any llamas in his apartment.

- b) I had expected that John would not have llamas in his apartment.
- c) #I had no idea that such creatures existed. (Linebarger 1987: 363 f.)

To summarize, in Linebarger's (1987) analysis, in certain contexts that are not downward entailing, NPis can be licensed by negative implicatures that arise from the NPI-hosting sentences. These licensing contexts include the scope of *only* and adversative predicates. The negative implicatures stem from the presence of *only* or the adversative predicates, respectively, and can also arise in the absence of an NPI. If an NPI is present, however, these negative implicatures arise obligatorily, as evidenced by the fact that the NPis would be unacceptable otherwise.

2.4.2 Giannakidou (2006): Rescuing by nonveridicality

Giannakidou (2006) deals with the same type of licensors as Linebarger (1987): NPIs in the scope of *only* and of adversative predicates, or, more precisely, emotive factives such as *regret*. In contrast to Linebarger (1987), who rejects the theory of DE-based NPI licensing, Giannakidou (2006) proposes to stay in this semantic lane. Giannakidou (2006: 578) suggests taking nonveridicality “as a conservative extension of DE”, suggesting that nonveridicality is “the key semantic notion for PI [polarity item] licensing”. Giannakidou’s (1997, 1998, 2002, 2011) notion of nonveridicality was discussed in Section 2.2. Nonveridicality per se can, however, not be viewed as underlying the licensing of NPIs in the scope of *only* or emotive factives. As demonstrated in (123) and (124), adding *only* or the emotive factive *regret* as a predicate to an assertion does not turn the respective assertion nonveridical; both examples in (123) and (124) are, in fact, veridical:

(123) Only Maya has **ever** helped her neighbours.

(124) Maya regrets having **ever** helped her neighbours.

For this reason, Giannakidou (2006) extends her account of NPI licensing by nonveridicality, suggesting that there is a primary and a secondary sanctioning mechanism for NPIs: the first one being semantic licensing as described in Section 2.2, and the second one being “rescuing by nonveridicality”, i.e. the sanctioning of an NPI by a negative implicature that becomes available in the context. As described in Section 2.1.2, Giannakidou (2006) explicitly argues against von Stechow’s (1999) notion of Strawson downward entailment as underlying the licensing of NPIs in the scope of *only*, stating that “weakening DE overgenerates [...] and predicts general licensing across PIs [polarity items] and languages, contrary to fact” (Giannakidou 2006: 578). Hence, for Giannakidou (2006), a weakened notion of downward entailment is ruled out as a licensing factor in sentences like (123) and (124). Given the fact that they are not nonveridical either, and nonveridicality is thus ruled out as an explanation of why *only* and emotive factives can host NPIs, Giannakidou (2006) proposes that NPIs in the scope of *only* and emotive factives are not directly, but rather indirectly licensed by negative implicatures. Emotive factives like *regret*, Giannakidou (2006: 595) suggests, make implicatures available which are a “counterfactual conditional with a negative protasis”, which Giannakidou (2006: 595) takes to be “the expressive, emotive attitude of such verbs” that cannot be cancelled. In this analysis, the assertion in (125)

implicates the negative counterfactual conditional in (126). The non-cancelability of the negative implicature is shown in the infelicitous continuation in (127):

(125) John regrets that I bought a car.

(126) John would prefer it if I had not bought a car.

(127) John regrets that I bought a car; #in fact he wouldn't prefer it if I had not bought a car. Giannakidou (2006: 595)

Giannakidou (2006: 596) assumes that *any*-type NPIs are not always automatically unacceptable in a veridical context, but can rather “be rescued by a nonveridical inference even in a veridical context”. For *only*, Giannakidou (2006: 596) states that since it does not turn a veridical sentence into a nonveridical one, it is clearly veridical. As a consequence, regular semantic licensing cannot explain why NPIs can appear in the scope of the veridical operator *only*. Like for emotive factives, Giannakidou (2006: 596) explains the presence of NPIs in its scope via the mechanism of rescuing by a nonveridical implicature projected by *only*. The NPI in (128) in the scope of *only* is thus rescued by the negative implicature in (129) that the exclusive marker *only* itself projects:

(128) Only John ate **anything**.

(129) Nobody but John ate **anything**. (Giannakidou 2006: 595)

Giannakidou (2006: 595) defines the “rescuing condition” as follows:

(130) Rescuing by nonveridicality

A PI α can be rescued in the scope of a veridical expression β in a sentence S, if the global context C of S makes a proposition S' available which contains a non-veridical expression β ; and α can be associated with β in S'.

(Giannakidou 2006: 596)

It is important to note that Giannakidou (2006) makes a careful empirical distinction based on crosslinguistic data between NPIs that can be rescued and NPIs that must be licensed, i.e., NPIs with a less strict distribution and ones with a more limited distribution. In other words: not every type of NPI can be rescued. Giannakidou (2006: 583) demonstrates the fact that not every NPI can be rescued with Spanish and Greek minimizers that are unacceptable in the scope of the exclusive marker *only*. The difference can also be shown in German, where, for example, the verbal NPI *anhaben können* “to be able to harm” can appear in the scope of *nur* “only” (as also evidenced by corpus data, see Section 5.3.3.3), but the adverbial NPI *sonderlich* “particularly” can't:

(131) ?? Nur Micha hat sich **sonderlich** gefreut.
 only Micha has REFL particularly is.happy.PARTICIPLE
 “Only Micha was particularly happy.”

(132) Nur das schlechte Wetter **konnte** Michas guter
 only the bad weather could Micha.GEN good
 Laune etwas **anhaben**.
 mood something harm
 “Only the bad weather could ruin Micha’s good mood.”

This distinction between rescuable and non-rescuable NPIs is a fundamental difference to Linebarger’s (1987) account, in which there seems to be no restriction on what type of NPIs can be licensed by negative implicatures. Another difference is that Linebarger’s (1987) NI account seems to rely on conversational implicatures, while “the rescuing condition in [(130)] makes appeal to the global context *C* of *S*”, which makes more than conversational implicatures available (Giannakidou 2006: 596):

The global context C of a sentence S is the set of propositions that arise from S without necessarily being ENTAILED by it. C thus contains the assertion (entailments and presuppositions) and possible pragmatic inferences that a sentence yields, that is, its implicatures (conversational as well as conventional). The stricter PI classes are licensed only via scope at LF. But some PIs, like the any class, have access to all of the information in C and can be sanctioned in violation of the scope condition at LF, just in case C contains a nonveridical proposition and the PIs can be associated with it.

Giannakidou (2006: 596)

Importantly, Giannakidou (2006: 598) emphasizes that both the notion of NPI “licensing AND rescuing depend crucially on nonveridicality, thus supporting the semantic characterization of the expressions that sanction PIs.” This neatly unifies the dual nature of NPI sanctioning that Giannakidou (2006) suggests: on the one hand, there is the primary mechanism of NPI “LICENSING, where the PI has access to the semantic information of the sentence only and is sanctioned by being in the scope of a nonve-

ridical operator in syntax.” (Giannakidou 2006: 600) On the other hand, there is the secondary mechanism of NPI rescuing. Rescuing, in contrast, “does not happen in the syntactic scope of a nonveridical expression; rather, it can go beyond the entailments of expressions in the sentence of occurrence and exploit the global context, which includes information that is derived from, without necessarily being entailed by, the sentence.” (Giannakidou 2006: 600)

2.4.3 Sedivy (1990) and Sailer (2022): VERUM, declarative questions, and negative side messages

A different approach to NPI licensing via negative implicatures comes from Sailer (2022), building on data from Sedivy (1990). Sedivy (1990) observes distributional differences between minimizer NPIs (“lexical NPIs” in Sedivy’s (1990) terms) and “regular NPIs” such as *any* and *ever* in licensing contexts that would not be predicted by the semantic licensing theories of NPIs I have so far discussed here. While minimizer NPIs can appear in emphatic contexts with VERUM focus (Höhle, 2018) without negation (see (133)-(135)), the “regular” NPIs can’t, see (136)-(137):

(133) I DO **give a damn**.

(134) John DOES have **a hope in hell** of passing the test.

(135) Cynthia DOES **lift a finger** when there is work to be done.

(136) *Bert DID **ever** kiss Marilyn Monroe.

(137) *Bush DOES care about the homeless **at all**.

(Sedivy 1990: 98; emphasis added)

Similarly, Sedivy (1990) observes that minimizer NPIs can appear in counterfactual modal contexts (see (138)-(140)), while “regular” NPIs can’t, see (141)-(143):

(138) John should have **lifted a finger** to help Mary clean up.

(139) Bill might have **given a damn** about some girl.

(140) Sam must have **a hope in hell** of passing his test after studying so hard.

(141) *John should have eaten **any** healthful tofu.

(142) *Bill might have **ever** met Chomsky.

(143) *Sam must care for Margaret **at all** since she bore him three children.

(Sedivy 1990: 99; emphasis added)

Having identified these challenging contexts, Sedivy (1990: 101) argues that in order to explain the distinct types of licensing pattern, two different manners of licensing are required. In her analysis, in contexts like the above where there is no regular licenser present, but minimizer NPIs can still appear, the presence of minimizer NPIs is dependent on “the availability of some reading in which the proposition containing the NPI is negated” (Sedivy 1990: 101). Sedivy (1990: 102) characterises these contexts as “environments where a strong negative implicature is available but where the syntactic conditions for licensing are not met”, thus arguing for a dual treatment of licensing along the lines of Linebarger (1987): syntactic licensing of NPIs in the scope of a negative licenser, and pragmatic licensing via negative implicature.

Sailer (2022) builds on Sedivy's (1990) observations and shows similar data for German. In addition, Sailer (2022) shows that minimizer NPIs such as *einen Finger krumm machen* (lit. "a finger bent made", "lift a finger") can appear in rising declarative questions in German, which are not typically contexts that can host NPIs:

(144) A: *Chris war eine große Hilfe beim Aufräumen.*

"Chris was a great help with cleaning."

B: *Wie jetzt? Chris hat (tatsächlich) **einen Finger***

How now? Chris has actually a finger

krumm gemacht, um zu helfen?

bent made to INF.PART help

"What? Chris really has lifted a finger to help?"

(Sailer 2022: 739)

Sailer (2022: 734) argues that "the relevant contexts have a use-conditional meaning and that *lift-finger*-type NPIs, in contrast to *ever*-type NPIs, can be licensed through use-conditional meaning", formalising this mechanism "as occurrence constraints of NPIs within semantic representations". Therefore, Sailer (2022) also suggests assuming a dual licensing mechanism for different sets of NPIs: classical semantic licensing of NPIs through being in the scope of a negative licenser, and a pragmatic licensing via use-conditional meaning. Sailer (2022: 739) argues that in cases like (144), there is a "negative side message", given in (145):

(145) Side message: The speaker thinks that Chris hasn't lifted a finger to help.

Sailer (2022: 740) suggests that the "side message" in the present example is not expressed explicitly, but is rather a "negative bias" on part of the speaker. This negative bias, Sailer (2022: 740) argues, can also be seen when a minimizer NPI like *lift a finger* is inserted into a regular polar question. Indeed, the example in (146) seems to exhibit a certain bias towards Alex being idle on part of the speaker. If the speaker had a completely neutral attitude with regards to the activity levels of Alex, the question in (146) containing the minimizer NPI would be somewhat odd:

(146) *Hat Alex **einen Finger krumm gemacht?***

has Alex a finger bent made

"Did Alex lift a finger?"

(Sailer 2022: 739)

Overall, Sailer (2022: 740) proposes a “representational, collocational approach” to NPI licensing, assuming “that there is a level of semantic representation and that NPIs come with the requirement that they must be in a particular constellation to other elements in this representation.” In this analysis, “an NPI can be lexically specified that its meaning contribution must occur as a subexpression of a formula $\neg\alpha$ in the semantic representation of the sentence containing the NPI.” (Sailer 2022: 740). The semantic representational structure is not only assumed for “truth-conditional content of an utterance, but also for additional meaning components” Sailer (2022: 741). That is, Sailer’s (2022) model explicitly goes beyond the semantic (truth-conditional) content to include contextual pragmatic factors that can contribute to the acceptability of certain NPIs in environments that otherwise contain no licenser. The three-tiered model of the semantic-pragmatics interface that Sailer (2022: 745) assumes is based on Sailer (2021):

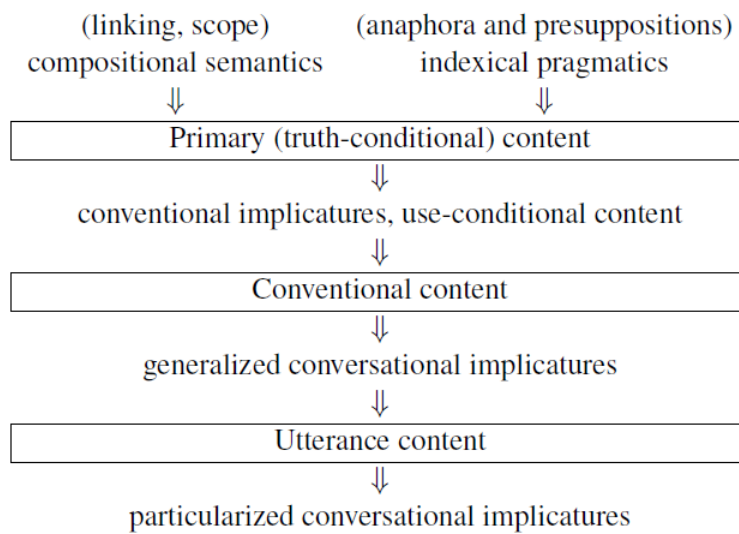


Figure 2: Model of the semantics-pragmatics interaction from Sailer (2021: 357)

Based on the observation that minimizer NPIs can appear in certain contexts without overt licensers as described above, Sailer (2022) suggests a differential treatment of “*lift-finger*-type NPIs” (minimizer NPIs) and *ever*-type NPIs: “*ever*-type NPIs are very flexible with respect to their licenser, but they require licensing within the primary content of a sentence.” (Sailer 2022: 745) That is, *ever*-type NPIs can appear with all sorts of different licensers, but the licenser must be overtly present in the sentence that the *ever*-type NPI appears in (in the primary, truth-conditional content, i.e. in the first

layer of Sailer’s (2021, 2022) model of the semantics-pragmatics interaction). Minimizer NPIs, on the other hand, follow a different set of rules, according to Sailer’s (2022) proposal: they are less free with regard to what licenser they can appear with, but more liberal with regard to where they access their licenser. Sailer (2022: 745 f.) formulates the constraint on minimizer (or “*lift-finger-type*”) NPIs as follows: minimizers “can only be licensed by negation, but their licensing is checked at the level of the conventional content, i.e., they can be licensed in the primary or the secondary content.” To capture the different distributional patterns for minimizers and *ever-type* NPIs, Sailer (2022: 746) formulates the following two licensing conditions:

- (147) “Licensing condition for *ever-type* NPIs, adapted from Sailer (2021: 360):
The semantic contribution of an *ever-type* NPI must occur in an NPI-licensing environment within the primary truth-conditional content of a clause containing the NPI.” (Sailer 2022: 746)
- (148) “Licensing condition for *lift-finger-type* NPIs, adapted from Sailer (2021: 362):
The semantic contribution of a *lift-finger-type* NPI must occur in the (immediate) scope of negation within the utterance content of the utterance containing [sic!] the NPI (which includes the conventional content).” (Sailer 2022: 746)

Sailer (2022: 746) illustrates this analysis for minimizers such as *give a damn* in VERUM-focus contexts as follows:

- (149) I DO give a damn.
(150) TRUE(**give-damn(speaker)**)^{tc|uc} <salient-utt(¬give-damn(speaker))>
(Sailer 2022: 746)

As a minimizer NPI, *give a damn* requires a proper negation as a licenser. However, this negation does not need to be in the truth-conditional content but can also be found in the utterance content. In the example given in (149), there is indeed no negation in the truth-conditional content, as can be seen in Sailer’s (2022) analysis of the truth-conditional content (“tc”) in the first Section in (150). However, there is a negation present in the utterance content (“ut”) in the remainder of (150): a salient previous utterance that the speaker does not give a damn. Therefore, the analysis in (150) captures the use conditions of assertions like (149): a rejection like *I DO give a damn* can only be felicitously uttered if there is a salient previous assertion in the context that the speaker does **not** give a damn.

For rising declaratives like (144), repeated in (151), Sailer (2022: 747) gives the following analysis:

(151) A: *Chris war eine große Hilfe beim Aufräumen.*

“Chris was a great help with cleaning.”

B: *Wie jetzt? Chris hat (tatsächlich) **einen Finger***

How now? Chris has actually a finger

krumm gemacht, um zu helfen?

bent made to INF.PART help

“What? Chris really has lifted a finger to help?”

(Sailer 2022: 739)

(152) ASSERT_{Add} (... **npi** ...)^{tc|uc} (**convinced**_{Sp} (¬ (... **npi** ...)))

(Sailer 2022: 747)

Again, the minimizer NPI *einen Finger krumm machen* is not licensed in the truth-conditional content, as seen in the first section in (152). Instead, it is licensed in the utterance content, which contains a negation. The utterance content again describes the use conditions of rising declaratives like (151): such a rising declarative can only be uttered when the speaker was convinced that $\neg p$, with p containing the NPI, and gets confronted with conflicting evidence that p .

In summary, Sailer’s (2022) account seeks to explain the distribution of usually rather limited minimizer NPIs in unexpected licensing contexts like VERUM rejections and declarative questions that even NPIs that are normally more distributionally liberal cannot appear in. He does so by building in the use-conditional semantics of both the NPIs and the contexts in question. In Sailer’s (2022) account, NPIs can be licensed by (some types of) implicatures. Recall that in the discourse model shown in Figure 2, there are three types of implicatures: 1) conventional implicatures, 2) generalized conversational implicatures, and 3) particularized conversational implicatures. Based on Levinson (2000), Sailer (2022: 749) proposes that generalized conversational implicatures are part of the utterance content, assuming that they are “systematically predictable on the basis of the semantic representation of an utterance”. Furthermore, Sailer (2022) argues that these generalized conversational implicatures can and do play a role in the licensing of minimizer NPIs in contexts such as assertions containing VERUM that have not previously been described as NPI-hosting contexts in the literature on classical semantic NPI licensing. Importantly, in this account, NPIs can be licensed by implicatures, but not by every type of implicature: Sailer (2022: 749)

predicts that minimizer NPIs “cannot be licensed by purely contextually conditioned inferences such as particularized conversational implicatures” – they can only be licensed by conventional or generalized conversational implicatures. Such a restriction of implicature type is important to keep the account from overgenerating, a criticism often made about pragmatic approaches to NPI licensing based on (conversational) implicatures (e.g. in Penka (2020: 646)).

To conclude, I have shown three different approaches to pragmatic licensing in this section. It is important to note that, despite their differences, these accounts are not necessarily mutually exclusive in every aspect. While Linebarger (1987) rejected semantic licensing on the basis of downward entailment altogether, Giannakidou (2006) stays within the semantic framework of downward monotonicity by extending it to nonveridicality and assuming a secondary pragmatic licensing mechanism. Both accounts argue convincingly that a secondary pragmatic licensing mechanism is needed to explain the distribution of NPIs in well-known licensing contexts such as the scope of *only*. Sailer (2022) extends the empirical scope by looking at even more unusual licensing contexts such as the ones described in Sedivy (1990). Sailer’s (2022) account explains the presence of a sub-type of NPIs in these particular contexts with the use-conditional meaning of these contexts. In this sense, Sailer’s (2022) approach is much more specific than that of Giannakidou (2006), who states that if a context makes a nonveridical implicature available, this implicature can rescue an NPI. Sailer’s (2022) restriction of the type of implicature to generalized, but not particularized conversational implicatures might just be the specification needed in order to keep an account like Giannakidou’s (2006) from overgenerating predictions as to where NPIs can be rescued. Sailer (2022) is not explicit on NPI licensing by conventional implicatures, but given that conventional implicatures arise from the primary, truth-conditional content in his model of the semantic-pragmatics interface, the possibility of NPI licensing through conventional implicatures can be tacitly assumed.

3 NPIs in German

The following section gives an overview of the current state of the empirical research on NPIs in German. In Section 3.1, I will briefly present the CoDII corpus, a large collection of German NPIs, which serves as the empirical basis for the experiments and corpus work presented in Sections 4 and 5. In Section 3.2, I will give an overview of previous experimental evidence obtained for German NPIs. Section 3.3 inspects the NPIs included in the CoDII corpus more closely: in this section, I present a classification of German NPIs I have made on the CoDII data with regards to morphosyntactic and semantic criteria.

3.1 The CoDII corpus

Seminal corpus-linguistic work in gaining a broad overview of the landscape of German NPIs has been done by Sailer and Trawiński (2006a, b), Trawiński et al. (2008), Trawiński and Soehn (2008), and Soehn et al. (2010). With the *Collection of Distributionally Idiosyncratic Items* (CoDII), they provide a multilingual database that contains data on lexical items with idiosyncratic distribution, such as German and English bound words, German positive polarity items (PPIs) and German and Romanian NPIs. The CoDII corpus provides a list of 165 German NPI candidates that have been extracted from corpora based on collocational information. It also provides syntactic and distributional information on those NPI candidates.¹⁰ For each NPI candidate, the CoDII corpus lists whether it appears in one of the following licensing contexts in the corpus data it was extracted from, and provides examples:

1. Clausemate negation, i.e. the negation particle *nicht* “not” appearing in the same clause as the NPI
2. Non-clausemate negation, i.e. *nicht* “not” appearing in an embedding clause with the NPI in the embedded clause
3. “N”-words, i.e. the NPI appearing in the scope of negative “n”-words such as *niemand* “nobody”, *niemals* “never”, *nirgendwo* “nowhere”, etc.
4. *Kein*-negation, i.e. NPIs appearing in the scope of the negative quantifier *kein* “no”

¹⁰ The CoDII corpus can be accessed online under the following link: <https://www.english-linguistics.de/codii/>

The full list of German NPIs in the CoDII corpus can be accessed under the following link: <https://www.english-linguistics.de/codii/codiinpi/de/list-complete.xhtml>

5. NPIs in the scope of *ohne* “without”
6. NPIs in the restrictor of a universal quantifier
7. Downward entailing environments, i.e. NPIs appearing in the scope of downward entailing operators such as *wenig* “few”, *selten* “rarely”, *kaum* “hardly”
8. NPIs in the scope of *nur* “only”
9. Negative verbs such as *bezweifeln* “to doubt”
10. Questions
11. Conditionals, i.e. NPIs appearing in the antecedent of conditionals
12. Comparatives
13. Superlatives
14. Imperatives

NPIs are classified as superstrong, strong, and weak depending on their distribution in the corpus data. The CoDII corpus provides an excellent basis for research on German NPIs. However, there are some obstacles with the database due to methodological limitations of the corpus approach. Firstly, as is well known, the corpus approach can only find tokens that have been produced in a particular corpus, but not finding a particular NPI in a particular licensing context in a corpus does not mean it is unacceptable in that context. For example, there are no instances of the German NPI *zu besagen haben* (lit. “to tell have”, “to mean sth.”) licensed by negative verbs like *bezweifeln* “to doubt” in the CoDII corpus. However, intuitively, it seems to be acceptable in that context:

- (153) Ich bezweifle, dass die Zahlen etwas **zu besagen haben**.
 I doubt that the figures something to tell have
 “I doubt that these figures mean anything.”

The problem that not everything one does not find in a corpus is ungrammatical is of course inherent to the corpus method. For this reason, the CoDII corpus lends itself to serving as a basis for further experimental work on German NPIs that can complement the corpus data. Another obstacle with the CoDII data is a problem that arises from the method of NPI extraction via collocation analysis: not every word or group of words that often appears in collocation with negations or other NPI licensors is necessarily an NPI. For example, it is plausible that an adjective like *bezahlbar* “affordable” may have a relatively high cooccurrence rate with negation words for pragmatic reasons: there is no need to communicate something trivial is affordable, but we tend to complain about high prices. It seems like at least one such case has made it into the CoDII

corpus: the CoDII corpus lists the particle combination *noch so* “ever so” as an NPI, citing examples like the following:

- (154) Kein auch **noch** **so** kleines Delikt soll ungeahndet bleiben.¹¹
 No also still so small offence shall unpunished stay
 “No ever so small offence shall remain unpunished.”

The fact that there is a double negation in the example cited above points to the fact that the particle combination *noch so* may, in fact, not be an NPI: the negative determiner *kein* and the affixal negation *un-* may cancel each other out with the result remaining grammatical:

- (155) Auch **noch** **so** kleine Delikte sollen geahndet werden.
also still so small of- shall punished be
“Even ever so small offences shall be punished.”

This suggests that the particle combination *noch so* “ever so” may often appear in the scope of negation or other typical NPI licensors but is not actually an NPI. The reformulated example in (155) without double negation sounds perfectly grammatical. A look at the DWDS corpus corroborates the suspicion that *noch so* “ever so” is not an NPI; a corpus example of *noch so* without a negative licensor is given below:

- (156) Mögen Nürnbergs Bürger auch **noch so** sehr
 may Nürnberg.GEN citizens also ever so much
 dagegen protestieren, die Entscheidung ist unumstößlich.¹²
 against.it protest the decision is unchangeable
 “May the citizens of Nürnberg protest against it ever so much, the decision cannot
 be changed.”

Not checking for double negation in the annotated corpus examples is, of course, another obstacle in the data that might lead to false classifications of non-NPIs as NPIs. Another empirical problem concerning the CoDII corpus in its current state is that so

¹¹ From: [Source: A98/MAI.33516 St. Galler Tagblatt, 20.05.1998], retrieved from <https://www.english-linguistics.de/codii/codiinpi/de/examples/noch-so-dii-syntax.xhtml> on 20.1.2024

¹² Corpus hits for »"auch noch so" && !kein && !nicht«, from the corpus Gegenwartskorpora mit freiem Zugang des Digitalen Wörterbuchs der deutschen Sprache, https://www.dwds.de/r/?q=%22auch+noch+so%22+%26%26+!kein+%26%26+!nicht&corpus=dwdsxl&date-start=1897&date-end=2025&sc=adg&sc=bz&sc=blogs&sc=bundestag&sc=ddr&sc=tsp&sc=kern&sc=kern21&sc=gesezte&sc=spk&sc=politische_reden&sc=samisdat&sc=untertitel&sc=wikibooks&sc=wikipedia&sc=wikivoyage&format=full&sort=date_desc&limit=50, retrieved on 10.04.2025.

far does not distinguish between different forms of questions, most notably between positive and negative polar questions. As a consequence, if an NPI appears in a negative polar question in the corpus, it is not clear whether that particular NPI is licensed by the question or by the negation, leading to possible confounds in the NPI classification:

(157) **Brauchen** wir Deutschen also keine gigantische Stromausfal zu
 need we Germans PART no gigantic blackout INF.PART
 befürchten?¹³
 fear

“Do we Germans not need to fear a gigantic blackout then?”

In the (157), there are two potential licensors: the negation *kein* “no” and the question itself. However, given that from a theoretical viewpoint the negation is a much stronger licensor than the question, this example should maybe rather be annotated as licensed by *kein* than as an occurrence of *brauchen* “need” in a question environment. Given that different types of licensors license different types of NPIs, we should carefully distinguish between positive and negative questions. If an NPI appears in a question with no negation, we can deduce that it must be a (super)weak NPI, whereas if there is an additional negation in the question, we can come to no such conclusion. Another issue is the licensing of NPIs in rhetorical questions, which has been argued to be subject to more specific conditions (van Rooy, 2003; see Section 4.2 for discussion). Rhetorical questions are not distinguished from non-rhetorical questions in the CoDII corpus. For the reasons listed above, a multi-methodological approach to German NPIs employing experimental methods as well as corpus data to complement the quantitative data obtained in the CoDII corpus could substantially broaden our understanding of NPI licensing. Systematic quantitative testing of the NPI candidates found in the CoDII corpus in controlled acceptability judgement experiments is a first step in this direction.

¹³ From: [Source: Mannheimer Morgen, 04.12.2003, Ressort: Wirtschaft; Geht uns bald der Strom aus?], retrieved from <https://www.english-linguistics.de/codii/codiinpi/de/examples/brauchen-zu-que-licensors-1.xhtml> on 20.1.2024

3.2 Previous experimental evidence

Quantitative research particularly on German NPIs is so far relatively sparse. Experimental research on German NPIs has mostly focused on the processing of NPIs (Saddy et al., 2004; Drenhaus et al., 2005; Drenhaus et al., 2007; Liu et al., 2019) and more recently on NPI illusions specifically (Schwab, 2022) and the acquisition of NPIs (Schwab et al., 2021). Richter and Radó (2014) provide some insight into the licensing behaviour of German NPIs, focussing mainly on the strong/weak distinction, quantifier intervention and licensing by non-clausemate negation (i.e. cases where there is an NPI in an embedded clause which is licensed by a negation operator in the embedding clause).

Saddy et al. (2004) focus on the processing of positive and negative polarity items (PPIs and NPIs). They conduct an ERP experiment exploring the difference in processing between licensed and unlicensed NPIs and “licensed” and anti-licensed¹⁴ PPIs. Saddy et al. (2004) demonstrate that both types of polarity items show different processing patterns: unlicensed NPIs produced an N400 effect associated with higher processing cost. Anti-licensed PPIs (i.e. PPIs in the scope of negation), on the other hand, produced an N400 effect as well as a P600 effect. Saddy et al. (2004) take these differences in effects to suggest that the processing of NPIs and PPIs differs from one another. Liu et al. (2019) also draw comparisons between the processing of German NPIs and PPIs in an ERP study, comparing NPIs in positive and negative sentences to PPIs in positive and negative sentences. Liu et al. (2019) find higher processing costs for NPIs compared to PPIs. These results could point to the idea that NPIs and PPIs cannot be conceptualised as mirror images of each other.

Drenhaus et al. (2005) conducted experiments on German NPIs¹⁵ in three conditions: 1) licensed, i.e. with a negative licenser scoping over the NPI, 2) unlicensed with no licenser present, and 3) unlicensed with a licenser present in a relative clause, but not scoping over the NPI. The sample materials for these conditions given by Drenhaus et al. (2005: 153) are shown below:

(158) Kein Mann, der einen Bart hatte, war **jemals** glücklich. (licensed)
no man who a beard had was ever happy

¹⁴ Since PPIs can, largely, not appear in the scope of negation, they are not strictly speaking “licensed” in a positive context. Rather, they are anti-licensed by negative operators and not anti-licensed in the absence of such operators.

¹⁵ The only German NPI mentioned in Drenhaus et al. (2005) is *jemals* “ever”. It is not quite clear from the text whether they also used other NPIs in the materials.

“No man who had a beard was ever happy.”

- (159) *Ein Mann, der einen Bart hatte, war **jemals** glücklich. (**not**
a man who a beard had was ever happy **licensed**)
“A man who had a beard was ever happy.”

- (160) *Ein Mann, der keinen Bart hatte, war **jemals** glücklich. (**illusory**
a man who no beard had was ever happy **licensing**)
“A man who had no beard was ever happy.”
(Drenhaus et al. (2005: 153), emphasis added)

In order to gain insight into the online processing of NPIs in these three conditions, Drenhaus et al. (2005) first ran a speeded-acceptability experiment in which participants were presented with stimuli like the ones given above and instructed to rate their acceptability within a maximum timeframe of 3000 milliseconds. The results showed a lower accuracy and longer reaction times in the condition where the negation was present, but not scoping over the NPI than in the licensed condition and the unlicensed condition with no negation present. That is, participants had more difficulty judging the violation in licensing when there was a potential inaccessible licensor (mean accuracy rate: 70 %) than when there was no licensor present at all (mean accuracy rate: 83 %) (Drenhaus et al. 2005: 148). Drenhaus et al. (2005) do not mention the specific term, but this effect is known under the term “NPI illusion”. Schwab (2022) describes illusory NPI licensing as an effect where “an unlicensed NPI is temporarily perceived to be licensed in the presence of a negative element at a structurally irrelevant position. Thus, although the negation inside the relative clause [...] is not in a position from which it can license [the NPI], the sentence is sometimes perceived to be more acceptable than an ungrammatical baseline condition.” (Schwab 2022: 2)

Drenhaus et al. (2005) addressed the question of how structures like the above are processed online further by conducting an ERP study: in experiment 2, participants were again presented with stimuli like in experiment 1 (licensed NPI, unlicensed NPI, illusory licensing). Participants were again asked to judge the acceptability of the stimuli, while EEG data was recorded. Like in experiment 1, the result of the speeded acceptability task showed reduced accuracy rates and prolonged reaction times for illusory NPI licensing in comparison to the licensed and unlicensed conditions. The ERP data showed N400 effects for both conditions with unlicensed NPIs: unlicensed NPIs with no negation elicited N400 effects in the posterior, central and anterior region, while unlicensed NPIs with inaccessible negation (NPI illusions) elicited those effects

only in the central and the posterior region. The data further showed P600 effects between licensed NPIs and the unlicensed conditions, but no difference in P600 effects between the two unlicensed conditions. Drenhaus et al. (2005) take these results to indicate “that the language processor is sensitive to whether the licensing conditions of the negative polarity item can be met” (Drenhaus et al. 2005: 157) and that “the language processor is sensitive to licensing information when the licenser of the negative polarity item is structurally not accessible” (Drenhaus et al. 2005: 157). Comparisons between the two unlicensed conditions – with no negation present at all or with inaccessible negation – showed that participants detected both the unlicensed NPIs and the illusory licensing, but reacted differently to both conditions: inaccessible negation leads to lower accuracy and longer reaction times in the acceptability judgment tasks. From this data, Drenhaus et al. (2005) conclude that there must be “a competition between semantic/pragmatic information and hierarchical constituency” (Drenhaus et al. 2005: 159), which points to semantic factors as well as structural syntactic information being at play in the processing of NPIs (Drenhaus et al. 2005: 160).

Regarding the effect of NPI illusions, recent data from Schwab (2022) replicated the findings of Drenhaus et al. (2005) for the NPI *jemals*, but not for the NPI *so recht* “all that”. To the contrary, Schwab’s (2022) data provides evidence that *so recht* does not produce NPI an illusion effect like *jemals* does (Schwab 2022: 18). Schwab (2022) attributes this finding to the different pragmatics of both NPIs, arguing that in the case of *jemals*, where the illusion effect is produced, “scalar licensing mechanisms [are] interacting with the scalar RC [relative clause] environment” (Schwab 2022: 23). This stands in contrast to *so recht*, which does not have scalar pragmatics. These findings are interesting insofar as they provide psycholinguistic evidence pointing in the direction that perhaps not all NPI distribution patterns can be captured with a purely scalar approach for licensing.

Schwab et al. (2021) provide some experimental insights into the acquisition of German NPIs and PPIs: in an acceptability study, the ratings of licensed vs. unlicensed NPIs and PPIs were compared between adults and 11- to 12-year-old children. The results showed that children had no difficulties in rating unlicensed vs. licensed cases of the NPI *jemals* “ever”, performing at an adult-like level. The rating difference of licensed vs. unlicensed *so recht* “all that” was less clear-cut in the children’s perfor-

mance, indicating that the acquisition of the distributional patterns of (some) NPIs may still be ongoing in late childhood (Schwab et al. 2021: 1504).

Drenhaus et al. (2007) report an ERP study on the German NPI *jemals* “ever” in different licensing contexts with licensors of different strength: *kein* “no” negation and *wh*-questions, asking whether the processing of NPIs in the scope of a weaker licensor is harder than the processing of NPIs in the scope of stronger licensors. Conditions with weak and strong licensors were compared to unlicensed NPIs. Participants were presented with the stimuli and had to fulfil a probe detection task. The ERP data revealed stronger N400 effects for unlicensed than for licensed NPIs. A comparison of the two licensed conditions (weak vs. strong licensor) showed a higher negativity in the *wh*-question condition than in the *kein*-negation condition, which Drenhaus et al. (2007: 190) interpret as an N400 effect. According to the authors, this effect suggests that “it is harder for the parser to integrate the NPI in this grammatical but ‘weaker’ context.” (Drenhaus et al. 2007: 190). This finding is interesting insofar as it points to the concept of different strengths of negation (and licensors) having a psychological reality which is measurable during processing.

Richter and Radó (2014) conducted four experiments on the acceptability of a large set of German NPIs based on the NPI candidates from the CoDII corpus. The first two experiments focussed on the distinction of weak vs. strong NPIs. Exp. 1 sought to find experimental evidence for the weak-strong distinction in NPIs, testing the hypothesis that strong NPIs need a strong licensor, and weak NPIs can appear in the scope of strong and weak licensors (Richter/Radó 2014: 49). In a pen-and paper questionnaire, participants were asked to judge the acceptability of six weak NPIs in the scope of anti-additive (strong) and downward entailing (weak) licensors, and of six strong NPIs in the scope of strong and weak licensors. The assumed strength of the NPIs was based on their distribution in the CoDII data. The results showed that strong NPIs were rated significantly less acceptable in the scope of weak licensors than in the scope of strong licensors and also significantly less acceptable than weak NPIs in the scope of weak and strong licensors (Richter/Radó 2014: 50 f.). Experiment 2 replicated these findings with an increased amount of NPIs (21 weak and 22 strong) (Richter/Radó 2014: 51 f.). With these two experiments, Richter and Radó (2014) produced evidence for the psychological reality of the weak-strong distinction of NPIs with regard to their licensing behaviour. Experiment 3 and 4 were concerned with the licensing of NPIs embedded

under negated neg-raising predicates and with the effect of intervening quantifiers. The difference between neg-raising predicates and non-neg raising predicates can be illustrated with the examples (161) and (162), respectively. Intervening quantifiers are illustrated in (163) (examples (7b-d) from Richter and Radó (2014: 54)):

(161) I don't think that Peter will **lift a finger** to help Mary.

(162) *I don't claim that Peter will **lift a finger** to help Mary.

(163) *I don't think that *every senator* will **lift a finger** to help Mary.

(Richter/Radó 2014: 54; emphasis added)

The verb *think* is a neg-raising predicate, meaning that its negation can be interpreted within the embedded clause that contains the NPI, even though on the surface it appears in the matrix clause. The verb *claim*, on the other hand, is not neg-raising, meaning that the negation of the predicate in the matrix clause must be interpreted in the matrix clause and cannot be interpreted within the embedded clause. The NPI in the embedded clause is therefore unlicensed in (162) (cf. Richter/Radó 2014: 54 f.). In (163), the NPI is unacceptable because of “the intervening quantifier taking scope between the licensing negation and the NPI” (Richter/Radó 2014: 54). Experiment 3 tested the hypothesis that “(1) neg-raising predicates with sentential negation should license NPIs, but (2) an intervening quantifier should interfere with licensing, which should produce a strong decrease in acceptability” (Richter/Radó 2014: 55). Participants were asked to rate the acceptability of weak and strong NPIs embedded under negated neg-raising predicates with and without intervening quantifiers. The results showed that neg-raising constructions can license weak and strong NPI but showed reduced acceptability for the strong NPIs embedded under negated neg-raising predicates. An effect of the intervening quantifiers was also revealed in the results: intervening quantifiers lead to reduced acceptability ratings both for weak and strong NPIs, but not to utter degradation (Richter/Radó 2014: 57 f.). Experiment 4 was concerned with the licensing conditions of verbal NPIs, which are classified as weak in the CoDII corpus, and whether these licensing conditions are different from other (nonverbal) weak NPIs, and strong NPIs. Participants were asked to rate the acceptability of verbal NPIs with strong (anti-additive) and weak (downward entailing) licensors, as well as verbal NPIs embedded in neg-raising constructions with and without intervening quantifiers. The results showed no significant difference between verbal NPIs with weak vs. strong licensors. They revealed an effect of the intervening quantifier, with significantly reduced acceptability. In addition, verbal NPIs in the neg-raising construction

were rated significantly less acceptable than with licensors in the same clause. Largely, experiment 4 replicated the findings of experiment 3 for verbal NPIs. In summary, Richter and Radó (2014) have provided experimental evidence that the distinction between weak and strong NPIs and weak and strong licensors predicted by semantic theories of NPI licensing has a psychological reality that can be measured using acceptability studies. In addition, Richter and Radó (2014) have provided evidence that intervening quantifiers do indeed have a negative impact on the acceptability of NPIs, and that neg-raising structures can host NPIs as well but can slightly reduce their acceptability.

3.3 Classification of German NPIs on a morphosyntactic and semantic basis

Negative polarity items can be classified on the basis of different criteria: based on morphosyntactic criteria, their semantics, and their distribution. Both my own morphosyntactic classification as well as a semantic classification of verbal NPIs based on an analysis by Hoeksema (1994) will be shown in the following sections. The chapter concludes with a deeper analysis of modal components of certain verbal NPIs.

3.3.1 Morphosyntactic classification

On a morphosyntactic basis, the NPIs listed in the CoDII corpus can be grouped with regards to certain commonalities, see Table 4 for an overview:

Verbal NPIs: subgroups	N	Non-verbal NPIs: subgroups	N
Idioms	80	Adverbs	8
Modal verbs	4	<i>gar</i> -particle combination	6
Verb + modal verb	15	NPs	12
Verb + <i>sein</i> “to be”	5	Particle + pronoun	1
Verb + <i>lassen</i> “to let”	8	PPs	5
PP + <i>sein</i> “to be”	3		
VPs	10		
Verb	8		
Total	133		32

Table 4: Morphosyntactic classifications of German NPIs

As shown in Table 4, the majority of the 165 NPIs in the CoDII corpus are verbal (N=133), while the smaller part is non-verbal (N=32). For a full overview of NPIs categorised into the morphosyntactic categories shown above, see the Appendix. Out of the verbal NPIs, the largest group by far is the group of idioms, which are chunks of words with a non-transparent meaning. Idioms are often expressions frozen together with their licensor and show very little syntactic flexibility. Idioms that are frozen with the licensor *nicht* “not” can be classified as superstrong NPIs. Idioms that are frozen with the licensor *kein* “no” like in (165) could be classified as strong NPIs, although a strong NPI is strictly speaking also expected to be licensed by *nicht* “not”. Idioms that appear with *kein*, but not with *nicht* could thus also be analysed as idioms that simply happen to contain the negation *kein* “no”, but not as regular strong NPIs that are licensed by at least an antimorphic and an anti-additive negation. Examples of idiomatic NPIs are given below:

(164) Das Ergebnis **ist** nicht **das Gelbe vom Ei.**
 The result is not the yolk of.the egg
 “The result is not great.”

(165) Maria **nimmt** kein **Blatt vor den Mund.**
 Maria takes no leaf in.front.of the mouth
 “Maria doesn’t mince her words.”

(166) Das **kommt** nicht **in die Tüte!**
 This comes not into the bag
 “No way!”

(167) Maria **hat** nicht **alle Tassen im Schrank.**
 Maria has not all cups in.the cupboard
 “Maria has lost her marbles!”

Another relatively large group are single modal verbs like *brauchen* “to need” and *umhinkönnen* “to be able to avoid” and full verbs in combination with modal verbs such as *ausstehen können* (lit. “stand can”, “to be able to stand”), *missen wollen* (lit. “miss want”, “to want to miss”), and *absprechen können* (lit. “deny can”, “to be able to deny”). There are five verbs in combination with the copula verb *sein* “to be” such as *zu übersehen sein* (lit. “to overlook be”, “to be able to overlook sth.”) and *zu fassen sein* (lit. “to grasp be” “to be able to grasp”). Another distinct group of verbal NPIs are full verbs followed by the Acl verb *lassen* “to let” such as *sich beirren lassen* (lit. “to REFL irritate let”, “to be swayed”) or *sich deuteln lassen* (lit. “to REFL interpret let”, “to leave room for interpretation”). One last group that showed structural commonalities were verbs in combinations with prepositional phrases such as *von Pappe sein* (lit. “to be (made out) of cardboard”, with negation: “to be of good quality”), *von schlechten Eltern sein* (lit. “to be of bad parents”, with negation: “to be alright”), and *bei Trost sein* (lit. “with comfort be”, “to be mentally stable”). The NPIs in this group are somewhat idiomatic in that they have rather opaque semantics. They were not grouped with the full idioms though because they show more syntactic flexibility than the idioms shown above. Lastly, amongst the verbal NPIs, there were single verbs and verb phrases that did not fit into the morphosyntactic categories just listed, such as *sich scheren um* “to care about”, *gehen über* (lit. “to go over”, “to compare”), or *Abbruch tun* (lit. “truncation do”, “to spoil sth.”) and *zur Sache tun* (lit. “to.the thing do”, “to matter”).

The non-verbal NPIs are largely divided into adverbs, nominal phrases, prepositional phrases, and particle combinations. Adverbial NPIs are items such as *sonderlich* “particularly”, *beileibe* “certainly/absolutely”, *jemals* “ever”. The nominal NPIs in the CoDII corpus are exclusively minimizer NPIs, i.e. they express a minimal amount of something on the low end of a scale.¹⁶ Examples are *Pieps* “beep”, *Ton* “sound”, *Tropfen* “drop”, *Sterbenswörtchen* “dying word” or *Menschenseele* “human soul”. Two of the prepositional phrases listed as NPIs in the CoDII corpus also have minimizer-like semantics and can be seen as domain wideners: *im Entferntesten* “in the furthest” and *im Geringsten* “in the slightest”, see (168)-(169). Another example of an NPI in the shape of a PP is *beim besten Willen/mit dem besten Willen*. They are listed separately in the CoDII, both meaning “with the best will in the world”, and can also have a domain-widening function, see (170). Lastly in the nonverbal-NPI category, there are different forms of particle combinations. The particle *gar* is listed on its own, as an intensifier of negation: *gar nicht* “not at all”, *gar kein* NP “no NP at all”, see (171). It can combine with other particles like *erst gar*, *gleich gar*, *schon gar*, all listed as separate NPIs in the CoDII corpus and all serving the purpose of intensifying negation. There is one last nonverbal NPI in the corpus which does not quite fit the morphosyntactic criteria listed above and thus receives its own category: the particle-pronoun combination *auch nur irgendein* (lit. “also only sth.”, “anything at all”), which can also serve as a domain widener and could thus be grouped with the other minimizer NPIs/domain wideners, see (172).

- (168) Maria interessiert sich nicht **im** **Entferntesten** für Katzen.
 Maria cares REFL not in.the furthest for cats
 “Maria isn’t interested in cats at all.”

- (169) Maria interessiert sich nicht **im** **Geringsten** für Katzen.
 Maria cares REFL not in.the slightest for cats
 “Maria isn’t interested in cats in the slightest.”

- (170) Maria interessiert sich **beim besten Willen** nicht für Katzen.
 Maria cares REFL with.the best will not for cats
 “Even with the best will in the world, Maria isn’t interested in cats at all.”

¹⁶ Note that there are also verbal minimizer NPIs, especially amongst the idiomatic NPIs. Examples of this are verbal idioms like *mit der Wimper zucken* “to bat an eyelash” and “*jemandem ein Haar krümmen*” “to harm a hair on someone’s head”. The nominal NPIs listed here are flexible with regards to the verbs they appear with. This was corroborated by taking corpus samples of each nominal NPI showing that each nominal minimizer NPI from the CoDII corpus appears with different verbs and can thus be regarded as a nominal minimizer rather than a verbal idiom minimizer NPI.

(171) Maria interessiert sich gar nich für Katzen.
 Maria cares REFL PART not for cats
 “Maria isn’t interested in cats at all.”

(172) Kein Mitarbeiter hat **auch** **nur** **irgendeine** Idee
 No employee has also only some idea
 zur Firmenrettung.
 to.the company.saving
 “No employee has even the slightest idea on how to save the company.”

The minimizer/domain widener category is, of course, a semantic-pragmatic rather than a morphosyntactic classification of NPIs, as demonstrated by the fact that minimizers/domain wideners are not restricted to the nominal domain.

3.3.2 Semantic classification of verbal NPIs based on Hoeksema (1994)

Semantic classifications of NPIs can also be made in the verbal domain: Hoeksema (1994) noted that in Dutch and English, verbal NPIs tend to cluster in certain semantic domains, identifying the following groups: **verbs of indifference**, **verbs of intolerance**, **modal verbs**, **verbs of minimal degree**, and other verbal NPIs which do not fit these criteria. In German, we can find these verb groups in the CoDII corpus as well. In addition, I would like to suggest that amongst the German verbal NPIs there is also a cluster that I call **verbs of resilience**. All groups will be described in the following.

3.3.2.1 *Verbs of indifference, verbs of intolerance, and verbs of minimal degree*

Hoeksema's (1994) **verbs of indifference** denote the indifference an outer stimulus makes to the experiencer. English examples of this are the verbs *mind*, *care*, *bother*, *matter*. German verbs of indifference found in the CoDII corpus are, amongst others, *sich scheren um* "to care about" and *Abbruch tun* "to spoil sth."¹⁷ The second cluster that Hoeksema (1994) identifies are **verbs of intolerance**, which denote the inability of the subject-experiencer to tolerate an outer stimulus. Hoeksema (1994) notes that verbs of intolerance often consist of a verb and a modal element such as English *to be (un)able to stand* as in *Pierre cannot stand his neighbours* or *to be able to bear* in *He cannot bear the loud music*. For German, this is true as well: in the CoDII corpus, we find three verbs of intolerance which are a combination of a full verb with the modal verb *können* "can": *ausstehen können* (lit. "to stand can", "to be able to stand"), *mit ansehen können* (lit. "to watch can", "to be able to bear"), and *noch hören können* (lit. "still hear can", "to be able to hear/bear any longer"). Some examples of German verbs of indifference and intolerance are given below:

- (173) Sonja **schert sich nicht um** die Regeln.
Sonja cares REFL not about the rules
"Sonja doesn't care about the rules."

Verb of indifference

- (174) Das Gewitter **tat** der guten Laune keinen **Abbruch**.
the thunderstorm did the good mood no truncation
"The thunderstorm did not spoil the good mood."

Verb of indifference

¹⁷ For a full list of the verbs of indifference and other verbal NPI groups found in the CoDII corpus, see Section 5.2.1.

(175) Sarah **kann** Franks Gejammere nicht **mehr** **hören**.

Sarah can Frank's moaning not more hear

"Sarah cannot bear to listen to Frank's moaning any longer."

Verb of intolerance

(176) Felix **kann** seinen Nachbarn nicht **ausstehen**.

Felix can his neighbour not stand

"Felix cannot stand his neighbour."

Verb of intolerance

Verbs of minimal degree are another verb group that Hoeksema (1994) identifies. Verbs of minimal degree are verbal minimizer NPIs, which were already briefly touched upon. Hoeksema (1994: 279) names English verbal minimizers such as *budge an inch*, *lift a finger*, and *bat an eyelid*. These English minimizers have German counterparts in the CoDII corpus: *jemandem ein Haar krümmen* "to harm a hair on someone's head", *mit der Wimper zucken* "to bat an eyelash", *einen Funken Anstand (im Leibe) haben* "to have a spark of decency (in the body)", *einen Pfifferling wert sein* "to be worth a chanterelle", *einer Fliege etwas zuleide tun* "to harm a fly". As mentioned above, minimizer NPIs form their own class based on their shared semantics of denoting minimal amounts. Minimizers do not seem to be restricted to certain parts of speech: the CoDII contains nominal, prepositional, and verbal minimizers.

3.3.2.2 Modal verbs

Another domain that Hoeksema (1994) identifies as an NPI cluster are **modal verbs**. In English, Dutch, and German the modal verbs *need*, *hoeven*, and *brauchen* as well as the Mandarin verb *yòng* have developed into modal NPIs with the modal base of necessity and a circumstantial/root modal reading. Given that Mandarin and the Germanic languages Dutch, German, and English are not historically related, but have all developed these modal NPIs, Hoeksema (1994: 279) argues that this "suggests strongly that NPI-status is not an arbitrary feature of these verbs". In the CoDII corpus, we find even more modal NPIs: firstly, there is a small group where a single modal verb and no other verbal element forms the NPI, such as *brauchen* "need", *dafürkönnen* (lit. "there-for can", "to be one's fault"), *anders können* (lit. "different can", "to be able to act differently"), and *umhinkönnen* (lit. "around can", "to do otherwise"). Secondly, there is a large group of NPIs in the CoDII corpus that consists of a modal verb combined with another (full) verb. Examples of such combinations have already

been given in the group of verbs of intolerance above, but there are 11 more **verb + modal verb combinations** in the CoDII such as *missen wollen* (lit. “miss want”, “to want to miss”), *sich erwehren können* (lit. “REFL fight.off can”, “to be able to avoid”), *enden wollen* (lit. “end want”, “to want to end”), or *absprechen können* (lit. “deny can”, “to be able to deny”). See Section 5.2.1 for a full list of verb + modal verb combinations.¹⁸

In the following, we will be dealing with the classification of NPIs that do not look modal at first sight but are in fact modal in meaning, such as modal infinitives and modal readings of the AcI verb *lassen* “let”. I will classify these NPIs with regards to their modal force (possibility vs. necessity) and readings (epistemic vs. root, deontic vs. dynamic). For this purpose, I will adopt the classification suggested by Erb (2001: 74 ff.), which is given in Table 5. I will also assume an additional category of “circumstantial” modality as defined by Hegarty (2016), which will be explained below.

Modal Verbs								
	epistemic				root			
	possibility	necessity	probability	report	deontic		dynamic	
	inferential 'true epistemic'		non-inferential 'doxastic'		obligation	permission	ability	volition
English	can	must	will	??	must	may	can	will
German	<i>können</i>	<i>müssen</i>	<i>'dürfte', werden</i>	<i>sollen</i>	<i>müssen, sollen</i>	<i>können, dürfen</i>	<i>können</i>	<i>wollen</i>

Table 5: Classification of modal verbs by Erb (2001: 75)

The term “circumstantial” is sometimes used as an alternative term for “root” modality (Erb 2001: 74). It refers to the outer circumstances of the subject in a modal environment. Hegarty (2016: 62) defines root modality as follows: “Root modal statements are statements about what must, may, should, or cannot be the case according to some set of circumstances in the world, rather than what is known by the speaker or a community to which the speaker belongs.” The latter is what is in general described as

¹⁸ It is important to note that the classification of verbs of indifference and intolerance vs. modal verbs (or modal verb combination) is not quite clear-cut in the sense that as mentioned above, some verbs of intolerance (e.g. *noch hören können* “to be able to hear”, *ausstehen können* “to be able to stand”) also contain modal verbs. This is the case not only in the German data in the CoDII corpus, but also in the English data that Hoeksema (1994) cites, e.g. the verbs of intolerance *cannot stand* and *cannot bear*. That is, in these cases there is an overlap between the two categories of verbs of intolerance and modal verbs. This does not per se pose a problem for Hoeksema’s (1994) classification: he simply observes the fact that verbal NPIs do have a tendency to cluster in the realm of modal verbs and verbs of intolerance/indifference and does not claim that those categories need to be mutually exclusive. I merely add German data to Hoeksema’s (1994) classification. See Section 6.3 for some speculation as to why modal verbs seem to have a tendency to comprise verbs of intolerance.

epistemic modality, with the distinctions shown in Table 5. Hegarty (2016) makes a slightly different distinction in root modality than Erb (2001), assuming bouletic and teleological modality in place of what Erb (2001) classifies as “dynamic – volition”. For Hegarty (2016), bouletic and teleological statements refer to “circumstances [which] are preferences, desires, or goals of the referent of the subject, or of the speaker and/or the addressee(s)” (Hegarty 2016: 62). What Erb (2001) classifies as “dynamic – ability” is referred to by Hegarty (2016) as “ability modals” where “the circumstances are abilities of the referent of the subject of the clause” (Hegarty 2016: 62). Importantly, Hegarty (2016) defines another subtype of root modality, namely “circumstantial” as a subtype rather than a synonym for root modality. Circumstantial modality, in Hegarty’s (2016: 62) classification refers to other circumstances that do not fit into the classes defined above, that is, circumstances that cannot be clearly classified as ability or volition. For my classification of modal NPIs, I will take on this additional notion of circumstantial modality in cases where a modal is clearly of root modality, but not necessarily volitional or ability related.

Turning back to the classification of modal NPIs in the CoDII corpus, it must be noted that there are even more modals amongst the NPIs in the CoDII than one would suspect at first sight: there is a number of so-called **modal infinitives** like the NPI *zu übersehen sein* (lit. “to overlook be”, “to be overlooked/missed”). The canonical meaning of this NPI is that of (im)possibility:

- (177) Dieses Problem **ist nicht zu übersehen.** Modal infinitive
 This problem is not INF.PART overlook
 “This problem cannot be overlooked/missed.”
 “It is impossible to overlook/miss this problem.”

The reason for the modal interpretation of *zu übersehen sein* lies within its syntactical structure. While the verb *sein* “to be” is canonically a copula and auxiliary verb in German, it has a modal meaning that is conveyed by the structure [*sein* + *zu* + INFINITIVE] (*be* + *to* + INFINITIVE). The structure [*sein* + *zu* + INFINITIVE] is often referred to as a “modal infinitive” that can express the modalities of possibility and necessity (Dudenredaktion, 2016: 576; Marx-Moyse, 1985). Accordingly, it can be paraphrased with different modal verbs expressing possibility and necessity such as *müssen* “must”, *können* “can” or *sollen* “shall/should”, depending on context. The construction can generally express a similar variety in meanings as its corresponding modal verbs, except that it cannot convey epistemic readings (Dudenredaktion, 2016: 576; Stefan-

owitsch, 2009: 571). It is important to note that the general construction [*sein* + *zu* + INFINITIVE] does not require licensing by some form of negation, i.e. the construction [*sein* + *zu* + INFINITIVE] in general is not an NPI. It can appear in non-negative environments and express a variety of modal readings. In (178), the construction expresses the modal force of necessity and can receive either a deontic or dynamic reading, depending on context:

(178) Dies Aufgabe **ist zu erledigen.** Modal infinitive
 This task is INF.PART do
 “The task should/must be carried out.”

(179) Context: A teacher has given her students several tasks as part of their assignment. At the end of the lesson, she notices that one task has not been fulfilled by the students. She insists that all her instructions are always followed by her students and tells them:
 „Diese Aufgabe **ist zu erledigen.**“
 “This task **should** be carried out.” deontic necessity

(180) Context: Coco is pregnant and has a high risk of preeclampsia. To mitigate the risk, her doctor tells her to inject herself with medication at 6 pm sharp every day. For the medication to work it is vital that it is injected consistently every day at the same time or else it will not work. The doctor instructs her:
 „Diese Aufgabe **ist zu erledigen.** Jeden Tag, um 18 Uhr.“
 “This task **must** be carried out. Every day, 6 pm.” dynamic necessity

In (181), the construction can express the modal force of possibility as well as necessity and can convey dynamic and deontic interpretations:

(181) Diese Rechenaufgabe **ist zu lösen.** Modal infinitive
 This arithmetic.task is INF.PART solve
 “The arithmetic task can/should/must be solved.”

(182) Context: In a maths classroom. The students had gotten several arithmetic tasks to solve for their assignment. At the end of the lesson, the teacher notices that one of the tasks has not been solved. She wants the task to be solved, and tells her students:
 „Diese Rechenaufgabe **ist zu lösen.**“
 “This arithmetic task **must** be solved.” deontic necessity

- (183) Context: Martin has to complete several math tasks for his assignment. He doesn't understand the final task and is starting to get desperate, thinking that the task could be mathematically impossible to solve. When he gets his older sister, who is a math crack, to help, she sees that the task is solvable.

She tries to encourage him and tells him:

„Diese Rechenaufgabe **ist zu lösen**.“

“This arithmetic task **can** be solved.”

dynamic possibility

While the general construction [*sein* + *zu* + INFINITIVE] can express both the modal forces of possibility and necessity and carry deontic, dynamic, and other modal readings, the NPI *zu übersehen sein* “to be overlooked/missed” is more restricted. The NPI *zu übersehen sein* cannot express the modal force of necessity, it can only convey the modal force of possibility, as can be seen in the following examples taken from the corpus data presented in Section 5:

- (184) Das Selbstbewusstsein der Britin **war** am zweiten
 the confidence the.GEN British.FEM was on.the second
 Gipfeltag kaum **zu übersehen**: sie kam
 conference.day hardly to overlook she came
 im knallrot-auffälligen Kleid.
 in.the bright.red-conspicuous dress

“The confidence of the British woman could hardly be overlooked/missed: she appeared in a conspicuous bright red dress.”

Corpus ID 1228¹⁹

- (185) Die Band ist in Hamburg nicht nur präsent, sie
 the band is in Hamburg not only present it
war nie zu übersehen.
 was never to overlook

“The band is not just present in Hamburg, it was never possible to overlook/miss it.”

Corpus ID 1195

¹⁹ For ease of citation, every corpus example cited in the present thesis has received a corpus ID number by which it is listed in the data file containing the corpus data. The file can be accessed via the following link: <https://osf.io/2bwak/>, DOI 10.17605/OSF.IO/2BWAK.

The examples above cannot convey a deontic reading. In both examples, there are no rules that could or could not prevent somebody from overlooking the subjects of the corresponding sentences. Deontic readings therefore are not available (cf. Erb 2001: 74 ff.). In both cases, the reasons the respective subjects cannot be missed lie within the qualities that the subjects themselves carry: in (184), the confidence of the British woman cannot be overlooked because she appeared in a bright red dress (and the writer seems to take that as an unmistakable sign of confidence). In (185), the band cannot be missed in Hamburg because it has been more than present (in public life in Hamburg). Given that the reasons for the impossibility of overlooking lie within the subjects themselves, but are not necessarily related to the subjects' abilities, I argue that the NPI *zu übersehen sein* conveys a circumstantial reading of a possibility modal.

The NPI *zu übersehen sein* is not the only modal infinitive in the CoDII corpus: in fact, all NPIs that were classified as verb + *sein* "to be" in the morphosyntactic classification above are modal infinitives: *zu fassen sein* (lit. "to grasp be", "to be possible to grasp"), *zu deuten sein* (lit. "to interpret be", "to leave room for interpretation"), *zu rütteln sein* (lit. "to shake be", "to leave wriggle room"), *auszudenken sein* (lit. "to be thought up", "to be fathomable"). There are even two more modal infinitives that are more idiomatic expressions in the CoDII corpus: *anders zu erwarten sein* "to be expected differently" and *von der Hand zu weisen sein* (lit. "off the hand to point be", with negation: "sth. can't be denied"). Some examples of these modal infinitives are given below:

(186) Die Konsequenzen **sind** nicht **auszudenken**.

The consequences are not think.up.INF.PART

"The consequences cannot be thought up."

"The consequences are inconceivable."

(187) Die Verantwortungslosigkeit **ist** nicht **zu** fassen.

The recklessness is not INF.PAR grasp

"The recklessness cannot be grasped."

"The recklessness is unfathomable."

(188) Das Problem ist nicht **von der Hand** zu weisen.

The problem is not off the hand INF.PAR point

"The problem cannot be denied."

3.3.2.3 Verbs of resilience

Hoeksema's (1994) last verbal-NPI group is that of "others": verbal NPIs that do not share the properties of any of the groups listed above. Of course, such NPIs also exist in the CoDII corpus. Examples of this are verbal NPIs like *bei Trost sein* "to be in one's right mind", *nachstehen (in)* "to be inferior", or any other NPI that is not included in the verbs of intolerance, indifference, modals, or verbs of minimal degree. There is, however, one remaining cluster of verbal NPIs in the CoDII that shares semantic-pragmatic commonalities: the eight NPIs that consist of a full verb and the verb *lassen* "to let". Examples of all eight NPIs are given below:

(189) Milo **lässt sich nichts befehlen.**

Milo lets REFL nothing order

"Milo does not allow anyone to boss him around."

(190) Luise **lässt sich bei der Hunderziehung nicht reinreden.**

Luise lets REFL with the dog.training not talk.into

"Luise is not swayed when it comes to dog training."

(191) Theo **hat sich bei der Kindererziehung nie beirren lassen.**

Theo has REFL with the child.rearing never talk.into let

"Theo never allowed himself to be swayed with regards to child rearing."

(192) Am Strafgesetzbuch **lässt sich nicht deuten.**

on.the criminal code lets REFL not interpret

"The criminal code does not leave room for interpretation."

(193) An der Entscheidung **lässt sich nicht rütteln.**

on the decision lets REFL not interpret

"There is no doubt about this decision."

(194) Trotz der Probleme **lässt sich Judith nicht unterkriegen.**

despite the problems lets REFL Judith not get.down

"Despite the problems Judith does not let herself get down."

"Despite the problems Judith keeps her chin up."

(195) Liz **lässt sich den Spaß nicht nehmen.**

Liz lets REFL the fun not take

"Liz insists on having fun."

(196) Sinan **lässt sich in der Kneipe nicht lumpen.**

Sinan lets REFL in the pub not [untranslatable verb]

"Sinan splashes out at the pub."

Apart from the last example *sich lumpen lassen*, which is very idiomatic (there is no adequate translation for the word *lumpen*, it only has meaning in the NPI as “splashing out” in connection with the negation), the *lassen*-NPIs all share some common semantics: they all express a resilience of their subjects to some outer factors which the subjects resist against. For this reason, I call this group of *lassen*-NPIs the **verbs of resilience**.

The verb *lassen* “let” is an AcI verb with modal meaning components (Reis, 2001). In its modal reading, it can have root-modal meaning (circumstantial, deontic, or dynamic) as well as epistemic modal meaning. The deontic and dynamic readings are illustrated in the following examples from Reis (2001: 308):

- (197) “Peter lässt Paul schlafen gehen.” (Reis 2001: 308)
 Peter lets Paul sleep go
 “Peter lets (allows) Paul to go to sleep.” **deontic**
- (198) “Paul lässt sich hochheben.” (Reis 2001: 308)
 Paul lets REFL lift.up
 “Paul allows [someone else] to lift him up.” **deontic**
 “Paul is constituted in a way that it is possible to lift him up.” **dynamic**

The verbs of resilience are able to express circumstantial (root) modality as well, as shown in the following examples (199)-(203). Formally, there is a difference between *sich rütteln lassen* and *sich deuteln lassen* and the other *lassen*-NPIs: the former have empty subjects and require a prepositional phrase, while the other *lassen*-NPIs have regular DPs as subjects. In the former, the prepositional phrase contains the DP that denotes the resilient subject, while in the latter, the subject DPs simply denote the resilient subjects. Apart from this formal difference, the verbs of resilience have shared semantics which were determined based on the corpus data shown in Section 5: the subjects face some sort of influence or adversity from the outside, which might have the potential to stop the subjects from following whatever their intentions might be. The sentences containing verbs of resilience express that the subjects resisted those outer influences, continuing to pursue their goals and intentions. These broad semantics hold across the various NPIs that comprise the group of verbs of resilience. To illustrate this, some corpus data from the corpus study shown in Section 5 is shown here in advance:

- (199) „Capricorns Vater war ein einfacher Hufschmied“, fuhr
 Capricorn’s father was a simple blacksmith went
 er fort, ohne **sich** von der kalten
 he on without REFL by the cold
 Wut in Capricorns Augen **beirren** zu **lassen**.
 anger in Capricorn’s eyes irritate INF.PART let
 “Capricorn’s father was a simple blacksmith,” he continued without letting
 himself be irritated by the cold anger in Capricorn’s eyes.

Corpus ID 853

- (200) Als sie 1946 mit sieben Jahren an
 when she 1946 with seven years on
 den Folgen von Scharlach und Diphtherie
 the consequence of scarlet.fever and diphtheria
 erblindete, **ließ** sie **sich** kaum **beirren**.
 blind.went let she REFL hardly irritate
 “When she became blind as the consequence of scarlet fever and diphtheria
 at the age of seven in 1946, she hardly let herself be irritated by it.”

Corpus ID 905

- (201) Mehrmals hat die zierliche 50-Jährige für ihr
 several.times has the petite 50-year-old for her
 Engagement im Gefängnis gesessen, doch sie **ließ**
 commitment in.the prison sat but she let
sich nie **unterkriegen** und emigrierte auch nicht
 REFL never get.down and emigrated also not
 wie so viele andere Intellektuelle in den
 like so many other intellectuals in the
 letzten Jahren.
 last years

“The petite 50-year-old has been to prison several times because of her
 commitment, but she never let herself get down, and unlike to many other
 intellectuals in the last years, never emigrated.”

Corpus ID 943

(202) An der Hauptverantwortung Deutschlands für den
 on the main.responsibility Germany.GEN for the
 Ersten Weltkrieg **läßt sich** nichts mehr **deuteln**.
 World War I lets REFL nothing more interpret
 “There is no room for interpretation in the fact that Germany is mainly
 responsible for the first world war.”
 Corpus ID 806

(203) An bestehenden Verträgen **läßt sich** jedoch aus
 on existing contracts lets REFL but for
 verfassungsrechtlichen Gründen kaum **rütteln** – die
 constitutional.law.ADJ reasons hardly shale the
 Lasten für die nächsten Jahre liegen damit
 burdens for the next years lie with.that
 fest.
 determined
 “Due to constitutional law, there is hardly anything that can be done about
 existing contracts – so the burdens of the next years are determined.”
 Corpus ID 840

In (199), the outer influence that the subject of the main clause resists against is the anger in Capricorn’s eyes. Similarly, in (200) the subject resists the negative influence of blindness due to illness. In (201), the subject resists the negative influence of being imprisoned several times for standing up for her beliefs. In all three cases, which are exemplary for other instances of verbs of resilience in the corpus data, the subjects face an outer adversity to which they resist, as expressed by the verbs of resilience. The case is slightly different in (202) and (203): as described above, *sich deuteln lassen* “to leave room for interpretation” and *sich rütteln lassen* (lit. “REFL shake let”, “there is (no) doubt about sth.”/“sth. can be done about sth.”) have empty subjects, unlike the other verbs of resilience. What is resilient is expressed in the PP and is a more abstract concept rather than a concrete human subject. Nevertheless, these verbs express a resilience: the example (202) expresses that there is no more wriggle room in interpreting Germany’s responsibility in the first world war; the topic is settled and “resilient” to further debate, so to say. The example in (203)0 expresses that there is

no wiggle room to change existing contracts. Existing contracts, in that sense, are resilient to further changes due to constitutional law.

All NPIs in the verbs-of-resilience group appear to have the modal base of possibility. The verbs of resilience clearly express circumstantial (root) modality, but whether they receive deontic or dynamic readings cannot be clearly determined from the corpus data: depending on the interpretation of the corpus examples, they can quite systematically be paraphrased either by expressing a deontic reading or a dynamic reading. In the deontic paraphrases the subject that faces adversity from outside does not **allow** those adversities to prevent it from pursuing its goal(s), i.e. the interpretation is based on a rule that comes from the subject. In the dynamic interpretations, the subject can be conceptualised as being inherently resilient to the adversities it faces from the outside, as simply being immune to being influenced by others that oppose its goals. In the examples (199)-(203) above, it is not quite clear whether the subjects are resilient to outer influences because they do not allow the outer circumstances to influence them much (deontic reading), or whether the subjects are simply constituted in a manner that they are resistant to negative outer influences (dynamic reading). I therefore conclude that the verbs of resilience studied here are systematically ambiguous between dynamic and deontic interpretations of possibility. Concrete situations may enhance one of these modal readings. In the absence of such circumstances, verbs of resilience may be classified as conveying circumstantial modality.

Due to its modal meaning, the “verb + *lassen*” group can be classified as a subgroup of the modal verbs. Given its shared distinctive semantics expressing resilience of the subject, it forms an independent semantic category of verbs of resilience that reside within the modal category. The association between the different forms of modality in the NPI space is shown quite neatly by the fact that there are semantic duplicates of several NPIs in the CoDII corpus where in one version, the modality is expressed by a modal verb, and in another by a modal infinitive or *lassen* “let”. Examples of this are *fassen können* (lit. “grasp can”) and *zu fassen sein* (lit. “to grasp be”), which both express in their negative versions that something is unfathomable or inconceivable, with the former containing the modal verb *können* “can” and the latter the modal infinitive *zu* VERB *sein* “to VERB be”. Another example is the duplicate pair *sich von der Hand weisen lassen* vs. *von der Hand zu weisen sein*, both of which express an undeniability in their negative form, one version with the modal infinitive and another version with

lassen “let”, see (204) and (205). Yet another example is *sich rütteln lassen* vs. *zu rütteln sein*, see (206) and (207).

(204) Das Problem **lässt sich nicht von der Hand weisen.**
 the problem lets REFL not off the hand point
 “The problem cannot be denied.”

(205) Das Problem **ist nicht von der Hand zu weisen.**
 the problem is not off the hand INF.PART point
 “The problem cannot be denied.”

(206) Am Grundgesetz **ist nicht zu rütteln.**
 on.the constitutional.law is not INF.PART shake
 “Nothing can be changed about the constitutional law.”

(207) Am Grundgesetz **lässt sich nicht rütteln.**
 on.the constitutional.law lets REFL not shake
 “Nothing can be changed about the constitutional law.”

To summarise, an overview of the semantic groups of NPIs described in this section is given in Table 6:

	Verbal NPI cluster	Examples
1	Verbs of indifference	<i>sich scheren um</i> “to care about”, <i>Abbruch tun</i> “to spoil sth.”
2	Verbs of intolerance	<i>ausstehen können</i> “to be able to stand”, <i>noch hören können</i> “to be able to hear”
3	Modals	
3a	Single modal verbs	<i>brauchen</i> “need”, <i>dafür können</i> “to be one’s fault”
3b	Full verb + modal verb	<i>wahrhaben wollen</i> “to want to acknowledge”, <i>fassen können</i> “to be able to grasp”
3c	Modal infinitives	<i>zu übersehen sein</i> “to be overlooked”, <i>auszudenken sein</i> “to be conceivable”
3d	Verbs of resilience	<i>sich beirren lassen</i> “to be swayed”. <i>sich unterkriegen lassen</i> “to let oneself get down”

4	Verbs of minimal degree	<i>einen Finger krümmen</i> “to bend a finger”, <i>mit der Wimper zucken</i> “to bat an eyelash”
5	Other verbal NPIs	<i>bei Trost sein</i> “to be in one’s right mind”, <i>nachstehen (in)</i> “to be inferior”

Table 6: Verbal NPI clusters found in the CoDII corpus based on the classification by Hoeksema (1994)

4 The licensing conditions of 60 German NPIs: experimental evidence

In order to be able to classify German NPIs according to the four licensing contexts summarized in Table 7 below, two experiments on the acceptability of a set of German NPIs in different licensing contexts were conducted:²⁰ Experiment 1 sets out to establish the licensing conditions of 60 German NPIs taken from the CoDII corpus, and Experiment 2 followed up on the results of Experiment 1 in particular with regards to NPIs in questions. The present studies build on, and complement information gathered in the CoDII corpus. The theoretical framework adopted for the present experiments is the combined the semantic approach put forward by van der Wouden (1994), Zwarts (1986, 1995, 1998) and Giannakidou (1997, 1998, 2002, 2011) (see Sections 2.1 and 2.2), namely that NPI licensing is based on the downward entailing and nonveridical properties of the context. The expectations derived from the literature, particularly relying on van der Wouden (1994), Zwarts (1995, 1998) and Giannakidou (1997 and following works) were as follows: it was expected that the NPIs can be grouped with respect to their licensing behaviour according to the different degrees of negativity. We expected to find that some NPIs need a stronger degree of negativity to be licensed than others. That is, there should be a group of NPIs that is only licensed in antimorphic contexts (superstrong NPIs), a group of NPIs that is additionally licensed in anti-additive contexts (strong NPIs), a group that is licensed in the two aforementioned contexts as well as in downward entailing contexts (weak NPIs), and a group that is licensed in all degrees of negative contexts including nonveridical ones (superweak NPIs). These expectations include the assumption of concentric licensing (see Section 2.2, Figure 1): according to this assumption, there should be no NPIs that are e.g. licit in a nonveridical context and an antimorphic context, but not in anti-additive and downward entailing contexts. Such a licensing pattern would be at odds with the idea of degrees of negativity corresponding to NPI strength.

²⁰ Experiment 1 and 2 reported here have previously been published as part of this PhD dissertation project in Schaebbicke et al. (2021). Since the publication was in collaboration with Heiko Seeliger and Sophie Repp, the present chapter is written in the first-person plural.

Class of NPIs	Licensing contexts			
	antimorphic	anti-additive	downward entailing	nonveridical
superstrong	+	-	-	-
strong	+	+	-	-
weak	+	+	+	-
superweak	+	+	+	+

Table 7: Licensing contexts for superstrong, strong, weak, and superweak NPIs

4.1 Experiment 1: Negative contexts and polar questions as licensors

The goal of Experiment 1 was to obtain a reliable classification of a set of German NPIs from the CoDII database into superstrong, strong, weak, and superweak NPIs, following the NPI licensing theories by Zwarts (1986, 1998), van der Wouden (1994), and Giannakidou (1997, 1998, 2002, 2011). To achieve this, we conducted an acceptability judgement study of a set of 60 German NPIs, which were embedded in sentences in six different licensing conditions that should allow the classification of these NPIs into the aforementioned classes. The NPIs were selected from the CoDII corpus on the basis of the following selection criteria: highly idiomatic NPIs were excluded because they show little to no syntactic flexibility so that alternations in licensing are virtually non-existent. For example, the NPI *auf keine Kuhhaut gehen* (lit. “on no cow’s skin go”, “to beggar belief”) is an idiom NPI that appears to be frozen with its licensor *keine* “no” and doesn’t allow for any other licensor. That is, the negation *kein* “no” in (208), for example, cannot be replaced by the sentential negation *nicht* “not” as in (209) without rendering the sentence unacceptable:

(208) Das **geht auf keine Kuhhaut.**

this goes on no cow.skin

“This is not conceivable.”

(209) #Es ist nicht der Fall, dass das **auf eine Kuhhaut geht.**

it is not the case that this on a cow.skin goes

Intended: “It is not the case that this is conceivable.”

Furthermore, building experimental items with idioms of this sort is not easy beyond trivial variations e.g. by changing the subject DP with them. Additionally, we excluded semantic duplicates such as *zu deuten sein* und *sich deuten lassen* (lit.: “to interpret be” vs. “REFL interpret let”, “to leave room for interpretation”), choosing one of the variants only. Obviously antiquated phrases found in the CoDII corpus were left out as well because we presumed that they would receive a low acceptability rating due to not being frequent anymore. For example, the minimizer NPI (*keine*) *müde Mark* “no tired (German) Mark” was not included in the experiment because the German Mark has not been the official currency in Germany since 2001 and the use of the NPI has

consequently diminished.²¹ Furthermore, we excluded verbal NPIs that require embedded sentences as a complement in order to keep the design of the experimental items as uniform as possible. An example of this is the modal-verb NPI *umhinkönnen* (lit. “around can”, “to be able to avoid”), which requires an infinitive clause as a complement. And lastly, we excluded the NPI *jemals* “ever” from the study because in contexts with sentential negation it has to fuse with the negation operator (NEG + *ever*) and becomes a licenser itself: *niemals* “never”.

The 60 remaining NPIs had different morphosyntactic and lexical characteristics, as described in Section 3.3. Since these characteristics in principle might have an influence on the licensing conditions, we grouped the NPIs based on their morphosyntactic characteristics:

1. PPs and AdvPs occurring as adverbials (e.g. *im Geringsten*, lit.: “in.the slightest”, “in the slightest”) ($n=8$),
2. NPs occurring as subjects or objects (e.g. *Pieps* “beep”) ($n=9$),
3. PPs or infinitives serving as predicates in copula sentences with the verb *sein* “to be” (e.g. *bei Trost sein*, lit.: “with consolation be”, “to be in one’s right mind”) ($n=5$),
4. combinations of a modal verb and a lexical verb in the bare infinitive (e.g. *ausstehen können*, lit.: “stand can”, “to be able to stand sth./sb.”) ($n=14$),
5. a modal verb taking a *to*-infinitive (*brauchen* “need”), or combining with an adverb (*anders können*, lit. different can, “to have a choice”) ($n=2$),
6. combinations of the verb *lassen* “to let” with a (reflexive) lexical verb in the bare infinitive (e.g. *sich reinreden lassen*, lit.: REFL interfere let, “to be swayed”) ($n=8$), and
7. other lexical verbs or VPs with flexible arguments (e.g. *sich scheren um* lit.: “REFL care about”, “to care about sth./sb.”) ($n=12$).

Two NPIs did not fit in any of these groups: *sich keinen Millimeter bewegen* (lit. “REFL no millimetre move”, “not to budge an inch”), which is a minimizer NPI from a semantic point of view, but is not an NP like the other minimizers in group [2] above,

²¹ DWDS frequency plot for “müde Mark”, made by the “Digitale Wörterbuch der deutschen Sprache”,
 <<https://www.dwds.de/r/plot/?view=1&corpus=dwdsxl&norm=date%2Bclass&smooth=spline&genres=0&grand=1&slice=1&prune=0&window=0&wbase=0&logavg=0&logscale=0&xrange=1900%3A2024&q1=%22m%C3%BCde%20Mark%22>>, retrieved 28.2.2024.

and *auch nur irgendein* (lit. “also only any-”, “any- whatsoever”), which is a domain widening particle combination and thus did not fit the morphosyntactic classification of the groups listed above. Additionally, there were two groups of NPIs that stood out from the perspective of the negation marker they require: the first group were nominal NPIs that cannot appear in the scope of sentential negation *nicht* “not”, but must instead appear with the negative indefinite determiner *kein* “no” (= *kein* group, $n=10$), for example *keine Menschenseele* “no living soul”, because the negative operator and the indefinite determiner fuse: NEG + *ein* “a” = *kein*.²² The other group were verbal NPIs that also cannot appear in the scope of sentential negation, but instead require the negative indefinite pronoun *nichts* “nothing” as one of their arguments (= *nichts* group, $n=8$), for example *dafürkönnen* “to be one’s fault”. For the full list of the NPIs tested in Experiment 1, see Appendix.

4.1.1 Method

4.1.1.1 Materials, design, and procedure

The 60 German NPIs were tested in six conditions, see Table 8 for illustration and sample items. To keep the design as uniform as possible, nonverbal NPIs were inserted in sentences with transitive predicates. For verbal NPIs, the argument structure of the predicate of course depended on the NPIs themselves.

Condition [1] was the antimorphic condition, with the licenser *nicht* “not”. The word *nicht* in German is an adverb (but sometimes is considered a particle), which may appear in various sentence-medial positions. In approximately a third of the target sentences (22/60), it appeared between a definite object and the clause-final transitive verb. For verbal NPIs, the position of *nicht* usually was directly before the clause-final verb. As mentioned above, the NPIs in the *kein* group and the *nichts* group cannot appear in the scope of *nicht* “not”.²³ Thus, the NPIs in these groups cannot be classified as superstrong NPIs due to their morphosyntactic restrictions. To nevertheless obtain an insight into their properties regarding the precise anti-additive licensing patterns, these NPIs were tested both in the anti-additive and in the “antimorphic” conditions

²² It is possible to combine the sentential negation marker *nicht* “not” with the word *ein* but in these cases *ein* is used as the number word *one*, and the interpretation changes.

²³ As mentioned in footnote 22, the NPIs of the *kein* group can only felicitously appear under the scope of *nicht* if the indefinite article is stressed, thus becoming a numeral (*nicht EIN Tropfen* “not one drop”). As the experiment was a written questionnaire, we did not use test sentences whose acceptability might rely on a “special” intonation pattern, so did not use this possibility to embed the NPIs of the *kein* group under *nicht*.

with their required anti-additive licensor, but this licensor appeared in different syntactic positions in the two conditions. In the “antimorphic” condition, the NPIs in the *kein* group were direct objects and were directly preceded by their licensor *kein*, so that the syntactic pattern was SUBJ – V – *kein* OBJ.NPI. The NPIs in the *nichts* group are idiomatic to a certain extent, in that the position of the negative licensor *nichts* is fixed and can either be an object or a subject, depending on the NPI. In the “antimorphic” condition these NPIs appeared with the licensor *nichts* in the required position.

Condition [2] was the anti-additive condition with the licensor *kein* “no”, which is a quantificational determiner. In the target sentences, it was part of a negative quantifier in the subject position. For the NPIs of the *kein* group, *kein* also appeared in this position and did not directly precede the NPI as in the “antimorphic” condition. The anti-additive condition for the *nichts* group was also analogous to the other NPIs in this condition, with *kein* as part of the subject.

Condition [3] was downward entailing with the licensor *kaum* “hardly”. Like *kein*, *kaum* is a quantificational determiner, and it appeared as part of a quantifier in the subject position of the target sentences.

There were two nonveridical conditions: Condition [4] was nonveridical with the nonveridical modal operator *vielleicht* “maybe”, which is an adverb in German. This condition was added in order to explore whether nonveridicality in general can license certain German NPIs, or whether NPI licensing in German is limited to particular nonveridical operators. Note that there is a homonymous *vielleicht* that is a modal particle and has a different meaning from the adverb. In declarative sentences, this meaning is an emphatic meaning: *Peter war vielleicht nervös* (lit. “Peter was PART nervous”, “Peter was really nervous”). We ensured that *vielleicht* in the experimental sentences was an adverb with the nonveridical meaning “maybe”, by placing it in the sentence-initial position in verb-second declaratives, where modal particles cannot occur on their own.

Condition [5] was the other nonveridical condition, where the NPI occurred in a positive polar question, i.e. the nonveridical operator was the question operator.

Condition [6] served as a control condition. Here, the NPI occurred in a positive assertion, i.e. there was no licensing operator.

Every target sentence was preceded by a short context story. This was done in order to prevent degraded ratings due to out-of-the-blue presentations of the stimuli and to help

participants get the intended reading of the respective NPIs even in conditions without a licenser. All items were constructed so that the target sentence was uttered by a protagonist from the context story. Across conditions, the context stories were kept as stable as possible, see Table 9 for an example. However, as the main goal in creating the context stories was to provide a context that facilitates the interpretation of the NPIs in every condition, i.e. even in conditions where they might not be licensed, and to make the target sentences as contextually plausible as possible, there was some variation in the length of the stories, which did not correlate with condition.

The number of lexicalisations per NPI was restricted to one because of the high number of NPIs, that is each NPI was tested with one experimental sentence per condition: a high number of lexicalisations would have been unmanageable in a study aiming at obtaining a broad overview of the landscape of German NPIs.

Condition		Licenser	Sample target sentence	Prediction: Acceptable NPIs
[1]	antimorphic	<i>nicht</i> “not”	<i>Peter mag die Aufgabe nicht sonderlich.</i> Peter likes the task not particularly “Peter doesn’t particularly like the task.”	all NPIs
[2]	anti-additive	<i>kein</i> “no”	<i>Kein Mitarbeiter mag die Aufgabe sonderlich.</i> no employee likes the task particularly “No employee particularly likes the task.”	strong, weak, superweak NPIs
[3]	downward entailing	<i>kaum</i> “hardly”	<i>Kaum ein Mitarbeiter mag die Aufgabe sonderlich.</i> hardly an employee likes the task particularly “Hardly any employee particularly likes the task.”	weak, superweak NPIs
[4]	nonveridical modal operator	<i>vielleicht</i> “maybe”	<i>Vielleicht mag Peter die Aufgabe sonderlich.</i> maybe likes Peter the task particularly “Maybe Peter particularly likes the task.”	superweak NPIs
[5]	nonveridical question operator	Q	<i>Mag Peter die Aufgabe sonderlich?</i> likes Peter the task particularly “Does Peter like the task particularly?”	superweak NPIs
[6]	positive assertion	none	<i>Peter mag die Aufgabe sonderlich.</i> Peter likes the task particularly “Peter likes the task particularly.”	none

Table 8: Sample item and predictions per condition of Experiment 1

Context story	Target
<i>Peter soll für seine Firma die Weihnachtsfeier organisieren. Er hat das letztes Jahr schon gemacht und hat deswegen jetzt schlechte Laune. Seine Kollegin sagt zur Chefin:</i> Peter was told to organise the Christmas party for his company. He did that last year already and is not happy about the task. His colleague tells the boss:	[1]
<i>Peters Chef sucht jemanden, der für die Firma die diesjährige Weihnachtsfeier organisiert. Er überlegt, welcher seiner Mitarbeiter vielleicht Lust auf die Aufgabe hätte, und fragt Peter. Peter weiß, dass die Aufgabe nicht sehr beliebt ist, und antwortet:</i> Peter's boss is looking for someone to organise the company Christmas party. He does not know which employee is up for the task and asks Peter about it. Peter knows that the task is not very popular, and replies:	[2]
<i>Peters Chef sucht jemanden, der für die Firma die diesjährige Weihnachtsfeier organisiert. Er überlegt, welcher seiner Mitarbeiter vielleicht Lust darauf hätte, und fragt Peter. Peter weiß, dass die Aufgabe nicht sehr beliebt ist, und antwortet:</i> Peter's boss is looking for someone to organise the company Christmas party. He does not know which employee is up for the task and asks Peter about it. Peter knows that the task is not very popular, and replies:	[3]
<i>Peter soll für seine Firma die Weihnachtsfeier organisieren. Er hat das die letzten Jahre schon gemacht. Seine Kollegen sind deswegen überrascht, dass er das schon wieder machen soll. Eine Kollegin spekuliert:</i> Peter was told to organise the Christmas party for his company. He had had to do that task for a few years already. Hence, his colleagues are surprised that the task fell on him again. One of his colleagues speculates:	[4]
<i>Peter soll für seine Firma die Weihnachtsfeier organisieren. Er hat das letztes Jahr schon gemacht. Deswegen ist seine Kollegin überrascht und fragt die Chefin:</i> Peter was told to organise the Christmas party for his company. He did that last year already. Hence, a colleague of his is surprised and asks the boss:	[5]
<i>Peter soll für seine Firma die Weihnachtsfeier organisieren. Er hat das letztes Jahr schon gemacht und hat deswegen jetzt gute Laune. Seine Kollegin sagt zur Chefin:</i> Peter was told to organise the Christmas party for his company He did that last year already and is happy to do it again. His colleague says to the boss:	[6]

Table 9: Context stories for the six conditions of the sample items in Table 2 in Experiment 1

The predictions for the six experimental conditions were as follows: **superstrong NPIs** should be rated as acceptable only in the antimorphic condition [1]. **Strong NPIs** should additionally receive high acceptability ratings in the anti-additive condition [2]. **Weak NPIs** should be acceptable in the two aforementioned conditions as well as in the downward entailing condition [3]. **Superweak NPIs** should be acceptable in the antimorphic [1], anti-additive [2], downward entailing [3] and the question condition [5]. If nonveridicality in general can license superweak NPIs in German, then the NPIs that are rated as acceptable in the question condition should also receive a high acceptability rating in the nonveridical condition [4] with the modal operator *vielleicht* “maybe”. In the positive-assertion condition [6], all NPIs should receive a low acceptability rating. If an item received a high rating in the positive condition, that would suggest that this item is in fact not an NPI or is polysemous with a non-NPI.

In addition to the experimental items, there were 20 filler items which consisted of five positive assertions, five negative assertions, five positive questions and five negative questions. Half of the fillers were expected to be rated as acceptable, and half of the fillers were expected to be rated as unacceptable. The filler items were constructed analogously to the target items, such that they were embedded in a context story, with one of the protagonists from the context story uttering the filler sentence.

With 60 NPIs in 6 conditions, there were 360 experimental items overall in Experiment 1. These experimental items were evenly distributed across 6 experimental lists. The 6 lists were subdivided into 3 questionnaires each so as to avoid a decline in attention and exhaustion of the participants. In sum, there were thus 18 different questionnaires, each of which contained 20 experimental items plus the 20 filler items. Experimental and filler items were pseudo-randomised in each questionnaire. The task was a pen-and-paper task, allowing participants to go back and forth between items. Participants were asked to read the context story and the target sentence and then to rate the naturalness of the target sentence on a 7-point scale, indicating how natural the sentence sounded in the given context. The endpoints of the scale were labelled *sehr natürlich* “very natural” and *sehr unnatürlich* “very unnatural”. In the analysis, these endpoints were translated into the numbers 7 and 1, respectively, with the scale points in between corresponding to the numbers 2-6.

4.1.1.2 Participants

400 monolingual native speakers of German took part in Experiment 1 (164 m, 235 f, 1 d; age 16-85 ($m = 29.65$, $SD = 13.21$)). They were mainly from Cologne, Germany, and surrounding areas. The data of 40 participants were discarded because they were bilingual with a daily use of both languages or because they did not have German as a native language, leaving the data from 360 participants for analysis, so that there were 20 data points per NPI per condition. 200 participants were recruited from the general population by 20 students taking part in a university class on negation as part of their course assignment. 200 participants were recruited on campus by three research assistants at the University of Cologne and received 3 € payment for their participation. The questionnaires were filled in in informal settings (at home or in a quiet room on campus). Filling out the questionnaires took 15 to 20 minutes on average.

4.1.2 Results and discussion

Of the 7200 data points we obtained, 2.7 % were discarded because participants did not give the predicted judgements for the filler items, or because they forgot to judge an item. As for the filler criterion, the data of participants who judged more than 30 % of the acceptable fillers as unnatural (≤ 3) and unacceptable fillers as natural (≥ 5) were removed from the dataset.

To analyse the data, we performed descriptive statistics including visual inspection and a cluster analysis (R package `cluster`, Maechler et al. 2019). Cluster analysis is well-suited for exploratory data analysis: it allowed us to identify NPIs patterning together in their licensing behaviour. Figure 3 below shows the median rating of all 60 NPIs per condition. Note that due to space reasons, some NPIs in Figure 3 are abbreviated. See Appendix for the full list of (unabbreviated) NPIs; they can also be accessed in the CoDII database via the following link:

<https://www.english-linguistics.de/codii/codiinpi/de/list-complete.xhtml>.²⁴

²⁴ The list of the 60 NPIs tested in the study including contexts, conditions and individual results for both experiments reported are available here: <https://osf.io/5vsgj/> (DOI 10.17605/OSF.IO/5VSGJ)

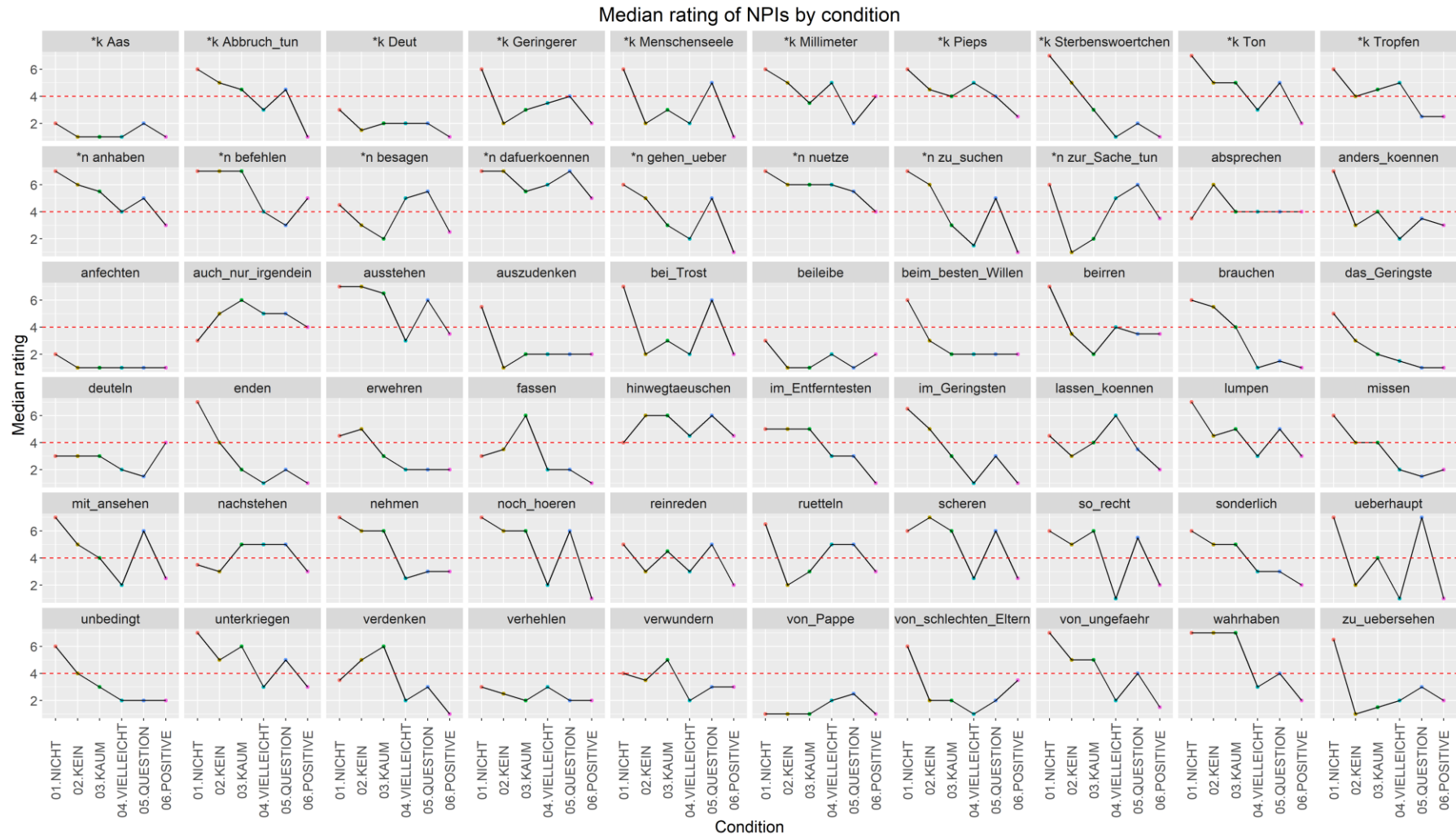


Figure 3: Median ratings of NPIs per condition. Row 1 contains the 10 NPIs of the “kein” group, as marked by *k. Row 2 contains the 8 NPIs of the “nichts” group, marked by *n. The subsequent NPIs are sorted alphabetically.

As Figure 3 shows, there is a lot of variation in the licensing patterns of the NPIs in Experiment 1. At first glance, some NPIs, like *auszudenken sein* (lit. “make.up be”, “to be conceivable” (*auszudenken* in Figure 3)) and *beim besten Willen* (lit. “at.the best will”, “with the best will in the world”) seem to act like superstrong NPIs, with high ratings in the antimorphic *nicht* condition and low ratings in all other conditions. For other NPIs, e.g. *zur Sache tun* (lit. “to.the thing do”, “to matter”), the pattern is far from clear.

In order to find out which NPIs pattern together in their licensing behaviour, hierarchical cluster analysis was performed. The cluster analysis computed the pairwise dissimilarities (distances) between the observations in the data set per NPI. This led to the dissimilarity matrix shown in Figure 4, which shows the (dis)similarities between the licensing patterns of the individual NPIs tested in Experiment 1. On the red diagonal in Figure 4, each NPI is compared to itself, leading to a distance (dissimilarity) value of 0. High dissimilarities between NPIs are indicated by the high distance values above 0,5, as indicated by the blue colouring. The more similar NPIs are to each other, the darker the red colouring in Figure 4.

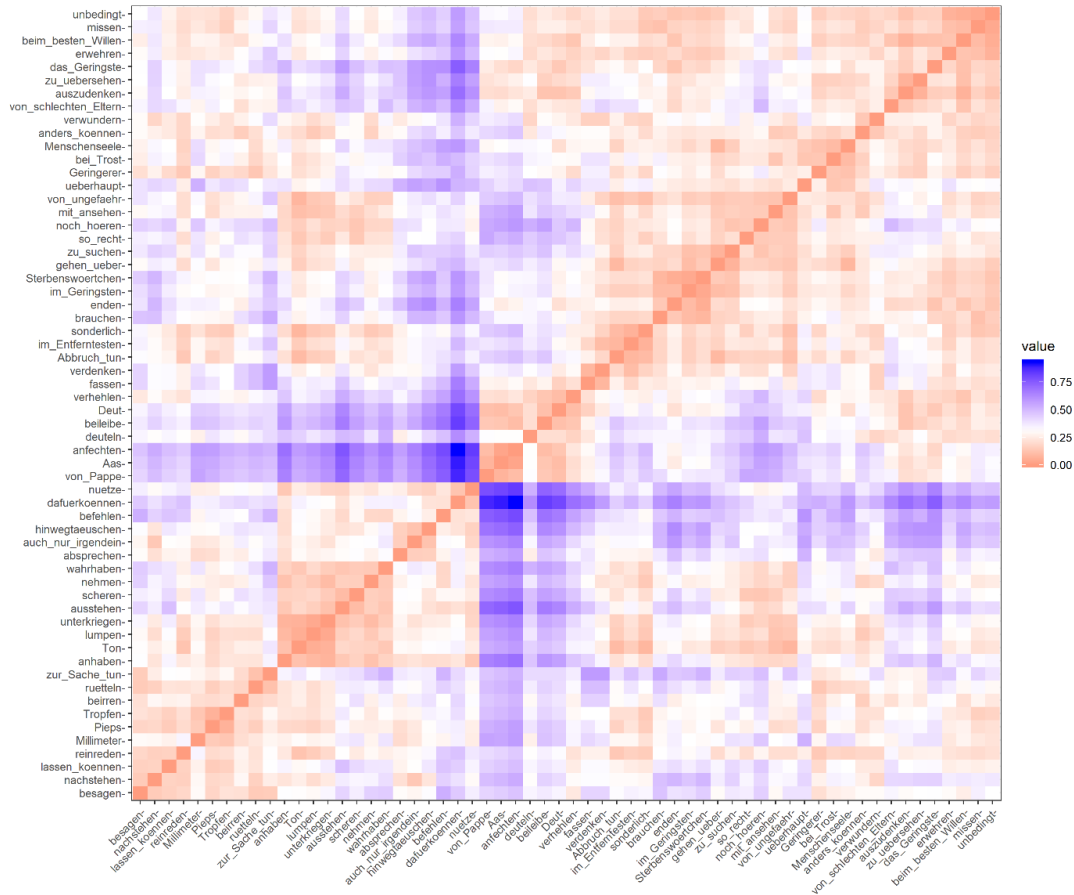


Figure 4: Dissimilarity matrix per NPIs in Experiment 1, with higher values indicating greater distance between items (shown in blue)

The (dis)similarities of the NPIs in Experiment 1 are also shown in the hierarchical cluster dendrogram in Figure 5. Here, NPIs that are similar in their licensing behaviour are grouped together. For example, the first pairing on the left shows that the NPI *zu besagen haben* (lit. “to tell have”, “to be telling”) and *nachstehen in* (lit. “behind stand in”, “to be inferior”) are very similar to each other, just as the next pair *lassen können von* (lit. “let can of”, “can help doing”) and *reinreden lassen* (lit. “into talk let”, “to be swayed”) are maximally similar to each other. The two pairs again behave very similarly, thus forming a cluster of four in the next higher level, and so on. Figure 5 shows that the NPIs in Experiment 1 are largely split into two groups which are then split into three major groups, which split into more groups until down at the pair level, the two NPIs that are most similar to each other are paired. The height on the y axis indicated the distance at which the clusters merge.

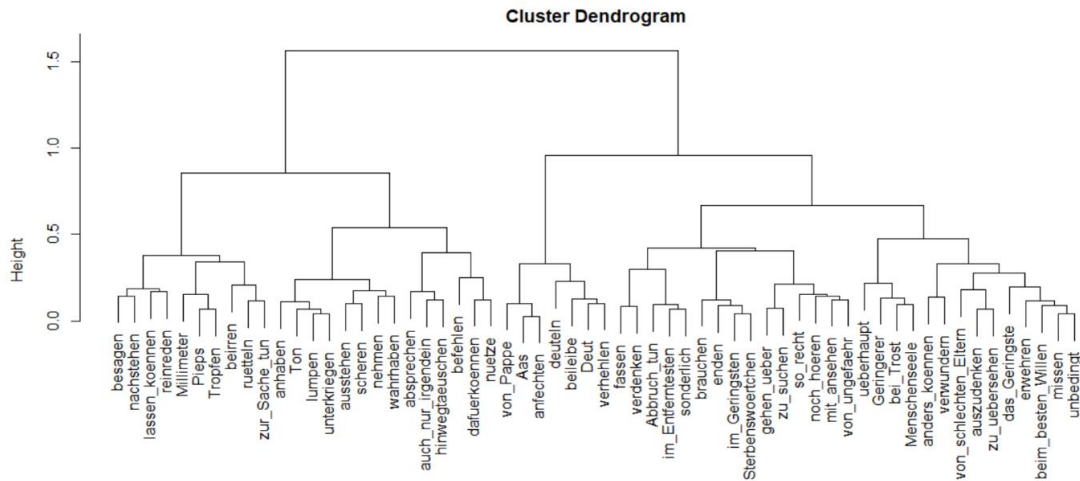


Figure 5: Cluster dendrogram indicating similarity of NPIs in Experiment 1

On the basis of the cluster analysis, we identified the seven clusters shown in Figure 6. None of these clusters or other potential smaller clusters showed an influence of the morphosyntactic and/or lexical characteristics of the NPIs. The only clear pattern that emerged upon visual inspection was the following: in the *kein* group, there is a notable decline in acceptability between the antimorphic condition, in which the NPIs from the *kein* group were directly preceded by their licensors, and the anti-additive condition, in which the licensor *kein* was part of the subject, but the NPIs were in object position (SUBJ – V – *kein* OBJ.NPI vs. *kein* SUBJ – V – OBJ.NPI). This shows that the nominal NPIs in the *kein* group are idiomatic to the extent that they have to be preceded by their licensor directly. When the same licensor appears in a position higher up in the sentence, the acceptability is notably degraded.

Apart from this, neither the *nichts* group nor the *kein* group nor the morphosyntactic groups described in Section 3.3 and 4.1 (like verb + modal verb combinations, verb + the copula verb *sein* “to be”, verb + *lassen* “let”) showed uniform licensing behaviour and formed a cluster. Likewise, the semantic verb groups based on Hoeksema’s (1994) classification (verbs of indifference, verbs of intolerance, modal verbs, verbs of resilience) that were presented in Section 3.3.2 did not show uniform licensing behaviour and consequently did not form any clusters.

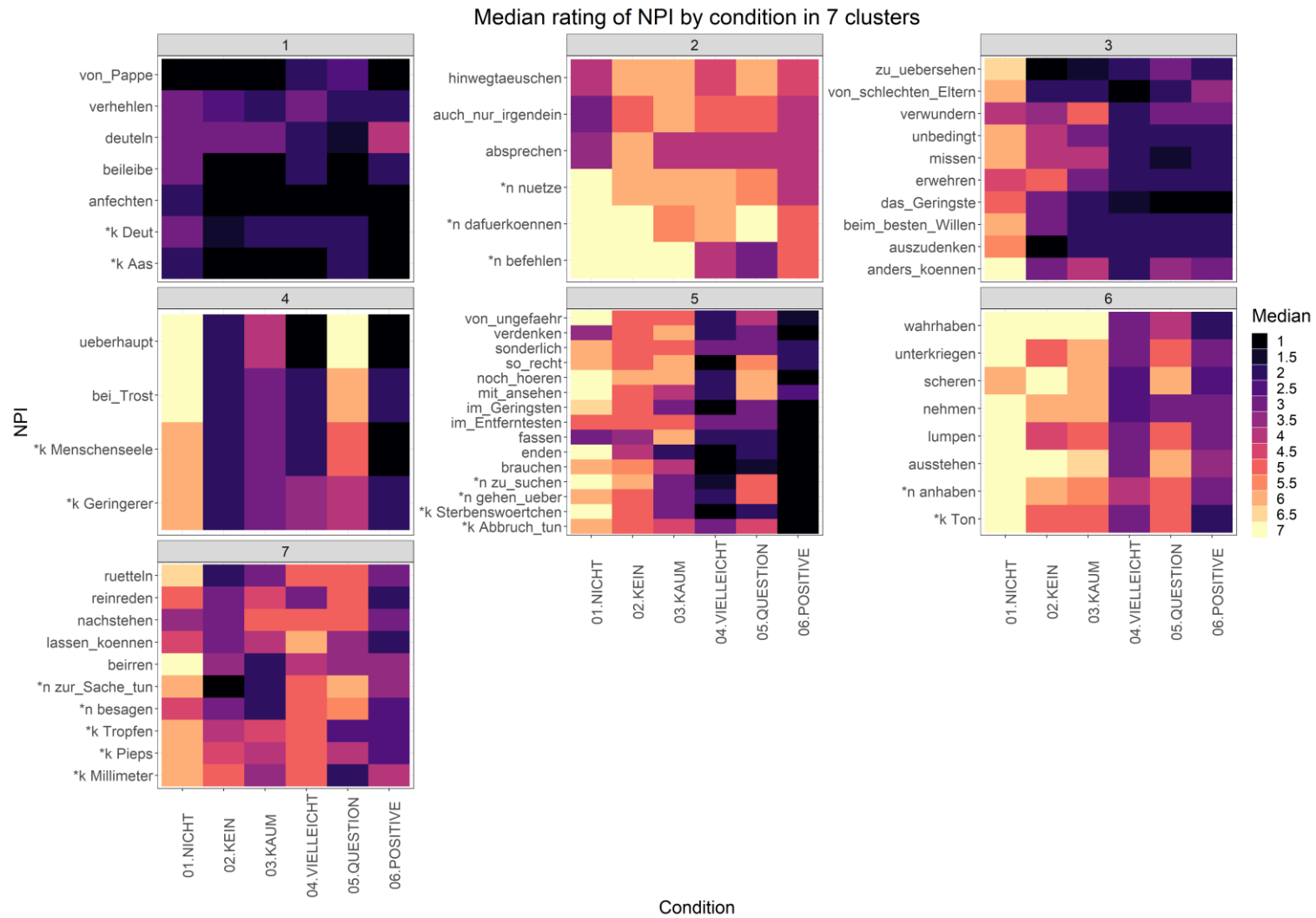


Figure 6: Median rating per NPI per condition in seven clusters, with lighter colour corresponding to higher medians.

In cluster [1], all NPIs received low ratings in all conditions, see also Figure 7²⁵. A probable explanation for this is low frequency: the NPIs in cluster [1] appear to be antiquated and/or not widely used. For instance, an analysis of the development of the word frequency of the phrase *von Pappe sein* (lit.: “of cardboard be” “to be of sound quality”), as inspected with the *DWDS Wortverlaufskurven* “word timelines”²⁶, indicates that the frequency of that word has declined considerably in the last 31 years (independently of its concrete meaning). The word *Deut* “brass farthing” has been infrequent (1 per million tokens) for the last 250 years. Furthermore, since most participants were from the area of Cologne, dialectal variation could also play a role, which needs to be investigated in future research.

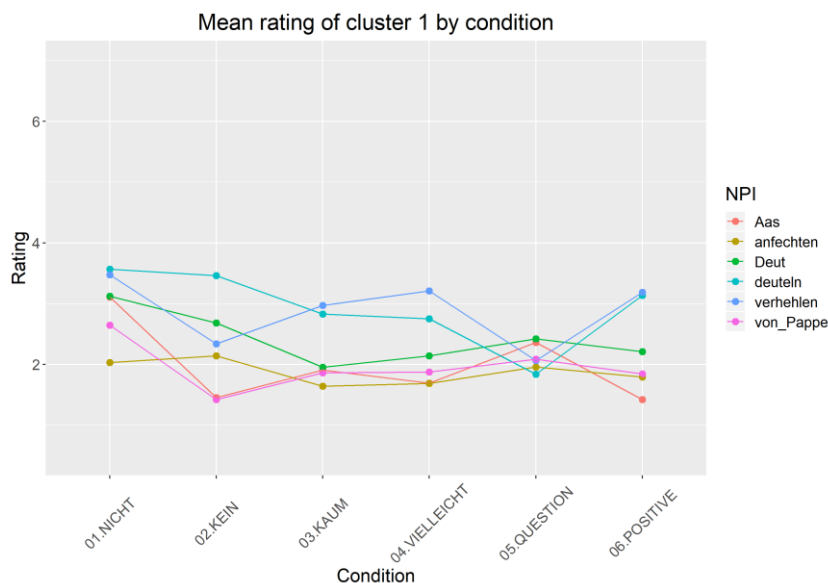


Figure 7: Mean rating of cluster 1 per condition.

²⁵ The cluster analysis was performed on the basis of median acceptability ratings due to the acceptability ratings of 1-7 being an ordinal scale. For better visibility, the plots in Figure 7 to Figure 13 show each cluster’s mean rating instead of the median rating. This is because in the median ratings the plot lines can overlap, making individual NPIs invisible. Otherwise, comparisons between the mean and median ratings of the NPIs in Experiment 1 showed no major difference.

²⁶ <https://www.dwds.de/d/ressources#wortverlauf>

Cluster [2] shows relatively high ratings overall, with only a slight decline in ratings with declining negativity. In fact, in the positive assertion condition 6 the NPIs of cluster [2] received median ratings of 4 and higher, i.e. they were perceived to be acceptable rather than unacceptable. This finding suggests that the items in cluster [2] are not actually NPIs. Still, for most items in this cluster, the positive condition is the condition with the lowest rating. This effect might be due to these items often occurring with negation but not being actually NPIs, that is, we might be observing a frequency effect. For instance, a corpus search in the DWDS corpus (<https://www.dwds.de/>) revealed that examples without a licenser can readily be found for *befehlen lassen* (lit. “oneself sth. order let”, “to be bossed around”) or for *hinwegtäuschen können* (lit. “deceive can”, “to be able to obscure the fact that ...”), *absprechen können* (lit. “deny can”, “not to be able to deprive sb. of sth.”) (both more often without *können*). This issue needs to be investigated in future research and will specifically be addressed in the corpus study presented in Section 5.

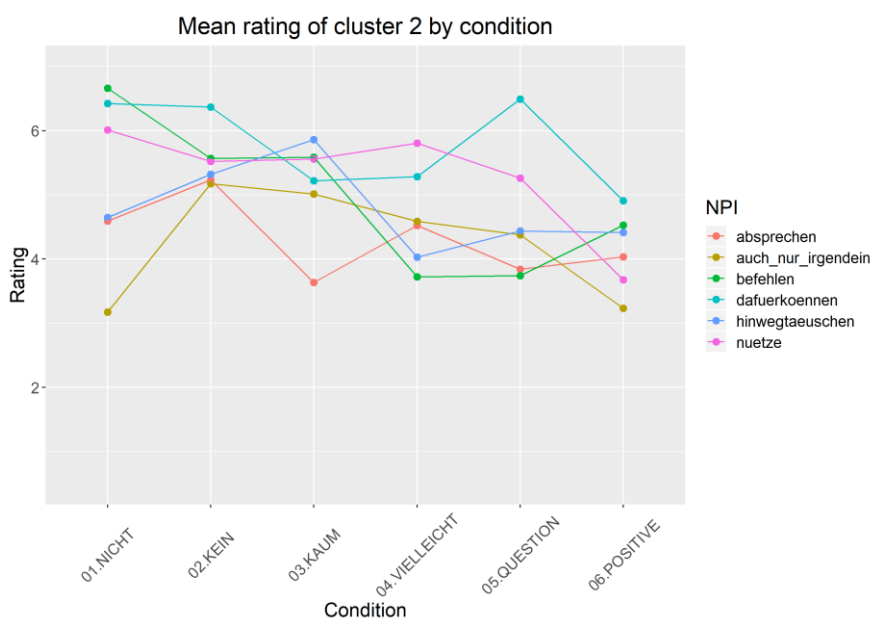


Figure 8: Mean rating of cluster 2 per condition.

Cluster [3] shows high acceptability ratings in condition 1, and a clear drop in acceptability in all other conditions, suggesting that the NPIs in cluster [3] are only licensed by the antimorphic licenser *nicht* “not”, and are thus superstrong NPIs, as described by van der Wouden (1994) and Zwarts (1986, 1998).

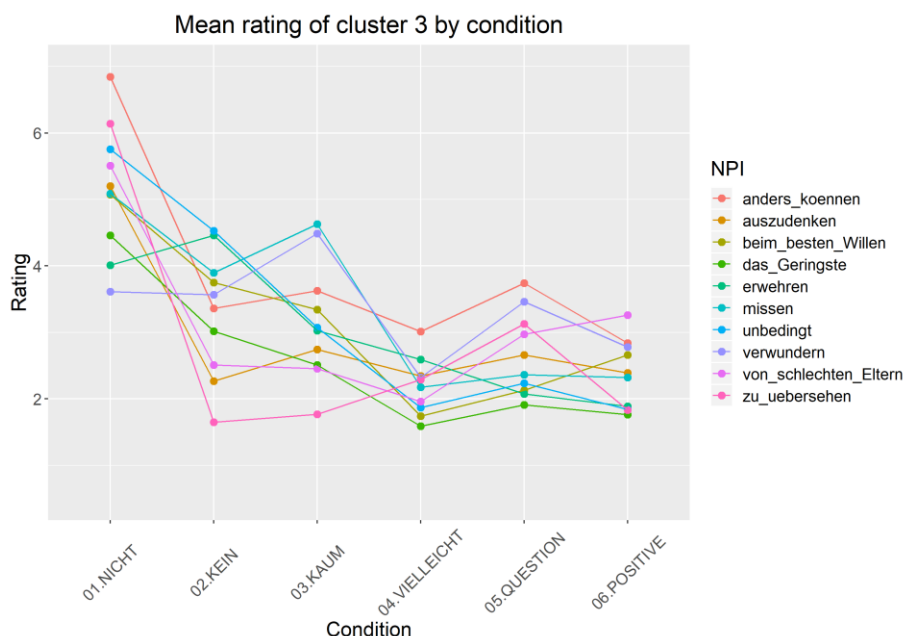


Figure 9: Mean rating of cluster 3 per condition.

Cluster [4] shows high acceptability ratings in the antimorphic condition and in the question condition, and low ratings in all other conditions. This pattern is highly unexpected from the perspective of the superstrong/strong/weak/superweak distinction: if NPIs receive high ratings in questions, they should also receive high ratings in anti-additive and downward entailing contexts. Closer inspection of the individual NPIs in cluster [4] suggests two possible explanations for the unexpected finding. Firstly, the NPI *überhaupt* “at all” appears to have an obligatory reading as a modal particle in questions rather than the adverb NPI reading we intended. The NPI *überhaupt* intensifies the negation: *Das hat sie überhaupt nicht gesagt* (lit. “that has she at.all not said”, “She didn’t say that at all”). The modal particle *überhaupt* has a different meaning in questions. It signals that the speaker wants to question a proposition (the prejacent of the question *überhaupt* is inserted in) in the common ground: *Hat sie das überhaupt gesagt?* (lit. “has she that PART said” “Did she even say that?”), or it signals the speaker’s displeasure with something the question refers to: *Was will der*

überhaupt? (lit. “what wants the PART”, “What does he even want?”). Arguably, both these meanings differ significantly from the negation intensifying NPI *überhaupt*. It seems that the modal particle reading is available in the question we tested in Experiment 1, so we assume that the high ratings are due to this reading (whether or not the two readings should be analysed separately or not is still debated, see Anderssen (2006) and Rojas-Esponda (2014) for discussion). Secondly, it is possible that the other question items in cluster [4] were interpreted as rhetorical questions. For instance, the following item has a rhetorical flavour: *Ist Philipp bei Trost?* (lit. “is Philipp with consolation”). On the rhetorical reading, it translates to “Is Philipp insane?”. This reading may have overridden the intended neutral reading “Is Philipp sane?”. Despite our attempts to make the questions as neutral as possible with the context stories, it is possible that participants interpreted the questions in cluster [4] and possibly other questions with high ratings in Clusters [5] and [6] (see below) as rhetorical. Since rhetoricity might have an influence on NPI licensing (van Rooy, 2003), we explored this potential confound in Experiment 2, see Section 4.2.

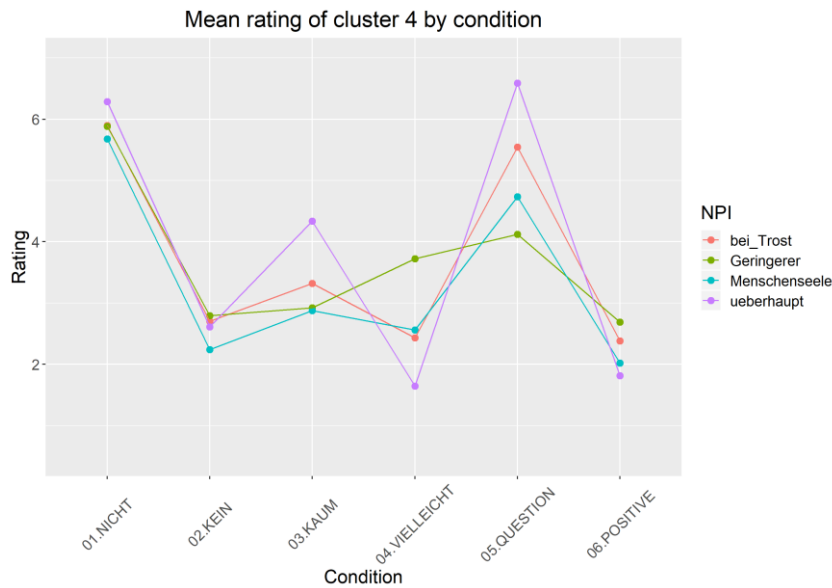


Figure 10: Mean rating of cluster 4 per condition.

Cluster [5] and cluster [6] both show low ratings in the positive condition as well as in the modal operator nonveridical condition, see Figure 11 and Figure 12. This suggests that the modal nonveridical operator *vielleicht* cannot license NPIs in German. Apart from this clear pattern, cluster [5] shows a lot of variation. Nevertheless, visual inspection shows that there is a decline in acceptability ratings between the antimorphic, anti-additive, and downward entailing condition in 10 out of 15 NPIs in this cluster. There is often no clear cut between acceptability ratings, i.e. the differences between the different licensors are gradual. For instance, the NPI *mit ansehen können* (*mit ansehen* in the figure, lit. “with behold can”, “to be able to bear sth.”) received median acceptability ratings of 7, 5, and 4 in the antimorphic, anti-additive, and downward entailing condition respectively. It is difficult to decide on the threshold for the classification of NPIs given such minimal median differences. We will come back to this issue further below. As for the seemingly idiosyncratic behaviour of other NPIs in cluster [5], further experimental testing with different experimental sentences is required. The NPIs in cluster [6] received overall high ratings in the antimorphic, anti-additive, and downward entailing condition, suggesting that these NPIs are weak NPIs. For the reasons described above, i.e. the high acceptability ratings in questions possibly being due to rhetorical interpretations, the question condition was examined again in Experiment 2. If the high question ratings are not due to rhetorical interpretations, the NPIs with high ratings in questions in cluster [6] can be classified as superweak NPIs.

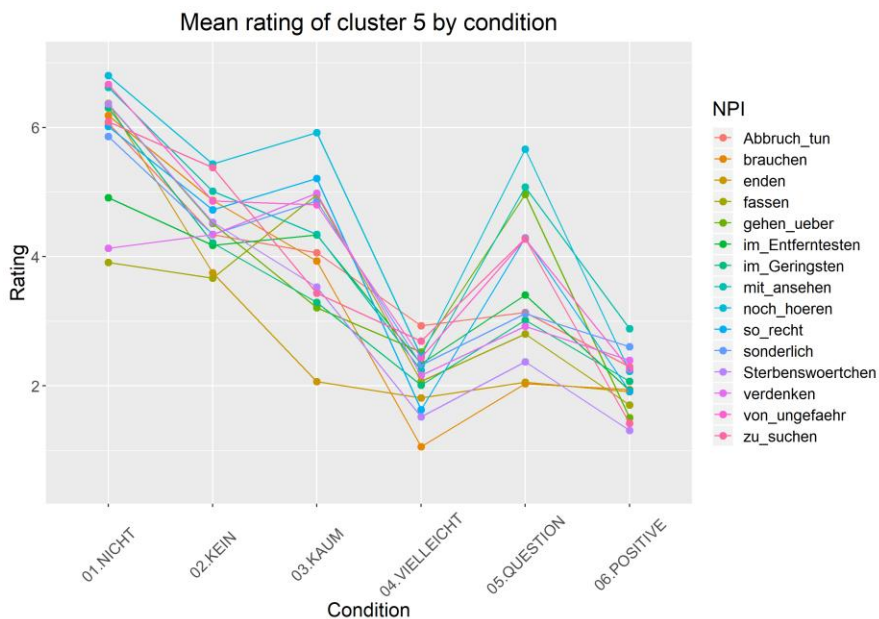


Figure 11: Mean rating of cluster 5 per condition.

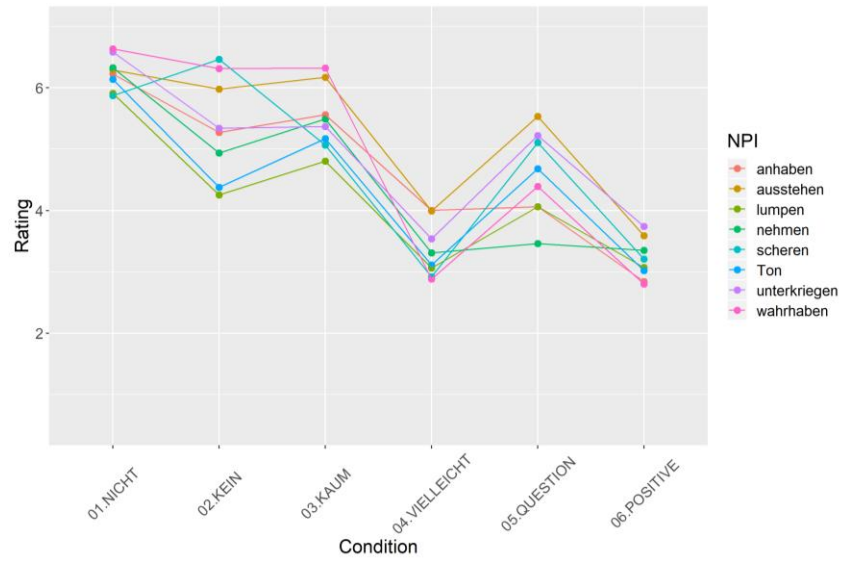


Figure 12: Mean rating of cluster 6 per condition.

In Cluster [7], acceptability ratings are highest in the antimorphic condition, but all other conditions show medium to low ratings. Since the positive condition received the lowest ratings overall, the items in cluster [7] do in fact appear to be NPIs.

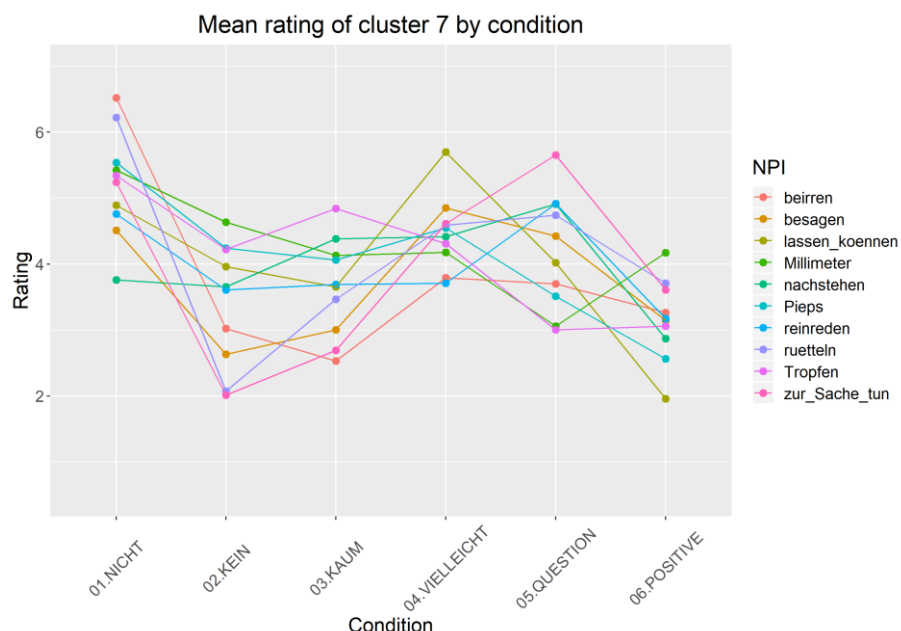


Figure 13: Mean rating of cluster 7 per condition.

Interestingly, the anti-additive (*kein*) condition received lower ratings than the downward entailing (*kaum*) condition in 6 out of 10 NPIs in cluster [7]. This shows that the tendency of lower ratings with declining negativity is not present in all NPIs in Experiment 1. It is possible that this finding can be attributed to the design of the items. Recall that the target sentences in the downward entailing condition contained the licenser *kaum* “hardly” as a quantificational determiner in the subject. It seems that some NPIs received a low acceptability rating in the downward entailing condition but are acceptable with *kaum* as an adverbial quantifier. For example, the NPI *etwas zur Sache tun* (lit. “sth. to.the thing do”, “to matter”) received a median rating of 2 with *kaum* as a quantificational determiner (see the experimental item in (210)), but appears to be acceptable with *kaum* as an adverbial quantifier, as shown in (211):

- (210) Kaum ein Ort tut etwas zur Sache.
 hardly a place does something to.the thing
 “Hardly any place matters.”

- (211) Letzteres **tut** kaum **etwas** **zur** **Sache**.²⁷
 the.latter does hardly anything to.the thing
 “The latter hardly matters.”

From the perspective of van der Wouden (1994) and Zwarts (1986, 1998) it is rather unexpected to find an acceptability difference between the quantifying determiner and the adverbial quantifier *kaum* with the same NPI: both are downward entailing, as can be shown by checking the entailment relations: (212)(a) entails (212)(b), and (213)(a) entails (213)(b).

- (212) a. Kaum ein Kind isst gern Gemüse.
 hardly a child eats gladly vegetables
 “Hardly any child likes to eat vegetables.”
 b. Kaum ein Kind isst gerne Spinat.
 hardly a child eats gladly spinach
 “Hardly any child likes to eat spinach.”

- (213) a. Meine Kinder essen kaum Gemüse.
 my children eat hardly vegetables
 “My children hardly eat vegetables.”
 b. Meine Kinder essen kaum Spinat.
 my children eat hardly spinach
 “My children hardly eat spinach.”

One difference between the two quantifiers is that the quantifying determiner quantifies over individuals, and the adverbial quantifier quantifies over situations. However, since both are downward entailing, differences in NPI licensing are not expected from the perspective of van der Wouden (1994) and Zwarts (1986, 1998). Why exactly the two different quantifier types seem to differ in NPI licensing needs to be established in future research.²⁸

²⁷ From *Süddeutsche Zeitung*, 15.9.2020, Article *Mit Kippa und Lederhosen* „With kippa and lederhosen“
 (<https://www.sueddeutsche.de/muenchen/ausstellung-mit-kippa-und-lederhosn-1.5032394>)

²⁸ We thank an anonymous reviewer of Schaebbicke et al. (2021) for pointing out that the difference between *kaum* as a quantificational determiner and an adverbial quantifier does not necessarily need to

To summarize, in Experiment 1 we found some NPIs that match the predictions made with regard to the literature: superstrong NPIs were expected to only be licensed in the antimorphic condition [1], which is what we found in cluster [3]. Weak NPIs were expected to be licensed in the antimorphic, anti-additive, and downward entailing condition [1-3], and superweak NPIs were additionally expected to be licensed in the question condition [5]. The NPIs found in cluster [6] match these predictions. Additionally, Experiment 1 has established that the nonveridical modal operator *vielleicht* “maybe” does not license superweak NPIs in German. Generally, ratings in the *vielleicht* condition were as low as ratings in the positive assertion condition. Thus, we tentatively conclude that it is not nonveridicality *per se* that licenses superweak NPIs in German, but that questions may have specific licensing properties. This issue needs closer scrutiny in future research as there are other nonveridical environments, such as conditionals, in which NPIs have been observed to occur. Still, our results do not exclude the possibility that questions have specific NPI licensing properties that are not related to nonveridicality.

Overall, the acceptability ratings are not as categorical as could have been expected from a theoretical perspective, with clear cuts between high vs. low acceptability, but rather graded. Although this is not an unusual finding in experimental testing, the differences between the different licensors often are very small. The size of these differences needs to be quantified in future experiments that are designed to allow inferential testing. Nevertheless, even if the differences are small, the graded acceptability seems to reflect Zwarts’s (1986, 1998) hierarchy of negation: the more negative the context, the higher the ratings. This is illustrated in Figure 14, where darker colours (=lower acceptability ratings) correspond to declining degrees of negativity. A very peculiar licensing pattern in this regard was that of cluster [4], with high acceptability ratings only in the antimorphic and the question condition. As mentioned above, this licensing pattern is not in accordance with the idea of gradual negativity corresponding to gradual NPI strength and goes against the assumption of concentric licensing. Since item analysis suggested that the high acceptability ratings in questions in cluster [4] could stem from rhetorical readings, Experiment 2 was conducted to determine

be interpreted as involving a semantic distinction between quantification over individuals vs. situations. Yurchenko et al. (2013) found a similar difference for Dutch *bijster* and attributed it to a locality effect.

whether rhetoricity contributed to high acceptability ratings in questions in Experiment 1.

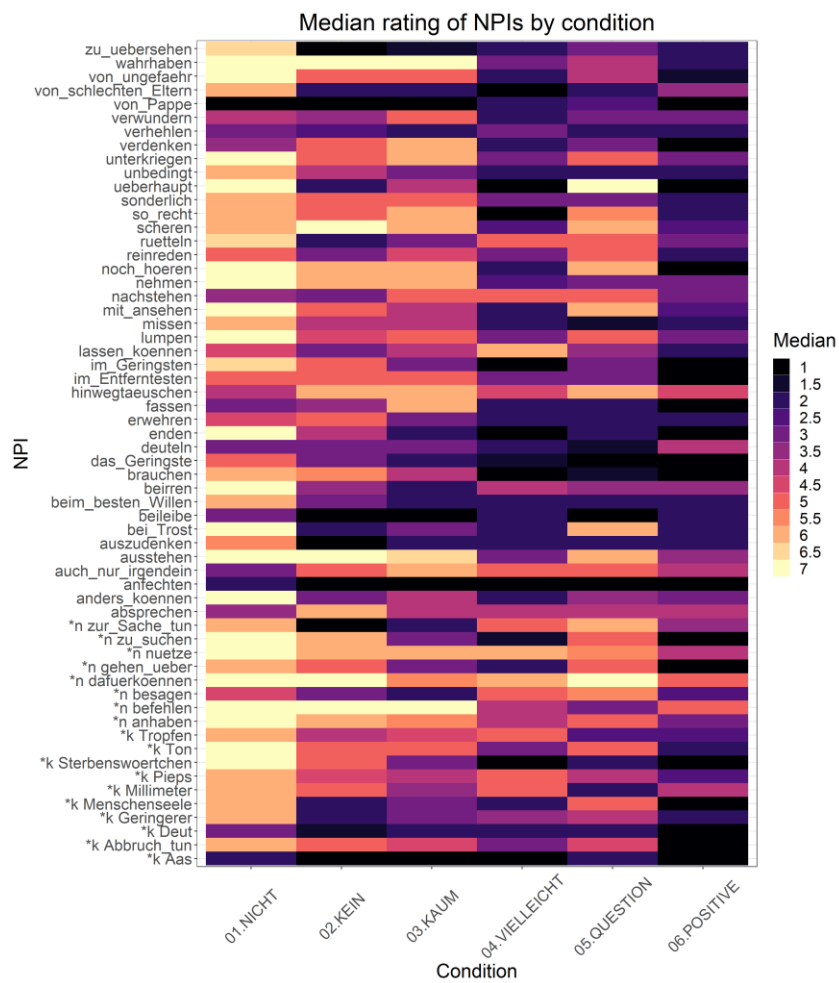


Figure 14: Median ratings of all NPIs in Experiment 1

4.2 Experiment 2: On the rhetoricity of polar questions with NPIs

The primary goal of Experiment 2 was to find out whether participants interpreted the questions that received a high acceptability rating in Experiment 1 as rhetorical, that is, as a question that a speaker does not ask because they want to know the answer, but because they want to express that the answer to the question is obvious. Rhetorical questions have been suggested to be, or to be similar to, assertions (e.g., Sadock, 1971, 1974; Han, 2002; but see Caponigro & Sprouse, 2007). They express that the prejacent of the question – or, more typically, its negation – is true.

According to van Rooy (2003), there is a certain type of NPI that only appears in rhetorical questions: minimizer NPIs, i.e. NPIs that denote minimal values such as *a drop* in *He doesn't drink a drop* (“even NPIs” in van Rooy’s (2003) terminology, see Section 2.3 on Scalar approaches to NPI licensing). Non-minimizer NPIs, in contrast, can appear in neutral questions. This claim is illustrated in the following examples: while the questions in (214) and (215), which contain the minimizer NPIs *lift a finger* and *bat an eyelid* have a clear rhetorical flavour to them (that is, it is near impossible to read them as neutral questions), the questions in (216) and (217), which contain the non-minimizer NPIs *yet* and *ever*, can easily be read as neutral, information-seeking questions.

- (214) Did Karl even **lift a finger** to help his brother move house yesterday?
- (215) Did Susan even **bat an eyelid** when Karl told their daughter about the affair?
- (216) Has Karl visited his grandmother in hospital **yet**?
- (217) Has Susan **ever** been to the pizza restaurant around the corner?

As described in Section 2.3 on Scalar approaches to NPI licensing, van Rooy (2003) suggests that sentences containing a minimizer NPI have a similar presupposition to sentences with *even*: that there are salient alternatives to their denotation, which are relevant for their interpretation. Questions containing minimizer NPIs presuppose that the question is already settled for the salient alternatives, but not for the minimal value. For example, the question *Does Paul drink a drop?* presupposes that the question whether Paul drinks anything more than the minimal value is already settled, i.e. that Paul does not drink alcohol regularly. Hence, the question can only be asked to settle whether Paul does not drink any alcohol at all, or whether there is an exception to his non-drinking, namely the minimal amount. According to van Rooy (2003), this is the rhetorical effect that minimizer NPIs have in questions: to settle whether nothing at all

applies, or whether the minimal amount applies, and since the minimal amount is practically nothing, the question is interpreted as rhetorical.

From the above we can derive the following predictions for Experiment 2: if rhetoricity was the source of high acceptability ratings in Experiment 1, we expect all the questions with high acceptability ratings to receive high rhetoricity ratings in Experiment 2 as well. That is, we should find a positive correlation between acceptability and rhetoricity. In addition, we can make a second prediction: since van Rooy (2003) suggests that minimizer NPIs appear only in rhetorical questions, the questions with minimizer NPIs from Experiment 1 should receive high rhetoricity ratings in Experiment 2. Non-minimizer NPIs, however, should receive low rhetoricity ratings, because according to the theory they are not associated with rhetoricity. To establish whether these hypotheses hold, the 60 question items from Experiment 1 were tested for acceptability and rhetoricity in Experiment 2.

4.2.1 Method

4.2.1.1 *Materials, design, and procedure*

The 60 experimental items were distributed across two lists. In addition to the experimental items, there were 30 filler items, consisting of positive and negative questions embedded in context stories. Each participant saw 30 experimental items and 30 filler items. Like in Experiment 1, participants were asked to read the context story and the target sentence and then judge the acceptability of the item on a 7-point scale, with the endpoints labelled *sehr natürlich* “very natural” and *sehr unnatürlich* “very unnatural”. In addition, the level of rhetoricity was measured: participants were asked to judge on another 7-point scale how likely they thought it was that the person asking the question in the story already knew its answer. The endpoints of this scale were labelled *sehr unwahrscheinlich* “very unlikely” (1) and *sehr wahrscheinlich* “very likely” (7). Both scales were presented on the same page as the experimental items, with the acceptability scale above the rhetoricity scale. To ensure that participants read the contexts and target sentences carefully, participants had to answer a control question about the context or the contents of the target sentence after each item, after they had made the judgements. Experiment 2 was conducted as an online questionnaire using SoSci Survey (Leiner, 2019) and made available via www.soscisurvey.de.

4.2.1.2 Participants

In Experiment 2, 82 monolingual native speakers of German were tested (64 f, 18 m), aged 19-43 ($m=22.54$, $SD=4.05$) mainly from Cologne, Germany, and surrounding areas. The participants were recruited from an introductory linguistics class at the University of Cologne and received course credit for taking part in the experiment. They filled out the questionnaires online from their homes. They could not go back and forth between items. On average, filling out the questionnaire took 40 minutes.

4.2.2 Results and Discussion

Again, participants who judged more than 30 % of the acceptable fillers as unnatural and unacceptable fillers as natural were removed from the dataset. Additionally, participants who gave the wrong answer to more than 1/6 of the control questions were removed. Overall, 5 participants were excluded from the dataset, resulting in 6.09 % data loss. Figure 15 shows the NPIs in questions in Experiment 2 ordered by median acceptability rating from low (left) to high ratings (right) as indicated by the bars. The black dots in Figure 15 indicate the median rhetoricity rating.

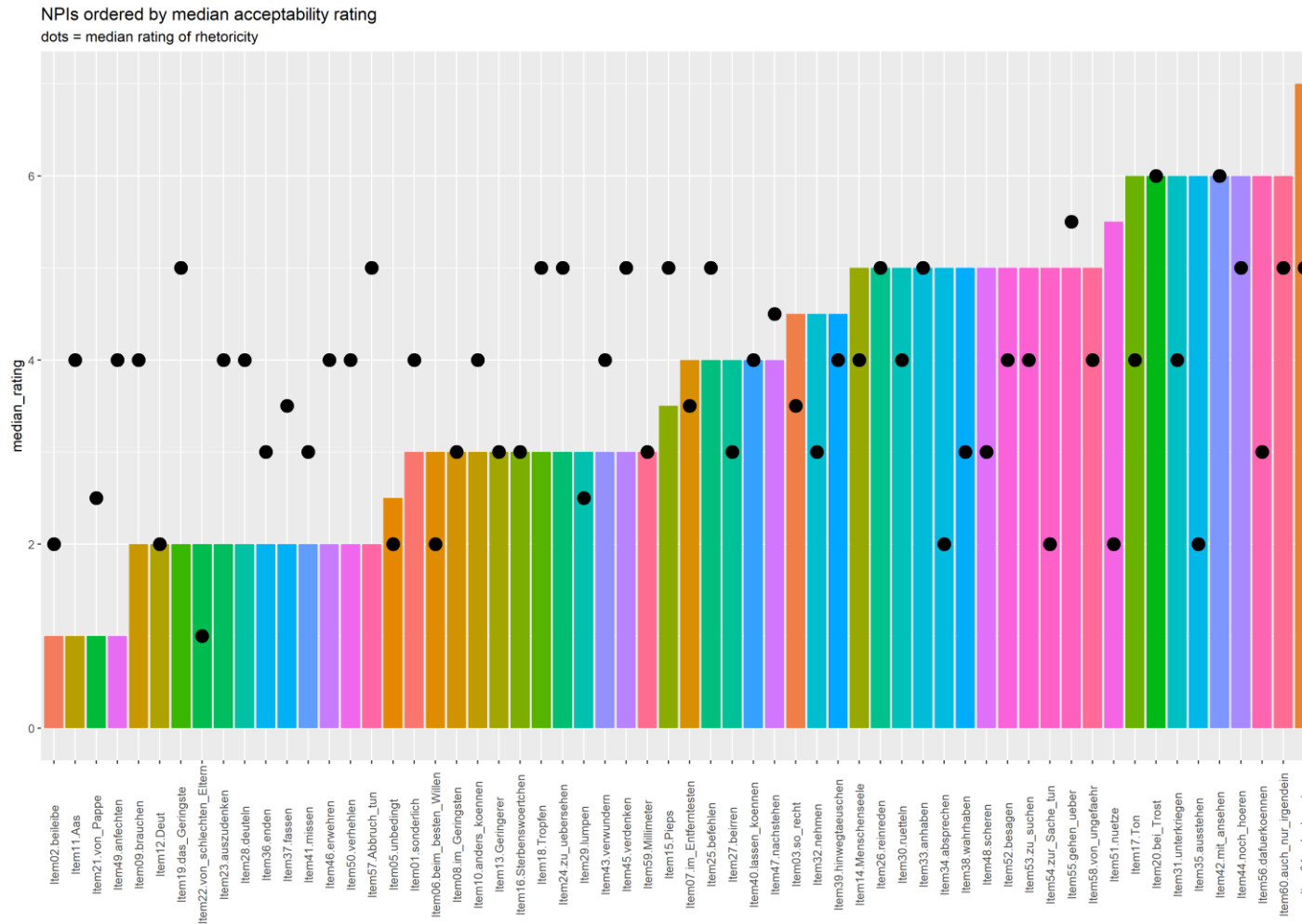


Figure 15: NPIs in questions in Experiment 2 ordered by median acceptability ratings. Black dots indicate the median rhetoricity rating.

Experiment 2 largely replicated the results for acceptability obtained in Experiment 1. Out of 60 items in Experiment 1 and 2 respectively, 19 had the same median (difference = 0); 8 had a difference in medians of 0.5; 19 had a difference in medians of 1; 3 had a difference in medians of 1.5; 9 had a difference in medians of 2; 2 had a difference in medians of 2.5. That is, for 46 out of 60 NPIs the difference between medians in Experiment 1 and 2 was ≤ 1 . For the descriptive statistics we focused on the questions that received a high acceptability rating (median ≥ 5). The reasoning for this was that it seems unlikely that participants can have clear intuitions about the rhetoricity of a question if they deem that question unacceptable.

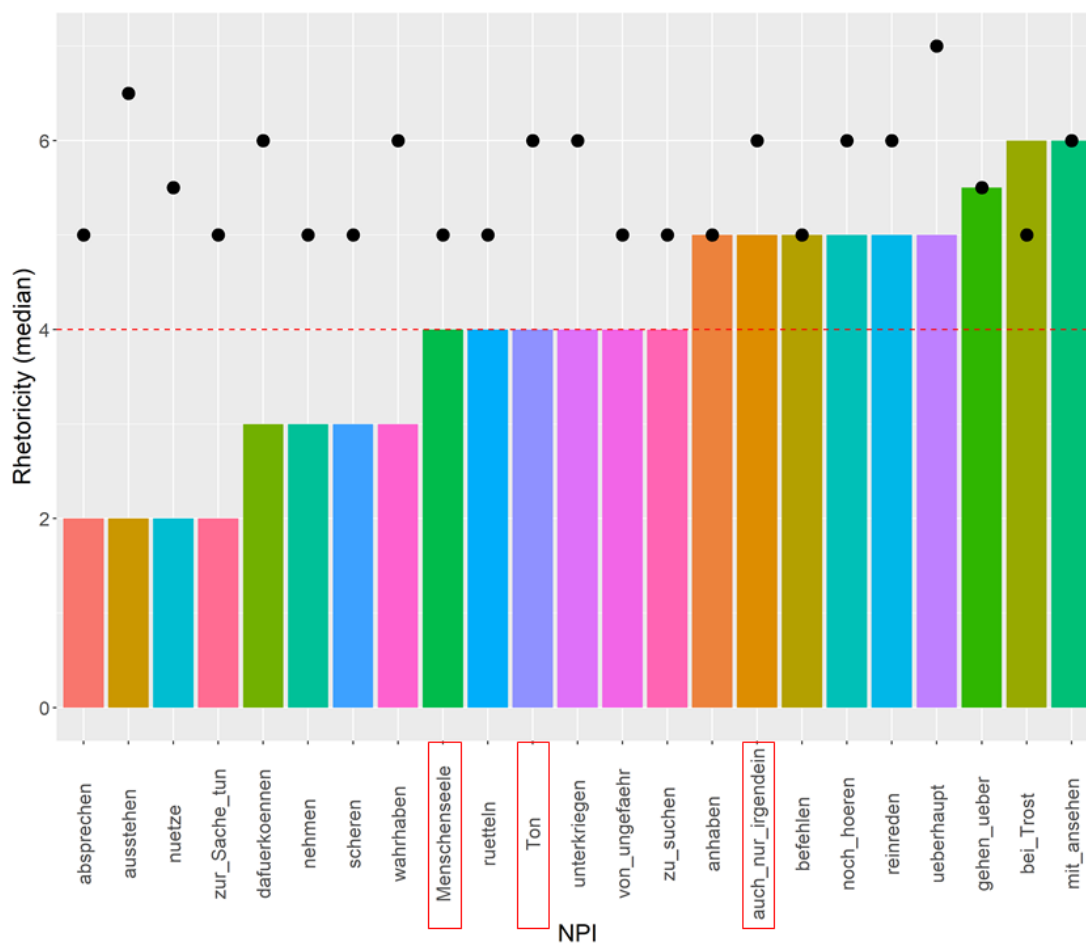


Figure 16: Questions with median acceptability ≥ 5 ordered by median rhetoricity, as indicated by the bars. The black dots indicate the median acceptability rating. Red boxes mark minimizer NPIs.

Figure 16 shows the rhetoricity results for questions that received a median acceptability rating of ≥ 5 . It suggests that rhetoricity did not contribute much to acceptability: out of the 23 acceptable questions, 9 were judged as likely to be rhetorical (median $\geq$

5), while 8 were rated as likely to be non-rhetorical (median ≤ 3). To quantify the relation between acceptability and rhetoricity, we calculated the correlation using the Pearson correlation coefficient and found a weak correlation between acceptability rating and rhetoricity rating, which was not significant ($r = 0.23$, $p = 0.066$). This finding suggests that rhetoricity is only one of several contributing factors to high acceptability ratings in questions. The results of Experiment 2 indicate that NPIs can appear in rhetorical as well as non-rhetorical questions. Again, the morphosyntactic and semantic groups of NPIs presented in chapter 3.3 did not play a role in determining the licensing behaviour of NPIs. That is, NPIs within the same morphosyntactic or semantic group did not behave uniformly. The morphosyntactic and semantic groups also did not play a role regarding the rhetoricity ratings. Whether there is an underlying factor that determines which NPIs can appear in questions, or whether the acceptability of NPIs in questions is simply determined in the lexicon, needs to be established in future research.

As for the role of minimizer NPIs (marked in red boxes in Figure 16), this was also smaller than predicted. Within the questions with a high acceptability and rhetoricity rating, only one NPI (*auch nur irgendeine*, lit. “also only any-”, “any whatsoever”) is akin to a minimizer NPI by virtue of being a domain widening NPI (see Section 2.3). There are two more minimizer NPIs within the questions with a high acceptability rating that received a median rhetoricity rating of 4, which seems inconclusive with regard to rhetoricity: *Menschenseele* (lit. “human.being.soul”, “living soul”) and *Ton* “sound”. There were more minimizer NPIs in the total set of NPIs in Experiment 1 and 2, but since the questions containing these NPIs received acceptability ratings of 4 or lower in Experiment 2, it is difficult to tell their impact on the rhetoricity of the questions. Thus, with regard to the proposal by van Rooy (2003), we did not find exclusively minimizer NPIs in the set of questions with high acceptability and rhetoricity ratings. It seems clear, however, that non-minimizer NPIs can easily occur in rhetorical questions, as we found eight questions with non-minimizer NPIs that were rated as rhetorical in Experiment 2. For example, the question *Kann Caro den Streit mit ansehen?* (*mit ansehen* in Figure 16, lit. “can Caro the fight with behold”, “Can Caro bear to witness this argument?”) received a median rhetoricity rating of 6. However, the NPI *mit ansehen können* does not denote a minimal amount on any scale. The same goes for the question *Lässt Johannes sich reinreden?* (*reinreden* in Figure

16, lit. “lets Johannes REFL interfere”, “Is Johannes being swayed on this?”), which received a median rhetoricity rating of 5, and other questions containing verbal NPIs.

These results are perhaps unexpected if one treats van Rooy’s (2003) proposal as a strict, monodimensional *if-then* relation in the following (hypothetical) sense: “if a question contains a minimizer NPI, it becomes rhetorical, and if a question contains a non-minimizer NPI, it is neutral.” However, in my understanding, van Rooy’s (2003) theory does not necessarily preclude the possibility that a question containing a non-minimizer NPI can be a rhetorical question. Van Rooy (2003) simply does not say anything about such cases, since the account is concerned with the rhetorical effect that arises from minimizer NPIs. This does not, however, exclude the possibility that rhetorical interpretations of questions stem from other factors than minimizers – first and foremost, it is highly conceivable that rhetoricity arises simply from context regardless of whether a question contains a minimizer NPI or not. This is also demonstrated by the fact that questions per se do not need to contain NPIs at all in order to be rhetorical.

The fact that there were questions containing minimizers (*Menschenseele* “living soul” and *Ton* “sound”) that did not receive high rhetoricity ratings in Experiment 2 is more problematic for van Rooy’s (2003) account, as it states that a minimizer NPI does necessarily result in a rhetorical interpretation of a question. However, there is a caveat to this result: the experimental design itself may have counteracted any rhetorical effect that minimizers in questions have. Recall that the questions in Experiment 1 and 2 were designed to be neutral, information-seeking questions. That is, the contexts that participants read before the target questions were designed such that the positive answer p and the negative answer $\neg p$ were both possible, and the question was supposed to be open with regards to the answer. In some cases, these neutral contexts may have overridden the rhetorical effect that the minimizer NPIs may otherwise have had. Interestingly, in other cases the context was not strong enough to override the rhetoricity effect; for some NPIs, it seemed near impossible to construct contexts that made both answers to the NPI-containing questions equally likely.

Overall, Experiment 2 has shown that non-minimizer NPIs can appear in rhetorical questions and minimizer NPIs are not restricted to rhetorical questions. The exact relationship between non-minimizers and the rhetoricity of questions will require further scrutiny in future research: our findings make the applicability of existing

theoretical proposals doubtful at best. As for a potential correlation between acceptability and rhetoricity, which we hypothesized to be a reason for the high ratings in the question condition in Experiment 1, the findings of Experiment 2 suggest that this does not exist.

4.3 Discussion

The two experiments reported in the previous sections aimed at gaining a deeper insight into the licensing conditions of a large set of German NPIs, and at classifying them into superstrong, strong, weak, and superweak NPIs. We tested 60 NPIs and identified seven clusters which group the NPIs according to their acceptability in different licensing contexts. Two of these clusters – [3] and [6] – show acceptability patterns that correspond to the categories which match the predictions from the theoretical perspective of van der Wouden (1994) and Zwarts (1986, 1998). The NPIs in cluster [3] show the licensing pattern of superstrong NPIs, with high acceptability ratings only in the antimorphic condition with the licenser *nicht* “not”. The NPIs in cluster [6] can be classified as weak NPIs, with high acceptability ratings in the antimorphic, anti-additive and downward entailing conditions. Some of the NPIs in cluster [6] also received high acceptability ratings in the question condition, hence they can be classified as superweak NPIs. One cluster (cluster [1]) showed low acceptability ratings overall, which likely is due to low frequency/antiquatedness.

There were four clusters of NPIs with less clear licensing patterns. Clusters [2], [5], and [7] exhibit NPI-like behaviour: a drop in acceptability with declining negativity, or in other words, the more negative a context, the higher the acceptability ratings (although in Cluster [2] the non-licensing context did not show very low ratings). The finding that acceptability increases with negativity in principle reflects Zwarts’s (1986, 1998) hierarchy of negation. However, the gradedness is unexpected from the perspective of licensing theories in which an NPI is regarded either as licensed or unlicensed, which should correspond to very high vs. very low acceptability ratings. Graded acceptability effects have also been observed in other experimental work on NPI licensing. For instance, Richter and Radó (2014) found graded acceptability in four experiments and raise the question of what this entails for theories of licensing. At present, it is not clear how we can account for the gradual differences. The syntactic-semantic approach to NPI licensing does not allow for “half-licensing” by weaker forms of negation. There are theoretical approaches that do not only take syntactic-semantic, but also pragmatic factors into account, for instance Linebarger (1987) and Giannakidou (2006) (see also Section 2.4). Pragmatic reasoning in general might be better compatible with graded acceptability. The success of such an account depends on the kind of pragmatic operation that is assumed to be at work. The rescuing approach by Giannakidou (2006) explains why some NPIs can appear in non-

downward entailing environments, for example in the scope of non-affirmative (e.g. *to doubt*) or adversative attitude predicates (e.g. *to surprise*): in these environments, NPIs can be rescued by negative inferences that are made available by the aforementioned predicates. Drawing such inferences might be somewhat easier or somewhat harder in different contexts so that gradability is expected. As discussed in Section 2.4, Linebarger (1987) also relies on negative inferences. To what extent such inferences can indeed be applied to the gradual decline of acceptability across gradually reduced negativity that we observed in Experiment 1 needs to be scrutinized in future theoretical work. Questions like how similar the negativity coming with downward entailing *kaum* “hardly” is to the negativity of anti-additive *kein* “no” in pragmatic terms must be addressed in such a discussion.

Another finding of the current research is that the two nonveridical operators – the question operator and the modal operator *vielleicht* “maybe” – show different licensing characteristics. The nonveridical lexical operator *vielleicht* cannot license NPIs in German: throughout, the ratings in the *vielleicht* condition were as low as the ratings in the positive assertion condition. As for the question operator, the combined results of Experiments 1 and Experiment 2 suggest that many NPIs are licensed in questions, and furthermore, that questions are probably not the “weakest” kind of negative context but are a different kind of licensing context altogether. This tentative conclusion builds inter alia on the licensing pattern of cluster [4] with high acceptability ratings only in the antimorphic and the question condition. Proposals for questions that do not rely on nonveridicality, and thus a superweak degree of negativity, are for instance Kadmon & Landman (1993), Krifka (1995) or van Rooy (2003). Crucially, all these accounts rely on scales. We illustrated this idea for minimizer NPIs in Section 4.2, but it also is applicable for NPIs like *any*, as discussed in Section 2.3. The problem with this is that many NPIs that we found to be acceptable in questions are neither minimizers nor are they scalar elements unless we force very implausible ad hoc scales.

In relation to this, we found that questions are unlikely to be licensing environments due to rhetoricity, as is indicated by the results of Experiment 2. The measure that we used for rhetoricity – how likely participants thought it was that the person asking the question already knew the answer – showed no significant correlation with acceptability. It might be argued that this result should be taken with caution because there is a certain chance that our measure might (also) indicate question bias rather than (or as

well as) rhetoricity. Biased questions are similar to rhetorical questions in that they seem to suggest an answer. A biased question like *Isn't Mark good at statistics?* signals that the speaker has a previous assumption concerning the proposition p (that Mark is good at statistics) and double-checks this assumption (= epistemic bias). Biased questions can also be asked when a speaker encounters evidence that challenges their previous assumption (= evidential bias) (e.g., Romero & Han, 2004; Sudo, 2013 et seq.). In Experiment 2, participants could have equated “knowing the answer” with “having an assumption about which answer is true”. That is, questions with a high rhetoricity rating were possibly not always interpreted as rhetorical questions, but as questions with an epistemic or evidential bias, where the speaker leans towards one of the possible answers. Normally, such biased questions are marked by a fronted non-propositional negation like in (218). This question expresses some sort of epistemic bias, namely that the speaker previously assumed that p (that Julia brought the cake) and has now received conflicting evidence that $\neg p$ (see Romero/Han, 2004). However, it is not impossible that positive polar questions like (219), which do not contain fronted negation, also express some bias, even though they are usually used to ask neutral, information-seeking questions. For example, the question in (219) could also be asked with an incredulous tone of voice if the speaker knows that Julia is a horrible baker and had thus assumed that she wouldn't bring cake (negative epistemic bias) and has now seen that indeed, Julia did bring cake (positive evidential bias).

(218) Hat Julia nicht den Kuchen mitgebracht?
 has Julia NEG the cake brought
 “Didn't Julia bring the cake?”

(219) Hat Julia (etwa) Kuchen gebacken?
 has Julia PART cake baked
 Did Julia make a cake?

Item analysis showed that intuitively, some of the questions with a high rhetoricity rating might have been interpreted as a biased rather than a rhetorical or, indeed, a neutral question. The question *Hat Julia auch nur irgendeine Idee?* (lit. “has Julia also only any idea”, “Does Julia have any idea whatsoever?”) from Experiments 1 and 2, for example, could possibly signal that the speaker thinks it more *likely* that Julia does

not have an idea (= biased question), rather than wanting to state that Julia does not have an idea (= rhetorical question). With the measure employed in Experiment 2, we cannot distinguish biased and rhetorical questions with certainty. However, in view of the role that van Rooy (2003) assigns to NPIs in rhetorical questions, this state of affairs is not really problematic because the difference between the two questions from a pragmatic point is very small: both indicate that the speaker has an answer in mind. How exactly NPIs come into play here needs to be explored in future research – recall that the results of Experiment 2 also indicate that the particular kind of NPI (minimizer or not) neither seems to correlate with acceptability nor with rhetoricity.

It is worth mentioning again that the morphosyntactic and semantic groups of NPIs that were presented in Section 3.3 do not seem to play any role at all when it comes to the licensing behaviour of the German NPIs that were investigated in Experiments 1 and 2. Neither the acceptability ratings in Experiment 1 and 2 nor the rhetoricity ratings in Experiment 2 indicated that the morphosyntactic groups presented in Section 3.3.1 or the semantic groups presented in Section 3.3.2 play a role in determining the licensing behaviour of any given NPI group. This is illustrated exemplarily in Figure 17, which shows the distribution of the semantic verb groups based on Hoeksema (1994) across the clusters of Experiment 1:

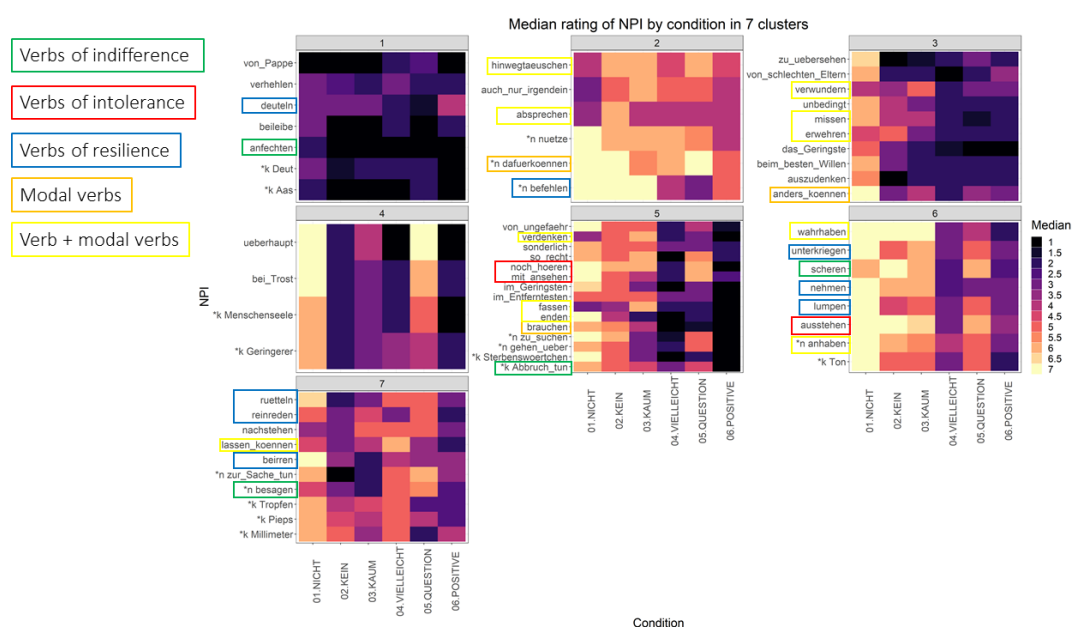


Figure 17: The distribution of the semantic groups of NPIs based on Hoeksema (1994) across the clusters of Experiment 1

Figure 17 shows that the different semantic groups of verbal NPIs such as verbs of intolerance or resilience, for example, are distributed across various different clusters:

the four verbs of indifference appear in four different clusters. The three verbs of intolerance appear in two different clusters. While two of them pattern together and the third shows a similar pattern, albeit in a different cluster, there doesn't seem to be enough data to draw any reliable conclusions on the licensing behaviour based on their common status as verbs of intolerance. The eight verbs of resilience appear in four different clusters. Modal verbs and verb + modal verb combinations are also distributed across five different clusters. Overall, this shows exemplarily for the semantic verb groups that one cannot make predictions on the licensing behaviour of German verbal NPIs based on their shared morphosyntactic and semantic commonalities – at least not insofar as the data elicited for Experiment 1 and 2 shows. This non-finding might suggest that the shared semantics and morphosyntactic traits of certain NPI groups may play a role in the NPIs becoming NPIs in the first place – i.e., there may be a tendency for e.g. modal verbs to cluster in the NPI domain –, but these commonalities do not warrant any conclusions regarding the licensing patterns of the fully grammaticalized NPIs. These questions will be touched upon again in Section 6.3.

Finally, the current research has also shown that individual NPIs seem to have highly idiosyncratic licensing characteristics. An advantage of the rigorous experimental design that we applied, which included the construction of items according to given syntactic patterns, has revealed that some items are sensitive to where exactly their licensor occurs – in the subject position or in the object position. We saw this for the *kein* group. Also recall our discussion concerning the licensor *kaum* “hardly”, which may occur as an adverbial quantifier or as a quantificational determiner. Many of these effects might be related to frequency of use, but these issues can and must be explored in future research. Furthermore, detailed experimental testing is needed in order to eliminate some of the noise in the data. Recall that due to the large scale of NPIs tested in Experiment 1, all NPIs were only tested in one lexicalisation. Systematic testing of these NPIs in different lexicalisations is required to arrive at a truly reliable data base, which also includes systematic information on inter-individual variation that could not be tested in the present paradigm because each participant only judged three items per condition (and one per NPI), which was a prerequisite for carrying out a large-scale explorative experiment on the landscape of German NPIs.

In sum, our research has shown that several claims in the theoretical literature can be corroborated with the experimental method that we employed – acceptability judge-

ments for sentences containing NPIs in rich linguistic contexts. We found NPIs that are superstrong, we found NPIs that are weak, and some that are superweak. However, in the cluster analysis, we did not find four clear-cut classes as predicted by the Zwarts (1986, 1995, 1998) and van der Wouden (1994). As already discussed, to a certain degree, that is to be expected when employing experimental methods. However, it is also in line with other empirical work, such as Hoeksema (2012), where 12 different licensing patterns of NPIs were found in a corpus study. It is important to highlight that the present study has not looked at all environments which are known to be NPI licensing, for example at conditionals, but also at presuppositional contexts like superlatives and *only*. Taking these contexts into account in systematic experimental testing of German NPIs is a task for future research. It is then to be expected that the clusters found in Experiment 1 might split up and form different patterns, since more licensing contexts are taken into account. This brings us to the long-standing question of how many classes of NPIs should be assumed: while in the present study, we have adopted the view of Zwarts (1986, 1995, 1998) and van der Wouden (1994), assuming four classes of NPIs, other researchers only assume two classes of NPIs: weak and strong (e.g., Gajewski, 2011). The data from Experiment 1 as well as Hoeksema's (2012) corpus data, however, indicate that NPIs cannot simply be classified into two, or even four groups with regard to their licensing behaviour. How many classes of NPIs we should assume once a large number of NPIs as well as all known licensing contexts are factored in on a broad empirical basis is an open question.

Another finding of Experiment 1 was that nonveridicality *per se* does not seem to be a licenser in German, at least not for the modal operator *vielleicht* “maybe”. For other NPIs unpredicted patterns were found which raise important theoretical issues. These concern differences between neutral, biased and rhetorical questions as licensing contexts, and the issue of graded acceptability in relation to graded negativity. The current findings serve as a basis for future research on the licensing of German NPIs in a landscape that is vast and goes beyond “classical” NPIs like *any*, *ever*, and *lift a finger*.

5 German NPIs in negative and non-negative contexts: corpus evidence

5.1 Why the corpus study?

The primary goal of the present corpus study is to gain insights into non-negative licensing contexts of a large set of verbal NPIs in German. There are many well-described licensing mechanisms for NPIs in negative environments such as antimorphic and anti-additive forms of negation, downward entailing contexts, as well as in contexts that are not straightforwardly negative, such as questions. These contexts have been extensively addressed in Section 4. However, it has been noted that there are more environments that NPIs can appear in, which cannot easily be explained by classical semantic negation theories, as was discussed in Section 2.1.2 and 2.4. As mentioned in Section 2.4, Sedivy (1990) observed that some English minimizer NPIs (which Sedivy (1990) labels “lexical NPIs”) can appear in contexts without overt negation, such as emphatic contexts with “contrastive *do*” (Sedivy 1990: 98) and certain counterfactual modal contexts (see (220) and (221), respectively):

(220) I **DO give a damn**. (Sedivy 1990: 98)

(221) John should have **lifted a finger** to help Mary clean up. (Sedivy 1990: 99)

As stated in Section 2.4, Sailer (2022) additionally notes that minimizer NPIs such as *einen Finger krumm machen* “lift a finger” can appear in rising declaratives (declarative questions) in German, even though declarative questions are not normally a licensing environment for NPIs:

(222) A: *Chris war eine große Hilfe beim Aufräumen.*

“Chris was a great help with cleaning.”

B: *Wie jetzt? Chris hat (tatsächlich) **einen Finger***

How now? Chris has actually a finger

krumm gemacht, um zu helfen?

bent made to INF.PART help

“What? Chris really has lifted a finger to help?”

(Sailer 2022: 739)

Data like this suggests that there may be even greater variation in NPI licensing contexts than has previously been assumed in the theoretical literature. The examples cited

above only show NPIs of the minimizer type. The present corpus study, however, will demonstrate that non-minimizer NPIs can also appear in different non-negative licensing contexts. In the present corpus study, we will focus on occurrences of verbal NPIs in contexts that have not been described previously. The present corpus study will demonstrate that:

- 1) There is a larger variety in non-negative licensing contexts for NPIs than has previously been assumed.
- 2) Some licensing environments that do not look negative at first glance can be shown to be downward entailing.
- 3) Other licensing environments cannot be explained by downward-entailing licensing theories and require a different licensing strategy altogether, namely pragmatic licensing (cf. Section 2.4).
- 4) This does not only hold for (well-researched) minimizer-type NPIs, but also for (less well-researched) verbal NPIs.

5.2 Method

5.2.1 Selection of NPIs

For the present corpus study, 31 verbal NPIs that are not minimizers were chosen. The reasons for this were twofold: firstly, the research on pragmatic NPI licensing often focuses on minimizer NPIs. Minimizer NPIs share the semantic commonality of denoting minimal amounts of something at the low endpoint of a scale, e.g. *a drop* in *Peter doesn't drink a drop* or *lift a finger* in *Peter doesn't lift a finger to help Mary*. However, not all NPIs denote minimal amounts, and whether all NPIs work like minimizers and can be analysed along the lines of a scalar account is at least questionable. As mentioned in Section 2.3.3, it is clear that a verbal NPI like *verdenken können* “to hold sth. against/blame sb.” should not be analysed as scalar:

- (223) Man **kann** dem FC Köln seinen Frust nicht **verdenken**.
one can the FC Cologne POSS frustration not blame
“One can't blame FC Cologne for being frustrated.”

The question of whether non-scalar verbal NPIs work like minimizers or not, as well as the fact that verbal NPIs seem to be somewhat under-researched were one reason to investigate verbal NPIs in the present corpus study.

The second reason was that I had an intuition that some verbal NPIs, particularly verbs of resilience such as *sich reinreden lassen* “to be swayed” and *sich beirren lassen* “to be misled” can also appear in contrastive contexts with no overt licensors, like Sedivy (1990) showed for minimizer NPIs (see above):

- (224) A: Nils **lässt sich** nicht **reinreden**.
Nils lets REFL not talk.into
“Nils doesn't let himself be swayed.”
B: Doch, Nils **LÄSST sich** oft **reinreden**.
yes Nils lets REFL ofte talk.into
“Yes, Nils DOES let himself be swayed.”

- (225) A: Mia **lässt sich** nicht **beirren**.
Mia lets REFL not irritate
“Mia doesn't let herself be misled.”
B: Doch, Mia **LÄSST sich** oft **beirren**.
yes Mia lets REFL ofte irritate
“Yes, Mia DOES let herself be misled.”

In addition to this, Sophie Repp (personal communication) also had an intuition that some NPIs may also appear in sentences with non-negative adverbial modifiers (see

(226) and (228)), with the absence of the adverbial modifier degrading the overall acceptability of the NPI (see (227) and (229)):

(226) Nils **lässt sich leicht reinreden**.
 Nils lets REFL easily talk.into
 “Nils is easily swayed.”

(227) # Nils **lässt sich reinreden**.
 Nils lets REFL talk.into
 “Nils is easily swayed.”

(228) Mia **lässt sich leicht beirren**.
 Mia lets REFL easily irritate
 “Mia is easily misled.”

(229) # Mia **lässt sich beirren**.
 Mia lets REFL irritate
 “Mia is misled.”

To see whether these intuitions could be corroborated by corpus data was part of the goal of the present corpus study. The verbal NPIs for the present corpus study were selected based on the classification of verbal NPIs by Hoeksema (1994), which was introduced in Section 3.3, as well as my extension of that classification, i.e. the verbs of resilience.

Verbal NPI cluster	Common semantics	Examples
Verbs of indifference	Denotes the indifference an outer stimulus makes to the subject	<i>I don't mind, I don't care, it doesn't bother me</i>
Verbs of intolerance	Denotes the inability of the subject to tolerate an outer stimulus	<i>I can't stand it, I can't bear it, I can't take it</i>
Modal verbs (verb + modal verb, modal infinitives, verbs of resilience)	NPI has developed into a modal verb or contains a modal verb or modal structure	English <i>need</i> , Dutch <i>hoeven</i> “need”, German <i>brauchen</i> “need”
Verbs of minimal degree	Verbal minimizers: verbs that denote minimal actions on the low endpoint of a scale	<i>bat an eyelid, lift a finger, budge an inch</i>

Other verbal NPIs	Verbs that do not cluster in the semantic domains listed above	<i>bei Trost sein</i> “to be in one’s right mind”, <i>nachstehen (in)</i> “to be inferior”

Table 10: Verbal NPI clusters according to Hoeksema (1994)

Based on the classification of Hoeksema (1994) and my extension of it, the following German NPIs from were chosen from the set of NPIs the CoDII corpus, most of which were also investigated in Experiments 1 and 2:

Verbs of indifference

From the set of NPIs in Experiment 1 and 2, four verbs of indifference were identified:

	NPI	Examples
1	<i>sich scheren um</i> to care about	<i>Peter schert sich nicht um die Regeln.</i> <i>Peter doesn’t care about the rules.</i>
2	<i>anfechten</i> to irritate/bother	<i>Die schlechte Bilanz ficht den Geschäftsführer nicht an.</i> The bad balance sheet doesn’t bother the manager.
3	<i>zu besagen haben</i> to mean/matter	<i>Die negativen Zahlen haben nicht viel zu besagen.</i> The negative figures don’t mean much.
4	<i>Abbruch tun</i> to spoil sth.	<i>Die schlechte Bilanz tut der Laune des Geschäftsführers keinen Abbruch.</i> The bad balance sheet doesn’t spoil the manager’s good mood.

Table 11: Verbs of indifference

A note on the inclusion of *anfechten* “to irritate/bother” in the corpus study: in Experiment 1, the verbal NPI *anfechten* received overall low acceptability ratings in each condition including the antimorphic one and was thus included in cluster [1]. In Section 4.1.2, I speculated that the overall low acceptability ratings could be due to the relative infrequency of the respective NPIs, perhaps due to dialectal variation and/or the NPIs becoming so infrequent that they are on the verge of dying out. Since *anfechten* “to irritate” is only one of four verbs of indifference that I identified amongst the NPIs in the CoDII corpus, I included it in the corpus study nevertheless. As the results in Table 16 show, *anfechten* only appeared six times without a licensor different

from *nicht* “not” in the corpus study, thus corroborating the idea that it received low acceptability ratings overall in Experiment 1 due to low frequency.

Verbs of intolerance

Three verbs of intolerance were identified from the set of NPIs investigated in Experiment 1 and 2:

	NPI	Examples
5	<i>ausstehen können</i> to be able to stand	<i>Peter kann den Geschäftsführer nicht ausstehen.</i> Peter can’t stand the manager.
6	<i>mit ansehen können</i> to be able to bear	<i>Er kann den Niedergang des Unternehmens nicht mit ansehen.</i> He can’t bear witnessing the company’s downfall any longer.
7	<i>noch hören können</i> to be able to hear/bear any longer	<i>Er kann die Lügen des Geschäftsführers nicht mehr hören.</i> He’s not able to bear listening to the manager’s lies any longer.

Table 12: Verbs of intolerance

Modal verbs

The modals selected for the present study were of two subtypes: the first, smaller group of NPIs are single modal verbs:

	NPI	Examples
8	<i>brauchen</i> to need	<i>Peter braucht sich nicht an die Regeln zu halten.</i> Peter doesn't need to stick to the rules.
9	<i>anders können</i> to be able to act	<i>Er kann nicht anders, als den Geschäftsführer zu erpressen.</i> He can't help but blackmail the manager.
10	<i>dafürkönnen</i> to be one's fault	<i>Er kann nichts dafür.</i> It's not his fault.
11	<i>umhinkönnen</i> to do otherwise	<i>Er kann nicht umhin, unmoralisch zu handeln.</i> He can't help but act immorally.

Table 13: Single modal verbs

The second, larger group of modal verbal NPIs are modal verbs combined with other verbs, see below. (Note that the Verbs of Intolerance are, by virtue of their morpho-syntactic shape, also verbs combined with modal verbs.)

	NPI	Examples
12	<i>jem. nichts anhaben können</i> to not be able to harm sb.	<i>Das Wetter kann Eric nichts anhaben.</i> The weather cannot harm Eric.
13	<i>nicht enden wollen</i> to go on and on	<i>Das Semester will nicht enden.</i> The semester goes on and on.
14	<i>etw. nicht fassen können</i> to not be able to grasp sth.	<i>Lea kann ihr Glück nicht fassen.</i> Lea is not able to grasp her luck.
15	<i>etw. nicht wahrhaben wollen</i> to not want to face the reality of sth.	<i>Ria will das Problem nicht wahrhaben.</i> Ria does not want to face the problem.
16	<i>nicht lassen können von</i>	<i>Max kann von den Süßigkeiten nicht lassen.</i>

	to not be able to let go of sth./keep the fingers off sth.	Max cannot keep his fingers off the sweets.
17	<i>etw. nicht missen wollen</i> to not want to miss (out on) sth.	<i>Dara will den Komfort ihres Hotelzimmers nicht missen.</i> Dara does not want to miss out on the comfort of her hotel room.
18	<i>nicht verwundern können</i> to not be a surprise	<i>Das Wahlergebnis kann uns nicht verwundern.</i> The result of the election is not a surprise to us.
19	<i>nicht verdenken können</i> to not hold sth. against sb.	<i>Mark kann Emily ihren Ärger nicht verdenken.</i> Mark does not hold Emily's anger against her.
20	<i>sich nicht erwehren können</i> to not be able to avoid sth.	<i>Anita kann sich der kreisenden Gedanken nicht erwehren.</i> Anita cannot avoid the circulating thoughts.
21	<i>nicht zu übersehen sein</i> sth. cannot be overlooked	<i>Der Unterschied ist nicht zu übersehen.</i> The difference cannot be overlooked.
22	<i>jem. etw. nicht absprechen können</i> to not be able to withhold sth. from sb.	<i>Das Gericht kann Mietern ihr Recht nicht absprechen.</i> The court cannot withhold the tenants' rights.
23	<i>über etw. nicht hinwegtäuschen können</i> to not be able to obscure sth.	<i>Paul kann über seine Unsicherheiten nicht hinwegtäuschen.</i> Paul cannot hide his insecurities.

Table 14: Verb + modal verb combinations

Verbs of resilience

The final group selected for the corpus study were the verbs of resilience described in Section 3.3, which have the form of a verb followed by the verb *lassen* “let”. This was done to explore whether the intuition that these verbal NPIs can appear in contrastive contexts without overt licensors as well as in combination with non-negative adverbial modifiers (see (224)-(229) above).

	NPI	Examples
24	<i>sich nichts befehlen lassen</i> to not be bossed around	<i>Milo lässt sich nichts befehlen.</i> Milo does not allow anyone to boss him around.
25	<i>sich nicht reinreden lassen</i> to not be swayed	<i>Lisa lässt sich bei ihrer Klamottenwahl nicht reinreden.</i> Lisa is not swayed by anyone in her choice of clothing.
26	<i>sich nicht beirren lassen</i> to not let oneself be mislead	<i>Bei der Kindererziehung hat Theodor sich nie beirren lassen.</i> Theodor has never let himself be misled when it came to child-raising issues.
27	<i>sich nicht deuteln lassen</i> to not leave room for interpretation	<i>Am Hausrechtsparagrafen lässt sich nichts deuteln.</i> The domiciliary right paragraph does not leave room for interpretation.
28	<i>sich nicht lumpen lassen</i> to be generous	<i>Sina lässt sich heute in der Kneipe nicht lumpen.</i> Sina is very generous at the pub today.
29	<i>sich nicht rütteln lassen</i> there is (no) doubt about sth.	<i>An der Entscheidung lässt sich nicht rütteln.</i> There is no doubt about this decision.
30	<i>sich nicht unterkriegen lassen</i> to keep one’s chin up	<i>Trotz aller Schwierigkeiten lässt Frau Schulz sich nicht unterkriegen.</i> Despite all difficulties Ms. Schulz keeps her chin up.
31	<i>sich etw. nicht nehmen lassen</i> to insist on sth.	<i>Liz lässt es sich nicht nehmen, in einem flamboyanten Kleid zur Party zu erscheinen.</i> Liz insists on wearing a flamboyant dress at the party.

Table 15: Verbs of resilience

5.2.2 Data acquisition and data treatment

The data was collected from the DWDS corpora (<https://www.dwds.de/r>) from publicly accessible written corpora from Germany. The main corpora consulted were the reference corpora [DWDS-Kernkorpus \(1900–1999\)](#) and [DWDS-Kernkorpus 21 \(2000–2010\)](#), as well as the newspaper corpora [Berliner Zeitung \(1994–2005\)](#), [Der Tagesspiegel \(ab 1996\)](#), [Die ZEIT \(1946–2018\)](#). Occasionally, if those corpora did not provide the desired amount of data, other DWDS corpora such as the web corpus [Blogs](#) as well as the so-called “special corpora” such as [Politische Reden \(1982–2020\)](#) (“political speeches (1982–2020)”), [Filmuntertitel](#) (“film subtitles”) and [Gesprochene Sprache](#) (“spoken language”) were consulted. A detailed list of search queries, search hits taken into consideration, and search queries initially being included in the database per NPI per corpus can be found in the OSF data repository for this dissertation project. The data repository can be accessed using the following link: <https://osf.io/2bwak/>, DOI 10.17605/OSF.IO/2BWAK.

In the initial phase of data acquisition, two student assistants were given a list of NPIs and were instructed to conduct a search of those NPIs in the abovementioned DWDS corpora. They were instructed to identify the cases in which a given search hit was actually an instance of the NPI that was being searched for and include those instances in the data set. They were also instructed to include a search hit if there was doubt about whether the given hit had the desired NPI reading. They were additionally instructed not to list all the hits in which an NPI was licensed by *nicht* “not” (or in some cases *nichts* “nothing”, see Section 4.1 for discussion of the *nichts* group). The reason for this is that *nicht* “not” is the strongest form of negation (antimorphic) in German and thus expected to license every NPI (with the exception of the *nichts* and *kein* groups, see Section 4.1 and footnotes 22 and 23 for discussion). To make the search process more efficient, later on the search queries were modified so that they would not include *nicht* (or *nichts* for NPIs from the *nichts* group) in the results.

The search-and-review process went on as follows: the first two corpora to be consulted were always the reference corpora [DWDS-Kernkorpus \(1900–1999\)](#) and [DWDS-Kernkorpus 21 \(2000–2010\)](#), followed by the newspaper corpora [Berliner Zeitung \(1994–2005\)](#), [Der Tagesspiegel \(ab 1996\)](#), [Die ZEIT \(1946–2018\)](#). If any of these corpora contained less than 100 hits per search query, all of the hits were read. If any of these corpora contained more than 100 hits per search query, then the first 100 hits were read. It was then decided whether a given hit had the desired NPI reading,

and if that was the case, it was included in the database and the licenser was pre-annotated by the student assistants. If the five above-mentioned corpora did not produce enough search hits, occasionally other corpora were consulted (see above).

The goal was to have 100 instances of a given NPI that were not licensed by *nicht* “not”. When the student assistants had collected enough data, the database was sent to me, and I read all the instances and annotated the licensing environments. In cases of doubt about the annotation of the licenser, i.e. when there were unusual patterns or other uncertainties about what the licenser was in a given hit, I consulted my supervisor Sophie Repp, and we discussed the hits in question until we agreed on a licenser annotation. During this search-and-review process, a total amount of 10 974 corpus hits were read and reviewed with regards to whether they were instances of the NPIs that are investigated in this study. Out of those 10 974 hits, 3915 were included in the database. Those 3915 corpus hits were then read and reviewed by me. I annotated the licensing environments for each of these 3915 corpus hits. During the close examination of the database, I identified a large number of search hits that were to be excluded from the database for the following reasons: one reason for exclusion were duplicates. If the same hit was included twice (or more) in the original database, the duplicate was removed. Some duplicates appeared because the same text was included in two different DWDS corpora. Other search hits were excluded for being duplicates when one hit was an obvious quote from the other, e.g., when a newspaper article cited a quote from the article in the headline. Aside from duplicates, search hits that did not have the desired NPI reading were excluded. In a final step of data clearing, these to-be-excluded cases were removed from the data set. Additionally, all instances of NPIs being licensed by *nicht* “not” that had been included in the data set were removed. After data clearing, the final database contained 2321 hits that are instances of 31 different verbal NPIs in German.

The goal of having 100 instances of each NPI that are not licensed by the standard licenser *nicht* “not” (or *nichts* “nothing” in some cases) could not be reached for every NPI in the corpus study. The reasons for this were twofold: overall low frequency of the NPI or high frequency of the individual tokens in a search query used to find the NPIs. NPIs like *anfechten* “to irritate” and *sich lumpen lassen* “to splash out” (with negation) have an overall low frequency. As a consequence, there were hardly any instances in the corpus that were not licensed by the standard licenser *nicht*. For other NPIs such as e.g. *anders können* “to be able to act differently”, the search results

produced by search queries like “anders&&können” produce a large number of non-NPI search hits that had to be combed through manually in order to find actual instances of the desired NPI reading. Clearing those results from the hits with the standard licenser *nicht* left very few instances in the final data set. For this reason, no inferential statistics on the data set were carried out and no statistical claims will be made. See Table 16 below for a detailed list of the number of corpus hits per NPI included in the final data set:

	NPI	N
1	<i>Abbruch tun</i> “to spoil sth.”	177
2	<i>absprechen können</i> “to be able to deprive sb. of sth.”	74
3	<i>anders können</i> “to be able to act differently”	16
4	<i>anfechten</i> “to irritate”	6
5	<i>anhaben können</i> “to be able to harm”	203
6	<i>ausstehen können</i> “to be able to stand sth./sb.”	52
7	<i>brauchen (zu)</i> “to need”	100
8	<i>dafürkönnen</i> “to be one’s fault”	72
9	<i>enden wollen</i> “sth. will have an end”	28
10	<i>erwehren können</i> “to be able to avoid sth.”	172
11	<i>es sich nehmen lassen</i> “to insist on” (with negation)	3
12	<i>fassen können</i> “to be able to grasp sth.”	59
13	<i>hinwegtäuschen können</i> “to be able to obscure sth.”	77
14	<i>lassen können von</i> “can help doing”	4
15	<i>missen wollen</i> “to want to miss”	87
16	<i>mit ansehen können</i> “to be able to bear sth.”	23
17	<i>nicht mehr / noch hören können</i> “to be able to hear any longer”	22
18	<i>sich (d)reinreden lassen</i> “to be swayed”	51
19	<i>sich (etwas) befehlen zu lassen</i> “to be bossed around”	14
20	<i>sich beirren lassen</i> “to let oneself be misled”	67
21	<i>sich deuteln lassen</i> “to leave room for interpretation”	11
22	<i>sich lumpen lassen</i> “to splash out”	21
23	<i>sich rütteln lassen</i> “there is (no) doubt about sth.”	18

24	<i>sich scheren um</i> “to care about sth./sb.”	297
25	<i>sich unterkriegen lassen</i> “to keep one’s chin up” (with negation)	64
26	<i>umhinkönnen</i> “to do otherwise”	23
27	<i>verdenken können</i> “to hold sth. against sb.”	166
28	<i>verwundern können</i> “to be able to amaze sb.”	88
29	<i>wahrhaben wollen</i> “to want to acknowledge sth.”	247
30	<i>zu besagen haben</i> “to mean sth.”	9
31	<i>zu übersehen sein</i> “to be conspicuous”	70
Total		2321

Table 16: Number of corpus hits per NPI in the final data set without *nicht* “not” and *nichts* “nothing”

5.2.3 Annotation of licensing environments

Overall, 59 different licensing contexts were annotated, including the category “no licensor”. The majority of those licensing contexts were expected licensing environments building on the literature (negative contexts and questions), while others were unexpected and non-negative. The vast majority of NPIs annotated in the corpus occurred in licensing contexts that were negative:

Licensing environments	N	%
Negative	1887	81,30
Non-negative	359	15,46
No licensor	75	3,23
Total	2321	100,00

Table 17: Negative vs. non-negative licensing contexts

A detailed list of the **negative licensing contexts** and types of **questions** that were annotated and included in the final data set including the number of hits per licensing context is given below in Table 18:

Licensor	Licensor type	Logical properties	N
<i>weder noch</i>	“neither nor”	antimorphic	68
non-clausemate negation <i>nicht</i>	non-clausemate negation	antimorphic	11
<i>kein</i>	“kein”-word	anti-additive	305
<i>niemand</i>	“nobody”	anti-additive	174
<i>nichts</i>	“nothing”	anti-additive	130
<i>nie(mals)</i>	“never”	anti-additive	117
<i>keinerlei</i>	“kein”-word	anti-additive	31
<i>keinen Deut, Dreck</i>	“kein”-word, Minimizer negative	anti-additive	13
<i>keinesfalls, keineswegs</i>	“kein”-word	anti-additive	11
<i>unmöglich</i>	“impossible”	anti-additive	7
<i>kein bisschen</i>	“kein”-word	anti-additive	4
<i>nirgends</i>	“nowhere”	anti-additive	1
Restrictor of <i>alle/jede</i>	Restrictor of a universal quantifier	anti-additive	1
<i>kaum</i>	“hardly”	downward entailing	355
<i>wenig</i>	“few”	downward entailing	223
<i>schwer, schwerlich</i>	“difficult”	downward entailing	60
<i>ohne</i>	“without”	downward entailing	46
<i>ungern</i>	“reluctantly”	downward entailing	8

Konditionalsatz	Antecedent of a conditional	downward entailing	7
“zu ADJ um”	“too ADJ to”	downward entailing	4
<i>selten</i>	“rarely”	downward entailing	3
<i>bezweifeln</i>	negative verb	downward entailing	2
<i>Weigerung</i>	Negative deverbal noun	downward entailing	1
<i>nur, bloß</i>	“only”	Strawson-DE	61
Question rhetorical	Q	question	186
Question neutral	Q	question	32
Multiple licensors	Multiple licensors	x	26

Table 18: Negative licensing environments and questions

A detailed list of the **non-negative licensing contexts** that were annotated and included in the final data set including the number of hits per licensing context is given below in Table 19:

Licensor	Licensor type	Logical properties	N
<i>einen Dreck, feuchten Kehrlicht, Teufel</i>	Non-NPI noun with negative emotional valence	non-negative	57
free minimizer	Minimizer	non-negative	5
<i>einen Deut</i>	Minimizer	non-negative	1
EASY: <i>leicht</i> (<i>schlankerhand, schnell, unschwer, zu viel</i>)	“easy”	non-negative	28
<i>als</i> -clause (comparative)	“than”-comparative	non-negative	155
Comparative	Comparative	anti-additive in certain constructions	2
Final clause (<i>um, damit</i>)	Final clause	non-negative	7
Temporal clause	Temporal clause	non-negative	4
Contrast	Contrast	non-negative	65
Subjunctive I, Subjunctive II	Subjunctive mood	non-negative	32
<i>überhaupt</i>	??	non-negative	2

Table 19: Non-negative licensing environments

In 26 cases in the data set, there were **multiple potential licensors** within the relevant clause, and it could not be determined which licensor exactly is relevant for the licensing of the NPI. In cases where there was a weak licensor and a strong licensor, like for example questions containing a negation like *kein* “no” or *niemals* “never”, the negation was annotated as the licensor, as the licensing power of a negation clearly

trumps that of a question. Note that in the case of the negation *nicht* “not” in questions, great care was taken to distinguish propositional vs. non-propositional negation (see Sections 1 and 6.2 for discussion). That is, it was ensured that only questions that contained propositional negation were annotated as such. Cases in which the negation in the question was non-propositional would have been annotated as such. However, no such cases appeared in the data set collected for the present corpus study.

Another case type where multiple theoretically potential licensors appeared in a sentence is shown in (230): here, we have the downward entailing licensor *wenige* “few” in combination with the Strawson downward entailing operator *nur* “only”:

- (230) Dass der Weg in den Abgrund führt, **wollen** nur wenige
 that the way into the abyss leads want only few
wahrhaben.
 acknowledge
 “Only few people want to acknowledge that the path leads into the abyss.”

Corpus ID 2144

In the case of (230), *nur* “only” clearly modifies *wenige* “few”. Hence, the example was annotated as licensed by the latter. *Wenige* “few” constitutes the subject, which is modified by *nur* “only”. Consequently, *nur* “only” can be left out without rendering the sentence ungrammatical, whereas *wenige* “few” can’t, as demonstrated in (231)-(233):

- (231) Nur wenige **wollen** das **wahrhaben.**
 Only few want to acknowledge that.
 (232) Wenige **wollen** das **wahrhaben.**
 Few want to acknowledge that.
 (233) *Nur **wollen** das **wahrhaben.**
 *Only want to acknowledge that.

In addition to combinations of strong and weak licensors, there were also other, more subtle cases of **multiple licensors** in which two **weak** licensors were in the same clause. In the example below, the NPI *sich unterkriegen lassen* appears in a conditional clause which is embedded in a rhetorical question. It seems impossible to pull apart which potential licensing environment has which contribution to the presence of the NPI. In this particular case, listing the example under “rhetorical question” would not be informative on NPIs in rhetorical questions because of the confounding factor of

the conditional clause, and vice versa. For this reason, cases with multiple competing weak licensors were annotated as “multiple licensors”.

- (234) Es tut ihm weh, aber es darf natürlich
 it does him hurt but it may of.course
 nicht weh tun. Lächerlich, was ist er denn
 not hurt do ridiculous what is he PART
 für ein Mann, wenn er **sich** davon **unterkriegen lässt**.
 for a man if he REFL by.that get.down lets
 “It hurts him, but it is not allowed to hurt him, of course. Ridiculous, what kind
 of man is he if he lets himself get down by this.”

Corpus ID 919

Similarly, in (235), there are three potential licensors at play: firstly, there is non-clausemate *kaum* “hardly” in the matrix clause. Secondly, non-clausemate *ohne* “without” also appears in the matrix clause, while the NPI *absprechen können* “to be able to deny” appears in the embedded clause. And thirdly, to further complicate matters, the verbal NPI itself does not appear in the indicative form, but in the subjunctive I. Since the possible licensing effects of these three potential licensors cannot easily be disentangled, the example was annotated as containing multiple licensors.

- (235) So wäre Folter kaum denkbar ohne die Annahme,
 so were torture hardly thinkable without the assumption
 dass bestimmte Personen und Kulturgruppen minderwertig
 that certain people and culture.groups inferior
 seien und man ihnen jene Rechte **absprechen**
 were and one them those rights **deny**
könne, die wir ansonsten für
can.SUBJUNCTIVE REL we otherwise for
 selbstverständlich halten.
 granted take

“Thus, torture would be unthinkable without the assumption that certain
 people and cultures are inferior and that one can deny them the rights that we
 otherwise take for granted.”

Corpus ID 1061

5.3 Negative licensing environments and questions

The vast majority of NPI corpus hits included in the final data frame (81,3 %) occurred in negative licensing contexts and questions. These licensors can be categorized into the groups of antimorphic, anti-additive and downward entailing environments as well as questions.

5.3.1 Antimorphic environments

Given that the instances in which *nicht* “not” as a licensor was omitted during data treatment, there are only two types of antimorphic licensing contexts included in the final data frame: non-clausemate negation and *weder noch* “neither nor”.

5.3.1.1 Non-clausemate negation

Instances in which the negation particle *nicht* “not” did not occur within the same clause as the NPI, but in the matrix clause with the NPI in the embedded clause were not omitted from the data set. These cases were classified as non-clausemate negation like in the CoDII corpus. These non-clausemate instances of the negation particle *nicht* “not” were kept in the data set because they could potentially provide additional insight into the licensing of NPIs in neg-raising contexts (cf. Richter & Rado, 2014, see Section 3.2) and into the licensing of strict NPIs, which require a licensor within the same clause unless the embedding predicate is neg-raising (cf. Zeijlstra, 2018). The final data frame contains 10 instances of NPIs in non-clausemate negation licensing contexts:

NPI	N	Embedding predicate	Type of embedded clause
<i>Abbruch tun</i> “to spoil sth.”	1	Not neg-raising	Infinitive clause
<i>absprechen können</i> “to be able to deprive sb. of sth.”	2 ²⁹	Not neg-raising Not neg-raising	<i>Dass</i> -clause Relative clause
<i>anfechten</i> “to irritate”	1	Not neg-raising	<i>Ob</i> -clause
<i>mit ansehen</i> <i>können</i>	1	Not neg-raising	<i>Indem</i> -clause

²⁹ The final data frame on OSF contains an additional instance of the NPI *absprechen können* licensed by non-clausemate negation. However, this was mistakenly annotated as such, as the verbs *absprechen* and *können* were not contained in the same clause, thus not being the desired NPI reading. This was marked accordingly in the final data frame, and the mistakenly annotated example is not included in the statistics given in Table 20.

“to be able to watch”			
<i>sich beirren lassen</i> “to let oneself be misled”	1	Potentially neg-raising	Relative clause
<i>sich scheren um</i> “to care about”	4	Not neg-raising Potentially neg-raising Neg-raising Not neg-raising	Relative clause Dass-clause Dass-clause Infinitive clause
Total	10		

Table 20: NPIs licensed by non-clausemate negation

Two corpus examples of non-clausemate from the data set are given below:

- (236) Ich glaube nicht, dass diese Gruppe **sich** wirklich
I believe not that this group REFL really
um Frauenrechte allgemein **schert**.
about women’s rights generally cares
I don’t think that this group really cares about women’s rights in general.
Corpus ID 213

- (237) Hamburg hat nicht den Ruf einer Stadt, die
Hamburg has not the call a.GEN city that
sich **sonderlich** **schert** **um** ihre historische Substanz.
REFL particularly cares about its historical substance
“Hamburg doesn’t have a reputation as a city that particularly cares about its
historical substance.”
Corpus ID 131

Given the relatively low number of NPI in non-clausemate negation contexts in the dataset, no systematic findings about neg-raising and strict NPI-hood could be derived. However, given that none of the NPIs licensed by non-clausemate negation appear under neg-raising embedding predicates exclusively, we can conclude that none of them are strict NPIs. Examples of the NPI *sich scheren um* “to care about” embedded under a neg-raising predicate (236) and a non-neg-raising predicate (237) are given below. Incidentally, from (237) we can also conclude that the adverbial NPI *sonderlich* “particularly” is not a strict NPI.

5.3.1.2 Weder noch “neither nor”

The licenser *weder noch* “neither nor” occurs frequently and licenses a wide range of different NPIs:

NPI	N
<i>Abbruch tun</i> “to spoil sth.”	3
<i>absprechen können</i> “to be able to deprive sb. of sth.”	1
<i>anhaben können</i> “to be able to harm”	28
<i>ausstehen können</i> “to be able to stand sth./sb.”	3
<i>brauchen (zu)</i> “to need”	3
<i>erwehren können</i> “to be able to avoid sth.”	1
<i>hinwegtäuschen können</i> “to be able to obscure sth.”	1
<i>missen wollen</i> “to want to miss”	2
<i>sich (d)reinreden lassen</i> “to be swayed”	1
<i>sich beirren lassen</i> “to let oneself be misled”	4
<i>sich lumpen lassen</i> “to splash out”	2
<i>sich rütteln lassen</i> “there is (no) doubt about sth.”	2
<i>sich scheren um</i> “to care about sth./sb.”	7
<i>sich unterkriegen lassen</i> “to keep one’s chin up” (with negation)	3
<i>umhinkönnen</i> “to do otherwise”	1
<i>verdenken können</i> “to hold sth. against sb.”	1
<i>wahrhaben wollen</i> “to want to acknowledge sth.”	3
<i>zu übersehen sein</i> “to be conspicuous”	2
Total	68

Table 21: NPIs licensed by *weder noch* “neither nor”

A clear-cut classification of *weder noch* “neither nor” as antimorphic proved to be difficult: recall that operators are antimorphic if they are both anti-additive and antimultiplicative, i.e. the following equations hold:

$$\begin{aligned}
 (238) \quad f(X \cup Y) &\Leftrightarrow f(X) \cap f(Y) && \text{(anti-additive)} \\
 (239) \quad f(X \cap Y) &\Leftrightarrow f(X) \cup f(Y) && \text{(antimultiplicative)}
 \end{aligned}$$

(240) It is not the case that Paul went into the garden or into the park.
 $\Leftrightarrow$ Paul did not go into the garden and Paul did not go into the park.

(241) It is not the case that Paul went into the garden and into the park.
 $\Leftrightarrow$ It is not the case that Paul went into the garden, or it is not the case that Paul went into the park.

Intuitively, it seems clear that the following equation holds for *weder noch* “neither nor”:

(242) *Peter mag weder Tee noch Kaffee.*

⇔ *Weder mag Peter Tee noch mag Peter Kaffee.*

⇔ *Peter mag Tee nicht und Peter mag Kaffee nicht.*

Peter likes neither tea nor coffee.

⇔ Peter neither likes tea nor does he like coffee.

⇔ Peter does not like tea and Peter does not like coffee.

However, it is impossible to syntactically integrate the operator *weder noch* “neither nor” along with the operators AND and OR in the same sentence. Hence, *weder noch* escapes rigorous testing of antimorphicity by the equations given above. However, since *weder A noch B* “neither A nor B” clearly has the meaning of “not A and not B” and can take the function of sentential negation, I still argue for its classification as an antimorphic operator that largely acts like *nicht* “not”.

Weder noch can connect sentential conjuncts as well as sub-sentential constituents. The operator appeared in different syntactic positions in the data set.

Syntactic positions of <i>weder not</i> “neither nor”	N
Coordination of subjects	37
Coordination of prepositional objects	9
Coordination of accusative or dative objects	6
Elliptical structure; NPI spelled out in the <i>weder</i> conjunct	7
Coordination of local adverbials	3
Conjunction of two temporal adverbials	2
Verbal NPI negated by <i>noch</i>	1
Elliptical structure with parts of NPI in both conjuncts	1
Coordination of modal adverbials	1
Two different NPIs in conjunction (elliptical structure)	1
Total	68

Table 22: *Syntactic positions of weder noch* “neither nor” in the data set

In the vast majority of cases, *weder noch* “neither nor” had the function of coordinating two subject components or different types of objects, such as the accusative objects in (243), or different adverbials (see Table 22 for an overview).

(243) Am Besten [sic!] ist Wasser ohne Geschmack,
 on.the best is water without flavour
 da **braucht** man weder Kalorien noch Joul [sic!]
 there needs one neither calories nor joule
 noch Zucker oder Fett **zu** berechnen.

nor sugar or fat INF.PART calculate

“Flavourless water is best, one neither needs to calculate calories nor joules nor sugar or fat.”

Corpus ID 666

In the cases where *weder noch* coordinated verbal components of the sentence (see highlighted cells in Table 22), the data showed flexibility as to where the NPI appeared: in the *weder* conjunct like in (244) or in the *noch* conjunct like in (246). The structures were often elliptical; the ellipsis in (244) is spelled out in (245).

- (244) Sie wollen einen entschlossenen Präsidenten sehen, der
they want a decisive president see REL
sich weder **unterkriegen** noch belehren **lassen** darf.
REFL neither get.down nor lecture let may
They want a decisive president who neither lets himself get down nor (lets himself) get lectured.

Corpus ID 971

- (245) [...] der sich weder unterkriegen ~~lassen darf~~ noch ~~sich~~ belehren lassen darf.

- (246) Wenn die Amerikaner einem diktatorisch regierten Land
when the Americans a.DAT dictatorial ruled country
„die Demokratie“ bringen wollen [...], dann befragen
the democracy bring want then ask
sie weder die Hauptakteure, noch **scheren** sie
they neither the main.actors nor care they
sich **um** die Haltung der UN oder
REFL about the attitude the.GEN UN or
hören gar auf Millionen Demonstranten.
listen PART to millions protestors

“When the Americans want to bring ‘democracy’ to a dictatorial country, they neither ask the main actors, nor do they care about the opinion if the UN or listen to millions of protestors.”

Corpus ID 53

Two other interesting cases of NPIs licensed by *weder noch* “neither nor” were an elliptical structure with parts of the NPI in both conjuncts (see (247) with the elliptical structure spelled out in (248)), and two different NPIs in conjunction in an elliptical structure, see (249) (elliptical structure spelled out in (250)).

- (247) [...] doch das **tat** weder der Küchenqualität noch
 but that did neither the kitchen.quality nor
 der Stimmung **Abbruch**.
 the mood damage

“[...] but that neither damaged the quality of the kitchen nor the mood.”

Corpus ID 416

- (248) [...] doch das **tat** weder der Küchenqualität **Abbruch** noch **tat** das der Stimmung **Abbruch**.

- (249) [...] daran **läßt sich** weder **rütteln** noch **deuten**³⁰
 on.that lets REFL neither shake nor interpret

“That can neither be shaken nor meddled with.”

Corpus ID 846

- (250) [...] daran **läßt sich** weder **rütteln** noch ~~läßt sich daran~~ **deuten**

The present data shows that both parts of the operator *weder noch* “neither nor” seem to be full negations that are in principle able to license an NPI – there are cases in which the NPI appears with *weder*, cases where it appears with *noch*, and cases where an NPI appears in both conjuncts.

³⁰ The verbal complex *sich deuten lassen* is a variation of the NPI *sich deuteln lassen*, one of the verbs of resilience that is part of the NPIs investigated in this thesis.

5.3.2 Anti-additive environments

Overall, 12 anti-additive licensing environments were annotated in the corpus study. The majority of those licensors are either “kein”-words, i.e. they contain the anti-additive negative quantifier *kein* “no” in different grammatical forms (see Section 5.3.2.1 for details), and “n”-words such as *nichts*, *nie(mals)*, *niemand*, and *nirgends* (“nothing”, “never”, “nobody”, and “nowhere”). These licensors cover the vast majority of anti-additive cases (N = 786). Another commonly described licensor is the preposition *ohne* “without”, which occurred 46 times in the data set. In addition, there was one case of an NPI licensed in the restrictor of a universal quantifier, and seven cases licensed by *unmöglich* “impossible”, which will be shown to be anti-additive below.

	Licensor	Licensor type	Logical properties	N
1	<i>kein</i>	“kein”-word	anti-additive	305
2	<i>keinerlei</i>	“kein”-word	anti-additive	31
3	<i>keinesfalls</i> , <i>keineswegs</i>	“kein”-word	anti-additive	11
4	<i>kein bisschen</i>	“kein”-word	anti-additive	4
5	<i>keinen Deut, Dreck</i>	“kein”-word, Minimizer negative	anti-additive	13
6	<i>nie(mals)</i>	“never”	anti-additive	117
7	<i>niemand</i>	“nobody”	anti-additive	174
8	<i>nichts</i>	“nothing”	anti-additive	130
9	<i>nirgends</i>	“nowhere”	anti-additive	1
10	<i>ohne</i>	“without”	anti-additive	46
11	Restrictor of <i>alle/jede</i>	Restrictor of a universal quantifier	anti-additive	1
12	<i>unmöglich</i>	“impossible”	anti-additive	7

Table 23: Anti-additive licensing contexts

5.3.2.1 “kein” licensors

Overall, there are 364 instances of NPIs licensed by “kein”-licensors in the corpus, with the vast majority (N=305) being licensed by *kein* “no” as a quantifying determiner or a pronoun DP. This licensor is anti-additive, with the first DeMorgan’s law applying as shown in (252). The quantifying determiner *keinerlei* “none” works accordingly, see (253). The licensors *kein bisschen* “no bit”, *keinen Deut* “tuppence”, and *keinen Dreck* “no dirt” all have *kein* as a quantifying determiner as well and are accordingly anti-additive. They have been annotated separately because they have non-negative counterparts in the corpus. The latter will be discussed in Section 5.4.1 on non-negative nouns.

(251) $f(X \cup Y) \Leftrightarrow f(X) \cap f(Y)$ (anti-additive)

(252) *Kein* Erstklässler trinkt Bier oder Kaffee.

$\Leftrightarrow$ *Kein* Erstklässler trinkt Bier und *kein* Erstklässler trinkt Kaffee.

No first-grader drinks beer or coffee.

$\Leftrightarrow$ No first-grader drinks beer and no first-grader drinks coffee.

(253) *Maria isst keinerlei* Obst oder Gemüse.

$\Leftrightarrow$ *Maria isst keinerlei* Obst und *Maria isst keinerlei* Gemüse.

Maria eats no fruit or vegetables.

$\Leftrightarrow$ Maria eats no fruit and Maria eats no vegetables.

Neither *kein* nor *keinerlei* are antimultiplicative (and thus, by definition, not antimorphic), as demonstrated in (255) and (256), respectively:

(254) $f(X \cap Y) \Leftrightarrow f(X) \cup f(Y)$ (antimultiplicative)

(255) *Kein* Erstklässler trinkt Bier und Kaffee.

$\nLeftrightarrow$ *Kein* Erstklässler trinkt Bier oder *kein* Erstklässler trinkt Kaffee.

No first-grader drinks beer and coffee.

$\nLeftrightarrow$ No first-grader drinks beer or no first-grader drinks coffee.

(256) *Maria isst keinerlei* Obst und Gemüse.

$\nLeftrightarrow$ *Maria isst keinerlei* Obst oder *Maria isst keinerlei* Gemüse.

Maria eats no fruit and vegetables.

$\nLeftrightarrow$ Maria eats no fruit or Maria eats no vegetables.

The negative adverbs *keinesfalls* “under no circumstances” and *keineswegs* “by no means” can be shown to be anti-additive as well:

(257) *Maria will keinesfalls* die Universität oder die Bibliothek aufsuchen.

⇔ *Maria will keinesfalls die Universität aufsuchen und Maria will keinesfalls die Bibliothek aufsuchen.*

Maria doesn't want to visit the university or the library under any circumstances.

⇔ *Maria doesn't want to visit the university under any circumstances and Maria doesn't want to visit the library under any circumstances.*

(258) *Maria hat keineswegs den Präsidenten oder die Kanzlerin beleidigt.*

⇔ *Maria hat keineswegs den Präsidenten beleidigt und Maria hat keineswegs die Kanzlerin beleidigt.*

Maria has by no means insulted the president or the chancellor.

⇔ *Maria has by no means insulted the president and Maria has by no means insulted the chancellor.*

Like *kein* and *keinerlei*, the negative adverbs *keinesfalls* and *keineswegs* are not antimultiplicative, either – and thus; by definition, not antimorphic:

(259) *Maria will keinesfalls die Universität und die Bibliothek aufsuchen.*

⇔ *Maria will keinesfalls die Universität aufsuchen oder Maria will keinesfalls die Bibliothek aufsuchen.*

Maria doesn't want to visit the university and the library under any circumstances.

⇔ *Maria doesn't want to visit the university under any circumstances or Maria doesn't want to visit the library under any circumstances.*

(260) *Maria hat keineswegs den Präsidenten und die Kanzlerin beleidigt.*

⇔ *Maria hat keineswegs den Präsidenten beleidigt oder Maria hat keineswegs die Kanzlerin beleidigt.*

Maria has by no means insulted the president and the chancellor.

⇔ *Maria has by no means insulted the president or Maria has by no means insulted the chancellor.*

5.3.2.2 “n”-licensors

Overall, there are 422 instances of NPIs licensed by “n”-licensors in the data frame, most of which are licensed by *niemand* “nobody” (N=174), followed by *nichts* “nothing” (N=125) and *nie* or *niemals* “never” (N=117). In 5 instances, *nichts und niemand* “nothing and nobody” acted as a joint licensor, and *nirgends* “nowhere” occurred only once. Like the “kein”-licensors, the “n”-licensors annotated in the data set are all anti-additive, but not antimultiplicative (and thus not antimorphic). This is demonstrated in (263)-(270) for *nichts* “nothing”, *niemals* “never”, *niemand* “nobody”, and *nirgends* “nowhere” respectively:

- (261) $f(X \cup Y) \Leftrightarrow f(X) \cap f(Y)$ (anti-additive)
(262) $f(X \cap Y) \Leftrightarrow f(X) \cup f(Y)$ (antimultiplicative)

(263) *Maria hat heute nichts gelesen oder geschrieben.*
 $\Leftrightarrow$ *Maria hat heute nichts gelesen und Maria hat heute nichts geschrieben.*
Maria has not read or written anything today.
 $\Leftrightarrow$ Maria has not read anything today and Maria has not written anything today.

(264) *Maria hat heute nichts gelesen und geschrieben.*
 $\Leftrightarrow$ *Maria hat heute nichts gelesen oder Maria hat heute nichts geschrieben.*
Maria has not read and written anything today.
 $\Leftrightarrow$ Maria has not read anything today or Maria has not written anything today.

(265) *Maria hat niemals einen Roman oder einen Brief geschrieben.*
 $\Leftrightarrow$ *Maria hat niemals einen Roman geschrieben und Maria hat niemals einen Brief geschrieben.*
Maria has never written a novel or a letter.
 $\Leftrightarrow$ Maria has never written a novel and Maria has never written a letter.

(266) *Maria hat niemals einen Roman und einen Brief geschrieben.*
 $\Leftrightarrow$ *Maria hat niemals einen Roman geschrieben oder Maria hat niemals einen Brief geschrieben.*
Maria has never written a novel and a letter.
 $\Leftrightarrow$ Maria has never written a novel or Maria has never written a letter.

(267) *Niemand hat Maria Blumen oder Schokolade geschenkt.*
 $\Leftrightarrow$ *Niemand hat Maria Blumen geschenkt und niemand hat Maria Schokolade geschenkt.*
Nobody has gifted flowers or chocolate to Maria.
 $\Leftrightarrow$ Nobody has gifted flowers to Maria, and nobody has gifted chocolate to Maria.

(268) *Niemand hat Maria Blumen und Schokolade geschenkt.*
 $\Leftrightarrow$ *Niemand hat Maria Blumen geschenkt oder niemand hat Maria Schokolade geschenkt.*
Nobody has gifted flowers and chocolate to Maria.
 $\Leftrightarrow$ Nobody has gifted flowers to Maria, or nobody has gifted chocolate to Maria.

- (269) *Maria hat nirgends einen Hund oder eine Katze gesehen.*
 ⇔ *Maria hat nirgends einen Hund gesehen und Maria hat nirgends eine Katze gesehen.*
 Maria has not seen a dog or a cat anywhere.
 ⇔ Maria has not seen a dog anywhere and Maria has not seen a cat anywhere.
- (270) *Maria hat nirgends einen Hund und eine Katze gesehen.*
 ⇔ *Maria hat nirgends einen Hund gesehen oder Maria hat nirgends eine Katze gesehen.*
 Maria has not seen a dog and a cat anywhere.
 ⇔ Maria has not seen a dog anywhere or Maria has not seen a cat anywhere.

Being strong, anti-additive licensors, the “kein”- and “n”-type licensors unsurprisingly licensed a large amount of NPis in the corpus study. Both the determiners *kein* and *keinerlei* “no” and the negative indefinites *niemand* “nobody” and *nichts* “nothing” occurred freely across syntactic positions (subject, object positions depending on the valence of the verbal NPI, adverbial positions). Given the expectedness of the findings, no corpus examples of the licensors will be cited here. The data can be accessed here: <https://osf.io/2bwak/>, DOI 10.17605/OSF.IO/2BWAK.

5.3.2.3 Ohne “without”

Ohne “without” is a well-known NPI licenser and included as such in the CoDII corpus. In the present corpus study, it occurred 46 times overall, licensing seven different NPIs, see Table 24 below for an overview. While sometimes *without* is described as just being downward entailing (Richter/Soehn, 2006: 423), van der Wouden (1994) and Zwarts (1993) argue that English *without* and its Dutch counterpart *zonder* are anti-additive (van der Wouden 1994: 32 f.; Zwarts 1993: 226 f.) I will argue that anti-additivity can be shown for German *ohne* as well, both with a noun complement (see (271)) as well as an infinitive complement (see (272)). With anti-additivity tests holding, *ohne* is, of course, also downward entailing, see (273):

(271) *Der Bauer kam ohne Kartoffeln oder Mais nach Hause.*

⇔ *Der Bauer kam ohne Kartoffeln nach Hause und der Bauer kam ohne Mais nach Hause.*

The farmer came home without potatoes or corn.

⇔ The farmer came home without potatoes and the farmer came home without corn.

(272) *Der Bauer ging schlafen, ohne zu essen oder zu trinken.*

⇔ *Der Bauer ging schlafen, ohne zu essen, und der Bauer ging schlafen, ohne zu trinken.*

The farmer went to bed without eating or drinking.

⇔ The farmer went to bed without eating and the farmer went to bed without drinking.

(273) *Maria hat den Witz gelesen, ohne zu lachen.*

→ *Maria hat den Witz gelesen, ohne laut zu lachen.*

Maria read the joke without laughing.

→ Maria read the joke without laughing out loud.

Ohne “without” is not antimultiplicative and thus not antimorphic, as demonstrated below for *ohne* with a noun complement and an infinitive complement, respectively:

(274) *Der Bauer kam ohne Kartoffeln und Mais nach Hause.*

⇔ *Der Bauer kam ohne Kartoffeln nach Hause oder der Bauer kam ohne Mais nach Hause.*

The farmer came home without potatoes and corn.

⇔ The farmer came home without potatoes or the farmer came home without corn.

(275) *Der Bauer ging schlafen, ohne zu essen und zu trinken.*

⇔ *Der Bauer ging schlafen, ohne zu essen, oder der Bauer ging schlafen, ohne zu trinken.*

The farmer went to bed without eating and drinking.

⇔ The farmer went to bed without eating or the farmer went to bed without drinking.

NPI	N
<i>Abbruch tun</i> “to spoil sth.”	9
<i>anhaben können</i> “to be able to harm”	1
<i>brauchen (zu)</i> “to need”	1
<i>sich (d)reinreden lassen</i> “to be swayed”	1
<i>sich beirren lassen</i> “to let oneself be misled”	19
<i>sich scheren um</i> “to care about sth./sb.”	9
<i>wahrhaben wollen</i> “to want to acknowledge sth.”	6
Total	46

Table 24: NPIs licensed by *ohne* “without”

In the corpus data, *ohne* did not appear with a noun complement. It either appeared with the verbal NPI in the infinitive form as a complement, or a complement *dass*-clause (“that”-clause) containing the NPI. Examples for both types are given below, with the NPI *sich beirren lassen* as an infinitive complement of *ohne* in (276) and the NPI *Abbruch tun* in a complement clause in (277):

- (276) Die Bundeswehr hat ihren staatspolitischen Auftrag
the army has its state.political mandate
verfassungsgetreu und zielstrebig erfüllt, ohne **sich**
constitution.loyal and determined fulfilled without REFL
durch Misstrauen und Schwierigkeiten vielfältiger Art
by mistrust and difficulties multiple type
beirren zu **lassen**.
irritate INF.PART let

“The German Armed Forces have fulfilled their public policy mandate while being loyal to the constitution and determined, without letting themselves be irritated by mistrust and multiple different difficulties.”

Corpus ID 855

- (277) Chefredakteur Andreas Lebert erzählt von den Fragen,
chief.editor Andreas Lebert tells of the questions
mit denen sich Brigitte immer wieder konfrontiert
with REL REFL Brigitte always again confronted
sieht, ohne dass es der Leser-Blatt-Liebe
sees without that it the reader.magazine.love
Abbruch tut.

harm does

“Editor-in-chief Andreas Lebert talks about the questions that [the magazine] Brigitte sees itself confronted with, without [the questions] impairing the love between the readers and the magazine.”

Corpus ID 409

5.3.2.4 Unmöglich “impossible”

An anti-additive licenser that has not, to my knowledge, been described in the literature on German NPIs yet is adverbial *unmöglich* “impossible/impossibly”. It occurred overall seven times in the data set with five different NPIs.

NPI	N
<i>absprechen können</i> “to be able to deprive sb. of sth.”	2
<i>anhaben können</i> “to be able to harm”	1
<i>erwehren können</i> “to be able to avoid sth.”	1
<i>mit ansehen können</i> “to be able to bear sth.”	2
<i>zu übersehen sein</i> “to be conspicuous”	1
Total	7

Table 25: NPI licensed by *unmöglich* “impossible”

Adverbial *unmöglich* appears to be anti-additive as well (see (278)), but not antimultiplicative and thus not antimorphic, see (279):

- (278) Maria kann unmöglich den Rasen mähen oder die Hecke schneiden. ⇔ Maria kann unmöglich den Rasen mähen und Maria kann unmöglich die Hecke schneiden.

It is impossible for Maria to mow the lawn or trim the hedge.

⇔ It is impossible for Maria to mow the lawn and it is impossible for Maria to trim the hedge.

- (279) Maria kann unmöglich den Rasen mähen und die Hecke schneiden.

⇔ Maria kann unmöglich den Rasen mähen oder Maria kann unmöglich die Hecke schneiden.

It is impossible for Maria to mow the lawn and trim the hedge.

⇔ It is impossible for Maria to mow the lawn or it is impossible for Maria to trim the hedge.

Unmöglich acts as a negative adverbial quantifier in the corpus examples:

- (280) Müller begründet seine Entscheidung damit, dass er
Müller justifies his decision with that he
es unmöglich länger **mit ansehen könne**, dass
it impossibly longer with watch can that
die Tarif-Verträge [...] nicht eingehalten werden [...].
the wage.agreements not followed AUX.PASS

“Müller justifies his decision by saying that he could not possibly stand to watch the collective wage agreements being breached any longer.”

Corpus ID 573

5.3.2.5 Restrictor of a universal quantifier

There is one single case in the data set in which an NPI is licensed in the scope of a universal quantifier. Universal quantifiers have been shown to be anti-additive in their first argument (the restrictor) in Dutch, but not in their second argument (the scope) (van der Wouden 1994: 38). This can be shown for the German universal quantifiers *alle* “all” and *jede* “every” as well. They are anti-additive in their restrictor (see (281) and (283)) , but not antimultiplicative and thus not antimorphic in their restrictor, see (282) and (284):

- (281) Alle [Menschen, die husten oder niesen,]RESTRICTOR
[sollten zum Arzt gehen]SCOPE.
⇔ Alle Menschen, die husten, sollten zum Arzt gehen, und alle Menschen, die niesen, sollten zum Arzt gehen.

All people that cough or sneeze should see a doctor.

⇔ All people that cough should see a doctor and all people that sneeze should see a doctor.

- (282) Alle [Menschen, die husten und niesen,]RESTRICTOR
[sollten zum Arzt gehen]SCOPE.
⇔ Alle Menschen, die husten, sollten zum Arzt gehen, oder alle Menschen, die niesen, sollten zum Arzt gehen.

All people that cough and sneeze should see a doctor.

⇔ All people that cough should see a doctor or all people that sneeze should see a doctor.

- (283) Jeder [Mensch, der hustet oder niest,]RESTRICTOR
[sollte zum Arzt gehen]SCOPE.
⇔ Jeder Mensch, der hustet, sollte zum Arzt gehen, und jeder Mensch, der niest, sollte zum Arzt gehen.

Every person that coughs or sneezes should see a doctor.

⇔ Every person that coughs should see a doctor and every person that sneezes should see a doctor.

- (284) Jeder [Mensch, der hustet und niest,]RESTRICTOR
[sollte zum Arzt gehen]SCOPE.
⇔ Jeder Mensch, der hustet, sollte zum Arzt gehen, oder jeder Mensch, der niest, sollte zum Arzt gehen.

Every person that coughs and sneezes should see a doctor.

⇔ Every person that coughs should see a doctor or every person that sneezes should see a doctor.

German *alle* “all” and *jede* “every”, like the Dutch universal quantifier, are not anti-additive in the second argument (the scope), see (285) and (287). They are not antimultiplicative and thus not antimorphic in their scope, either; see (286) and (288):

(285) *Alle* [*Patienten in der Praxis*]_{RESTRICTOR} [*niesen oder husten*]_{SCOPE}

⇔ *Alle Patienten in der Praxis niesen und alle Patienten in der Praxis husten.*

All the patients in the practice sneeze or cough.

⇔ All the patients in the practice sneeze and all the patients in the practice cough.

(286) *Alle* [*Patienten in der Praxis*]_{RESTRICTOR} [*niesen und husten*]_{SCOPE}

⇔ *Alle Patienten in der Praxis niesen oder alle Patienten in der Praxis husten.*

All the patients in the practice sneeze or cough.

⇔ All the patients in the practice sneeze and all the patients in the practice cough.

(287) *Jede* [*Patientin in der Praxis*]_{RESTRICTOR} [*niest oder hustet*]_{SCOPE}

⇔ *Jede Patientin in der Praxis niest und jede Patientin in der Praxis hustet.*

Every patient in the practice sneezes or coughs.

⇔ Every patient in the practice sneezes and every patient in the practice coughs.

(288) *Jede* [*Patientin in der Praxis*]_{RESTRICTOR} [*niest und hustet*]_{SCOPE}

⇔ *Jede Patientin in der Praxis niest oder jede Patientin in der Praxis hustet.*

Every patient in the practice sneezes and coughs. ⇔ Every patient in the practice sneezes or every patient in the practice coughs.

The only instance of an NPI licensed by the restrictor of the universal quantifier *jeder* “every” in the data set is the verb of intolerance *noch hören können* “to be able to hear any longer”:

(289) Beim Trauern ist alles erlaubt. Reden soll ich,
 with grieving is everything allowed talk should I
 soll mir alles von der Seele reden, immer
 should REFL everything off the soul talk always
 wieder erzählen, so oft und so viel ich
 again tell so often and so much I
 will und kann, jedem, der es **noch hören kann**.
 want and can everybody who it still hear can

“For grieving, everything is allowed. I’m supposed to talk, to get everything off my chest, I’m supposed to tell as much and as often as I want and can, to everyone who is still able to listen.”

Corpus ID 557

The fact that NPIs can appear in the restrictor, but not in the scope of a universal quantifier in German can also be shown with other NPIs like the domain widening NPI *im Geringsten* “in the slightest”:

Alle [Schüler, die sich auch nur **im Geringsten** für Mathematik interessieren,]RESTRICTOR [sollen gefördert werden.]SCOPE

All students that are interested in maths even in the slightest should be supported.

(290) *[*Alle Schüler dieser Schule*]RESTRICTOR
[interessieren sich auch nur **im Geringsten** für Mathematik.]SCOPE

*All students in this school are interested in maths in the slightest.

Jede [Schülerin, die sich auch nur **im Geringsten** für Mathematik interessiert,]RESTRICTOR [soll gefördert werden.]SCOPE

All students that are interested in maths in the slightest should be supported.

(291) *[*Alle Schüler dieser Schule*]RESTRICTOR
[interessieren sich auch nur **im Geringsten** für Mathematik.]SCOPE

*All students in this school are interested in maths in the slightest.

On a side note, there seems to be no difference in acceptability between the two universal quantifiers *alle* and *jede* in 0 and 0: with both quantifiers, the NPI seems to be equally acceptable in the scope. This is in contrast to observations made for English by Giannakidou (1998), where there is a perceived difference in acceptability of NPIs in the scope of *every* vs. *each*. According to Giannakidou (1998: 12; 2011: 1670) the NPI *any* can appear in the scope of the universal quantifier *every* in (292), but not in the scope of *each* in (293). In the examples in (294)-(295), which are constructed as parallel as possible, the NPI *auch nur irgendeine* seems to be equally acceptable regardless of the universal quantifier. This side note is not to challenge the theoretical framework, it is merely meant to point out an empirical difference between German and English universal quantifiers. Note that German and English universal quantifiers probably cannot be mapped 1:1, as German has two universal quantifiers *alle* “all” and

jede “each/every”, while the English universal-quantifier system is split into three quantifiers *all*, *each*, and *every*.

(292) Every student who saw anything, spoke to the police.

(293) *Each student who saw anything, spoke to the police. (Giannakidou 1998: 12)

(294) Alle Studentinnen, die **auch nur irgendeine** Sache
all students.FEM REL also only any thing
gesehen haben, haben mit der Polizei gesprochen.
seen have have with the police spoken
“All students who have seen anything have spoken to the police.”

(295) Jede Studentin, die **auch nur irgendeine** Sache
each student.FEM REL also only any thing
gesehen hat, hat mit der Polizei gesprochen.
seen have have with the police spoken
“Each student who has seen anything has spoken to the police.”

5.3.3 Downward entailing environments

Overall, 11 different downward entailing licensing environments were annotated in the data set, some of which are very frequent and well-described (like *kaum* “hardly” and *wenig* “few”), while others like *schwer* and *schwerlich* “difficult” have, to my knowledge, not been previously described as downward entailing licensors in German, but are not entirely surprising as their English counterpart *difficult* has been observed to be a potential NPI licensor (Kennedy, 2001). Yet other contexts such as antecedents of conditionals and contexts containing *nur* “only” have long been described as NPI hosts, but their status as downward entailing has been debated. For those contexts, the weakened notion of Strawson downward entailment has been suggested by von Fintel (1999), see Section 2.1.2. For reasons of exposure, the Strawson downward entailing licensing contexts will be discussed in this section along with the classically downward entailing environments.³¹ Table 26 below shows a full list of (Strawson) downward entailing licensing environments in the data set, ordered by frequency:

	Licensor	Licensor type	Logical properties	N
1	<i>kaum</i>	“hardly”	downward entailing	355
2	<i>wenig</i>	“few”	downward entailing	223
3	<i>schwer, schwerlich</i>	“difficult”	downward entailing	59
4	<i>ungern</i>	“reluctantly”	downward entailing	8
5	<i>zu ADJ um</i>	“too ADJ to”	downward entailing	4
6	<i>selten</i>	“rarely”	downward entailing	3
7	<i>bezweifeln</i>	negative verb	downward entailing	2
8	<i>Weigerung</i>	Negative deverbal noun	downward entailing	1
9	<i>nur, bloß</i>	“only”	Strawson-DE	62
10	Konditionalsatz	Antecedent of a conditional	Strawson-DE	7

Table 26: (Strawson) downward entailing licensors ordered by logical properties and frequency

In total, 29 out of 31 NPIs in the data set occurred with the (Strawson) downward entailing licensors listed above. Thus, it can be concluded that all NPIs except for two (namely, *dafürkönnen* “to be one’s fault” and *sich etw. nicht nehmen lassen* “to insist

³¹ A well-known quantifier that is downward entailing in its first argument is *höchstens N* “at most N”. This quantifier did not surface in the corpus data. However, its non-DE sibling *höchstens* “at most” appeared. Since *höchstens* “at most” without an accompanying number N is not downward entailing, it will not be discussed in the present section. Instead, I will argue, *höchstens* “at most” gives rise to a negative implicature that contrasts with the assertion it appears in, which in turn can license NPIs. The case of *höchstens* “at most” will thus be discussed in Section 5.4.4.2 on contrastive contexts.

on sth.”) in the data set must be weak (or superweak) NPIs. Given that the latter two also appeared in (rhetorical) questions, we must conclude that all NPIs in the data set are weak or superweak NPIs with regards to the classification described in Section 2.1. The matter of NPI classification will again be discussed in Section 5.3.5.

5.3.3.1 *Kaum* “hardly”

Unsurprisingly, the most frequent downward entailing operator annotated in the corpus study is *kaum* “hardly” (N=355), which, along with *wenig* “few” can probably be described as the prototypical DE operator in German, see Table 27:

NPI	N
<i>Abbruch tun</i> “to spoil sth.”	34
<i>absprechen können</i> “to be able to deprive sb. of sth.”	5
<i>anders können</i> “to be able to act differently”	1
<i>anhaben können</i> “to be able to harm”	26
<i>brauchen (zu)</i> “to need”	2
<i>enden wollen</i> “sth. will have an end”	3
<i>erwehren können</i> “to be able to avoid sth.”	71
<i>fassen können</i> “to be able to grasp sth.”	51
<i>hinwegtäuschen können</i> “to be able to obscure sth.”	5
<i>lassen können von</i> “can help doing”	1
<i>missen wollen</i> “to want to miss”	2
<i>mit ansehen können</i> “to be able to bear sth.”	9
<i>nicht mehr / noch hören können</i> “to be able to hear any longer”	6
<i>sich (d)reinreden lassen</i> “to be swayed”	2
<i>sich beirren lassen</i> “to let oneself be misled”	14
<i>sich deuteln lassen</i> “to leave room for interpretation”	1
<i>sich lumpen lassen</i> “to splash out”	3
<i>sich rütteln lassen</i> “there is (no) doubt about sth.”	7
<i>sich scheren um</i> “to care about sth./sb.”	8
<i>umhinkönnen</i> “to do otherwise”	13
<i>verdenken können</i> “to hold sth. against sb.”	20
<i>verwundern können</i> “to be able to amaze sb.”	36
<i>wahrhaben wollen</i> “to want to admit sth.”	9
<i>zu übersehen sein</i> “to be conspicuous”	26
Total	355

Table 27: NPIs licensed by *kaum* “hardly” in the corpus data

In the data set, *kaum* is found both as a quantifying determiner (both in subject and object position) and as an adverbial quantifier. It is downward entailing in both functions:

(296) *Maria isst kaum Gemüse.* → *Maria isst kaum Kohl.*
 Maria hardly eats vegetables. → Maria hardly eats cabbage.

(297) *Kaum ein Kind mag Gemüse.* → *Kaum ein Kind mag Kohl.*
 Hardly any child likes vegetables. → Hardly any child likes cabbage.

Kaum is neither anti-additive nor antimultiplicative and thus not antimorphic, as demonstrated below. This holds for *kaum* as an adverbial quantifier and for the quantifying determiner, see (299)-(300) and (301)-(302), respectively:

- (298) $f(X \cup Y) \Leftrightarrow f(X) \cap f(Y)$ (anti-additive)
 $f(X \cap Y) \Leftrightarrow f(X) \cup f(Y)$ (antimultiplicative)

- (299) *Maria isst kaum Spinat oder Kohl.*
 $\Leftrightarrow$ *Maria isst kaum Spinat und Maria isst kaum Kohl.*

Maria hardly eats spinach or cabbage.
 $\Leftrightarrow$ Maria hardly eats spinach and Maria hardly eats cabbage.

- (300) *Maria isst kaum Spinat und Kohl.*
 $\Leftrightarrow$ *Maria isst kaum Spinat oder Maria isst kaum Kohl.*

Maria hardly eats spinach and cabbage.
 $\Leftrightarrow$ Maria hardly eats spinach or Maria hardly eats cabbage.

- (301) *Kaum ein Kind isst Spinat oder Kohl.*
 $\Leftrightarrow$ *Kaum ein Kind isst Spinat und kaum ein Kind isst Kohl.*

Hardly any child eats spinach or cabbage.
 $\Leftrightarrow$ Hardly any child eats spinach and hardly any child eats cabbage.

- (302) *Kaum ein Kind isst Spinat und Kohl.*
 $\Leftrightarrow$ *Kaum ein Kind isst Spinat oder kaum ein Kind isst Kohl.*

Hardly any child eats spinach and cabbage.
 $\Leftrightarrow$ Hardly any child eats spinach or hardly any child eats cabbage.

It may be tempting to view the different sentences in the anti-additive formulas in (299) and (301) as logically equivalent. The reason for this could be that the second part of the formula is a valid paraphrase for the first part if we read the disjunction as inclusive: the inclusive reading of the disjunction is true if both propositions *Maria hardly eats spinach* and *Maria hardly eats cabbage* are true, thus making $(\text{hardly}(X) \cap \text{hardly}(Y))$ a valid paraphrase of $(\text{hardly}(X \cup Y))$. However, the truth conditions of $(\text{hardly}(X \cup Y))$ cover more than the inclusive reading of the disjunction. $(\text{hardly}(X \cup Y))$ is, of course, also true if only one of the two propositions is true. That is, $(\text{hardly}(X \cup Y))$ is also true if Maria hardly eats spinach, but eats plenty of cabbage, or vice versa. Thus the two phrases in (299) are not true paraphrases of each other, and German *kaum* “hardly” is not an anti-additive operator.

Examples from the corpus data with *kaum* as an adverbial quantifier and as a quantifying determiner in the subject position are given below, respectively. For more corpus data on *kaum*, see <https://osf.io/2bwak/>, DOI 10.17605/OSF.IO/2BWAK.

- (303) Man **kann** sich kaum des Verdachtes **erwehren**, dass
 one can REFL hardly the.GEN suspicion fight.off that
 die CDU ein Interesse hat, auf das Handeln
 the CDU a interest has to the action
 der Staatsanwaltschaft direkteren Einfluss auszuüben.
 the.GEN prosecutor direct.COMP influence take
 “One can hardly help thinking that the CDU has an interest in having a
 more direct influence on the actions of the public prosecutor’s office.”
 Corpus ID 1565

- (304) **Um** die Details des Doppelhaushaltes für die
 to the details the.GEN double.budget for the
 Jahre 2006 und 2007 **scherte sich** am
 years 2006 and 2007 cared REFL on.the
 Donnerstag deshalb kaum ein Redner im Abgeordnetenhaus.
 Thursday thus hardly a speaker in parliament
 “Hardly any speaker in parliament still cared about the details of the
 communal budget of the years 2006 and 2007 on Thursday.”
 Corpus ID 33

5.3.3.2 *Wenig* “few”

The second most frequent DE licenser in the data set was *wenig* “few” (N=223), see Table 28. Like *kaum*, *wenig* is found both as an adverbial quantifier and as a quantifying determiner. As an indefinite pronoun, it can also fulfil subject and object roles by itself. In all cases, it is downward entailing:

- (305) *Maria interessiert sich wenig für Tiere.*
→ *Maria interessiert sich wenig für Hunde.*
Maria has little interest in animals. → Maria has little interest in dogs.
- (306) *Maria isst wenig Gemüse.* → *Maria isst wenig Kohl.*
Maria eats few vegetables. → Maria hardly eats cabbage.
- (307) *Wenige interessieren sich für Politik.*
→ *Wenige interessieren sich für Sozialpolitik.*
Few are interested in politics. → Few are interested in social politics.

Wenig “few” is neither anti-additive nor antimultiplicative and thus not antimorphic – neither as an adverbial quantifier nor as a quantifying determiner, as demonstrated below:

- (308) $f(X \cup Y) \Leftrightarrow f(X) \cap f(Y)$ (anti-additive)
 $f(X \cap Y) \Leftrightarrow f(X) \cup f(Y)$ (antimultiplicative)

- (309) *Patricia interessiert sich wenig für Politik oder Philosophie.*
 $\Leftrightarrow$ *Patricia interessiert sich wenig für Politik und Patricia interessiert sich wenig für Philosophie.*

Patricia has little interest in politics or philosophy.
 $\Leftrightarrow$ Patricia has little interest in politics and Patricia has little interest in philosophy.

- (310) *Patricia interessiert sich wenig für Politik und Philosophie.*
 $\Leftrightarrow$ *Patricia interessiert sich wenig für Politik oder Patricia interessiert sich wenig für Philosophie.*

Patricia has little interest in politics and philosophy.
 $\Leftrightarrow$ Patricia has little interest in politics or Patricia has little interest in philosophy.

- (311) *Maria isst wenig Spinat oder Kohl.*
 $\Leftrightarrow$ *Maria isst wenig Spinat und Maria isst wenig Kohl.*

Maria eats little spinach or cabbage.
 $\Leftrightarrow$ Maria eats little spinach and Maria eats little cabbage.

- (312) *Maria isst wenig Spinat und Kohl.*
 $\Leftrightarrow$ *Maria isst wenig Spinat und Maria isst wenig Kohl.*

Maria eats little spinach and Cabbage.

⇔ Maria eats little spinach and Maria eats little cabbage.

(313) Wenige Erstklässler essen Rosenkohl oder Spinat.

⇔ Wenige Erstklässler essen Rosenkohl und wenige Erstklässler essen Spinat.

Few first-graders eats Brussels sprouts or spinach.

⇔ Few first-graders eat Brussels sprouts and few first-graders eat spinach.

(314) Wenige Erstklässler essen Rosenkohl und Spinat.

⇔ Wenige Erstklässler essen Rosenkohl oder wenige Erstklässler essen Spinat.

Few first-graders eats Brussels sprouts and spinach.

⇔ Few first-graders eat Brussels sprouts or few first-graders eat spinach.

Again, it may be tempting to assume that the anti-additive equations in (309), (311), and (313) are valid. This is, however, not true. Like with *kaum* “hardly”, the anti-additive equation only holds when the disjunction *oder* “or” receives an inclusive reading. The truth conditions of all three sentences also cover exclusive readings of the disjunction, in which case the conjunction ($\text{few}(X) \cap \text{few}(Y)$) is not a paraphrase of ($\text{few}(X \cup Y)$). Since the antimultiplicative equations quite clearly do not hold, we can conclude from the tests above that *wenig*, like English *few*, is a downward entailing operator, but not anti-additive nor antimultiplicative and thus not antimorphic.

NPI	N
<i>Abbruch tun</i> “to spoil sth.”	22
<i>absprechen können</i> “to be able to deprive sb. of sth.”	2
<i>anfechten</i> “to irritate”	1
<i>anhaben können</i> “to be able to harm”	77
<i>ausstehen können</i> “to be able to stand sth./sb.”	4
<i>brauchen (zu)</i> “to need”	2
<i>erwehren können</i> “to be able to avoid sth.”	3
<i>hinwegtäuschen können</i> “to be able to obscure sth.”	1
<i>missen wollen</i> “to want to miss”	5
<i>nicht mehr / noch hören können</i> “to be able to hear any longer”	1
<i>sich (d)reinreden lassen</i> “to be swayed”	5
<i>sich (etwas) befehlen zu lassen</i> “to be bossed around”	1
<i>sich beirren lassen</i> “to let oneself be misled”	16
<i>sich deuteln lassen</i> “to leave room for interpretation”	1
<i>sich lumpen lassen</i> “to splash out”	1
<i>sich rütteln lassen</i> “there is (no) doubt about sth.”	4

<i>sich scheren um</i> “to care about sth./sb.”	57
<i>sich unterkriegen lassen</i> “to keep one’s chin up” (with negation)	1
<i>umhinkönnen</i> “to do otherwise”	2
<i>verdenken können</i> “to hold sth. against sb.”	4
<i>verwundern können</i> “to be able to amaze sb.”	2
<i>wahrhaben wollen</i> “to want to admit sth.”	9
<i>zu besagen haben</i> “to mean sth.”	1
<i>zu übersehen sein</i> “to be conspicuous”	1
Total	223

Table 28: NPIs licensed by *wenig* “few” in the corpus data

Corpus examples with *wenig* as an adverbial quantifier, a quantifying determiner, and an indefinite pronoun in subject position, respectively, are given below:

- (315) Die schwache Konjunktur und die vielen Krisenherde
the weak economy and the many crisis.points
in aller Welt **können** dem deutschen Handwerk
in all world can the German trade
derzeit wenig **anhaben**.
now few harm

The weak economy and the multiple crises all over the world can do little harm to Germany’s trade at the moment.

Corpus ID 1462

- (316) Einen Moment lang schießt ihr durch den Kopf,
a moment long shoots her through the head
dass sie von nun an weniger Angst vor
that she from now on less fear of
Einbrechern **zu** haben **braucht**.
burglars INF.PART have needs

“For one moment she thinks that from now on she needs to be less afraid of burglars.”

Corpus ID 591

- (317) Dass der Weg in den Abgrund führt, **wollen** nur wenige
that the way into the abyss leads want only few
wahrhaben.

acknowledge

“Only few people want to acknowledge that the path leads into the abyss.”

Corpus ID 2144

5.3.3.3 Nur and bloß “only”

The German equivalents of “only”, *nur* and *bloß*, were relatively frequent licensors in the corpus study, appearing overall 62 times with *nur* being the far more frequent one (N=60). Nine different verbal NPIs appeared in their scope, see Table 29 below for the exact distribution:

NPI	<i>bloß</i>	<i>nur</i>	Total
<i>Abbruch tun</i> “to spoil sth.”		2	2
<i>anhaben können</i> “to be able to harm”		2	2
<i>brauchen (zu)</i> “to need”	2	23	25
<i>erwehren können</i> “to be able to avoid sth.”		15	15
<i>hinwegtäuschen können</i> “to be able to obscure sth.”		3	3
<i>mit ansehen können</i> “to be able to bear sth.”		1	1
<i>sich beirren lassen</i> “to let oneself be misled”		1	1
<i>verwundern können</i> “to be able to amaze sb.”		10	10
<i>wahrhaben wollen</i> “to want to acknowledge sth.”		3	3
Total	2	60	62

Table 29: NPIs licensed by *nur* and *bloß* “only” in the corpus data

In the data set, there are instances of *only* in association with the subject DP as well as in association with the VP, the accusative object within the VP, and even the adjective within the accusative object, see (318)-(321):

- (318) Nur die ungünstige Akustik des Berliner Doms
 only the unfavourable acoustics the.GEN Berlin dome
tat der Klarheit und Unmittelbarkeit der
 did the clarity and immediacy the.GEN
 Ansprache **Abbruch** [...]
 speech harm
 “Only the unfavourable acoustics of the Berlin Dome spoiled the clarity and immediacy of the speech [...]”
 Corpus ID 426

- (319) Ich **brauchte** es nur **zu** nehmen und rauszugehen [...]
 I needed it only INF.PART take and go.out.INF.PART
 “I only needed to take it and leave [...]”
 Corpus ID 634

- (320) Ein Qualitätsfanatiker wie Gegenbauer **konnte** nur eine
 a quality.fanatic like Gegenbauer could only a
 gewisse Zeit **mit** **ansehen**, dass Kunden seine
 certain time with watch that customers his
 Produkte im heimischen Salat mit dem falschen
 products in.the home.ADJ salad with the wrong
 Öl kontaminieren.
 oil contaminate
 “A quality fanatic like Gegenbauer could only bear to watch customers
 contaminate his products in the salad with the wrong oil for a certain amount
 of time.”

Corpus ID 572

- (321) Diese Fehlleistung **tut** nur winzigen **Abbruch** an einem
 this mistake does only tiny harm on a
 das Herz wärmenden Buch [...]
 the heart warming book

“This mistake only spoils this heartwarming book a little [...].”

Corpus ID 389

As discussed in Section 2.1.2, “only” cannot consistently be shown to be downward entailing and has instead been suggested to be Strawson downward entailing by von Fintel (1999). The same goes for its German counterpart *nur*. The lack of downward entailment of *nur* as well as its Strawson downward entailingness can be demonstrated using the example above from the corpus data:

- (322) *Diese Fehlleistung **tut** nur winzigen **Abbruch** an einem das Herz wärmenden Buch.*
 → *Diese Fehlleistung **tut** nur winzigen **Abbruch** an einem das Herz wärmenden Roman.*

This mistake only spoils this heartwarming book a little.

→ This mistake only spoils this heartwarming novel a little.

Novel is clearly a hyponym of *book*, yet the downward-entailment relations in (322) do not hold, suggesting *nur* is not a strictly downward entailing operator. However, if we apply von Fintel’s (1999) notion of Strawson downward entailment and take the

fact that the book in question is a novel in the relevant context as defined and true, Strawson downward entailment does hold. Importantly, in the example above, the expressions that are relevant for downward entailment (i.e. the hyperonym *book* and the hyponym *novel*) were not in the focus of *nur* “only”. Things may be a little different if the entailment-relevant expressions are in the focus of *nur*:³²

- (323) Peking **braucht** nur einige Airbus-Maschinen **zu**
Peking needs only some Airbus.machines INF.PART
kaufen, um sich damit das Schweigen Europas
buy to REFL with.that the silence Europe.GEN
zu erkaufen.
INF.PART buy
“Beijing only needs to buy some Airbus machines in order to buy the silence of Europe.”

Corpus ID 646

- (324) → Peking **braucht** *nur einige Airbus-A320-Modelle* **zu kaufen, um sich damit das Schweigen Europas zu erkaufen.**

→ Beijing only needs to buy some Airbus A320 models in order to buy the silence of Europe.

In (323), the expression relevant to the entailment relations is in the focus of *nur* “only”: Airbus A320 models are a subset of all the possible machines produced by Airbus. At the very least, Strawson downward entailment holds here: If, again, the truth of the consequent, namely that China bought A320 models off Airbus, is defined, that is, if a listener knows that China bought Airbus A320 models, then the listener can infer the statement in (324) upon listening to the statement in (323), thus showing *nur* to be Strawson downward entailing. However, it seems that even regular downward entailment holds in this example: if Europe wanted to be bribed by China by buying Airbus machines, then that requirement should be met if China buys Airbus A320 models. This may be attributed to the entailment-relevant expression being in the focus of *nur* “only”, in contrast to (321)-(322), where the relevant expressions were not in

³² I thank my supervisor Sophie Repp for pointing out this difference between entailment-relevant expressions in the focus vs. in the scope of *nur* “only”.

the focus and classic downward entailment did not hold. This subtle difference may well be responsible for the long-debated status of the downward entailingness of *only*.

Notably, *nur* and *bloß* are particularly frequent licensors for the modal NPI *brauchen (zu)* “need” (N=25), an NPI which does not appear in non-negative contexts in the data set (see Table 30 below for an overview). *Brauchen (zu)* did not appear in questions, neither did it appear in the non-negative licensing environments described in Section 5.4. This points to “only” being a negative licensor despite its debated status as (Strawson) downward entailing, given that *brauchen (zu)* seems to be a relatively restricted NPI which usually requires at least downward entailing licensors and doesn’t appear in questions. Some examples of *brauchen (zu)* licensed by *nur* and *bloß* are given below.

Licensor	N
<i>bloß</i> “only”	2
<i>kaum</i> “hardly”	2
<i>kein</i> “no”	45
<i>keineswegs</i> “under no circumstances”	1
<i>nichts</i> “nothing”	10
<i>nie(mals)</i> “never”	4
<i>niemand</i> “nobody”	7
<i>nur</i> “only”	23
<i>ohne</i> “without”	1
<i>weder noch</i> “neither nor”	3
<i>wenig</i> “few”	2
Total	100

Table 30: *Licensors of brauchen (zu) “need” in the corpus data*

- (325) Das reicht, um 30 Prozent der Haut zu
this suffices to 30 percent the.GEN skin INF.PART
schädigen, und weil sie noch so dünn und
damage and because she still so thin and
zart ist, **braucht** der Kaffee dazu nur 52
dainty is needs the coffee there.to only 52
Grad heiß **zu** sein.
degrees hot INF.PART be

“This is enough to damage 30 percent of the skin, and because it is still so thin and tender, the coffee only needs to be 52 degrees hot.”

Corpus ID 652

- (326) Wer den Stillstand auskosten wollte, der **brauchte**
 who the standstill enjoy wanted REL needed
 sich nur **zu** den Leuten auf der
 REFL only INF.PART the people on the
 Autobahn zu stellen, wenn ein Stau die
 motorway INF.PART stand when a traffic.jam the
 Kolonne der VW-Käfer zum Innehalten brachte.
 queue the.GEN VW.Beetle to.the stop brought
 “Whoever wanted to enjoy the standstill only needed to join the people on the motorway when a traffic jam made the queue of VW Beetles stop.”

Corpus ID 650

Giannakidou (2006) concludes from crosslinguistic comparison of Greek and English data on NPIs that *only* is a rather limited licenser that does not license strong NPIs, as shown by data like the following:

(327) *Only Bill came **either**.

(328) *Only Bill is **all that** intelligent.

(Giannakidou 2006: 585)

Giannakidou’s (2006: 586) conclusion is that in English, *only* licenses a limited subclass of NPIs, namely minimizers and weak NPIs such as *any* and *ever*. Given the data found in the present corpus study, we can conclude that the German equivalents for *only*, *nur* and *bloß*, do not merely license German minimizer-type NPIs, but also at least a subset of the verbal, non-minimizer NPIs investigated in this study. This observation is not at odds with the generalization made by Giannakidou (2006) that *only* does not license strong NPIs: we have already established that all verbal NPIs in this study must be weak (or superweak) NPIs.

An exclusive marker that can host NPIs and that is closely related to the exclusive markers *nur* and *bloß* “only” is English “the only” and its German counterparts *der/die/das einzige* and stressed *der/die/das eine*. English “the only” can license certain NPIs in its restrictor (Hoeksema 2012: 23 f.), see (329) and (330):

(329) You are the only person who has **ever** helped me.

(330) Du bist der einzige Mensch, der mir **jemals** geholfen hat.
you are the only human REL me ever helped has
“You are the only human being who has ever helped me.”

Like “only” and *nur*, “the only” and *die einzige* (or stressed *die eine*) cannot be shown to be downward entailing, but are rather Strawson downward entailing, as (331) shows:

(331) *Kian ist der einzige Verwandte von Susanna, der ihr **jemals** geholfen hat.*
⇒ *Kian ist der einzige Cousin von Susanna, der ihr **jemals** geholfen hat.*

Kian is the only relative of Susanna’s who has **ever** helped her.
⇒ Kian is the only cousin of Susanna’s who has **ever** helped her.

As a classical downward entailment, the conclusions in (331) do not hold. However, if we presuppose that Susanna has a cousin and assert that Kian is the only relative of Susanna’s that has helped her, then we can infer that Kian is the only cousin who has helped her. This inference amounts to Strawson downward entailment. In that regard, English “the only” and German *die einzige* (and *die eine*) are like the exclusive markers “only” and *nur* that have been discussed above.

There were two instances of NPIs in the scope of *die einzige* and *die eine* “the only” in the data set. Both will be discussed in detail in Section 5.4.4.2 on contrastive contexts. The reason for this is that I will argue that “the only” and its German counterparts give rise to negative implicatures that contrast with the assertion that the exclusive marker appears in. Thus, they will be discussed along with other examples from the corpus data that, in my view, give rise to negative implicatures that create a contrastive environment.

5.3.3.4 *Schwer and schwerlich* “difficult”

A relatively frequent licensor type in the data set were the adverbs *schwer* and *schwerlich* “difficult”. To my knowledge, they have not been previously described as NPI licensors in German. However, the English counterpart *difficult* has been noted to be a possible NPI licensor (Kennedy, 2001). Given that, the NPI licensing potential of *schwer* and *schwerlich* is not entirely surprising. As Table 31 shows, there were 47 cases in which *schwer* licensed eight different NPIs, and 12 cases in which *schwerlich* licensed four different NPIs. This pattern was particularly productive for the NPIs *erwehren können* “to be able to avoid sth.” and *zu übersehen sein* “to be conspicuous”.

NPI	<i>schwer</i>	<i>schwerlich</i>	Total
<i>absprechen können</i> “to be able to deprive sb. of sth.”	1	4	5
<i>erwehren können</i> “to be able to avoid sth.”	20	2	22
<i>fassen können</i> “to be able to grasp sth.”	1		1
<i>hinwegtäuschen können</i> “to be able to obscure sth.”		1	1
<i>lassen können von</i> “can help doing”	1		1
<i>sich rütteln lassen</i> “there is (no) doubt about sth.”	1	1	2
<i>umhinkönnen</i> “to do otherwise”	1		1
<i>wahrhaben wollen</i> “to want to acknowledge sth.”	1		1
<i>zu übersehen sein</i> “to be conspicuous”	21	4	25
Total	47	12	59

Table 31: NPIs licensed by *schwer* and *schwerlich* “difficult” in the corpus data

Intuitively, *schwer* and *schwerlich* seem to function like the downward entailing operator *kaum* “hardly”. In the corpus example shown in (332), the NPI *absprechen können* “to be able to deprive sb. of sth.” appears to be licensed by *schwer*. In (333), *schwer* is replaced by *kaum* with hardly any change in meaning. The same can be said for the corpus example in (334): if *schwerlich* is replaced by *kaum*, as in (335), the meaning of the sentence does not change.

- (332) Dass er spektakuläre Erlebnisse möglich macht, **kann**
that he spectacular experiences possible makes can
man Hirst schwer **absprechen**.
one Hirst difficult deny

“One can hardly deny that Hirst makes spectacular experiences possible.”

Corpus ID 1104

- (333) Dass er spektakuläre Erlebnisse möglich macht, **kann**
 that he spectacular experiences possible makes can
 man Hirst kaum **absprechen**.
 one Hirst hardly deny
 “One can hardly deny that Hirst makes spectacular experiences possible.”

- (334) Dass in den Mitgliedsländern die Rolle der
 that in the member.states the role the.GEN
 Kernenergie für die Versorgungssicherheit unterschiedlich
 nuclear.energy for the supply.security different
 eingeschätzt wird, **ist** schwerlich **zu** **übersehen**.
 viewed AUX.PASS is difficult INF.PART overlook
 “It is difficult to overlook the fact that the role of nuclear power for
 guaranteed energy supply is viewed differently in different member states.”
 Corpus ID 1219

- (335) Dass in den Mitgliedsländern die Rolle der
 that in the member.states the role the.GEN
 Kernenergie für die Versorgungssicherheit unterschiedlich
 nuclear.energy for the supply.security different
 eingeschätzt wird, **ist** kaum **zu** **übersehen**.
 viewed AUX.PASS is hardly INF.PART overlook
 “The fact that the role of nuclear power for guaranteed energy supply is
 viewed differently in different member states can hardly be overlooked.”

The interchangeability of *schwer/schwerlich* and the downward entailing operator *kaum* can also be seen in other corpus examples. Swapping *schwer/schwerlich* for *kaum* only produces subtle changes in meaning:

- (336) Man **kann** **sich** nämlich des Eindrucks nur
 one can REFL namely the.GEN impression.GEN only
schwer **erwehren**, dass Möllemanns Kalkül
 difficult avoid that Mölleman’s calculation
 wieder einmal aufgegangen ist.
 again once worked is

“It is difficult to avoid the impression that Möllemann’s calculation has once again worked out.”

Corpus ID 1653

- (337) Man **kann** **sich** nämlich des Eindrucks
one can REFL namely the.GEN impression
kaum **erwehren**, dass Möllemanns Kalkül
hardly avoid that Möllemann’s calculation
wieder einmal aufgegangen ist.
again once worked is
“It is difficult to avoid the impression that Möllemann’s calculation has once again worked out.”

- (338) Dass jedenfalls dem Zuwachs an Größe kein
that anyhow the growth in size no
entsprechender Zuwachs an Stärke gegenübersteht, **ist**
equal growth in strength opposite.stands is
schwerlich **zu** **übersehen**.
difficult INF.PART overlook
“It is hard to overlook that the growth in size doesn’t equal the growth in strength.”

Corpus ID 1218

- (339) Dass jedenfalls dem Zuwachs an Größe kein
that anyhow the growth in size no
entsprechender Zuwachs an Stärke gegenübersteht, **ist**
equal growth in strength opposite.stands is
kaum **zu** **übersehen**.
hardly INF.PART overlook
“It can hardly be overlooked that the growth in size doesn’t equal the growth in strength.”

Downward-entailment tests show that, indeed, *schwer* and *schwerlich* can be viewed as downward entailing operators:

(340) *Es war schwer, in der Küche Tassen zu finden.*

$\llbracket \text{Kaffeetassen} \rrbracket \subseteq \llbracket \text{Tassen} \rrbracket$

→ *Es war schwer, in der Küche Kaffeetassen zu finden.*

It was difficult to find cups in the kitchen.

$\llbracket \text{coffee cups} \rrbracket \subseteq \llbracket \text{cups} \rrbracket$

It was difficult to find coffee cups in the kitchen.

(341) *Jagdhunde sind schwer zu erziehen.*

$\llbracket \text{Dackel} \rrbracket \subseteq \llbracket \text{Jagdhunde} \rrbracket$

→ *Dackel sind schwer zu erziehen.*

Hunting dogs are difficult to train.

$\llbracket \text{dachshounds} \rrbracket \subseteq \llbracket \text{hunting dogs} \rrbracket$

→ Dachshounds are difficult to train.

(342) *Wir können die deutschen Gesetze schwerlich ignorieren.*

$\llbracket \text{deutsches Strafrecht} \rrbracket \subseteq \llbracket \text{deutsche Gesetze} \rrbracket$

→ *Wir können das deutsche Strafrecht schwerlich ignorieren.*

We can hardly ignore German law.

$\llbracket \text{German criminal law} \rrbracket \subseteq \llbracket \text{German law} \rrbracket$

→ We can hardly ignore German criminal law.

Both *schwer* and *schwerlich* “difficult” can clearly be shown not to be antimultiplicative:

(343) $f(X \cap Y) \not\subseteq f(X) \cap f(Y)$ (antimultiplicative)

(344) *Es ist schwer, meinen Kindern Spinat und Kohl zu essen zu geben.*

$\not\Rightarrow$ *Es ist schwer, meinen Kindern Spinat zu essen zu geben oder es ist schwer, meinen Kindern Kohl zu essen zu geben.*

It is hard to feed my children spinach and cabbage. $\not\Rightarrow$ It is hard to feed spinach to my children or it is hard to feed cabbage to my children.

(345) *Das Gericht kann das Strafgesetzbuch schwerlich ignorieren und außer Kraft setzen.*

$\not\Rightarrow$ *Das Gericht kann das Strafgesetzbuch schwerlich ignorieren oder das Gericht kann das Strafgesetzbuch schwerlich außer Kraft setzen.*

The court can hardly ignore and repeal the code of criminal conduct.

$\not\Rightarrow$ The court can hardly ignore the code of criminal conduct or the court can hardly repeal the code of criminal conduct.

Again, it may be tempting to view the anti-additive equations as valid when it comes to *schwer* and *schwerlich* “difficult”. However, I argue that *schwer* and *schwerlich* are, in fact, not anti-additive, as the equation does not hold for the exclusive readings of the disjunction.

$$(346) f(X \cup Y) \Leftrightarrow f(X) \cap f(Y) \quad (\text{anti-additive})$$

- (347) *Es ist schwer, meinen Kindern Spinat oder Kohl zu essen zu geben.*
 $\Leftrightarrow$ *Es ist schwer, meinen Kindern Spinat zu essen zu geben und es ist schwer, meinen Kindern Kohl zu essen zu geben.*

It is hard to feed my children spinach or cabbage. $\Leftrightarrow$ It is hard to feed spinach to my children and it is hard to feed cabbage to my children.

- (348) *Marie kann schwerlich ihre Großtante oder ihre Schwiegermutter von ihrer Hochzeit ausladen.*
 $\Leftrightarrow$ *Marie kann schwerlich ihre Großtante von ihrer Hochzeit ausladen und Marie kann schwerlich ihre Schwiegermutter von ihrer Hochzeit ausladen.*

Marie can hardly uninvite her great-aunt or her mother-in-law from her wedding.
 $\Leftrightarrow$ Marie can hardly uninvite her great-aunt from her wedding and Marie can hardly uninvite her mother-in-law from her wedding.

One might view the anti-additive equation in (347) as valid at first sight: if it is *difficult*($X \cup Y$) (“difficult to feed spinach or cabbage to my children”), then it seems like it is both *difficult*(X) $\cap$ *difficult*(Y) (“difficult to feed spinach to my children” and “it is difficult to feed cabbage to my children”). However, both sentences in (347) are only paraphrases of each other when one views the inclusive reading of the disjunction *or*, i.e., when it is the case that it is difficult to feed the children both spinach and cabbage. In fact, the first sentence in (347) *difficult*($X \cup Y$) can also truthfully be uttered when the disjunction *or* has an exclusive reading, i.e., when it is either true that it is difficult to feed the children spinach or it is true that it is difficult to feed the children cabbage. In that case, the second part *difficult*(X) $\cap$ *difficult*(Y) is clearly not an adequate paraphrase and the two parts of the equation cannot be viewed as equal. The same goes for *schwerlich*: *schwerlich*(X) $\cap$ *schwerlich*(Y) is only a valid paraphrase for *schwerlich*($X \cup Y$) in the inclusive reading of the disjunction. However, the example in (348) also in principle allows for an exclusive interpretation of the disjunction (where only the great-aunt or the mother-in-law is uninvited), and for this reading the conjunction *schwerlich*(X) $\cap$ *schwerlich*(Y) is not a paraphrase. Hence, I argue, the equation in (348) is not valid and *schwerlich* is not an anti-additive operator.

The difference between downward entailing *schwer* and *schwerlich* “difficult” and anti-additive operators also becomes clear when one compares the operators in the anti-additive equations directly: the anti-additive operator *niemand* “nobody”, for example, does not leave room for doubt about an inclusive or exclusive interpretation of the disjunction. The example in (349) unequivocally means that both spinach and cabbage have not been eaten. The disjunction *nobody*($X \cup Y$) does not leave room for the exclusive interpretation of *or*.

(349) Niemand hat Spinat oder Kohl gegessen.

⇔ Niemand hat Spinat gegessen und niemand hat Kohl gegessen.

Nobody ate spinach or cabbage.

⇔ Nobody ate spinach and nobody ate cabbage.

In sum, I argue for the classification of *schwer* and *schwerlich* “difficult” as downward entailing, but not anti-additive operators. The reasons for this classification are mainly that downward-entailment tests for both *schwer* and *schwerlich* hold consistently, while the anti-additive tests fail to hold, in my opinion, for the reasons given above (availability of the inclusive vs. exclusive reading of the disjunction). The relative interchangeability of *schwer(lich)* with *kaum* (see (332)-(339)) furthermore suggests a relative similarity of the two licenser types that could support the idea that they belong in the same class of downward entailing licensors (as opposed to one being anti-additive and one being merely downward entailing).

5.3.3.5 Ungern “reluctantly”

The adverb *ungern* “reluctantly” has, to my knowledge, not previously been described as an NPI licenser for German. However, its licensing capacities are not surprising, since it contains the negative prefix *un-* (akin to the English negative prefix “un-”) and thus is quite literally negative.³³ *Ungern* appeared only eight times in the data set as a licenser, licensing the NPIs *sich (d)reinreden lassen* “to be swayed” (N=6) and *wahrhaben wollen* “to want to acknowledge sth.” (N=2). *Ungern* can be shown to be downward entailing (see (350)), but is neither anti-additive³⁴ nor antimultiplicative (see (352) and (353)) and thus not antimorphic:

(350) *Mika möchte ungern Fleisch essen.*

[[Steak]] $\subseteq$ [[Fleisch]]

Mika möchte ungern Steak essen.

Mika is reluctant to eat meat.

[[steak]] $\subseteq$ [[meat]]

→Mika is reluctant to eat steak.

(351) $f(X \cup Y) \Leftrightarrow f(X) \cap f(Y)$ (anti-additive)
 $f(X \cap Y) \Leftrightarrow f(X) \cup f(Y)$ (antimultiplicative)

(352) *Mika isst ungern Fisch oder Fleisch.*

$\Leftrightarrow$ *Mika isst ungern Fisch und Mika isst ungern Fleisch.*

Mika is reluctant to eat fish or meat.

$\Leftrightarrow$ Mika is reluctant to eat fish and Mika is reluctant to eat meat.

(353) *Mika isst ungern Fisch und Fleisch.*

$\Leftrightarrow$ *Mika isst ungern Fisch oder Mika isst ungern Fleisch.*

Mika is reluctant to eat fish and meat.

$\Leftrightarrow$ Mika is reluctant to eat fish or Mika is reluctant to eat meat.

³³ The German adverb *gerne* is best translated as “with pleasure”, so *ungern* can be translated as “with no pleasure” or “reluctantly”.

³⁴ Again, it may be tempting to view the anti-additive equation in (352) as valid. As I have argued for similar cases with *kaum* “hardly” and *schwer* “difficult”, this is a fallacy in my opinion. The conjunction *ungern(X) $\cap$ ungern(Y)* is only a paraphrase for *ungern(X $\cup$ Y)* if the disjunction receives an inclusive interpretation. The sentence *Mika isst ungern Fisch oder Fleisch*, however, also leaves room for the exclusive interpretation of the disjunction, in which case the conjunction *ungern(X) $\cap$ ungern(Y)* is not a valid paraphrase for *ungern(X $\cup$ Y)*. *Ungern* therefore must not be classified as anti-additive.

Examples from the corpus data for *ungern* licensing both *sich (d)reinreden lassen* and *wahrhaben wollen* are given below respectively:

- (354) Während andere Konzernchefs sich dem Shareholder
 while other CEOs REFL the shareholder
 value verschreiben, **läßt** Branson **sich** ungern
 value commit lets Branson REFL reluctant
 von Aktionären **reinreden**.
 by shareholders talk.into
 “While other CEOs are committed to shareholder value, Branson is reluctant
 to be swayed by shareholders.”

Corpus ID 988

- (355) Selbst aufgeklärte Hörer **wollen** es ungern **wahrhaben**,
 even enlightened listeners want it reluctant acknowledge
 dass Countrymusic etwas anderes sein kann
 that country.music something different be can
 als manche Fransenjacke verheißen will.
 than some fringe.jacket promise wants
 “Even enlightened listeners don’t want to acknowledge that country music
 can be something other than some fringe jacket wants to promise.”

Corpus ID 2143

5.3.3.6 Antecedents of conditional clauses

There were overall seven instances of six different NPIs in the antecedent of a conditional in the corpus study, see Table 32 below:

NPI	N
<i>absprechen können</i> “to “be able to deprive sb. of sth.”	1
<i>anhaben können</i> “to be able to harm”	1
<i>erwehren können</i> “to be able to avoid sth.”	1
<i>hinwegtäuschen können</i> “to be able to obscure sth.”	1
<i>mit ansehen können</i> “to be able to bear sth.”	1
<i>sich scheren um</i> “to care about sth./sb.”	2
Total	7

Table 32: NPIs in the antecedent of conditionals in the corpus data

Some examples of verbal NPIs in the antecedent of conditionals found in the corpus study are given below:

- (356) Die tanzt, die schwof, die singt, die plappert,
she dances she bops she sings she chatters
und wenn Bier ihr was **anhaben könnte**, müßte
and if beer her something harm could must
sie längst umgefallen sein.
she long fallen.down be
“She dances, she bops, she sings, she chatters, and if beer could do her any harm, she should have fallen over a long time ago.”
Corpus ID 1272

- (357) Da muß man sich dann auch fragen,
there must one REFL then also ask
wie interessant so jemand für einen selbst
how interesting so someone for one self
ist, der einen primär nach Followerzahlen beurteilt.
is REL a primarily by follower.count judges
Da ist man dann auch selbst schuld,
there is one then also self guilty
wenn man **sich um** solches Mengendenken **schert**.
if one REFL about such mass.thinking cares

“Then you have to ask yourself how interesting someone like that, who judges you primarily by follower count, is to yourself. Then it’s your own fault if you care about such number-focused thinking.”

Corpus ID 208

- (358) Dies gelingt freilich nur, wenn man **sich** der
 this works PART only if one REFL the.GEN
 Spukgestalten [...] **erwehren** **kann**.
 ghost.figures fight.off can

“This of course only works if one can fight off the ghostly figures.”

Corpus ID 1658

Antecedents of conditional clauses are another well-known NPI licensing environment whose DE-status has been debated. There are examples of antecedents of conditionals which seem to be straightforward in their property of downward entailment, like (359) taken from Linebarger (1987: 360):

- (359) If you bring a green vegetable, you will get in free.
 → If you bring kale, you will get in free. (Linebarger 1987: 360)

Such examples can also be constructed for German:

- (360) *Wenn der Gemüsehändler verschimmeltes Gemüse verkauft, bekommt er Probleme mit dem Ordnungsamt.*
 → *Wenn der Gemüsehändler verschimmelte Tomaten verkauft, bekommt er Probleme mit dem Ordnungsamt.*

If the vegetable vendor sells mouldy vegetables he will get in trouble with the local authorities.

→ If the vegetable vendor sells mouldy tomatoes he will get in trouble with the local authorities.

However, there are also examples where downward entailed inferences do not seem to be quite as clear, like in (361):

- (361) *Wenn du eine Tierhaarallergie hast, solltest du vor dem Besuch bei deiner Oma Allergietabletten nehmen.*
 ? → *Wenn du eine Katzenhaarallergie hast, solltest du vor dem Besuch bei deiner Oma Allergietabletten nehmen.*

If you have an allergy to animal hair, you should take allergy tablets before visiting your grandma.

? → If you have an allergy to cat hair, you should take allergy tablets before visiting your grandma.

Von Fintel (1999) argues for a downward monotonic analysis of the antecedents of conditionals, proposing that they are Strawson downward entailing. The example given above seems like a clear case for Strawson DE: if the presupposition of the conclusion, namely that the addressee does indeed have a cat hair allergy, is satisfied, the downward entailment in (361) should hold.

Antecedents of conditionals have been argued not to be downward entailing on the grounds of strengthening of the antecedent like in (362), taken from von Fintel (1999):

(362) If I strike this match, it will light.

⇒ If I dip this match into water and strike it, it will light.

(von Fintel 1999: 136)

Von Fintel (1999: 142 ff.) argues that examples such as (362) involve a “context shift”, and attributes the failure of the inference to incompatible modal horizons of the propositions *p* (*dip the match into water*) and *r* (*strike the match*) expressed in the strengthened antecedent, leading to a presupposition failure. According to von Fintel (1999: 142), if “the modal horizon is wide enough to be compatible with both *p* and *p* & *r*, the inference from *if p, would q* to *if p & r, would q* will be valid.” This is plausible purely from a world-knowledge standpoint: we know that the added condition *r* in (362), dipping a match in water, makes the proposition *q* in the consequent, namely lighting the match, impossible. The failure of strengthening the antecedent can thus be attributed to the pragmatic realm of world knowledge and a downward monotonic analysis of the antecedent of conditionals can be maintained.³⁵ Van der Wouden (1994: 80 f.) makes a similar point, arguing for an “inner-system monotonicity” of antecedents of conditionals, a term coined by Kas (1993). Van der Wouden (1994: 81) argues that “if one remains within the system, so to speak, and keeps the linguistic material constant”, in other words, compatible with world knowledge, a “system-internal” downward monotonicity can be maintained. There is an ongoing discussion on the (non-)monotonicity of the antecedents of conditionals, see e.g. von Fintel (1999) and Lassiter (2013), who argues against a DE analysis. I am not going to elaborate

³⁵ Von Fintel (1999: 145) acknowledges “that the algebraic condition on NPI licensing can only be a necessary condition” for NPI licensing. There must be additional (pragmatic) constraints on the appearance of NPIs in the antecedents of conditionals. For example, Lakoff (1970) observes that NPIs can appear in the antecedents of conditionals that are used as threats but appear to be less acceptable in conditionals used as promises.

further on this debate, as the focus of the present thesis is on the behaviour of NPIs rather than the monotonicity of conditionals. In addition, the presence of NPIs in the antecedent of conditionals may also be explained by Giannakidou's (1998) theory of nonveridicality as the necessary, albeit not yet sufficient underlying condition for NPI licensing. Thus, with regards to their licensing behaviour it is possible to remain agnostic with regards to whether conditionals are always (Strawson) downward entailing.

5.3.3.7 The structure “too ADJECTIVE to”

A peculiar structure that does not seem to be widely known as a typical NPI licenser, but is in fact downward entailing, is the structure “too ADJECTIVE to”. It appeared overall four times in the corpus, see Table 33 below:

NPI	N
<i>sich beirren lassen</i> “to let oneself be misled”	1
<i>sich scheren um</i> “to care about sth./sb.”	2
<i>sich unterkriegen lassen</i> “to keep one’s chin up” (with negation)	1
Total	4

Table 33: NPIs licensed in the scope of “zu ADJEKTIV um” “too ADJECTIVE to” in the corpus data

All corpus examples with the structure “too ADJECTIVE to” are given below:

- (363) Stölzl war viel zu schlau, um **sich** um
 Stölzl was much too clever to REFL about
 irgendwelche Absichten des ihn materiell großzügig
 some intentions the.GEN him materially generous
 fördernden Kanzlers Kohl **zu** **scheren** .
 supporting chancellor Kohl INF.PART care
 “Stölzl was far too clever to care about any intentions of Chancellor Kohl, who supported him generously.”

Corpus ID 18

- (364) Zu schön, um wahr zu sein.
 too beautiful to true INF.PART be
Zu deep, um **sich** **um** Genregrenzen zu **scheren**.
 too deep to REFL about genre.borders INF.PART care
 Zu gefühlvoll, um nicht heimlich ein Tränchen
 too emotional to not secretly a little.tear
 dabei zu vergießen.
 with.that INF.PART shed
 “Too beautiful to be true. Too deep to care about genre confinements. Too emotional no not secretly shed a tear.”

Corpus ID 174

- (365) Es ist kaum glaublich, da dieser viel
 it is hardly believable because he much
zu klug ist, um **sich** durch derartige
 too clever is to REFL by such
 Kleinigkeiten in dem einmal gewählten Gange **beirren**
 small.things in the once chosen path irritate
 zu **lassen**.
 INF.PART let
 “It is hardly believable because he is far too clever to let himself be swayed by
 small things from taking the once chosen path.”
- Corpus ID 849

- (366) Läufer sind zu zäh, um **sich** von Feigheit
 runners are too tough to REFL by cowardice
unterkriegen zu **lassen**.
 take.down INF.PART let
 “Runners are too tough to be taken down by cowardice.”
- Corpus ID 976

Linebarger (1987: 359) observes that *too* is a non-negative licenser which is downward entailing, citing the example in (367). Similarly, downward monotonicity can be shown for German, see (368):

- (367) Bill is too tired to walk. → Bill is too tired to walk slowly.
 (Linebarger 1987: 359)

- (368) *Meine Kinder sind zu mäklig, um Gemüse zu essen.*
 → *Meine Kinder sind zu mäklig, um Grünkohl zu essen.*

My children are too picky to eat vegetables.
 → My children are too picky to eat kale.

Tests for anti-additivity³⁶ and antimultiplicativity, however, do not hold:

- (369) $f(X \cup Y) \Leftrightarrow f(X) \cap f(Y)$ (anti-additive)
 $f(X \cap Y) \Leftrightarrow f(X) \cup f(Y)$ (antimultiplicative)

- (370) *Merles Kinder sind zu mäklik, um Spinat oder Kohl zu essen.*
 $\Leftrightarrow$ *Merles Kinder sind zu mäklik, um Spinat zu essen, und Merles Kinder sind zu mäklik, um Kohl zu essen.*

Merle's kids are too picky to eat spinach or cabbage.

$\Leftrightarrow$ Merle's kids are too picky to eat spinach and Merle's kids are too picky to eat cabbage.

- (371) *Merles Kinder sind zu mäklik, um Spinat und Kohl zu essen.*
 $\Leftrightarrow$ *Merles Kinder sind zu mäklik, um Spinat zu essen, oder Merles Kinder sind zu mäklik, um Kohl zu essen.*

Merle's kids are too picky to eat spinach and cabbage.

$\Leftrightarrow$ Merle's kids are too picky to eat spinach or Merle's kids are too picky to eat cabbage.

I argue that rather than just *too*, the whole structure “too ADJECTIVE to VP” is downward monotonic: if the “VP to”-part is left out, no downward monotonic inferences can be made:

- (372) Bill is too tired.

This argument is supported by data presented by Danescu-Niculescu-Mizil et al. (2009), who used an algorithm to identify downward entailing environments and also claim the structure “too ADJECTIVE to” rather than simply *too* to be downward entailing. Downward monotonicity can also be shown using the corpus data, e.g. the example in (363), repeated and shortened below:

- (373) *Stölzl war viel zu schlau, um **sich um** irgendwelche Absichten des [...] Kanzlers Kohl zu **scheren**.*
 $\llbracket \text{schlechte Absichten} \rrbracket \subseteq \llbracket \text{Absichten} \rrbracket$
 $\rightarrow$ *Stölzl war viel zu schlau, um **sich um** irgendwelche schlechten Absichten des [...] Kanzlers Kohl zu **scheren**.*

Stölzl was far too clever to care about any intentions of Chancellor Kohl.

$\llbracket \text{bad intentions} \rrbracket \subseteq \llbracket \text{intentions} \rrbracket$

³⁶ Again, it may be tempting to view the anti-additive equation in (370) as valid. However, I believe, that we run into the same problem as with the other downward entailing licensors discussed previously: *too picky(X) \cap too picky(Y)* is only a valid paraphrase for *too picky(X \cup Y)* if the disjunction receives an inclusive interpretation. Since it also allows for an exclusive interpretation, however, the two are not valid paraphrases of each other.

→ Stölzl was far too clever to care about any bad intentions of Chancellor Kohl. The case of “too ADJECTIVE to” is an interesting one, as it does not look negative at all at first sight. The individual parts of the structure are not negative either, which goes to show that not only individual operators, but also compositional meanings can introduce downward monotonicity to a sentence. Pragmatically, “too ADJECTIVE to” sentences even seem to be more negative than sentences with “regular” DE operators like *hardly*: if you compare the meaning of (374) and (375), it becomes clear that in (374) Sam did make some small amount of contribution, while in (375) he made none.

(374) Sam hardly made **any** contribution to the party preparations.

(375) Sam was too lazy to make **any** contribution to the party preparations.

Hence, regular DE operators like *hardly* heavily restrict the quantificational domain, while the structure “too ADJECTIVE to” translates to an actual negation of the proposition in its scope. Linebarger’s (1987) analysis of *too* ADJECTIVE *to* is that this structure gives rise to a negative implicature³⁷, which seems intuitive: *Paul was too tired to walk* intuitively implicates that Paul did not walk in a given situation.

³⁷ Giannakidou (1998: 151) makes similar observations for Greek.

5.3.3.8 *Selten* “rarely”

Another classic downward entailing operator is *selten* “rarely”, which like *kaum* “hardly” restricts the quantificational domain, in the case of *selten* on a temporal level. The downward entailingness of *selten* is demonstrated in (376):

- (376) *Mia isst selten Gemüse.* → *Mia isst selten Grünkohl.*
 Mia rarely eats vegetables. → Mia rarely eats kale.

The fact that *selten* “rarely” is neither anti-additive³⁸ nor antimultiplicative and thus not antimorphic is demonstrated below:

- (377) $f(X \cup Y) \Leftrightarrow f(X) \cap f(Y)$ (anti-additive)
 $f(X \cap Y) \Leftrightarrow f(X) \cup f(Y)$ (antimultiplicative)

- (378) *Zita geht selten ins Kino oder ins Theater.*
 $\Leftrightarrow$ *Zita geht selten ins Kino und Zita geht selten ins Theater.*

Zita rarely goes to the cinema or the theatre.
 $\Leftrightarrow$ Zita rarely goes to the cinema and Zita rarely goes to the theatre.

- (379) *Zita geht selten ins Kino und ins Theater.*
 $\Leftrightarrow$ *Zita geht selten ins Kino oder Zita geht selten ins Theater.*

Zita rarely goes to the cinema and the theatre.
 $\Leftrightarrow$ Zita rarely goes to the cinema or Zita rarely goes to the theatre.

Selten occurred overall three times as a licenser in the data set. All instances are given below:

- (380) Zum andern **schert** Wowereit sich selten **um**
 to.the other cares Wowereit REFL rarely about
 die Befindlichkeiten anderer und um Sprachregelungen.
 the mental.state others.GEN and about language.regimes
 “On the other hand, Wowereit rarely cares about the mental state of others and language regimes.”

Corpus ID 29

³⁸ Again, $\text{rarely}(X) \cap \text{rarely}(Y)$ is only a valid paraphrase for $\text{rarely}(X \cup Y)$ if the disjunction receives an inclusive interpretation. Since it also allows for an exclusive interpretation, however, the two are not valid paraphrases of each other, and *selten* “rarely” should not be classified as anti-additive.

(381) Die Niedrigen, die Verfeimten, zu denen auch
 the low the banned to REL also
 die Krüppel gehören, **können** sich nur selten
 the cripples belong can REFL only rarely
 des schadenfrohen Triumphes **erwehren**, wenn ein
 the.GEN gloating triumph.GEN fight.off when a
 Wohlgeborener, und sei es auch ihr Freund,
 well-born and be it also their friend
 zu ihnen hinabgestoßen wird.
 to them pushed.down AUX.PASS

“The low [people], the banned, to which cripples belong to as well, can rarely resist the gloating triumph when a well-born [high status member of society] gets pushed down to them.”

Corpus ID 1516

(382) Viel Obst und Gemüse, wenig Getreideprodukte, Reis,
 much fruit and vegetables few cereals rice
 Kartoffeln, Nudeln – er versucht zu vermitteln,
 potatoes pasta he tries INF.PART communicate
 was jeder weiß, aber selten **wahrhaben will**.
 what everybody knows but rarely acknowledge wants

Lots of fruit and vegetables, few cereals, rice, potatoes, pasta – he tries to communicate what everybody knows, but hardly wants to acknowledge.

Corpus ID 2313

5.3.3.9 Negative verbs and nouns: *bezweifeln* “doubt” and *Weigerung* “refusal”

There were overall three cases in the data set in which a negative verb or noun licensed an NPI: two cases of licensing by *bezweifeln* “doubt” and one by *Weigerung* “refusal”:

- (383) Er bezweifelt, daß **sich** „die stolzen Sparkassenleiter
 he doubts that REFL the proud bosses.of.Sparkasse
 von oben etwas **befehlen“ lassen.**
 by upstairs something order let
 “He doubts that ‘the proud bank bosses of the Sparkasse are going to be told what to do by the upper level.’”

Corpus ID 1036

- (384) Ich bezweifle, daß dieser wechselhafte Winter den
 I doubt that this changable winter the
 Gartenschädlingen etwas anhaben konnte.
 garden.pests something harm could
 “I doubt that this changeable winter could harm the pests in the garden.”

Corpus ID 1341

- (385) Beide sind durch ihre unglaubliche Stärke und
 both are by their incredible strength and
 die immer neue Weigerung, **sich unterkriegen**
 the always new refusal REFL get.down
 zu **lassen**, zu einem symbolischen Paar geworden.
 INF.PART let to a symbolic couple become
 “Through their incredible strength and the continuous refusal to let things get them down, both have become a symbolic couple.”

Corpus ID 978

Linebarger (1987) discusses the negative verb *doubt* along with other so-called adversative predicates which can host NPIs, such as *be surprised*, *refuse*, and *be glad*. Linebarger (1987: 362) claims that these adversative predicates are not downward entailing and explains their ability to license NPIs via negative implicatures (see Section 2.4 on pragmatic approaches to NPI licensing). Linebarger (1987: 362 ff.) discusses the case of *surprise* and its lack of downward entailingness but does not prove this claim for

doubt. I argue that *doubt*, being regularly called a “negative verb”, is different from other adversative predicates like *to be surprised*, *amazed*, etc., in that *doubt* is actually negative and can be shown to be downward entailing. The same goes for *refuse*:

(386) *Lucy bezweifelt, dass Patrick Gemüse zum Abendessen essen wird.*

$\llbracket \text{Karotten} \rrbracket \subseteq \llbracket \text{Gemüse} \rrbracket$

→ *Lucy bezweifelt, dass Patrick Karotten zum Abendessen essen wird.*

Lucy doubts that Patrick will eat vegetables for dinner.

$\llbracket \text{carrots} \rrbracket \subseteq \llbracket \text{vegetables} \rrbracket$

→ Lucy doubts that Patrick will eat carrots for dinner.

(387) *Patrick weigerte sich, Gemüse zum Abendessen zu essen.*

→ *Patrick weigerte sich, Karotten zum Abendessen zu essen.*

Patrick refused to eat vegetables for dinner.

→ Patrick refused to eat carrots for dinner.

While downward entailing, I argue that *bezweifeln* “doubt” and *weigern* “refuse” are neither anti-additive nor antimultiplicative (and thus not antimorphic), as shown below:

(388) $f(X \cup Y) \Leftrightarrow f(X) \cap f(Y)$ (anti-additive)
 $f(X \cap Y) \Leftrightarrow f(X) \cup f(Y)$ (antimultiplicative)

(389) *Lucy bezweifelt, dass Patrick Karotten oder Erbsen mag.*

$\Leftrightarrow$ *Lucy bezweifelt, dass Patrick Karotten mag, und Lucy bezweifelt, dass Patrick Erbsen mag.*

Lucy doubts that Patrick likes carrots or peas.

$\Leftrightarrow$ Lucy doubts that Patrick likes carrots and Lucy doubts that Patrick likes peas.

(390) *Lucy bezweifelt, dass Patrick Karotten und Erbsen mag.*

$\Leftrightarrow$ *Lucy bezweifelt, dass Patrick Karotten mag, oder Lucy bezweifelt, dass Patrick Erbsen mag.*

Lucy doubts that Patrick likes carrots and peas.

$\Leftrightarrow$ Lucy doubts that Patrick likes carrots or Lucy doubts that Patrick likes peas.

(391) *Patrick weigert sich, Karotten oder Erbsen zu essen.*

$\Leftrightarrow$ *Patrick weigert sich, Karotten zu essen, und Patrick weigert sich, Erbsen zu essen.*

Patrick refuses to eat carrots or peas.

$\Leftrightarrow$ Patrick refuses to eat carrots and Patrick refuses to eat peas.

(392) *Patrick weigert sich, Karotten und Erbsen zu essen.*

⇔ Patrick weigert sich, Karotten zu essen, oder Patrick weigert sich, Erbsen zu essen.

Patrick refuses to eat carrots and peas.

⇔ Patrick refuses to eat carrots or Patrick refuses to eat peas.

Again, it may be tempting to view the anti-additive equations in (389) and (391) as valid. Like I have argued with other downward entailing operators previously, this is a fallacy due to the inclusive interpretation of *oder* “or”. While it may be very plausible to interpret $doubt(X \cup Y)$ as inclusive, it also, in principle, allows for an exclusive reading of the disjunction (e.g. in a scenario where Lucy actually only has doubts about Patrick’s liking of carrots, but not peas, but the speaker is not sure whether it was carrots or peas and utters (389)). However, $doubt(X) \cap doubt(Y)$ is only a valid paraphrase for the inclusive reading of the disjunction, but not the exclusive. The anti-additive equation thus does not hold for *bezweifeln* “doubt”. The same goes for *weigern* “refuse”: $refuse(X) \cap refuse(Y)$ is only a valid paraphrase for $refuse(X \cup Y)$ in the inclusive, but not the exclusive interpretation. Both *bezweifeln* “doubt” and *weigern* “refuse” should thus not be classified as anti-additive licensors.

To conclude, *bewweifeln* “doubt” and *sich weigern* “refuse” (and by extension the negative deverbal noun *Weigerung* “refusal”) are downward entailing. Hence, they should be classified as negative NPI licensors and be kept apart theoretically from non-negative adversative predicates like *to be surprised* or *to be glad* which license NPIs via negative implicatures.

5.3.4 Questions

Overall, 218 questions are included in the final corpus data set, with the vast majority of them (85,32 %, N= 186) being rhetorical and the minority (14,68 %, N 32) being neutral, information-seeking questions. In addition to neutral vs. rhetorical questions, the questions were annotated with regards to whether they were polar questions or *wh*-questions and whether they were embedded or not. In addition, two neutral questions that occurred in free indirect discourse (FID) in literary sources were annotated separately due to their pragmatically different flavour to regular neutral questions. An overview of NPIs in questions in the data set is given in Table 34 and Table 35.

Great care was taken to determine whether questions were likely rhetorical or not. Questions where the answer was not clear from the context and where the speaker asking the question genuinely seemed to want to know the answer and was expecting an answer were classed as neutral, information-seeking questions. A good indication of a neutral question was also when the answer was actually given in the corpus data, like for example in (393) from the subtitles corpus “DWDS Filmuntertitel”:

- (393) A: Glaubst du wirklich, Beatrice **schert sich um**
believe you really Beatrice cares REFL about
diesen Rosthaufen?
this rust.pile
B: Das hat sie gesagt.
that has she said
A: “Do you really think that Beatrice cares about this pile of rust?”
B: “She said so.”

Corpus ID 250

Conversely, questions where the answer was clear from the context and the speaker did not seem to expect an answer, but rather want to induce the rhetorical effect of reversing the polarity of the prejacent of the question were classified as rhetorical. An example of such a rhetorical question is given in (394):

- (394) Kurz: Er konzentriert sich auf die Risiken,
short he concentrates REFL on the risks
ignoriert jedoch die Chancen. Aber **kann** man
ignores but the chances but can one

den Deutschen ihre Skepsis **verdenken**? Sollte die
 the.DAT Germans their scepticism blame should the
 Digitalisierung das Leben nicht einfacher machen?
 digitalisation the life NEG easier make

“In short: He concentrates on the risks, but ignores the chances. But can one really blame the Germans for their scepticism? Isn’t digitalisation supposed to make life easier?”

Corpus ID 1914

The question in (394) was classed as rhetorical because there seemed to be no obvious expectation of an answer on part of the author of the question. This impression was enhanced by the fact that the first question, which includes the NPI *verdenken können* “to be able to blame”, is followed by a second question, which in turn is a biased question that contains a non-propositional negation. The NPI-containing question thus has the rhetorical effect of reversing the polarity of its prejacent *p*, namely that “one can blame the Germans for their scepticism”: instead of asking *whether p*, the question seems to indicate that the speaker thinks that $\neg p$, that “one **cannot** blame the Germans for their scepticism”.

Whenever it was unclear whether a question was intended to be neutral or rhetorical, I manually extracted more context from the corpus until I could determine whether a question was rhetorical or neutral. For cases that were doubtful, the rhetoricity of questions was also agreed on between my supervisor Sophie Repp and me. As Table 34 and Table 35 show, 23 of the 31 NPIs included in the corpus study appeared in questions in the data set. By definition, this means that these NPIs can be classified as superweak (note, however, that this does not mean that the remaining eight NPIs in the corpus study cannot appear in questions in principle just because there were no instances of them in questions in the data set). The data shows that NPIs do not necessarily make a question rhetorical, and that NPIs can also appear in neutral questions. However, the data does seem to suggest a strong association between rhetoricity and NPIs in questions, given that 85 % of the questions included in the data set were judged to be rhetorical. This finding is a stark contrast to the findings of Experiment 2. However, there are caveats to this: firstly, the nature of the data (corpus data of written language mainly from newspapers vs. experimental data) may be partly responsible for the differences between the experiment and the corpus study. The

written genres that the corpus data was extracted from may lend themselves to a higher rate of rhetorical questions than, e.g., a conversational scenario would. And secondly, due to the nature of the data (i.e., the difficulty to collect enough data of NPIs not licensed by the standard licenser *nicht* “not”, the overall differences in frequency between different NPIs), reliable statistical claims regarding the distribution of rhetorical vs. neutral questions cannot be made here.

NPI	Q polar neutral	Q polar neutral embedded	Q polar neutral (free indirect discourse)	Q <i>wh</i> - neutral	Q <i>wh</i> - neutral embedded	Total
<i>absprechen können</i> “to be able to deprive sb. of sth.”	1					1
<i>anhaben können</i> “to be able to harm”	1		1			2
<i>dafürkönnen</i> “to be one’s fault”	1					1
<i>enden wollen</i> “sth. will have an end”				1	1	2
<i>erwehren können</i> “to be able to avoid sth.”	1			2	5	8
<i>hinwegtäuschen können</i> “to be able to obscure sth.”	1					1
<i>missen wollen</i> “to want to miss”		1				1
<i>nicht mehr / noch hören können</i> “to be able to hear any longer”	6					6
<i>sich lumpen lassen</i> “to splash out”			1			1
<i>sich rütteln lassen</i> “there is (no) doubt about sth.”	1					1
<i>sich scheren um</i> “to care about sth./sb.”	3			1		4
<i>wahrhaben wollen</i> “to want to acknowledge sth.”					1	1
<i>zu besagen haben</i> “to mean sth.”				2	1	3
Total	15	1	2	6	8	32

Table 34: NPIs in neutral (information-seeking) questions in the corpus data

NPI	Q polar rhetorical	Q <i>wh</i> - rhetorical	Q <i>wh</i> - rhetorical embedded	Total
<i>Abbruch tun</i> “to spoil sth.”	2			2
<i>absprechen können</i> “to be able to deprive sb. of sth.”	1	1		2
<i>anhaben können</i> “to be able to harm”		7		7
<i>dafürkönnen</i> “to be one’s fault”	1	10		11
<i>enden wollen</i> “sth. will have an end”	3	1		4
<i>erwehren können</i> “to be able to avoid sth.”		2		2
<i>es sich nehmen lassen</i> “to insist on” (with negation)		1		1
<i>fassen können</i> “to be able to grasp sth.”	3			3
<i>hinwegtäuschen können</i> “to be able to obscure sth.”	1			1
<i>missen wollen</i> “to want to miss”		8		8
<i>mit ansehen können</i> “to be able to bear sth.”	1	3	1	5
<i>nicht mehr / noch hören können</i> “to be able to hear any longer”	1	4		5
<i>sich (d)reinreden lassen</i> “to be swayed”		1		1
<i>sich (etwas) befehlen zu lassen</i> “to be bossed around”	2	1		3
<i>sich lumpen lassen</i> “to splash out”		2		2
<i>sich scheren um</i> “to care about sth./sb.”	5	14	1	20
<i>sich unterkriegen lassen</i> “to keep one’s chin up” (with negation)		1		1
<i>verdenken können</i> “to hold sth. against sb.”	23	67		90
<i>verwundern können</i> “to be able to amaze sb.”	12	2		14
<i>wahrhaben wollen</i> “to want to acknowledge sth.”	1	3		4
Total	56	127	2	186

Table 35: NPIs in rhetorical questions in the corpus data

5.3.4.1 Neutral questions

In total, there were 32 neutral questions in the data set. There were no declarative questions in the data set.³⁹ Notably, the neutral questions largely seem to appear in printed versions of conversations such as in interviews and in conversations in literature or films (from the subtitles corpus “Filmuntertitel” in the DWDS). An interview setting is a good indicator that a question is not rhetorical. There may be an underlying bias in the question, but the interviewer clearly expects an answer, so interview questions must be information-seeking to a large extent. Examples of (polar) interview questions are given below:

- (395) [interviewer]: Wieder Karwoche. Wieder überall die
 again goodfriday.week again everywhere the
 Matthäus-Passion von Johann Sebastian Bach.
 Matthew.passion by Johann Sebastian Bach.
Können Sie die eigentlich **noch** **hören**?
 can you that PART still hear

Norbert Hoppermann [interviewee]:

Sehr gut sogar. Vielleicht auch deshalb,
 very good even maybe also because
 weil ich sie noch nie dirigiert habe.
 because I it still never conducted have

[interviewer]:

“Good-Friday week again. The Saint Matthew Passion by Johann Sebastian Bach everywhere again. Can you actually still [bear to] listen to it?”

Norbert Hoppermann [interviewee]:

“Very well actually. Maybe because I have never conducted it.”

Corpus ID 561

- (396) [interviewer]: **Können** Sie die Frage nach Ihrer
 can you the question about your
 Lieblings-Adelsanekdote **noch** **hören**?
 favourite.royal.anecdote still hear

[interviewee]: Hören ja, erzählen nein. Ersparen Sie

³⁹ This is not a surprising finding since usually declarative questions do not host NPIs (see Sailer, 2022).

hear yes tell no spare you
 sich und mir die „lustigen“ Geschichten.
 REFL and me the funny stories

[interviewer]: “Can you still bear to hear the question of what your favourite royal anecdote is?”

[interviewee]: “Hear it yes, tell it no. Spare yourself and me the “funny” stories.”

Corpus ID 555

(397) [interviewer]: Herr Kosslick, jeder will von Ihnen
 Mr. Kosslick everybody wants from you
 wissen, welche Stars zur Berlinale
 know which stars to.the Berlinale
 kommen? **Können** Sie das überhaupt
 come can you that even
noch hören?
 still hear

[interviewee]: Nein!

no

[interviewer]: “Mr. Kosslick, everybody wants to know from you which stars are coming to the Berlinale? Can you still bear to hear it?”

[interviewee]: “No!”

Corpus ID 542

The examples above with the NPI *noch hören können* “to be able to hear any longer” show that in these interview situations the questions get taken as information-seeking questions albeit perhaps being biased, as the interviewees do give (different) answers to them. Neutral questions containing NPIs can also be found in the literary genre. An example of this is given below, where the NPI appears at first in a negative assertion and then in a polar embedded question, and the speaker clearly wants an answer:

(398) Völlig absurd. „Entschuldige, Alter, aber ich **kann**
 completely absurd sorry buddy but I can
 doch nichts **dafür!**“ Mit einer Hand schraubte
 PART nothing for.that with one hand screwed
 er die Flasche auf und hob sie hoch.

he he bottle open and lifted it up
 „Oder findest du, daß ich **was** **dafür** **kann?**“
 or find you that I something for.that can
 Completely absurd. “Sorry mate, but it’s not my fault!” He unscrewed the
 bottle with one hand and lifted it up. “Or do you think it is my fault?”
 Corpus ID 697

Neutral questions are not, however, limited to written versions of conversations. The text below is a monologic discussion of the question when a perpetrator can be held accountable for their crimes. The polar question in the text is clearly not rhetorical, as both possible answers are discussed.

(399) [context:] Auch ein Massenmörder wie Breivik kann unschuldig sein, wenn er unfähig war, das Unrecht seiner Tat einzusehen oder nach dieser Einsicht zu handeln. Die Frage lautet also:

Kann man einem Täter, der zu akribischer
 can one a.DAT perpetrator rel to meticulous
 Planung fähig war, der seine menschenverachtende
 planning able was REL his inhuman
 Weltsicht auf mehr als 1.500 Seiten
 world.view on more than 1500 pages
 ausgebreitet hat, diese Einsichtsfähigkeit **absprechen?**
 spread has this insight.ability deny

[context:] In Norwegen wie auch in Deutschland, ist entscheidend, ob der Täter zum Zeitpunkt der Tat schuldfähig war.

“Even a mass murderer like Breivik can be innocent, if he was unable to have an insight into the injustice of his crime, or to act accordingly to that insight. So, the question is:

Can one **deny** the ability to such an insight of a perpetrator who was able to plan meticulously and who wrote down his inhuman world view on 1500 pages?

In Norway as well as in Germany it is crucial whether the perpetrator was criminally responsible at the time of the crime.”

Corpus ID 1117

NPIs also appeared in embedded neutral questions in the data set, both as *wh*- and polar questions:

- (400) Wie man sich der lästigen Insekten auch
 how one REFL the.GEN annoying insects also
 ohne Chemie **erwehren kann**, darüber geben die
 without chemicals fight.off can about.that give the
 unterschiedlichsten Hausmittel Auskunft.
 most.different home.remedies information
 “How to get rid of the annoying insects without chemical means – lots of different home remedies give information about that.”

Corpus ID1546

- (401) Die Frage ist nun, ob man zugunsten
 the question is now if one for
 eines höheren Reflexionsgrades die Arroganz der
 a higher reflexion.degree the arrogance the.GEN
 heutigen „Anything goes“-Piraten **missen will**.
 today.ADJ anything.goes.pirates miss want
 “Now the question is whether one wants to miss out on the arrogance of today’s ‘anything goes’-Pirates [political party] in favour of a higher degree of reflexion.”

Corpus ID 1766

A final subtype of neutral questions annotated in the data set are internal monologues from literary texts. They have been annotated as a separate category as they have their own pragmatic flavour: occurring in internal monologues, there is no listener of whom an answer is expected. On the other hand, as the example given below shows, the narrator in the internal monologue does actually wonder about the answer to their question, making the question information-seeking and clearly not rhetorical:

- (402) Das hatte er verspielt, ja, und deshalb hatten
 that had he gambled.away yes and because had
 sie ihn jetzt auf dem Wagen. Ob sie
 they him now on the vehicle if they

ihm viel **anhaben konnten?** Nur keine Prügel!
him much harm could just no beating

“He had gambled it away, yes, and because of that they now had him on the vehicle. If they could harm him a lot? Just no beating!”

Corpus ID 1277

The corpus examples shown in this section have shown that there are neutral questions containing NPIs to be found, although they may be more sparse than rhetorical questions with NPIs. It is important to note that “neutral question” is perhaps not the most accurate term when it comes to questions with NPIs. There are some examples that I have classified as “neutral” questions that seem to exhibit a bias towards one of the answers, like the interview questions given in (395)-(397). The distinction between “neutral” and rhetorical questions was drawn along the lines of whether the questions were information-seeking and whether an answer was expected or even given. It is not always easy to draw a sharp line between neutral, biased, and rhetorical questions, especially in a written format that necessarily lacks the contextual cues a listener might have in real-life situations. The following section on rhetorical questions should, however, show the reader a contrast between the information-seeking character of the questions reported in this section and the clearly rhetorical flavour of the data shown in the next section.

5.3.4.2 Rhetorical questions

186 of the questions in the data set were judged as rhetorical questions, with two of them being embedded. For one NPI, rhetorical questions seem to be a particularly productive licensing pattern: *verdenken können* “to hold sth. against sb.” occurred 166 times overall in the data set, out of which 90 instances (54,2 %) were in questions, all of them rhetorical. Compared to the NPI with the next-highest number of hits in rhetorical questions, the ratio seems particularly remarkable: *sich scheren um* “to care about sth./sb.” occurred 19 out of 297 times in rhetorical questions (6,4 %). As can be seen in Table 34 and Table 35 above, some NPIs occurred both in neutral and in rhetorical questions, while others like *verdenken können* “to hold sth. against sb.” and *verwundern können* “to be able to amaze sb.” occurred exclusively in rhetorical questions. Of course, from this data one cannot claim that the abovementioned NPIs can exclusively appear in rhetorical questions in general as not finding something in a corpus does not necessarily mean that it doesn’t exist. The data might, however, point to a general tendency of what NPIs are more strongly associated with the rhetoricity of questions.

Rhetorical questions come both in the shape of *wh*-questions and polar questions in the data set. Below I will give a few examples of both types, with polar and *wh*-questions containing the NPI *wahrhaben wollen* “to want to acknowledge” und *absprechen können* “to be able to deprive sb. of sth.”, respectively (since rhetorical questions tend to require more context than other corpus example to convey their rhetoricity, they will be underlined for clarity and readability in this section):

- (403) [context:] Und man weiß, daß die Technik, ohne die moderne Industriegesellschaften nicht funktionieren könnten, Risiken birgt, denen man sich niemals vollends entziehen kann.

Man weiß das alles; muß man es aber ständig

one knows that all must one it but often

wahrhaben wollen? Nein.

acknowledge want no

“And one knows that the technology without which modern industrial societies would not be able to function has its risks that one can never completely avoid. One knows all of that, but does one have to want to acknowledge it all the time? No.”

Corpus ID 2212

(404) [context:] In der Rückschau war Dirk Niebels Kritik am Unzustand seiner Partei, eine Attacke mit schwerem Geschütz, nur zu wahr.

Aber wer **wollte** das seinerzeit schon **wahrhaben?**

but who wanted that back.then PART acknowledge

“Looking back, Dirk Niebel’s criticism of the non-state of his party, an attack with big guns, was only too true. But who wanted to even acknowledge that back then?”

Corpus ID 2283

(405) [context:] Man kann an RB wirklich viel schlecht finden: [...]

Aber **kann** man dafür allen 43.348 **absprechen**, dass

but can one for.that all 43.348 deny that

ihr Fan-Sein, ihre Emotionen nicht echt sind?

their fan-being their emotions not real are

[context:] Und wie ist es eigentlich in Leipzig? Wie ist die Stimmung? Wie das Stadion? Wer geht hin? Und wer nicht?

“One can find many things bad with RB [Leipzig]: [...] But can one deny to all 43.348 [fans] that their fandom, their emotions are real? And how is it actually in Leipzig? How is the mood? How the stadium? Who goes? Who doesn’t?”

Corpus ID 1116

(406) Wie **kann** man ihm da die Überzeugung **absprechen**,
how can one him there the conviction deny

[context] wie kann man glauben, dieser Mann sei nur kalter Rechner oder ehrgeiziger Streber, seine polirischen [sic!] Gedanken nur wohlüberlegte Lockmittel für die Masse!

“How can one deny his conviction, how can one believe that this man is just a cold calculator or ambitious geek, that his political thoughts are just well-thought-out baits for the masses!”

Corpus ID 1115

There were two cases of embedded rhetorical questions, shown below:

- (407) Was sich in der Parteilgliederung der
 what REFL in the party.structure the.GEN
 Landeshauptstadt abspielt, ist für das Ansehen der
 federal.capital plays is for the image the.GEN
 bayerischen Regierungspartei derart schädlich, dass
 Bavarian governing.party so damaging that
 viele Christsoziale entsetzt fragen, wie die
 many Christ.socials shocked ask how the
 sonst auf straffe Führung bedachte Landesleitung
 otherwise on strict leadership focused federal.leadership
 dergleichen tatenlos **mitansehen konnte.**
 so without.action watch could
 “What is happening in the party system of the federal capital is so damaging to
 the image of the Bavarian governing party that many Christian-Socialists are
 horrified and ask how the federal leadership, which is otherwise very focused
 on strict management, can watch something like that without doing anything.”

Corpus ID 568

The rhetorical question here is embedded under the verb *fragen* “ask”, marking explicitly the question speech act. From the context it becomes clear that the party members are horrified **that** the leadership watched without acting, rather than ask about **how** the leadership could do such a thing. Hence, the embedded question carries assertive force and is clearly rhetorical. The second embedded rhetorical question is a bit more subtle:

- (408) [context:] Geregelt ist darin unter anderem, dass Bauern mit Spaß am Genfood
 ihre Felder mit „geeigneten Maßnahmen“ davor zu schützen haben, dass
 Pollen die genfreien Lebensmittel in der Nachbarschaft verunreinigen.
 Um zu zeigen, wie **sich** Mutter Natur
 to INF.PART show how REFL mother nature
um solche Anordnungen der Politik **schert,**
 about such orders the.GEN politics cares
 ließen die Imker vor dem Stuttgarter
 let.PAST.TENSE the beekeepers in.front.of the Stuttgart
 Landtag ihre Bienen fliegen.

parliament their bees fly

[Context: a ruling about genetically manipulated plants] “Amongst other things, it is ruled therein, that farmers with genetically modified plants must take “suitable measures” to prevent pollen from contaminating gene-free food [non genetically manipulated plants] in the neighbourhood. To show how mother nature cares about such orders from politics, the beekeepers let their bees fly in front of the federal state parliament in Stuttgart.”

Corpus ID 81

The rhetoricity of the embedded question is difficult to catch at first, as one can read “showing how mother nature cares about orders from politics” as just that, showing how mother nature cares. However, from the context it becomes clear that the intention of the farmers is to show how mother nature does **not** care about politics and bees will fly wherever regardless of field borders. Thus, from context, the polarity of the prejacent of the embedded question gets reversed, making it a rhetorical question.

The NPI *noch hören können* “to be able to hear any longer” is an interesting case when it comes to comparisons between neutral/information-seeking and rhetorical questions. In (395)-(397) the NPI is shown in information-seeking questions in interview situations. However, it can also appear in questions that are clearly not a request for information, as shown below:

- (409) Unter uns: Wer **kann** das Wort Arbeitslosigkeit
between us who can the word unemployment
noch hören?
still hear

[context:] Doch all das Ignorieren nützt auch nichts und bringt es nicht zum Verschwinden.

“Between ourselves: Who can still bear to hear the word unemployment? But all the ignoring of it doesn’t help either and doesn’t make it go away.”

Corpus ID 544

- (410) [context:] Eine Werbekampagne müsste sich erst Mal auf Hartz IV beschränken [...].
Kann der Bürger das überhaupt **noch hören?**
can the citizen that even still hear

[context:] Man kann die verschiedenen Reformen und Reformansätze kaum noch auseinander halten [sic!] und hat den Kanal eigentlich voll und will gar nicht mehr zuhören.

“A publicity campaign would have to be restricted to Hartz IV [social welfare reform] for some time. Can the citizen still bear to hear it? One can hardly keep the different reforms and reform attempts apart anymore and has had enough and doesn’t even want to listen anymore.”

Corpus ID 550

These cases of *noch hören können* “to be able to hear any longer” are clearly rhetorical and not information seeking, in contrast to the examples shown in (395)-(397). This begs the question of what determines whether a question with an NPI is rhetorical or not. From the data on neutral/information-seeking questions it is evident that NPIs do not necessarily make a question rhetorical. However, the large number of rhetorical questions in the data set might hint to a certain proclivity of NPIs to give questions rhetorical readings. What seems obvious when discussing these cases of *noch hören können* in (non-)rhetorical questions is that one must take the context into account: the information-seeking questions in (395)-(397) were all asked in interview settings in which there was a clear expectation for an answer by the interviewee. This dialogic setting alone might make a question less rhetorical, more information-seeking (although possibly still biased). In the examples shown above in (407)-(410), on the other hand, there is no dialogue. Both examples are from newspaper articles in which there is no addressee that could reply directly. Perhaps, in a written form like that, questions can only ever be taken to be rhetorical to some extent, as the author is not seeking information from the reader, nor is there a possibility to even get a direct dialogical reply.

As I have shown in this section, questions containing NPIs can be information-seeking or rhetorical. The large number of rhetorical compared to neutral questions in this corpus study might suggest a certain proclivity of NPIs to make a question rhetorical. However, there are two caveats to this: firstly, as mentioned in Section 5.2), one cannot draw statistical claims from this corpus study due to the nature of the data collected (differences in frequency). Secondly, the higher number of rhetorical questions in the data frame might simply be an artefact of the type of data collected: most of the data comes from written sources such as newspapers. Written texts, unless transcribing dialogues, might simply contain more rhetorical questions on a relative scale because

of their monologic nature. In a newspaper article, there are no two interlocutors who seek information from one another, and rhetorical questions may be used as a stylistic device more often than in natural dialogue. So, the hunch that there may be a strong association between NPIs in questions and their rhetoricity must at least be taken with a grain of salt.

5.3.5 A note on conflicting experimental data and corpus data

Recall that I noted in Section 5.3.3 that given the distribution of the verbal NPIs in the corpus data, we must conclude that all NPIs in the data set are weak or superweak NPIs with regards to the classification described in Section 2.1 and 2.2. This finding is at odds with some of the results from Experiment 1: recall that in cluster 3 in Experiment 1, we identified a cluster of NPIs that appeared to be superstrong, i.e. only licensed by *nicht* “not”.

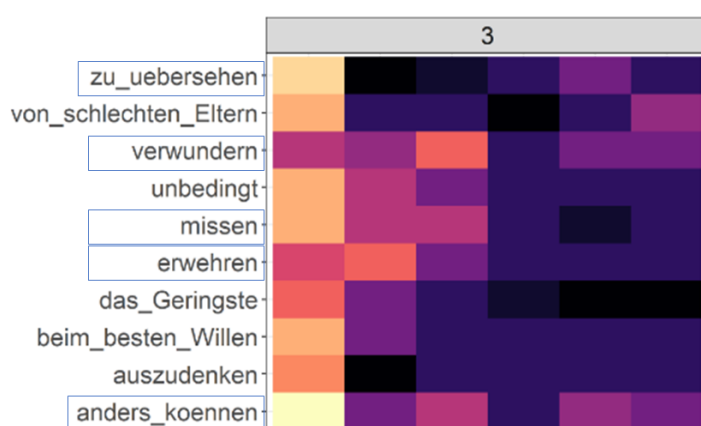


Figure 18: Cluster 3 from Experiment 1

Five out of the 10 NPIs in cluster 3 were part of the corpus study: *zu übersehen sein* “to be overlooked”, *verwundern können* “to be able to amaze”, *missen wollen* “to want to miss”, *erwehren können* “to be able to fight off”, and *anders können* “to be able to act differently”. The data from the corpus study has shown that these NPIs cannot, in fact, be superstrong NPIs after all, as they have appeared in downward entailing environments in the corpus data. Thus, we must revise our results from Experiment 1 and state that at least the five verbal NPIs listed above (and marked in Figure 18) are actually not superstrong, but (super)weak NPIs.

What is the explanation for the outcome of Experiment 1 then? First and foremost, consider that in Experiment 1, we only tested one lexicalisation per NPI per condition. This, of course, makes the experimental data quite vulnerable to item effects that could mask an NPI’s true nature. This is a shortcoming that came with the size of the experiment, namely the large number of NPIs that were tested in Experiment 1. As discussed in Section 4.1, it was always clear that more data would be required in order

to truly be able to classify all 60 NPIs that were tested in Experiment 1. The present corpus study can serve as one such database, refining the results of Experiment 1 and 2.

If we take a look at the individual NPIs that were rated as superstrong in cluster 3 in Experiment 1, we can disentangle some of the caveats that may have led to a false preliminary classification. Take *zu übersehen sein* “to be overlooked”. Like all NPIs in cluster 3, this NPI received a high rating in the antimorphic condition with the licensor *nicht* “not”, and low ratings in all the other conditions. Table 36 gives an overview of which licensors *zu übersehen sein* appeared with in the corpus data.

Licensor	<i>zu übersehen sein</i> “to be overlooked”
<i>kaum</i> “hardly”	26
<i>schwer</i> “difficult”	21
<i>leicht</i> “easily”	11
<i>schwerlich</i> “difficult”	4
<i>weder noch</i> “neither nor”	2
<i>schnell</i> “quickly”	1
<i>unschwer</i> “not difficult”	1
<i>nie(mals)</i> “never”	1
<i>niemand</i> “nobody”	1
<i>unmöglich</i> “impossible”	1
<i>wenig</i> “few”	1
Total	70

Table 36: Licensors of *zu übersehen sein* “to be overlooked” in the corpus data

The data in Table 36 clearly shows that *zu übersehen sein* must not be classified as a superstrong NPI, as it occurs with a large variety of licensors that are weaker than antimorphic, ranging from anti-additive *niemand* “nobody” and downward entailing *kaum* “hardly” and *wenig* “few” to even non-negative licensors such as *leicht* “easily” and *unschwer* “not difficult”, which will be discussed in the following chapter 5.4. Interestingly, it does not appear with *kein* “no” in the corpus data. That is not to say that it can never appear with *kein*, but perhaps it is simply not natural to construct a sentence with *zu übersehen sein* licensed by *kein* – a difficulty that I ran into when constructing the items for Experiment 1.

This remark leads to the reason I believe that the NPIs of cluster 3 were wrongly classified as superstrong in Experiment 1: due to the necessary uniformity of test sentences in an experimental setting, there are bound to be some item effects in the data. This means that some items in the experiment were simply not very natural due to the uniform experimental design. This, however, does not necessarily mean that a given NPI cannot appear with a licenser that received a bad rating in the experimental setting.

As already discussed in Section 4.1.2, for some NPIs, there seems to be a difference in rating between *kaum* as an adverbial quantifier and as a quantificational determiner: the latter seems to receive lower acceptability ratings, but not all NPIs can appear with *kaum* as an adverbial quantifier either – which is the reason why we used *kaum* as a quantificational determiner in Experiment 1. For example, adverbial NPIs do not appear to be able to be licensed by adverbial *kaum* (see (411)), but it seems like they can be licensed by the quantificational determiner *kaum*, see (412).

- (411) *Paulina interessiert sich kaum **sonderlich** für Politik.
 Paulina is.interested REFL hardly particularly for politics
 “Paulina is hardly particularly interested in politics.”

- (412) Kaum einer meiner Freunde interessiert sich **sonderlich**
 hardly one my.GEN friends is.interested REFL particularly
 für Politik.
 for politics
 “Hardly anyone of my friends is interested in politics.”

The corpus data contains exclusively instances of *zu übersehen sein* “to be overlooked” with *kaum* as an adverbial quantifier like in (413). The experimental item from Experiment 1 in (414), on the other hand, contains *kaum* as a quantificational determiner in the subject position. Intuitively, the former is far more natural than the latter – an intuition that I seem to share with the participants of Experiment 1.

- (413) Eckers schwelgerische Lust am Satzbau **ist** kaum
 Ecker’s indulgent joy on.the syntax is hardly
zu übersehen.

INF.PART overlook

“Ecker’s indulgent joy in syntax can hardly be overlooked.”

Corpus ID 1229

- (414) Kaum ein Unterschied ist zu übersehen.
 hardly a difference is INF.PART overlook
 “Hardly any difference can be overlooked.”

I believe that this disparity between the different uses of *kaum* is to blame for the differences in outcome between the experimental and the corpus data: in the experimental data, there is an item effect for *kaum* as a quantificational determiner. Similarly, I suspect an item effect in the anti-additive condition with *kein* “no”. Due to the uniformity criteria of the experimental design, the licenser *kein* “no” was used as a quantificational determiner in the subject position across the experiment, resulting in the experimental item below in (415):

- (415) Kein Unterschied ist zu übersehen.
 no difference is INF.PART overlook
 “No difference can be overlooked.”

Like the experimental item in (414), the one in (415) simply does not seem to be the most natural – an intuition that was seemingly shared by the participants of Experiment 1. However, to keep the design uniform, the item was designed and included in the experiment as shown above. Along with the item effect suspected for *kaum*, this may well have led to the misclassification of *zu übersehen sein* “to be overlooked” as a superstrong NPI in Experiment 1. The results for *kein* “no” and *kaum* “hardly” are the only glaring contradictions between the experimental results and the corpus data. As for the other licensors that *zu übersehen sein* appeared with in the corpus data: since they were not part of the experiment, they simply go beyond its scope. It is not surprising that an explorative corpus study on NPIs finds more licenser-licensee combinations than can be covered in a limited experimental setting.

The next documented contradiction between the experimental data and the corpus data concerns the NPI *verwundern können* “to be able to amaze”. Table 37 gives an overview of the licensors that *verwundern können* appeared with in the corpus study:

Licensor	<i>verwundern können</i> “to be able to amaze”
<i>kaum</i> “hardly”	36
Question rhetorical	14
<i>niemand</i> “nobody”	11
<i>nur</i> “only”	10
No licensor	7
Subjunctive mood (Subjunctive II)	3
<i>kein</i> “no”	2
Contrast- <i>schon</i>	2
<i>wenig</i> “few”	2
Contrast	1
Total	88

Table 37: Licensors of *verwundern können* “to be able to amaze” in the corpus data

A closer look at the corpus data shows that the disparities between experimental and corpus data concern the licensors *kein* “no”, *kaum* “hardly”, and the question condition. Regarding the downward entailing licensor *kaum*, we probably have the same locality effect (see Yurchenko et al. (2013)) as with *zu übersehen sein*: in the corpus data, there were exclusively instances of *kaum* as an adverbial quantifier (see (416)), while in the experiment, *kaum* was used as a quantificational determiner in the subject position, see (417). It thus seems likely that *verwundern können*, too, prefers the former as a licensor over the latter.

- (416) Dass es zu Fehlern und Übertreibungen kommt,
that it to mistakes and exaggerations comes
kann kaum **verwundern**.
can hardly surprise
“It can hardly be a surprise that it comes to mistakes and exaggerations.”
Corpus ID 2054

- (417) Kaum ein Vorfall **kann** Nora **verwundern**.
hardly a incidence can Nora confuse

“Hardly any incidence can confuse Nora.”

Regarding the licensing of *verwundern können* by *kein* “no”, the experimental vs. corpus data reveals that this may again be a matter of the syntactic position of the licensor – only this time in the subject vs. object position. In the experimental data, *kein* was used as a quantificational determiner in the subject position, which received low acceptability ratings, see (418). In the corpus data, on the other hand, *kein* appeared in the object position, both as a pronominal object in (419) and as a quantificational determiner in (420). This syntactic difference may well account for the difference between the experimental and the corpus data.

- (418) Kein Vorfall **kann** Nora **verwundern**.
no incidence can Nora confuse
“No incidence can confuse Nora.”

- (419) Das **kann** eigentlich keinen **verwundern**, wenn man
this can actually nobody amaze if one
sich anguckt, was hier abends los ist.
REFL watches what here evening.ADV up is
“This cannot surprise anyone, if one considers what is going on here in the evenings.”

Corpus ID 2052

- (420) Dass John Rebus [...] nur kleine Siege und viele
that John Rebus only small victories and many
Niederlagen erlebt, **kann** keinen Krimileser und
losses experiences can no crime.fiction.reader and
Zeitgenossen **verwundern**.
contemporary.NOUN amaze
“It cannot surprise anyone that John Rebus experiences only small victories and many losses.”

Corpus ID 2071

Lastly, *verwundern können* received low acceptability ratings in the question condition in the experiment (see (421)), but appeared 14 times in rhetorical questions in the corpus data (see (422) as an example). This may indicate that *verwundern können* can only appear in rhetorical questions, but not in neutral questions. However, participants could also have found the experimental scenario implausible. Ultimately, I have to remain agnostic as to what caused the low acceptability rating on the experimental item in (421).

- (421) [context:] Nach einem langen Scheidungskrieg ist der Streit von Noras Eltern im Gerichtssaal eskaliert. Die Richterin überlegt, was Nora davon hält, und fragt sich:
 [context:] After a long war of divorce, Nora's parents' fighting escalated in the courtroom. The judge wonders what Nora thinks about this:
Kann der Vorfall Nora **verwundern**?
 can the incidence Nora surprise
 "Can the incidence surprise Nora?"

- (422) **Kann** es uns dann noch **verwundern**, daß
 can it us then still amaze that
 kaum jemandem auf der Welt Berlin als
 hardly anybody.DAT on the world Berlin as
 Ziel für ein romantisches Wochenende einfällt?
 destination for a romantic weekend comes.up
 "Can it still surprise us that nobody comes up with Berlin as a destination for a romantic weekend?"

Corpus ID 2016

The third NPI that showed contradictory results between the experimental and the corpus data is *missen wollen* "to want to miss". The corpus results are given in Table 38:

Licensor	<i>missen wollen</i> "to want to miss"
<i>kein</i> "no"	35
<i>niemand</i> "nobody"	13
<i>nie(mals)</i> "never"	9
Question rhetorical	8
<i>keinesfalls</i> "no way"	5

<i>wenig</i> “few”	5
<i>nichts</i> “nothing”	3
<i>kaum</i> “hardly”	2
<i>weder noch</i> “neither nor”	2
“than”-comparative	1
Question neutral embedded	1
No licensor	1
<i>keineswegs</i> “no way”	1
Contrast	1
Total	87

Table 38: *Licensors of missen wollen “to want to miss” in the corpus data*

The experimental data and the corpus data are contradictory with regards to the licensing of *missen wollen* “to want to miss” by *kein* “no”, *kaum* “hardly”, and possibly in questions, although the experiment contained a neutral question in a main clause (see (423)) and the corpus data contains a neutral embedded question (see (424)) and rhetorical questions (see for example (425)). If one compares the three questions given in the following (experimental neutral, corpus neutral embedded and corpus rhetorical), it does not become clear exactly why the experimental question received such low acceptability ratings. One route for speculation could be that *missen wollen* “to want to miss” is more natural in rhetorical questions than in neutral questions, but given the present data, we cannot be sure about this.

- (423) [context:] Henriettes Mutter denkt wehmütig an die Schulzeit ihrer Tochter zurück. Sie überlegt, ob Henriette auch so gute Erinnerungen daran hat, und fragt sich:

[context:] Henriette’s mother is reminiscing about her daughter’s time in school. She is wondering if Henriette also has such good memories of it, and asks herself:

Will Henriette die Zeit **missen**?

wants Henriette the time miss

“Does Henriette want to miss out on that time?”

- (424) Die Frage ist nun, ob man zugunsten
the question is now if one for.benefit.of
eines höheren Reflexionsgrades die Arroganz der

a.GEN higher reflexion.degree the arrogance the.GEN
 heutigen „Anything goes“-Piraten **missen** **will**.
 today.ADJ anything.goes.pirates miss wants
 “The question is now if one wants to miss out on the arrogance of today’s
 ‘anything goes’-pirates for the benefit of a higher degree of reflexion.”
 Corpus ID 1766

- (425) [context:] Was damals die Größe eines Schreibtisches haben sollte, steckt heute in einem Smartphone.
 Wer **will** das **missen**:
 who wants that miss
 [context:] Mehr Effizienz dank „außerordentlicher Geschwindigkeit und Flexibilität“.
 “What was supposed to have the size of a desk back then fits into a smartphone today. Who wants to miss that? More efficiency thanks to ‘extraordinary speed and flexibility’.”
 Corpus ID 1785

Why *missen wollen* received low acceptability ratings in the anti-additive condition with *kein* “no” as a licenser in Experiment 1 is another riddle. Not only does *missen wollen* appear with *kein* as a licenser in the corpus data, but we also cannot attribute the degraded acceptability to a syntactic effect like with previous NPIs. In Experiment 1, *missen wollen* appeared with *kein* as a quantificational determiner in the subject position, see (426). The corpus example in (427) shows that *kein* can take the subject function and can license the NPI *missen wollen* (albeit in pronominal form rather than as a quantifier). It is thus not quite clear why the *kein* condition received degraded acceptability ratings in Experiment 1. N.B.: The corpus data further shows that *kein* can also appear in other syntactic positions as a licenser of *missen wollen*: it can appear in the object position (see (428)) as well as in an adverbial position in *um keinen Preis* “for no money in the world” in (429).

- (426) [context:]
Henriettes Mutter denkt wehmütig an die Schulzeit ihrer Tochter zurück. Als sie mit Henriette darüber redet, erinnert sich Henriette mit strahlenden Augen an die Klassenfahrt in der zehnten Klasse. Sie erzählt, dass alle ihre Klassenkameraden auch so gerne daran zurückdenken, und sagt:

[context:]

“Henriette’s mother is reminiscing about her daughter’s time in school. When she talks about it to Henriette, Henriette remembers her class trip in year 10 with glowing eyes. She tells her mum that all her other classmates also like to reminisce about it. She says:”

Kein Klassenkamerad **will** die Zeit **missen**.

no classmate wants the time miss

“No classmate wants to miss out on that time.”

- (427) Das selbstverständliche Gefühl [...] **wollte** am Ende
the self.evident feeling wanted on.the end
keiner mehr so recht **missen**.

nobody more so right miss

“In the end, nobody wanted to miss out on that self-evident feeling.”

Corpus ID 1750

- (428) Ich **will** jetzt keine Sekunde meiner
I want now no second my.GEN
Liebesverschlingungen **missen** [...]

love.affairs miss

“Now I don’t want to miss out on a second of my love affairs.”

Corpus ID 1740

- (429) Und das Glück des Vordringens ins möglichst
and the happiness the.GEN progressing into.the preferably
Unbekannte **wollen** wir um keinen Preis **missen**.

unknown want we for no price miss

“And we want to miss out on the happiness of progressing into the unknown for no money in the world.”

Corpus ID 1736

The degraded acceptability ratings for *kaum* as a licensor for *missen wollen* are equally mysterious given the corpus data. In both instances that *kaum* appeared as a licensor for *missen wollen*, it took the shape of a quantificational determiner ((431) and (432)) just like in the experiment (see (430); context identical with (321)). From a semantic-syntactic perspective, it is thus not clear why participants rated *missen wollen* in the anti-additive condition as less acceptable in Experiment 1.

- (430) Kaum ein Klassenkamerad **will** die Zeit **missen**.
 hardly a classmate wants the time miss
 “Hardly anyone of the classmate wants to miss out on that time.”

- (431) Kaum jemand **will** mehr die Annehmlichkeiten **missen**,
 hardly someone wants still the pleasures miss
 die der Thatcherismus in Form von wirtschaftlichem
 REL the Thatcherism in shape of economic
 und technischem Fortschritt gebracht hat.
 and technical progress brought has
 “Hardly anybody wants to miss out on the pleasures that Thatcherism has brought in the shape of economic and technical progress.”

Corpus ID 1800

- (432) Und bald **wollte** kaum noch jemand diese
 And soon wanted hardly still someone this
 todsichere Anlage **missen**.
 death.secure investment miss
 “And soon hardly anybody wanted to miss out on this absolutely secure investment.”

Corpus ID 1792

The penultimate NPI that produced contradictory results between Experiment 1 and the corpus data is *sich erwehren können* “to be able to fight off”. Again, the licensors that produced the contradiction were *kaum* “hardly”, *kein* “no”, and the question condition. An overview of the licensors that *sich erwehren können* appeared with in the corpus data is given below in Table 39.

Licensors	<i>erwehren können</i> “to be able to fight off”
<i>kaum</i> “hardly”	71
<i>schwer</i> “difficult”	20
<i>nur</i> “only”	15
No licensor	13
<i>nie(mals)</i> “never”	5
Final clause	4
Question neutral	4
Question neutral embedded	4
<i>kein</i> “no”	4
Subjunctive II	4
<i>niemand</i> “nobody”	4
<i>EASY-leicht</i> “easily”	3
Contrast	3
Temporal clause	3
<i>wenig</i> “few”	3
Question rhetorical	2
Comparative	2
<i>schwerlich</i> “difficult”	2
<i>keineswegs</i> “no way”	1
Conditional clause	1
<i>nirgends</i> “nowhere”	1
<i>selten</i> “rarely”	1
<i>unmöglich</i> “impossible”	1
<i>weder noch</i> “neither nor”	1
Total	172

Table 39: Licensors of *erwehren können* “to be able to fight off” in the corpus data

Again, it is unclear why the anti-additive condition received low acceptability ratings in Experiment 1: *kein* “no” appeared as a quantificational determiner in the subject position in the experiment (see (433)) as well as in the corpus data, see (434):

- (433) Kein Teammitglied **kann** **sich** des Eindrucks **erwehren**.
no team.member can REFL the.GEN impression fight.off
“No team member can fight off the impression.”

- (434) [...] dagegen **kann** **sich** kein Mann **erwehren**
against.that can REFL no man fight.off

“No man can fight that off.”

Corpus ID 1646

The reason why *kaum* “hardly” received low acceptability ratings with *sich erwehren können* in Experiment 1 can again be attributed to its syntactic position: in Experiment 1, it appeared as a quantificational determiner in the subject position, see (435). In the corpus data, on the other hand, it exclusively appeared in the adverbial position as a modifier of the verbal NPI, see, for example, (436):

(435) Kaum ein Teammitglied **kann** **sich** des Eindrucks
hardly a team.member can REFL the.GEN impression.GEN
erwehren.

fight.off

“Hardly any team member can fight off the impression.”

(436) Wer mit Prema Naidoo durch den ehemaligen
who with Prema Naidoo through the former
Gefängniskomplex geht, **kann** **sich** eines
prison.complex goes can REFL a.GEN
beklommenen Gefühls kaum **erwehren.**

anxious feeling.GEN hardly fight.off

“Whoever walks through the former prison complex with Prema Naidoo can hardly fight off the anxious feeling.”

Corpus ID 1621

Again, it is not clear why *sich erwehren wollen* received a low acceptability rating in the question condition in Experiment 1 (see (437)). The corpus data shows that *sich erwehren können* can appear in information-seeking polar questions, as demonstrated by the corpus example in (438):

(437) **Kann** Vicky **sich** des Eindrucks **erwehren?**
can Vicky REFL the.GEN impression fight.off

Can Vicky fight off the impression?

- (438) **Kann** man **sich** dieser Welt und dem
 can one REFL this.GEN world and the.DAT
 Druck der Gewalt moralisch **erwehren**?
 pressure the.GEN violence morally fight.off

“Can one fight off the pressure and violence morally in this world?”

Corpus ID 1641

The last NPI that produced a contradiction between the experimental and the corpus data is *anders können* “to be able to act differently”. While it received low acceptability ratings in the anti-additive and downward entailing condition in Experiment 1, the corpus data shows that the NPI in question can in principle appear both with the anti-additive licenser *kein* “no” and the downward entailing operator *kaum* “hardly”.

Licensor	<i>anders können</i> “to be able to act differently”
Contrast- <i>auch</i>	10
Contrast	2
Multiple licensors	2
<i>kaum</i> “hardly”	1
<i>kein</i> “no”	1
Total	16

Table 40: Licensors of *anders können* “to be able to act differently” in the corpus data

Taking a closer look at the experimental items and the corpus data reveals the likely reasons for the disparities between both data sets: in Experiment 1, *kein* appeared as a quantificational determiner in the subject position, see (439). In the corpus data, on the other hand, it appeared in an adverbial position within the temporal adverbial *in keinem Moment* “in no moment”, see (440). This difference could account for the different outcomes in both studies.

- (439) Kein Arbeitgeber **kann anders**.
 no employer can different
 “No employer can act differently.”

- (440) [...] der Autor **kann** in keinem Moment **anders**.
 the author can in no moment different

“The author is not able to act differently in any moment.”

Corpus ID 797

Regarding the downward entailing licenser *kaum*, a difference in acceptability between adverbial *kaum* and *kaum* as a quantificational determiner could well be responsible for the disparate outcomes of the experiment and the corpus data. While the latter appeared in the experiment (see (441)) and received low acceptability ratings, the former surfaced in the corpus study and seems highly acceptable, see (442).

- (441) Kaum ein Arbeitgeber **kann** **anders**.
hardly a employer can different
“Hardly any employer can act differently.”

- (442) Am Sonnabend [...] hat er [...] den Ball [...] nach
on.the Saturday has he the ball to
vorn gespielt, [...] auf den Fuß von Bastian
front played onto the foot of Bastian
Schweinsteiger, der [...] derart frei stand, dass er
Schweinsteiger REL so free stood that he
kaum **anders** **konnte**, als ein Tor zu erzielen.
hardly different could than a goal INF.PART score
“On Saturday he played the ball to the front, onto Bastian Schweinsteiger’s
foot that stood free so that he could hardly act differently than to score a goal.”
Corpus ID 788

Overall, the detailed data comparisons between the experimental data and the corpus study have corroborated that indeed, we need to reclassify some of the verbal NPIs that were classed into cluster 3 in Experiment 1. The five verbal NPIs described in the current section do not appear to be superstrong NPIs after all. Instead, they need to be reclassified as at least weak NPIs, with some even being superweak, since they also appear in questions. The likely reasons for the disparities between the two studies can sometimes be found in syntactical differences regarding the licenser. In other cases, the reasons are less than obvious and possibly connected to experimental design flaws such as the (im)plausibility of certain experimental items.

5.4 Non-negative licensing environments

The non-negative licensing environments found in the corpus study largely fall into the following groups: 1) non-negative nouns with negative emotional valence, 2) adverbial modifiers that express a low degree of difficulty (“easy”-type modifiers), 3) non-negative clauses such as comparative clauses, final clauses and temporal clauses, and 4) contrastive environments. The comparative clauses all contained the comparative conjunction *als* “than”. There were also two cases of comparatives that did not contain “than”, which will be discussed together with the “than”-comparative clauses. Lastly, there were 33 cases of NPIs appearing with verbs in a subjunctive mood, and two cases of NPIs appearing together with the particle *überhaupt* “at all/even”, which is itself an NPI (see Section 4.1 on Experiment 1). Both of these have, to my knowledge, not been previously described as NPI licensors in German. Table 41 below gives an overview of the corpus hits per licensing environments, as they will be discussed in this section.

Group	Licensor	Licensor type	N
Non-negative nouns with negative emotional valence	<i>einen Deut</i>	Minimizer	1
	<i>einen Dreck, feuchten Kehricht, Teufel</i>	Non-NPI noun with negative emotional valence	57
	free minimizer	Minimizer	5
“Easy”-type adverbial modifiers	EASY: <i>leicht (schlankerhand, schnell, unschwer, zu viel)</i>	“easy”	28
Non-negative clauses	<i>als</i> -clause (comparative)	“than”-comparative	155
	Comparative without <i>als</i>	Comparative without “than”	2
	Final clause (<i>um, damit</i>)	Final clause	7
	Temporal clause	Temporal clause	4
Contrastive environments	Contrast	Contrast	65
	Subjunctive I, Subjunctive II	Subjunctive mood	32
	<i>überhaupt</i>	unclassified	2

Table 41: Non-negative NPI licensing contexts in the corpus data

5.4.1 Non-negative nouns with negative emotional valence

A peculiar pattern for NPI licensing that emerged in the corpus study was a group of nouns that are, in principle non-negative, i.e., do not carry an implicit negation semantically like for example the noun *Weigerung* “refusal” discussed in Section 5.3.3.9. This pattern was exclusive to the NPI *sich scheren um* “to care about”. The licensing nouns included *einen Dreck* “a (piece of) dirt”, *einen feuchten Kehricht* “a moist (piece of) rubbish” and *Teufel* “devil”, which all carry negative emotional valence. That is, they have negative connotations on an emotional level (Huckauf et al., 2003), but are not, in principle, negative on a logical semantic level, i.e., they usually do not function as a negation in other contexts. Another instance of a noun as an apparent licensor was *einen Deut* “one bit/tuppence”, which interestingly is an NPI itself (cf. Experiment 1). This pattern of non-negative nouns with negative emotional valence seems to be so productive for *sich scheren um* “to care about” that it allows for linguistic creativity: for example, analogously to *einen feuchten Kehricht* “a moist (piece of) rubbish” I found an instance of *einen feuchten Rollschuh-Pups* “a moist roller-skate fart”. Cases like this have been labelled as “free minimizer” by Sophie Repp and me for the purpose of this thesis. See Table 42 below for an exact overview of occurrences of *sich scheren um* per noun.

Non-negative nouns with negative emotional valence as licensors	<i>sich scheren um</i> “to care about” (N)
<i>einen Dreck</i> “a (piece of) dirt”	47
<i>Teufel</i> “devil”	8
free minimizer	5
<i>einen feuchten Kehricht</i> “a moist (piece of) rubbish”	2
<i>einen Deut</i> “one bit/tuppence”	1
Total	63

Table 42: Non-negative nouns with negative emotional valence as licensors

To begin with, I will show some examples of the most frequent non-negative noun, *Dreck* “dirt” as a licensor. These examples will show that despite not being a negation in the strict formal sense, *Dreck* functions very much like a negation pragmatically. It is not possible to translate the examples correctly without using negation, even though there is no negation present technically:

(443) Wiedereinmal demonstrieren Politiker Machterhalt und
 again once demonstrate politicians power.retention and
scheren sich einen Dreck **um** die Belange
 care REFL a dirt about the concerns
 der Menschen.
 the.GEN people

“Once again, politicians demonstrate retention of power and don’t care (lit.: care a dirt) about the people’s concerns.”

Corpus ID 50

(444) Mit scharfen Worten hatte Peking Nordkorea vor
 with harsh words had Beijing North Korea of
 neuen Atom- und Raketentests gewarnt. Kim hat
 new nuclear and rocket.tests warned Kim had
sich einen Dreck **darum** **geschert**; er weiß,
 REFL a dirt about.that cared he knows
 dass die chinesische Führung den Kollaps seines
 that the Chinese leadership the collapse his.GEN
 Regimes [...] vermeiden will.
 regime.GEN avoid wants

“With harsh words, Beijing had warned North Korea from conducting new nuclear and rocket tests. Kim did not care about that at all (lit.: cared a dirt); he knows that the Chinese leadership wants to avoid the collapse of his regime [...].”

Corpus ID 154

(445) [context:] Abgesehen davon verstärkt eine neue, riesige Geldspritze die
 Gefahr, dass Amerika wieder in einen Zyklus von Euphorie und Crash gerät.
 Dass **sich** die neuen Nationalisten oftmals einen
 that REFL the new nationalists often a
Dreck **um** Umweltschutz **scheren**, macht
 dirt about environment.protection care makes
 die Aussichten auch nicht besser.
 the prospects also not better

“Apart from that, a new, huge cash injection increases the danger that America falls back into a cycle of euphoria and crashing. The fact that the new nationalists often don’t care about (lit.: care a dirt) protecting the environment doesn’t make the prospect any better.”

Corpus ID 144

The examples shown above leave no room for interpretation that the subjects in question really do **not** care about their respective issues, even though formally, there is no “regular” negation present. Translating the examples without a negation would lead to a gross falsification of the contents. Indeed, *einen Dreck* “a dirt” seems to take on the function of negation despite not being a “regular” negation such as *not* or *never*. It can at least be classified as a downward entailing operator in this specific context (i.e., in conjunction with the verb of indifference *sich scheren um* “to care about”), as the conclusion in (446) seems to hold:

(446) Jürgen ***schert sich einen Dreck um*** Tiere.
 → Jürgen ***schert sich einen Dreck um*** Hunde.

Jürgen cares a dirt (doesn’t care) about animals.
 → Jürgen cares a dirt (doesn’t care) about dogs.

Whether *einen Dreck* “a dirt” in conjunction with *sich scheren um* “to care about” should be classified as an anti-additive negative operator is not quite clear. At first glance, the equation in (448) seems to hold:

(447) $f(X \cup Y) \Leftrightarrow f(X) \cap f(Y)$ (anti-additive)

(448) Jürgen ***schert sich einen Dreck um*** Hunde oder Katzen.
 ? $\Leftrightarrow$ Jürgen ***schert sich einen Dreck um*** Hunde
 und Jürgen ***schert sich einen Dreck um*** Katzen.

Jürgen cares a dirt (doesn’t care) about dogs or cats.
 ? $\Leftrightarrow$ Jürgen cares a dirt (doesn’t care) about dogs
 and Jürgen cares a dirt (doesn’t care) about cats.

The reason I have marked the equation with a question mark “?” $\Leftrightarrow$ rather than claimed that both parts are perfect paraphrases of each other is that I am unsure if the equation also holds in an exclusive reading of the disjunction (see chapter 5.3.3 for discussion). In an inclusive reading of the disjunction, *einen Dreck(X) $\cap$ einen Dreck(Y)* seems to be a good paraphrase of *einen Dreck(X $\cup$ Y)*. In an exclusive reading, however, where

it is only true that Jürgen “cares a dirt” about either cats or dogs, my intuition on whether the paraphrase holds is not quite clear, and I thus want to withhold a final judgment. However, it seems clear that *einen Dreck* “a dirt” in conjunction with *sich scheren um* “to care about” is not antimultiplicative, as the equation in (450) does not hold. I thus conclude that even though pragmatically, *einen Dreck* seems to have a meaning similar to *nicht* “not” in the cases shown above, it does not exhibit the same logical properties of negativity. Otherwise, one would expect it to be antimultiplicative and antimorphic. Since I am unsure about the correct judgments regarding the anti-additivity of *einen Dreck* “a dirt” in conjunction with *sich scheren um* “to care about”, I conclude that it can at least be classified as downward entailing.

$$(449) f(X \cap Y) \not\leftrightarrow f(X) \cup f(Y) \quad (\text{antimultiplicative})$$

- (450) Jürgen ***schert sich einen Dreck um*** Hunde und Katzen.
 $\not\leftrightarrow$ Jürgen ***schert sich einen Dreck um*** Hunde
oder Jürgen ***schert sich einen Dreck um*** Katzen.

Jürgen cares a dirt (doesn't care) about cats and dogs.
 $\not\leftrightarrow$ Jürgen cares a dirt (doesn't care) about cats
and Jürgen cares a dirt (doesn't care) about dogs.

An English expression that probably comes close to the meaning of *sich einen Dreck scheren um* “to care a dirt about” is the English idiom “to give a shit”, which can also convey that the subject does not care about a matter at all without using an actual negation. “Kim gives a shit about Beijing’s warnings” would be an accurate, yet more colloquial translation of the example given in (446).

Interestingly, there is a negated counterpart of *Dreck* in the data set, *keinen Dreck* “no dirt”. The interpretation of *einen Dreck* in the examples above and *keinen Dreck* in the example below do not seem to be any different from one another. Both in the negated and in the unnegated cases, *(k)einen Dreck* conveys that the subject does not care at all:

- (451) [context:] Wieviel Judenhass und Antisemitismus hier mitschwingt, ist gar nicht mehr aufzählbar.
- | | | | | | | |
|---------|-----|-----------|---------|--------|-------------|---------------|
| Seltsam | ist | natürlich | nur, | dass | grade | diese |
| strange | is | naturally | only | that | just | those |
| Leute | in | den | letzten | Jahren | sich | <u>keinen</u> |
| people | in | the | last | years | REFL | no |

Dreck **um** die Raketen der Hamas **geschert**
dirt about the rockets the.gen Hamas cared
haben, die israelische Wohnsiedlungen getroffen haben [...].
have REL Israeli housing hit have

“How much jew-hatred and antisemitism is resonating here cannot be listed anymore. It is just strange that exactly these people did not care at all (lit.: cared no dirt) about the rockets from Hamas hitting Israeli housing estates [...].”

Corpus ID 176

Interestingly, with *einen Deut* “one bit/tuppence”, there is an NPI which seems to be able to license another NPI, in this case *sich scheren um* “to care about”:

- (452) [context:] Wer in der Schweiz baut, soll sein Tun wieder stärker an die Landschaft anpassen. Also, weg mit den Siedlungsstrukturen, die sich um die Topografie foutieren!

Fort mit den faden, einheitlichen Typologien und
away with the insipid uniform typologies and
Baumaterialien, die **sich einen Deut um** die
building.materials REL REFL a bit about the
natürlichen und kulturellen Landschaften **scheren!**⁴⁰
natural and cultural landscapes care

“Everyone who wants to build in Switzerland is supposed to adapt their enterprise to the landscapes more. So, do away with the settlement structures that do not care about topography! Away with the bland, uniform typologies and building materials that do not care (lit.: care a bit) about the natural and cultural landscapes!”

Corpus ID 153

The one case of *einen Deut* as a licensor has 12 negated counterparts in the data set. All 12 cases license exclusively the verbal NPI *sich scheren um* “to care about”. Again, there seems to be no difference in interpretation to the non-negated version above,

⁴⁰ I thank my supervisor Sophie Repp for a comment pointing out that she finds this example ungrammatical. I share the intuition that *einen Deut* without any licensor sounds slightly odd here. I cannot exclude the possibility that an error occurred in this example and the author meant to write *keinen Deut* “no bit” with a negative licensor. The example in question may also be subject to dialectal variation. I remain agnostic on this issue and report the data as I found it in the corpus.

which clearly indicates that the subjects do not care about something, just like the negated version below:

(453) [context:] Eines der größten Probleme sind die US-Parlamentarier.

Die	scheren	sich	<u>keinen</u>	<u>Deut</u>	um	jene
they	care	REFL	no	dirt	about	that
Konzilianz,	die	das	Weißes Haus	und	das	
accommodation	REL	the	White House	and	the	
State Department	erbitten.	Die	machen	Gesetze.		
State Department	ask.for	they	make	laws		

“One of the biggest problems are the US parliamentarians. They do not care one bit (lit.: care no bit) about the complaisance that the White House and the State Department are asking for. They make laws.”

Corpus ID 120

From this data on negated and non-negated *Dreck* and *Deut* leading to the same interpretation in the context of the NPI *sich scheren um*, we must conclude that the non-negated nouns can act like a negation pragmatically and thus license the verbal NPI. Another rather productive non-negative noun with negative emotional valence that seems to have this ability is *Teufel* “devil”. Notably, it has no negated counterparts in the data set. Just like *Dreck* and *Deut*, *Teufel* seems to be able to take the pragmatic function of a negation:

(454) Unrasierte Soldaten in dicken Wolluniformen, die **sich**
unshaven soldiers in thick wool.uniforms REL REFL
einen Teufel **um** Schmuggler und Grenzgänger **scheren**.
a devil about smugglers and border.crossers care

“Unshaven soldiers in thick woolen uniforms who do not care (lit.: care a devil) about smugglers and border crossers.”

Corpus ID 9

The noun *einen Teufel* “a devil” seems to be very similar to *einen Dreck* “a dirt” in that it functions as a negation pragmatically and can at least be classified as a downward entailing operator, see (455). Like with *einen Dreck*, I am not sure if *einen Teufel* can reliably be classified as an anti-additive licenser (again because of the exclusive

reading of the disjunction), see (456). It surely is not antimultiplicative and thus not antimorphic, see (457).

- (455) Jürgen **schert sich** einen Teufel **um** Tiere.
 → Jürgen **schert sich** einen Teufel **um** Hunde.

Jürgen cares a devil (doesn't care) about animals.
 → Jürgen cares a devil (doesn't care) about dogs.

- (456) Jürgen **schert sich** einen Teufel **um** Hunde oder Katzen.
 ? ⇔ Jürgen **schert sich** einen Teufel **um** Hunde
 und Jürgen **schert sich** einen Teufel **um** Katzen.

Jürgen cares a devil (doesn't care) about dogs or cats.
 ? ⇔ Jürgen cares a devil (doesn't care) about dogs
 and Jürgen cares a devil (doesn't care) about cats.

- (457) Jürgen **schert sich** einen Teufel **um** Hunde und Katzen.
 ⇔ Jürgen **schert sich** einen Teufel **um** Hunde
 oder Jürgen **schert sich** einen Teufel **um** Katzen.

Jürgen cares a devil (doesn't care) about cats and dogs.
 ⇔ Jürgen cares a devil (doesn't care) about cats
 or Jürgen cares a devil (doesn't care) about dogs.

The idiom *einen feuchten Kehricht* “a damp rubbish” has the property of functioning as a negation as well, see (458). This feature seems to be so stable that it allows for the linguistically creative spin-offs I annotated as “free minimizers”, see (459) f.:

- (458) Ich könnte mir eine Gesellschaft vorstellen, die
 I could REFL a society imagine REL
sich um diese und ähnliche Versuche, ihre
 REFL about these and similar attempts their
 kommunikativen Grundrechte einzuschränken, einen feuchten
 communicative basic.rights restrict.INF a moist
Kehricht **schert** und sich davon überhaupt nicht
 rubbish cares and REFL by.that at.all not
 beeindrucken ließe.
 impress lets

“I could imagine a society that does not care one bit (lit.: care a damp rubbish) about this and similar attempts to restrict their communicative basic rights and would not be intimidated by that at all.”

- (459) [context:] Ob die dann aber auch von den Nicht-EU Staaten noch angenommen wird ist eine andere Frage.

Nachdem asiatische Staaten **sich** einen feuchten irgendwas
 after Asian states REFL a damp something
um Urheberrechte **scheren** [...] ist das sowieso
 about copyrights care is that anyway
 spannend bis sinnlos [...].
 interesting until nonsensical

“Whether they are accepted by non-EU states is another question. Since Asian states don’t care about (lit.: care a damp something) about copyright [...], it is interesting and nonsensical anyway [...].”

Corpus ID 181

- (460) [context:] Klar, man denkt bei der Rollerderby-Akteurin erst mal an die sogenannte starke Frau, wie sie im 21. Jahrhundert gefeiert und gefordert wird.

Frauen, die sich durchsetzen; Frauen, die **sich**
 women REL REFL persist women REL REFL
einen feuchten Rollschuh-Pups **um** Konventionen **scheren**.
 a moist rollerskater.fart about conventions care

“Of course, thinking of the roller-derby contestant, one first thinks of the so-called strong woman as she is celebrated and demanded in the 21st century. Women who persist; women who don’t care about (lit.: care a damp roller-skater fart) conventions.”

Corpus ID 147

The judgments for *einen feuchten Kehricht* “a moist rubbish” are similar to those for *einen Dreck* and *einen Teufel*: it seems to be downward entailing (see (461)), but I am not sure regarding its anti-additivity (again, for the same reasons mentioned above, namely the exclusive reading of the disjunction), see (462). I am, however, confident that *einen feuchten Kehricht* is not antimultiplicative and thus not antimorphic, see (463).

- (461) Jürgen **schert sich** einen feuchten Kehricht **um** Tiere.
 → Jürgen **schert sich** einen feuchten Kehricht **um** Hunde.

Jürgen cares a moist rubbish (doesn't care) about animals.
→ Jürgen cares a moist rubbish (doesn't care) about dogs.

- (462) Jürgen ***schert sich einen feuchten Kehricht um*** Hunde oder Katzen.
? ⇔ Jürgen ***schert sich einen feuchten Kehricht um*** Hunde
und Jürgen ***schert sich einen feuchten Kehricht um*** Katzen.

Jürgen cares a devil (doesn't care) about dogs or cats.
? ⇔ Jürgen cares a moist rubbish (doesn't care) about dogs
and Jürgen cares a moist rubbish (doesn't care) about cats.

- (463) Jürgen ***schert sich einen feuchten Kehricht um*** Hunde und Katzen.
⇔ Jürgen ***schert sich einen feuchten Kehricht um*** Hunde
oder Jürgen ***schert sich einen feuchten Kehricht um*** Katzen.

Jürgen cares a moist rubbish (doesn't care) about cats and dogs.
⇔ Jürgen cares a moist rubbish (doesn't care) about cats
or Jürgen cares a moist rubbish (doesn't care) about dogs.

In sum, in all the cases described above there are nouns which are generally not negative on a logico-semantic level, but rather on an emotional level. In the specific contexts described above, i.e. in conjunction with the verb of indifference *sich scheren um* “to care about”, they seem to act like a negation pragmatically, and they carry a degree of negativity that extends at least to downward entailment. The data described above fits well with a proposal by Hoeksema (2009), who suggested that what we are observing here may well be akin to the Jespersen Cycle (Jespersen, 1917), which describes the reanalysis of inherently non-negative words (such as polarity items) in double-marking of negation as negation markers themselves, such as French negation marking going from single marking by *ne* to double marking by *ne + pas* (with *pas* being originally non-negative) to single marking by *pas*. What seems to happen in the case of the non-negative nouns discussed above is the reassignment of the function of the negation to the non-negative nouns like *Dreck* and *einen feuchten Kehricht*.

The phenomenon that there is no difference in interpretation between non-negated *einen Dreck* and negated *keinen Dreck* in the examples shown above is not limited to German. Hoeksema (2009: 4f.) cites similar examples by Horn (2001) in which the interpretation does not change regardless of the presence of the negation:

(464) a. He didn't tell me fuck all about the car.

b. He told me fuck all about the car.

(465) a. Fred doesn't know jack shit about the car.

b. Fred knows jack shit about the car.

(Horn, 2001, cited after Hoeksema 2009: 4)

Hoeksema (2009) shows similar examples from German and Dutch, which he coins “taboo expressions with minimizing properties” which he interprets to undergo a re-analysis from “taboo expletive” to “negative quantifier” (Hoeksema 2009: 5). The German example Hoeksema (2009: 5) cites contains *einen feuchten Dreck* “a damp dirt”, a combination of the expressions *einen Dreck* und *einen feuchten Kehricht* discussed above, and interestingly also contains the same verbal NPI *sich scheren um* “to care about”:

(466) Google ***schert sich einen feuchten Dreck um*** den Datenschutz.

Google doesn't care (lit.: cares a damp dirt) about the data protection.

Hoeksema (2009: 5)

Richter and Soehn (2006: 438) show a similar example of *sich scheren um* seemingly licensed by the non-negative noun *einen Pfifferling* “a chanterelle”:

(467) Israel ***schert sich einen Pfifferling um UNO Resolutionen*** [sic!].

Israel doesn't bother at all [lit.: cares a chanterelle] about UN resolutions.

(Richter/Soehn 2006: 438)

Richter and Soehn (2006: 438) analyse cases like *Pfifferling*, *einen Dreck* and *Teufel* as containing covert negation. This analysis is consistent with Hoeksema's (2009) analysis of taboo words undergoing an interpretation shift to having negative meaning and no longer necessarily requiring a formal negation, but rather conveying the meaning of negation themselves. However, based on the data from the present corpus study, it seems that at least in German, this phenomenon seems to be rather limited with regards to its distribution, given that it only shows up with the verb of indifference *sich scheren um*. In conjunction with this NPI, non-negative nouns with negative emotional valence (or taboo expressions, as Hoeksema (2009) calls them) seem to have undergone a level of grammaticalization from regular noun to a form of negation.

This phenomenon seems to at least extend to some other verbs of indifference, which are not NPIs, such as *sich interessieren für* “to be interested in” and *sich kümmern um* “to care about”, see (468)-(470).

(468) Die interessieren sich einen Dreck für uns.⁴¹
 they are.interested REFL a dirt for us
 “They do not care about us (at all).”

(469) Dort interessiert man sich mittlerweile einen Teufel
 there is.interested one REFL now a devil
 für eine verantwortliche Forschungs- und Technologiepolitik⁴²
 for a responsible research and technology.policy
 “There, one is not interested in a responsible policy for research and technology at all.”

(470) Ich kümmere mich einen Dreck darum⁴³
 I care REFL a dirt about.that
 “I don’t care about that at all.”

⁴¹ Corpus hits for »"einen Dreck" && interessieren«, from the corpus Gegenwartskorpora mit freiem Zugang des Digitalen Wörterbuchs der deutschen Sprache,
 <https://www.dwds.de/r/?q=%22einen+Dreck%22+%26%26+interessieren&corpus=dwdsxl&date-start=1897&date-end=2025&sc=adg&sc=bz&sc=blogs&sc=bundestag&sc=ddr&sc=tsp&sc=kern&sc=kern21&sc=gese-tze&sc=spk&sc=politische_reden&sc=samisdat&sc=untertitel&sc=wikibooks&sc=wikipedia&sc=wikivoyage&format=max&sort=date_desc&limit=50&p=1>, retrieved on 02.04.2025.

⁴² Corpus hits for »"einen Teufel" && "interessieren"«, from the corpus Gegenwartskorpora mit freiem Zugang des Digitalen Wörterbuchs der deutschen Sprache,
 <https://www.dwds.de/r/?q=%22einen+Teufel%22+%26%26%22interessieren%22&corpus=dwdsxl&date-start=1897&date-end=2025&sc=adg&sc=bz&sc=blogs&sc=bundestag&sc=ddr&sc=tsp&sc=kern&sc=kern21&sc=gese-tze&sc=spk&sc=politische_reden&sc=samisdat&sc=untertitel&sc=wikibooks&sc=wikipedia&sc=wikivoyage&format=full&sort=date_desc&limit=50>, retrieved on 02.04.2025.

⁴³ Corpus hits for »kümmern && "einen Dreck"«, from the corpus Gegenwartskorpora mit freiem Zugang des Digitalen Wörterbuchs der deutschen Sprache,
 <https://www.dwds.de/r/?q=k%C3%BCmmern+%26%26+%22einen+Dreck%22&corpus=dwdsxl&date-start=1897&date-end=2025&sc=adg&sc=bz&sc=blogs&sc=bundestag&sc=ddr&sc=tsp&sc=kern&sc=kern21&sc=gese-tze&sc=spk&sc=politische_reden&sc=samisdat&sc=untertitel&sc=wikibooks&sc=wikipedia&sc=wikivoyage&format=full&sort=date_desc&limit=50>, retrieved on 02.04.2025.

Whether this phenomenon is in fact limited to the NPI *sich scheren um* and other (non-NPI) verbs of indifference such as *sich kümmern um* and *sich interessieren für* or whether it extends to other environments as well will require further data collection.

5.4.2 “Easy”-type adverbial modifiers

The intuition that certain verbal NPIs, particularly verbs of resilience, can appear with non-negative adverbial modifiers such as *leicht* “easily” was corroborated by corpus data. This phenomenon is not limited to the adverb *leicht* but extends to other adverbial modifiers that express a low level of difficulty, see Table 43 for an overview:

NPI	<i>leicht</i> “easily”	<i>schlanker- hand</i> “easily”	<i>schnell</i> “quickly”	<i>unschwer</i> “easily”	<i>zu viel/ sehr</i> “too much”	Total
<i>absprechen können</i> “to be able to deprive sb. of sth.”		1				1
<i>erwehren können</i> “to be able to avoid sth.”	3					3
<i>hinwegtäuschen können</i> “to be able to obscure sth.”	5					5
<i>sich (d)reinreden lassen</i> “to be swayed”					3	3
<i>sich beirren lassen</i> “to let oneself be misled”	1					1
<i>sich unterkriegen lassen</i> “to keep one’s chin up” (with negation)	1				1	1
<i>zu übersehen sein</i> “to be conspicuous”	11		1	1		13
Total	21	1	1	1	4	28

Table 43: NPIs with “easy”-type modifiers

Leicht “easily” is the most frequent of the “easy”-type adverbial modifiers occurring with verbal NPIs in the data set (N=21). Some examples are given below:

- (471) Dass sie sich vor allem am Föderalismus
that they REFL before all on.the federalism
entzünden, **kann leicht** über den Tiefgang der
light.up can easy about the depth the.GEN
Kontroversen **hinwegtäuschen**.
controversies obscure

“The fact that they spark over federalism can easily obscure the depth of the controversies.”

Corpus ID 1190

(472) Der Thai-Gourmet-Imbiss **ist** leicht **zu** **übersehen** –
 the Thai.gourmet.takeaway is easy INF.PART overlook
 denn von außen sieht er genauso aus,
 because from outside looks it exactly PART
 wie er heißt: unscheinbar.
 like it is.called inconspicuous
 “The Thai gourmet takeaway is easily overlooked – because from the outside
 it looks exactly as it is named: inconspicuous.”

Corpus ID 1256

(473) da [sic!] **lässt sich** jemand aber leicht **unterkriegen** [...]
 there lets REFL somebody but easy get.down
 “Someone lets themselves get down easily there [...]”

Corpus ID 970

(474) Den blanken Degen in der Hand, **konnte**
 the shiny sword in the hand could
sich der junge, unerschrockene Monarch leicht der
 REFL the young fearless monarch easy the.GEN
 immer schwächer werdenden Angriffe **erwehren**.
 ever weaker becoming attacks fight.off
 “Holding the shiny sword in his hand, the young, fearless monarch could easily
 fight off the attacks, which steadily became weaker.”

Corpus ID 1518

The other, less frequent adverbial modifiers expressing a low degree of difficulty found in the data set were *schlankerhand* “easily, without further ado” (lit. “slim.hand”), *schnell* “quickly”, *unschwer* “easily” (lit. “un.difficult” “not-difficult”), and *zu viel* “too much”, which are shown below:

(475) Die Kontrahenten **können** sich deshalb gegenseitig
 the opponents can REFL because mutual
schlankerhand die Existenz **absprechen**.
 slim.hand the existence deny

“Because of that, the opponents can deny each other’s existence without further ado.”

Corpus ID 1059

- (476) Die Momente **sind** überraschend, sehr klein und
the moments are surprising very small and
schnell **zu** **übersehen**, aber wunderschön.
quick INF.PART overlook but wonderful
“These moments are surprising, very small and quickly overlooked, but wonderful.”

Corpus ID 1262

- (477) Daß die mit großer Härte geführten sozialen
that the with big hardness lead social
Kämpfe jener Jahre die innere Verfassung des
fights those.GEN years the inner constitution the.GEN
Landes – die Demokratie – nicht in Frage
country.GEN the democracy not in question
stellten, **war** unschwer **zu** **übersehen**.
put was un.difficult INF.PART overlook
“The fact that the relentlessly fought social battles of those years did not put into question the inner constitution of the country – the democracy – was easily overlooked.”

Corpus ID 1221

- (478) Ich meine, die Eltern **lassen sich** heute
I mean the parents let REFL today
zu viel von den anderen Erziehern **dreinreden**.
too much by the other educators butt.in
“I think that parents let themselves be swayed too much by other educators.”

Corpus ID 983

Contrary to the non-negative nouns that take over the pragmatic function of negation discussed in the previous section, the adverbial modifiers here are truly non-negative⁴⁴ in their interpretation: they express a low degree of difficulty rather than a negation pragmatically. This brings into question whether the NPIs appearing with these adverbial modifiers are truly NPIs. What points towards NPI-hood is that they do not seem to be distributionally free like non-NPIs. Some of the examples shown above are intuitively degraded if the adverbial modifier is left out, suggesting that the verbal NPIs require some sort of modification. Compare the examples in (472) and (478) to the same examples repeated below with the adverbial modifiers *leicht* “easily” and *zu viel* “too much” taken out. In (479), the modal infinitive *zu übersehen sein* (lit. “to overlook be”) loses its interpretation: it is no longer clear whether the modal base is necessity or possibility or whether it should receive a deontic or dynamic interpretation. In addition, the sentence becomes odd without the adverbial modification. Leaving the modifier out also seems to degrade the corpus example in (478), repeated without the modifier in (481). This suggests that there is a requirement for modification of these NPIs, whether it is by a negation or an adverb expressing a level of difficulty.

(479) #*Der Thai-Gourmet-Imbiss ist zu übersehen – denn von außen sieht er genauso aus, wie er heißt: unscheinbar.*

(480) #The Thai gourmet takeaway is to overlook – because from the outside it looks exactly as it is named: inconspicuous.

(481) #*Ich meine, die Eltern lassen sich heute von den anderen Erziehern dreinreden.*
I think that parents let themselves be swayed by other educators.

However, other corpus examples do not seem to be degraded when the adverbial modifier is taken out. The example in (471), repeated without the modifier in (482), seems to be fine. The same goes for the example in (474), repeated without the modifier in (483):

(482) *Dass sie sich vor allem am Föderalismus entzünden, kann über den Tiefgang der Kontroversen hinwegtäuschen.*

The fact that they spark over federalism can obscure the depth of the controversies.

(483) *Die Kontrahenten können sich deshalb gegenseitig die Existenz absprechen.*
Because of that, the opponents can deny each other’s existence.

⁴⁴ Aside from *unschwer*, which contains the affixal negation *un-*.

These examples seem to be totally fine without any modification or negation. There may be two (non-mutually exclusive) reasons for this. Firstly, *hinwegtäuschen können* “to be able to obscure sth.” and *absprechen können* “to be able to deprive sb. of sth.” may not actually be NPIs in the strictest sense. Secondly, if they are indeed NPIs, both combinations of verbs may simply have a second, literal non-NPI reading. This is plausible given that the full verbs *absprechen* “to deprive/deny”, *hinwegtäuschen* “to deceive/hide/obscure” and the modal verb *können* “can” exist independently from one another and have their own literal meanings. The NPI versions of them (full verb + modal verb) are rather transparent and not idiomatic. Thus, sentences with these NPIs without a licenser may sound fine because the listener can derive the compositional meaning of the verb combinations, which does not necessarily require a licenser. A comparison of the instances of NPIs found in sentences with “easy”-type modifiers and instances with absolutely no licenser whatsoever should shed some light on the question of NPI-hood:

NPI	“easy”-type modifiers	No licenser	Total
<i>absprechen können</i>	1	5	6
<i>erwehren können</i>	3	13	16
<i>hinwegtäuschen können</i>	5	12	17
<i>sich (d)reinreden lassen</i>	3	2	5
<i>sich beirren lassen</i>	1		1
<i>sich unterkriegen lassen</i>	2	6	8
<i>zu übersehen sein</i>	13		13
N	22	38	66

Table 44: Comparison of NPIs with “easy”-type modifiers and no licenser

As Table 44 shows, a considerable amount of NPIs appearing with “easy”-type modifiers also appeared with no licenser at all in the corpus. In fact, only *sich beirren lassen* “to let oneself be misled” and *zu übersehen sein* “to be conspicuous” did not appear with no licenser at all in the data set. All other NPIs appearing with “easy”-type modifiers have several instances devoid of any licenser in the data set. This may suggest that indeed, they are not NPIs, but rather, as Hoeksema (1994) coins them, “semi-NPIs”, which are words or groups of words that have a “strong tendency to occur in negative contexts, although they are not, strictly speaking, NPIs” (Hoeksema 1994: 2). The relative semantic transparency and compositional meaning of the verb + modal verb combinations may contribute to this semi-NPI status and their ability to appear without a licenser without being degraded. The strong tendency towards negative

contexts that Hoeksema (1994: 2) attests can be shown quite nicely if one looks at the distribution of *erwehren können* and *hinwegtäuschen können*, the two semi-NPIs that appear most frequently without a licenser, in the corpus data overall: there are 172 instances of *erwehren können* “to be able to avoid sth.” in the corpus data, out of which 13 instances have no licenser at all and 3 instances appear with *leicht* “easily”. That leaves us with 156 instances (90.69 %) that appear in typically NPI-licensing environments like the scope of negation, in questions, etc. The semi-NPI *hinwegtäuschen können* “to be able to obscure sth.” appears overall 77 times in the corpus data, out of which 12 instances have no licenser at all and 5 appear with *leicht* “easily”. That leaves us with 60 instances (77.92 %) in NPI-licensing contexts, demonstrating a strong proclivity NPI-like behaviour that these semi-NPIs exhibit. However, not all NPIs appearing with “easy”-type modifiers should be characterized as semi-NPIs. Notably, *zu übersehen sein* appears 13 times with an “easy”-type modifier, but never without any licenser at all. This suggests that the “easy”-type modifiers are indeed a non-negative licenser type which can license not only semi-NPIs, but also actual, full NPIs.

Licensors	<i>erwehren können</i> “to be able to avoid sth.”	<i>hinwegtäuschen können</i> “to be able to obscure sth.”
<i>weder noch</i> “neither nor”	1	1
<i>kein</i> “no”	4	19
<i>keinerlei</i> “none”		2
<i>keineswegs</i> “by no means”	1	
<i>nichts</i> “nothing”		10
<i>nie(mals)</i> “never”	5	1
<i>niemand</i> “nobody”	4	4
<i>nirgends</i> “nowhere”	1	
<i>unmöglich</i> “impossible”	1	
<i>kaum</i> “hardly”	71	5
<i>wenig</i> “few”	3	1
<i>schwer</i> “difficult”	20	
<i>schwerlich</i> “difficult”	2	1
<i>selten</i> “rarely”	1	
Conditionals	1	1
<i>nur</i> “only”	15	3
Question neutral	4	1
Question neutral embedded	4	
Question rhetorical	2	1
<i>leicht</i> “easily”	3	5

Final clause	4	
Temporal clause	3	
Contrast	3	1
Contrast with particle <i>nur</i>		1
Contrast with particle <i>schon</i>		2
Subjunctive mood (Subjunctive I)		3
Subjunctive mood (Subjunctive II)	4	2
Multiple licensors		1
No licensor	13	12
Total	172	77

Table 45: Licensing contexts of *sich erwehren können* and *hinwegtäuschen können* in the corpus data

Discussing the examples in (479)-(481) I speculated that for some NPIs appearing with “easy”-type modifiers there might be a requirement for modification by an adverb expressing a level of difficulty in the absence of a classical NPI licensor. It is not implausible that such a requirement might exist, given that the “easy”-type modifier pattern seems a rather persistent one in the present corpus study. One might wonder where such a requirement might stem from. I speculate that it may simply be an analogy to a different type of licensor expressing a degree of difficulty I discussed earlier on: the adverbs *schwer* and *schwerlich* “difficult”, which were shown to be downward entailing in Section 5.3.2, modify the verbal NPIs they appear with and express a high level of difficulty. The “easy”-type modifiers, on the other hand, express a low level of difficulty. Perhaps they are simply used in analogy to their downward-entailing counterparts. Table 46 below shows whether the verbal (semi-)NPIs appearing with “easy”-type modifiers also appeared with the downward-entailing “difficult”-type modifiers in the data set, which 4 out of the 7 (semi-)NPIs discussed in this section indeed do.

NPI	“easy”-type modifiers	<i>schwer, schwerlich</i> “difficult”	Total
<i>absprechen können</i> “to be able to deprive sb. of sth.”	1	5	6
<i>erwehren können</i> “to be able to avoid sth.”	3	22	25
<i>hinwegtäuschen können</i> “to be able to obscure sth.”	5	1	6

<i>sich (d)reinreden lassen</i> “to be swayed”	3	0	3
<i>sich beirren lassen</i> “to let oneself be misled”	1	0	1
<i>sich unterkriegen lassen</i> “to keep one’s chin up” (with neg.)	1	0	1
<i>zu übersehen sein</i> “to be conspicuous”	13	25	38
Total	27	53	80

Table 46: Comparison of NPIs licensed by “easy”-type modifiers and by *schwer(lich)* “difficult”

For the remaining 3 verbs of resilience which do not appear with both “easy”- and “difficult”-type modifiers, this may be an issue of data collection. Since no specific searches for *schwer* as a licensor were carried out, hits may simply not be included in the corpus data set. Indeed, searches in the DWDS corpora for these verbal NPIs in conjunction with *schwer* as a licensor produce the following results for *sich beirren lassen* and *sich unterkriegen lassen* (the same search produced no hits for *sich (d)reinreden lassen*):

- (484) Dem Bild der klassischen Politikerin, die auch
the picture the.GEN classical politician REL also
den Kompromiss sucht, entsprach Wagenknecht nie.
the compromise searches matched Wagenknecht never
Sie hat ihre Agenda – und **lässt sich**
she hat her agenda and lets REFL
dabei schwer **beirren**.⁴⁵
with.that difficult irritate

“Wagenknecht never matched the image of the classical politician who also seeks compromise. She has her agenda – and hardly (lit.: difficultly) lets herself be misled in that.”

- (485) Sein Skeptizismus wirkte nach 2001 wie Prophetie.
his scepticism seemed after 2001 like prophecy
Seither **lässt** er **sich** von jeglicher Opposition,

⁴⁵ Corpus hit for »sich && beirren && lassen && schwer && !nicht«, from the corpus Der Tagesspiegel des Digitalen Wörterbuchs der deutschen Sprache,
<<https://www.dwds.de/r/?corpus=tsp&q=sich%20%26%26%20beirren%20%26%26%20lassen%20%26%26%20schwer%20%26%26%20!nicht&format=max>>, retrieved on 13.12.2023.

since *lets* he REFL by any opposition
 und komme sie aus Washingtons Machtapparat,
 and come it from Washington's power.apparatus
 nur *schwer* *beirren*.⁴⁶
 only difficult irritate

“His scepticism seemed like prophecy. Ever since then he hardly (lit.: difficultly) lets himself be misled by any opposition, even if it comes from Washington's power apparatus.”

(486) Ich glaube, das Publikum lässt sich schwerer
 I believe the audience lets REFL difficult.COMP
 unterkriegen, als die Medien ihm zugestehen [...].⁴⁷
 get.down than the media it.DAT grant

“I think that the public is more difficult to get down than the media wants to grant [...].”

In (484), there is a clear case of *schwer* as the licenser. In (485), there is another potential licenser in the clause: *nur* “only”. However, I argue that in this case *nur* modifies *schwer* and thus *schwer* needs to be viewed as the actual licenser.⁴⁸ In (486), *schwer* appears in its comparative form as *schwerer*. Comparatives are known to allow the presence of NPis in certain constructions, see Section 5.4.3.1. Hence, it is not quite clear whether the comparative or *schwer* is the source of NPI licensing in this example. Still, this example may point to the ability of *sich unterkriegen lassen* to appear with “difficult”-type modifiers. All in all, this data could suggest that the source of “easy”-type modifiers is indeed an analogy to the “difficult”-type modifiers.

⁴⁶ Corpus hit for »sich && beirren && lassen && schwer && !nicht«, from the corpus Die ZEIT des Digitalen Wörterbuchs der deutschen Sprache,
 <<https://www.dwds.de/r/?corpus=zeit&q=sich%20%26%20beirren%20%26%20lassen%20%26%20schwer%20%26%20!nicht&format=max>>, retrieved on 13.12.2023.

⁴⁷ ⁴⁷ Corpus hit for »sich && unterkriegen && lassen && schwer && !nicht«, from the corpus Berliner Zeitung des Digitalen Wörterbuchs der deutschen Sprache,
 <https://www.dwds.de/r/?q=sich+%26%26+unterkriegen+%26%26+lassen+%26%26+schwer+%26%26+!nicht&corpus=bz&date-start=1994&date-end=2005&format=max&sort=date_desc&limit=50&p=1>, retrieved on 13.12.2023.

⁴⁸ Leaving out *nur* from the example hardly changes the meaning of the whole sentence, whereas leaving out *schwer* changes the entire meaning to affirmative: *Sie lässt sich dabei schwer beirren* has a very similar meaning to the original example: that it is difficult to mislead her from her agenda. *Sie lässt sich dabei nur beirren*, on the other hand, would state that she actually lets herself be misled. Therefore, I argue that *schwer* must be the licenser of the NPI in (485).

Overall, this section has shown three things: firstly, the intuition that some of the NPIs discussed in the present thesis do not necessarily require a negation, but a modification of some sort by adverbs expressing a low degree of difficulty has been corroborated in the corpus data. Secondly, some NPIs that have a strong tendency to appear with “easy”-type modifiers also appear without licensors in considerable numbers and would thus be better described as semi-NPIs as per the definition of Hoeksema (1994). And thirdly, with the “easy”-type modifiers we have uncovered a truly non-negative licensor type that does not just occur with semi-NPIs, but also full NPIs like *zu übersehen sein* “to be able to overlook sth.”.

5.4.3 Non-negative clauses: comparative, final, and temporal clauses

In the following section, I will present three different clause types identified in the corpus data as NPI licensing contexts. Two of these clause types have previously been described as licensing environments: comparative clauses are even included as a licensor type in the CoDII corpus, and temporal clauses, specifically *before* clauses, have also long been described as NPI licensing contexts. However, the analysis of why these clause types can host NPIs has been cause for some debate. The third clause type, final clauses, has not previously been described as an NPI licensing context in the literature, to my knowledge. However, Sailer (2022, December 14th) presented corpus data on German NPIs which also appeared in final clauses. Since neither comparatives nor temporal clauses nor final clauses are straightforwardly negative, I will argue for an alternative pragmatic licensing mechanism by negative implicatures to explain why they can host NPIs.

5.4.3.1 Comparative clauses

The fact that comparatives can host NPIs has been known since Jespersen (1917). NPIs have been shown to appear both in phrasal and clausal comparatives, see (487)-(488):

- (487) Maria is taller than **anyone** in her class. (phrasal COMP)
(488) Maria is richer than **any** of her friends had **ever** expected. (clausal COMP)

However, the reason why comparatives allow NPIs and whether comparatives are inherently negative or not has sparked a lot of debate. The fact that NPIs can appear in comparatives, of course, lends itself to the idea that comparatives must have a negative component. Hoeksema (1983) claimed that clausal comparatives (which Hoeksema (1983) refers to as “S-comparatives”) are downward entailing and even anti-additive. Later research contradicted this claim, presenting data in which the clausal “than”-comparative is not downward, but upward entailing (Schwarzschild & Wilkinson, 2002: 7). Heim (2006) remedies these contradicting positions by pointing out that the comparative is not *per se* upward or downward entailing but can have different entailment directions depending on the operator(s) it contains: “Trivially, if the ‘than’-clause itself contains DE operators (such as negation or universal determiners), then phrases within the scope of these will be in DE environments.” (Heim 2006: 16). Giannakidou and Yoon (2017: 3) illustrate this using the examples in (489)-(492):

- (489) John is taller than **some professional athletes** are. [∃; upward entailing]
→ John is taller than **some professional basketball players** are.

(490) John is taller than **some professional basketball players** are.
 → John is taller than **some professional athletes** are.

(491) John is taller than **all professional athletes** are. [∀; downward entailing]
 → John is taller than **all professional basketball players** are.

(492) John is taller than **all professional basketball players** are.
 ⇔ John is taller than **all professional athletes** are.

(Giannakidou & Yoon 2017: 3)

In (489)-(490), the “than”-comparative clause contains an existential quantifier, rendering it upward entailing, while in (491)-(492) there is a universal quantifier, and the entailment relation is reversed. Regarding the reason of the presence of NPIs in “than”-comparatives clause, I adopt the proposal by Giannakidou and Yoon (2013), who argue that “[s]ince DE does not seem to be an inherent property of the comparative, it cannot be used in characterizing NPI-licensing in comparatives [...]” (Giannakidou & Yoon 2013: 80). Secondly, Giannakidou and Yoon (2013) argue that since comparatives are veridical, nonveridicality cannot be the source of licensing in comparatives. Instead, Giannakidou and Yoon (2013) build on Giannakidou’s (1998: 151 f.) analysis that “indirect licensing” is the source of the presence of NPIs in “than”-comparatives. Giannakidou and Yoon (2013) propose that rather than being licensed by a primary licensing mechanism, NPIs in “than”-comparatives are rescued in the sense of Giannakidou (2006), i.e., via the pragmatic mechanism⁴⁹ of “rescuing by nonveridicality” proposed in Giannakidou (2006: 596). Rescuing has been described in Section 2.4 on pragmatic licensing mechanisms; the definition is repeated below in (493):

(493) “**Rescuing by nonveridicality**

A PI α can be rescued in the scope of a veridical expression β in a sentence S, if the global context C of S makes a proposition S’ available which contains a non-veridical expression β ; and α can be associated with β in S’.”

(Giannakidou 2006: 596)

Giannakidou and Yoon (2013) propose that NPIs in “than”-comparatives are rescued rather than licensed, building on Giannakidou’s (1998: 151 ff.) analysis of comparative clauses shown below, with g and k being degrees and $g > k$:

(494) Roxy ran faster than **anyone** had expected. (Giannakidou & Yoon 2013: 79)

(495) “a. Roxy run [sic!] g fast.

b. k is the greatest degree such that people expected Roxy to run k fast.

⁴⁹ Giannakidou (1998) and Giannakidou and Yoon (2013) are not the first authors to suggest a pragmatic licensing mechanism to explain the ability of comparatives to host NPIs. Linebarger (1987: 377 f.) also suggests negative implicatures as the source of NPI licensing in comparatives.

c. $\neg$ [people expected Roxy to run *g* fast]” (Giannakidou & Yoon 2013: 80)

According to Giannakidou (1998) and Giannakidou and Yoon (2013: 80) the comparative clause in (494) “asserts *a*, presupposes *b*, and conventionally implicates the negative sentence in *c*”.⁵⁰ The negative implicature in (495)(c) is then responsible for the rescuing of the NPI in (494), which otherwise would be unlicensed since, as Giannakidou and Yoon (2013) argue, comparatives in themselves are neither downward entailing nor nonveridical.⁵¹

In the data set, there were 155 instances of verbal NPIs in clausal “than”-comparatives and two instances of the NPI *sich erwehren können* “to be able to avoid” with phrasal comparatives. See Table 47 below for an overview:

NPI	Clausal comparative <i>als</i> -clause (“than”)	Phrasal comparative	Total
<i>Abbruch tun</i> “to spoil sth.”	1		1
<i>erwehren können</i> “to be able to avoid sth.”		2	2
<i>missen wollen</i> “to want to miss”	1		1
<i>sich scheren um</i> “to care about sth./sb.”	4		4
<i>sich unterkriegen lassen</i> “to keep one’s chin up” (with negation)	1		1
<i>wahrhaben wollen</i> “to want to admit sth.”	148		148
Total	155	2	157

Table 47: NPIs in comparative structures in the corpus data

What stands out is the fact that “than”-comparative clauses seem to be a very productive pattern for *wahrhaben wollen* “to want to acknowledge sth.”: with 148 in-

⁵⁰ Giannakidou (1998: 152) argues that the implicature must be conventional because it cannot be cancelled.

⁵¹ Giannakidou and Yoon (2013) make a strong case that comparatives are, in fact, not negative licensing environments by showing that data previously used to prove a supposed free occurrence of NPIs in “than”-comparatives often includes free-choice *any*, or includes English minimizers that have wrongly been claimed to be strong NPIs and do, in fact, occur much more freely. Giannakidou and Yoon (2013) back up these claims by showing that strong NPIs in Greek, Korean, and English do not appear in comparative clauses, thus providing evidence for the claim that comparatives are not a stable anti-additive environment.

stances in the data set, it comprises the vast majority of instances of NPIs in comparatives in the present corpus study (and with 247 instances overall in the data set, the occurrences in comparatives make up 59,91 % the instances of this NPI in the corpus data). In the following, I will give several corpus examples of *wahrhaben wollen* “to want to acknowledge sth.” from the corpus data and show how the analysis of “than”-comparative clauses by Giannakidou and Yoon (2013) can be applied to them. That is, I will argue that in “than”-comparative clauses the verbal NPI *wahrhaben wollen* is not licensed semantically, but by a secondary pragmatic licensing mechanism, or “rescuing” in the sense of Giannakidou (2006) and Giannakidou and Yoon (2013). Let’s consider some of the corpus data:

- (496) „Rassismus und Sexismus sind hierzulande ein größeres
 racism and sexism are in.this.country a bigger
 Problem, als wir **wahrhaben wollen**“, ist der
 problem than we acknowledge want is the
 Autor überzeugt.
 author convinced
 “‘Racism and sexism are a bigger problem in this country than we want to
 acknowledge’, the author is convinced.”

Corpus ID 2280

- (497) Frankreich, das ist die Lehre dieser Reform,
 France this is the lesson this.GEN reform
 ist in Teilen noch katholischer und engstirniger,
 is in parts even more.catholic and more.narrow-minded
als es die Regierung **wahrhaben wollte**.
 than it the government acknowledge wanted
 “France, this is the lesson of this reform, is in parts still⁵² more catholic and
 narrow-minded than the government wanted to acknowledge”.

Corpus ID 2300

⁵² An alternative translation to German *noch* would be *even*. From the context in the corpus data, it cannot be determined whether the temporal particle *still* or *even* are the appropriate translation. This does, however, not affect the analysis of the comparative clause.

(498) In unserer Arbeit ist uns klar: Dieser Hass
 in our work is us clear this hate
 ist weiter verbreitet, als die deutsche Mehrheits-
 is further spread than the German majority
 gesellschaft und die Islamverbände **wahrhaben wollen**.
 society and the Islam.associations acknowledge want
 “In our work it is clear to us: this hatred is more widespread than the German
 majority society and the Islamic associations want to acknowledge.”
 Corpus ID 2309

(499) Aber manchmal scheint Fußball auch im dritten
 but sometimes seems football also in the third
 Jahrtausend einfacher zu sein, als es die
 millennium simpler to be than it the
 Analytiker mit ihren Taktiktafeln **wahrhaben wollen**.
 analysts with their tactic.sheets acknowledge want
 “But sometimes, even in the third millennium, football seems to be simpler
 than the analysts with their tactic sheets want to acknowledge.”
 Corpus ID 2249

(500) Viele Patienten sind vernünftiger, als es manche
 many patients are more.reasonable than it some
 Politiker **wahrhaben wollen**.
 politicians acknowledge want
 “Many patients are more reasonable than some politicians want to
 acknowledge.”
 Corpus ID 2150

The examples shown above all share a common structure: the main clause contains an adjective in the comparative, and the embedded “than”-clause contains the NPI. The main clause contains a proposition that denotes a fact which is ADJECTIVE-er than the subject in the “than”-clause wants to acknowledge. I argue that this structure gives rise to the common implicature that the subject of the “than”-clause does not want to acknowledge the fact described in the main clause:

- (501) **Main clause:** FACT P $\text{ADJ}_{\text{COMPARATIVE}}$ – **embedded clause:** *than* SUBJECT NPI
 “ P is ADJECTIVE-er than SUBJECT wants to acknowledge.”
Negative implicature: $\neg \text{ACKNOWLEDGE}(\text{SUBJECT}, P)$
 The subject of the “*than*”-clause does not want to acknowledge the fact P contained in the main clause.

Applying Giannakidou’s (1998) and Giannakidou and Yoon’s (2013) analysis of NPI rescuing in “*than*”-comparative clauses, we can refine the analysis further. Take the example from (496), repeated below. The comparative introduces two degrees g and k with $g > k$:

- (502) *Rassismus und Sexismus sind hierzulande ein größeres Problem, als wir **wahrhaben wollen** [...].*
 Racism and sexism are a bigger problem in this country than we want to acknowledge.
- (503) a. **ASSERTION:** Racism and sexism in this country are a problem to g degree.
 b. **PRESUPPOSITION:** k is the greatest degree to which we want to acknowledge the size of the problem (of sexism and racism).
 c. **IMPLICATURE:** $\neg$ [We want to acknowledge that the size of the problem is g]

Transferring the comparative analysis of Giannakidou (1998) and Giannakidou and Yoon (2013) to the German examples from the present corpus study we can say that the example in (504) asserts (505)(a), presupposes (505)(b), and implicates (505)(c). The negative implicature in c is the source that rescues (or pragmatically licenses) the NPI in the “*than*”-clause. The other examples of *wahrhaben wollen* in comparative “*than*”-clauses in (506)–(509) can be analysed analogously:

- (504) *Frankreich [...] ist [...] katholischer und engstirniger, als es die Regierung **wahrhaben wollte**.*
 France [...] is [...] more catholic and narrow-minded than the government wanted to acknowledge.
- (505) a. **ASSERTION:** France is catholic and narrow-minded to g degree.
 b. **PRESUPPOSITION:** k is the greatest degree to which the government wanted to acknowledge the extent of Catholicism and narrow-mindedness.
 c. **IMPLICATURE:** $\neg$ [The government wants to acknowledge that the extent of Catholicism and narrow-mindedness in France is g]
- (506) [...] *Dieser Hass ist weiter verbreitet, als die deutsche Mehrheitsgesellschaft und die Islamverbände **wahrhaben wollen**.*
 [...] This hatred is more widespread than the German majority society and the Islamic associations want to acknowledge.

- (507) a. **ASSERTION:** This hatred is widespread to g degree.

b. **PRESUPPOSITION:** *k* is the greatest degree to which the German majority society and the Islamic associations want to acknowledge the spread of this hatred.

c. **IMPLICATURE:** $\neg$ [The German majority society and the Islamic associations want to acknowledge that the spread of this hatred is *g*]

(508) *Aber manchmal scheint Fußball [...] einfacher zu sein, als es die Analytiker [...] wahrhaben wollen.*

But sometimes [...] football seems to be simpler than the analysts [...] want to acknowledge.

(509) a. **ASSERTION:** Football is simple to *g* degree.

b. **PRESUPPOSITION:** *k* is the greatest degree to which the analysts want to acknowledge the simplicity of football.

c. **IMPLICATURE:** $\neg$ [The analysts want to acknowledge that the degree of simplicity of football is *g*]

(510) *Viele Patienten sind vernünftiger, als es manche Politiker wahrhaben wollen.*

Many patients are more reasonable than some politicians want to acknowledge.

(511) a. **ASSERTION:** Many patients are reasonable to *g* degree.

b. **PRESUPPOSITION:** *k* is the greatest degree to which some politicians want to acknowledge the reasonableness of patients.

c. **IMPLICATURE:** $\neg$ [Many politicians want to acknowledge that the degree of reasonableness of patients is *g*]

There is a plethora of examples with *wahrhaben wollen* in comparative “than”-clauses that have the structure in (501) and give rise to the negative implicature that the subject of the “than”-clause does not want to acknowledge the fact described in the main clause. For more examples of this productive pattern, see the original corpus data in the data repository created for this dissertation project⁵³.

What about the remaining instances of other NPIs in “than”-comparatives? There are four instances of *sich scheren um* “to care about sth./sb.”, one of *missen wollen* “to want to miss” and one of *sich unterkriegen lassen* “to keep one’s chin up (with negation)” which will be discussed in the following. Their semantic structure differs from the analysis of *wahrhaben wollen* in “than”-comparatives. Yet, there is a common structure to be seen, and I argue that five out of the six corpus examples of the abovementioned NPIs shall receive a shared analysis, namely what I call the “dispreferred-conjunct analysis”. A last example which does not quite share the same meaning structure will be discussed after the dispreferred-conjunct analysis. All corpus

⁵³ Available at: <https://osf.io/2bwak/>, DOI 10.17605/OSF.IO/2BWAK

examples that receive this analysis are elliptical structures with “than”-comparatives in which (part of) the NPI is deleted in either the first or the second part:

(512) [context: film review]

Dann wäre da noch die spät pubertierende
 then were there still the late pubescent
 Schwester Claire (Lauren Ambrose), die **sich** mehr
 sister Claire Lauren Ambrose REL REFL more
um ihr Liebesleben, als **um** die Familienverhältnisse
 about her love.life than about the family.relations
schert.
 cares

“Then there is the pubescent sister Claire (Lauren Ambrose), who cares more about her love life than the family relations.”

Corpus ID 62

The elliptical structure of the example is shown below. In the first conjunct of the comparative, the verb *scheren* “to care” is elided, in the second conjunct the subject *sie* “she” and the reflexive particle *sich* are elided:

(513) Dann wäre da noch die spät pubertierende Schwester Claire [...], die **sich** mehr **um** ihr Liebesleben **schert**, als ~~sie-sich~~ **um** die Familienverhältnisse **schert**.

As we have established that the comparative is not inherently negative, I argue that what makes the NPI acceptable here is again a negative implicature that arises from the contrast between the preferred and the dispreferred conjuncts in the example above, namely Claire’s love life (preferred) that she cares about, and the family relations (dispreferred) that she cares less about. This can be analysed in the style of Giannakidou’s (1998) and Giannakidou and Yoon’s (2013) analysis of the comparative, where there are two degrees g and k and $g > k$: namely the degree g to which Claire cares about her love life, and the degree k to which Claire cares about her family relations. For ease of exposure in the following analysis, the example is taken out of the relative clause and reformulated as a declarative sentence:

(514) *Claire schert sich mehr um [ihr Liebesleben]_{PREFERRED}*
als um [die Familienverhältnisse]_{DISPREFERRED}.
 Claire cares more about [her love life]_{PREFERRED}

than [the family relations]_{DISPREFERRED}.

- (515) a. **ASSERTION:** $g > k$: The degree g to which Claire cares about her love life is greater than the degree k to which Claire cares about her family relations.
b. **PRESUPPOSITION:** Claire cares about her love life to degree g and Claire cares about her family relations to degree k .
c. **IMPLICATURE:** Claire doesn't care about her family relations as much as she cares about her love life. / Claire disprefers her family relations to her love life.

Presupposition tests can serve to tangle apart what is the presupposition and what is the assertion here:

- (516) *Schert sich Claire mehr um ihr Liebesleben als um die Familienverhältnisse?*
Does Claire care more about her love life than the family relations?
>> There is a degree g to which Claire cares about her love life and a degree k to which Claire cares about her family relations.
- (517) *Es ist nicht der Fall, dass Claire sich mehr um ihr Liebesleben als um die Familienverhältnisse schert.*
It is not the case that Claire cares more about her love life than her family relations.
>> There is a degree g to which Claire cares about her love life and a degree k to which Claire cares about her family relations.

Both the question test in (516) and the negation test in (517) show that the presupposition that there is a degree g to which Claire cares about her love life and a degree k to which Claire cares about her family relations survives the negation and the question. The assertion " $g > k$ ", that the degree g to which Claire cares about her love life is greater than the degree k to which Claire cares about her family relations, however, does not survive the negation and the question since it is the assertion rather than the presupposition. What about the negative implicature? In line with Giannakidou (1998), I will argue that it is a conventional implicature since it cannot be cancelled, as the test in (518) shows. It is still an implicature, since contrary to the presupposition it can be reinforced without creating redundancy, as the test in (519) shows.

- (518) *Claire schert sich mehr um ihr Liebesleben als um ihre Familienverhältnisse, #aber eigentlich ist ihr Familie immer genauso wichtig wie ihr Liebesleben.*

Claire cares more about her love life than her family relations,
#but actually, she always cares about her family just as much as her love life.

- (519) *Claire schert sich mehr um ihr Liebesleben als um ihre Familienverhältnisse, ihre Familie ist ihr nicht besonders wichtig.*

Claire cares more about her love life than her family relations,
she doesn't care much about her family.

The more abstract structure of the dispreferred-conjunct analysis can be formulated as follows, with two degrees g and k (without accounting for the elliptical structure of the predicate-NPI):

(520)	<u>Definition: Dispreferred conjunct analysis</u>
	SUBJECT [PREFERRED CONJUNCT A] <i>than</i> [DISPREFERRED CONJUNCT B] PREDICATE-NPI a. ASSERTION: $g > k$ b. PRESUPPOSITION: SUBJECT values A to the degree g and B to the degree k. c. IMPLICATURE: SUBJECT doesn't value B as much as A.

In the following, I will show that this analysis can be applied to four other examples of NPis in “than”-comparatives in the corpus study. Consider the following example:

- (521) Der Typ **schert sich** mehr **um** Muffins
the guy cares REFL more about muffins
als um eine schwere Körperverletzung.
than about a grievous bodily.harm
“The guy cares more about muffins than about grievous bodily harm.”
Corpus ID 231

The elliptical structure is shown below. In contrast to the previous example, the verb *scheren* is not elided in the first, but in the second conjunct. In the second conjunct, in the second conjunct the subject *er* “he” and the reflexive particle *sich* are elided:

- (522) Der Typ **schert sich** mehr **um** Muffins als ~~er sich~~ **um** eine schwere Körperverletzung ~~schert~~.

Again, we can apply the dispreferred-conjunct analysis with two degrees g and k :

- (523) Der Typ **schert sich** mehr **um** Muffins als **um** eine schwere Körperverletzung.
The guy cares more about Muffins than about grievous bodily harm.

- a. **ASSERTION:** $g > k$: The degree g to which the subject (the guy) values conjunct A (muffins) is greater than the degree k to which the subject values conjunct B (grievous bodily harm).
- b. **PRESUPPOSITION:** The subject values A to the degree g and the subject values B to the degree k .
- c. **IMPLICATURE:** The subject doesn't value B as much as A.

To keep the text concise, I will show the remaining examples from the corpus data here in short form, with the examples followed by showing the elliptical structures followed by the analysis:

- (524) Lieber Gott,...[sic!] danke, dass du diesen
 dear God thank.you that you this
 Jungen gerettet hast... vor seiner mörderischen Junkie
 boy saved have from his murderous junkie
 Mutter... [sic!] die sich mehr um einen
 mother REL REFL more about a
 40\$ Rausch [sic!] schert als um ihr
 40-dollar inebriation cares than about her
 eigenes Fleisch und Blut.
 own flesh and blood

“Dear Lord, thank you for saving this boy from his murderous junkie mother who cares more about a 40-\$ inebriation than her own flesh and blood.”

Corpus ID 253

- (525) [...] danke, dass du diesen Jungen gerettet hast vor seiner mörderischen Junkie-Mutter, die **sich** mehr **um** einen 40-\$-Rausch **schert** als ~~sie sich~~ **um** ihr eigenes Fleisch und Blut ~~schert~~.

- (526) *Die Mutter schert sich mehr um einen 40-\$-Rausch als um ihr eigenes Fleisch und Blut.*

The mother cares more about a 40-\$ inebriation than her own flesh and blood.

- a. **ASSERTION:** $g > k$: The degree g to which the subject (the mother) values conjunct A (an inebriation) is greater than the degree k to which the subject values conjunct B (her own flesh and blood).
- b. **PRESUPPOSITION:** The subject values A to the degree g and the subject values B to the degree k .
- c. **IMPLICATURE:** The subject doesn't value B as much as A.

(527) [context:] Harmonie als letztmögliche und schönste Form der Subversion.

Sich lieber lachend – so der Gestus – vom
REFL rather laughing so the gesture by.the
Raubtierkapitalismus fressen als von der prosaischen
predator.capitalism eat than by the prosaic
Depression **unterkriegen lassen.**
depression get.down let

“Harmony as the last possible and most beautiful form of subversion. To rather be eaten by predatory capitalism while laughing – such is the gesture – than to let oneself get down by the prosaic depression.”

Corpus ID 977

(528) [...] **Sich lieber** lachend [...] vom Raubtierkapitalismus fressen ~~lassen~~ als ~~sich~~ von der prosaischen Depression **unterkriegen lassen.**

(529) *Sich lieber lachend vom Raubtierkapitalismus fressen als sich von der prosaischen Depression unterkriegen lassen.*

To rather be eaten by predatory capitalism while laughing than to let oneself get down by the prosaic depression.

a. **ASSERTION:** $g > k$: The degree g to which the implicit subject (the writer) values conjunct A (being eaten by predatory capitalism while laughing) is greater than the degree k to which the subject values conjunct B (to get down on prosaic depression).

b. **PRESUPPOSITION:** The implicit subject values A to the degree g and the implicit subject values B to the degree k .

c. **IMPLICATURE:** The implicit subject doesn't value B as much as A.

(530) Ein akkurater Rechenmeister tue ihm viel sicherere
a accurate arithmetic.master does him much more.secure
Dienste als alle Schreibmeister, wie er denn
services than all writing.masters as he PART
auch viel eher die letzteren als den
also much rather the latter that the
ersteren **missen wolle.**
former miss wants

“An accurate master of arithmetic serves him much more reliably than all the masters of writing, just as he would much rather miss out on the latter than the former.”

Corpus ID 1735

(531) [...] wie er denn auch viel eher die letzteren ~~missen-wolle~~ als er den ersteren missen wolle.

(532) *Er will viel eher die Letzteren [die Schreibmeister] als den Ersteren [den Rechenmeister] missen.*

He would rather miss out on the latter [the masters of writing] than on the former [the master of arithmetics].

a. **ASSERTION:** $g > k$: The degree g to which the subject (“he”) values conjunct A (the master of arithmetics) is greater than the degree k to which the subject values conjunct B (all the masters of writing).

b. **PRESUPPOSITION:** The subject values A to the degree g and B to the degree k .

c. **IMPLICATURE:** The implicit subject doesn’t value B as much as A.

There are two remaining examples of NPIs in a “than”-comparative. The dispreferred-conjunct analysis does not quite fit those examples. However, I will argue that it still gives rise to a negative implicature that licenses the NPIs. The first example is also an elliptical structure and can be analysed using the degree analysis from above:

(533) [context:] Doch es war kein besonders prominenter Berg.

Was	dem	Plan	der	Wissenschaftler	<u>mehr</u>	nütze
REL	the	plan	the.GEN	scientists	more	use
<u>als</u>	Abbruch	tat.				
than	damage	did				

[context:] Sie wollten nämlich zeigen, dass sie einen kompletten Berg Stück für Stück wegsprengen konnten.

“But it wasn’t a particularly prominent mountain. Which was more useful to the plan of the scientists than it was detrimental. They wanted to show that they could blow up a whole mountain bit by bit.”

Corpus ID 481

(534) Was dem Plan der Wissenschaftler mehr nütze ~~tat~~ als es ~~ihm~~ **Abbruch** tat.

(535) Was dem Plan der Wissenschaftler mehr nütze als Abbruch tat.

Which was more useful than detrimental to the plan of the scientists.

a. **ASSERTION:** $g > k$: The degree g to which it was useful to the plan is greater than the degree k to which it was detrimental to the plan.

b. **PRESUPPOSITION:** It was useful to the degree g and detrimental to the degree k .

c. **IMPLICATURE:** It was not as detrimental as it was useful.

The only difference to the examples given above is that there is no preferred or dis-preferred conjunct. In terms of the degree analysis, the examples are very similar.

The last example with a “than”-comparative structure differs from the examples to which the degree analysis can be applied:

(536) [context:] Konfrontiert man B. mit all diesen Argumenten, wird er wütend:

„In	unserem	Land	halten	sich	Zehntausende	Menschen
in	our	country	stay	REFL	10.000 PLURAL	people
illegal	auf –	und	der	Staat	hat	nichts
illegally	PART	and	the	state	has	nothing
<u>Besseres</u>	zu	tun,	<u>als</u>	sich	um	meine
better	INF.PART	do	than	REFL	about	my
illegalen	Schafe	und	Hühner	zu	scheren!	“
illegal	sheep	and	chickens	INF.PART	care	

“When one confronts B. with all these arguments, he gets angry: “There are tens of thousands of people staying in this country illegally – and the state has nothing better to do than to care about my illegal sheep and chickens!”

Corpus ID 138

Firstly, note that there is a negation in the main clause: *nichts* in *nichts Besseres* “nothing better”. In my view, it is ruled out that this negation is the licenser of the verbal NPI *sich scheren um* in the embedded “than”-clause as it only scopes over *Besseres* “something better” and cannot take scope over the embedded clause. The dispreferred-conjunct analysis does not fit here as “subject prefers A over B” is not the meaning that arises from this context. Instead, the following implicature arises:

(537) The state should not care about my illegal sheep and chickens, but about the illegal immigrants!

The reason for this is, in my opinion, the phrasing “hat nichts Besseres zu tun”. *Nichts Besseres zu tun haben* “to have nothing better to do” is an idiom⁵⁴ that conveys that the speaker wants the addressee (or whoever the speaker is directing the utterance to)

⁵⁴ One might even think that this idiom is an NPI since it occurs with a negation. However, there is also a non-negative version of the phrase, *Besseres zu tun haben* “to have better things to do”. Whether these two phrases are simply polar opposites of each other or whether we should distinguish *nichts Besseres zu tun haben* “to have nothing better to do” as an NPI with its own, distinct reading, would be an interesting question for further exploration of the NPI-field in German.

to direct their attention or efforts to something else instead of what they are directing it to in the moment of utterance. This creates a contrast between what the addressee's attention is directed to and what the speaker thinks the attention should be directed to, which leads to the negative implicature of "You should not do B, you should do A instead!". Taking the current example, this can be described as follows: there is a problem A (too many illegal immigrants) that the state does not care about. There is a problem B (illegal sheep and chickens) that the state does care about. When confronted with problem B, the speaker (who deems problem A more pressing than problem B) makes the utterance in (536). The contrast between the (pressing) problem A that the state does not take care of and the (less pressing) problem B that the state does take care of leads to the reversal implicature "The state should take care of problem B instead of A". In my opinion this contrast is the source of the negative implicature here. The comparative structure that comes with the idiom serves to open up the contrast between the two conjuncts. For this reason, the analysis of (536) differs from the other "than"-comparatives found in the corpus study.

Aside from the "than"-comparatives, there were two instances of the NPI *sich erwehren können* "to be able to avoid sth." with comparatives, but without "than"-clauses:

- (538) [context:] Da gibt es im Meere Krabben, deren breiter Rücken mit Seerosen bewachsen ist wie die Schneckenschale eines Einsiedlerkrebses.

Da	gibt	es	aber	auch	Krabben,	die	meinen,
there	exists	it	but	also	crabs	REL	think
sich	ihrer	Feinde	noch	<u>besser</u>	erwehren	zu	
REFL	their	enemies	even	besser	fight.off	INF.PART	
können,	wenn	sie	die	Seerosen	in	ihre	
can	when	they	the	water.lilies	in	their	
kräftigen	Scheren	nehmen	und	sie	dem		
strong	scissors	take	and	them	the.DAT		
Angreifer	entgegenstrecken.						
attacker	hold.out						

"There are crabs in the sea whose broad back is overgrown with water lilies like the snail-shell of the hermit crab. But there are also crabs that think that they can fight off their enemies even better if they take the water lilies into their strong scissors and point them at their attackers."

- (539) [context:] Der Physiker hatte für das MI6 gearbeitet, stets an die Echtheit des Oslo-Reports geglaubt und diesen auch vor Churchill verteidigt.

Anhand der Informationen **konnte** **sich** England besser
 based.on the information.PLUR could REFL England better
 der deutschen Angriffe **erwehren**.
 the.GEN German attacks fight.off

“The physicist had worked for the MI6, had always believed in the authenticity of the Oslo report and had defend it [the report] in front of Churchill. Using this information, England was able to fight Germany off better.”

Firstly, there is the caveat that there are 13 instances of *sich erwehren können* without any licensors in the corpus data set, hinting to the possibility of this verbal complex not being a fully grammaticalized NPI. Thus, it is not quite clear whether the comparative *besser* “better” in both examples is a licensor or whether these are unlicensed cases of a semi-NPI which happen to contain a comparative. In the example in (538), there is a clear contrast between the crabs mentioned in the first sentence and the crabs mentioned in the second sentence: the former simply use shells overgrown with sea lilies for concealment to fend off enemies, while the latter use sea lilies as weapons to fight off their enemies even better. The comparative in *besser* “better” again serves to open up the contrast relation between the two types of crabs and their defence strategies. One could argue that by virtue of the comparison, there is an implicit negation available, namely that one crab type’s defensive strategy is not as good as the other’s, which could give rise to a negative implicature which in turn licenses the NPI *sich erwehren können*. In the example in (539), no such overt contrast is available. Instead, the comparative seems to invoke an abstract alternative world: England could fight off the Germans using the information in the Oslo report in a better manner than England would have been able if they had not had this information. This alternative world may give rise to a negative implicature, namely “fight the Germans off better than if they had not had the information”, which in turn may license *sich erwehren können*. However, since *sich erwehren können* seems to be a semi-NPI which can also appear without a licensor, no clear analysis can be made in these cases. The

comparative, by virtue of being able to introduce a contrast between compared conjuncts, does seem to be able to invoke negative implicatures, but if this is the source of NPI licensing in the two cases above cannot be determined with certainty.

5.4.3.2 Final clauses

An unexpected pattern that emerged in the corpus data were final clauses. To my knowledge, final clauses have not been described as contexts in which NPIs appear in the literature. However, Sailer (2022, December 14th)⁵⁵ conducted a corpus study on the two German NPIs *einen Mucks machen* “make a peep” and *auf einen grünen Zweig kommen* “(not) to get anywhere” (lit. “get on a green twig”) and found occurrences of the latter in final clauses, or what Sailer (2022, December 14th) calls “purpose clauses”. Given these findings, it seems plausible that final clauses may indeed be environments in which certain (German) NPIs can appear under certain circumstances. In the corpus data, there were seven such cases, four of them with *sich erwehren können*. Five final clauses were headed by the complementizer *um* “in order to”, and two by the complementizer *damit* “so that”. See Table 48 below for an overview:

NPI	final clause with <i>um</i>	final clause with <i>damit</i>	Total
<i>Abbruch tun</i> “to spoil sth.”	1		1
<i>erwehren können</i> “to be able to avoid sth.”	2	2	4
<i>fassen können</i> “to be able to grasp sth.”	1		1
<i>sich scheren um</i> “to care about sth./sb.”	1		1
Total	5	2	7

Table 48: NPIs in final clauses in the corpus data

The four corpus examples of *sich erwehren können* in final clauses are given below:

- (540) Offensichtlich wird die R. süberlieferung [sic!] v. a.
 obviously AUX.PASS the [R. s] oral.tradition above.all
 von den Handelsstädten als Instrument zur
 by the tade.cities as instrument to.the
 Vertretung ihrer Rechtsansprüche eingesetzt, um
 representation their legal.claims used to
sich damit gegenüber den expansiven Bestrebungen
 REFL with.that opposite the.DAT expansive endeavours
 der Territorialmächte **erwehren** zu **können**.
 the.GEN territorial.powers fight.off INF.PART can

⁵⁵ Slides available at:

https://www.english-linguistics.de/blog/wp-content/uploads/2023/02/Sailer_Koeln22_NPIs.pdf

“Apparently the [R. s] oral tradition is mainly used by the trade cities as an instrument to ascertain their legal claims in order to be able to fight off the expansive endeavours of the territorial powers.”

Corpus ID 1500

- (541) Maria Theresia ließ sich bereit finden, ihm
 Maria Theresia let.PAST.TENSE REFL ready find him
 nach 11/2jährigen [sic!] Kampf eine große reiche
 after one.and.a.half.year.long fight a great rich
 Provinz abzutreten, um **sich** ihrer anderen, stärkeren
 province leave to REFL their other stronger
 Gegner **erwehren** zu **können**.
 adversaries fight.off INF.PART can

“Maria Theresia was prepared to leave him a large, rich province after a [one-and-a-half-year long] fight, in order to be able to fight off her other, stronger adversaries.”

Corpus ID 1528

- (542) [context:] Wie es aussieht, ist der Vorrat der Möglichkeiten, die in London noch zu erörtern sind, dramatisch geschrumpft:
 Man kann das Embargo aufheben und die
 one can the embargo lift and the
 Bosnier aufrüsten, damit sie **sich** der Serben
 Bosnians arm so.that they REFL the.GEN Serbians
erwehren können.
 fight.off can

[context:] Das würde den Krieg eskalieren lassen.

“It looks like the set of possibilities that still have to be discussed in London have shrunk dramatically: one can lift the embargo and arm the Bosnians, so that they can fight off the Serbians. That would escalate the war.”

Corpus ID 1594

- (543) [context:] Diese Tetris-Variante wird über die unteren Bedienknöpfe des Organizers gespielt.
 Auch das Spiel Space Invaders nutzt diese,
 Also the game Space Invaders uses those

damit **sich** der Spieler Attacken aus dem
 so.that REFL the player attacks from the
 Weltall **erwehren** **kann**.
 outer.space fight.off can

“This variation of Tetris is played via the lower operating buttons of the organizer. The game Space Invaders also uses though so that the player can fight off attacks from outer space.”

Corpus ID 1670

All four cases of *sich erwehren können* in final clauses seem to have a similar structure: firstly, the final clauses are nonveridical, which may be the reason they can host NPIs. Secondly, all the final clauses contain a goal which is to be achieved by the means described in the main clauses; this is, of course, a defining feature of final clauses. Those means serve as a prerequisite to reach the intended goal. Incidentally, and probably due to the semantics of *sich erwehren können* (“to be able to avoid/fight off”), in all four examples the goal expressed in the final clause is to fight off some sort of enemy. For example, in (541), Maria Theresia gives her opponent a large province as a means to reach the goal of being able to fight off her stronger enemies. Based on these examples, the preliminary analysis of the pragmatic structure of *sich erwehren können* in final clauses could look like (544), exemplified in (545):

(544) **P** [means or prerequisite]_{main clause} – **Q** [purpose or goal]_{final clause}

(545) [Man kann das Embargo aufheben und die Bosnier aufrüsten] PREREQUISITE
 [damit sie **sich** der Serben **erwehren können**] GOAL
 [One can lift the embargo and arm the Bosnians] PREREQUISITE
 [so that they can fight off the Serbians] GOAL

I would like to argue that this structure gives rise to a negative implicature: If *P* is not done, then the goal *Q* cannot be reached. This negative implicature can pragmatically license the NPI. In the case of (545), the negative implicature looks like this:

(546) ¬P → ¬Q
 If one doesn’t lift the embargo and arm the Bosnians, they will not be able to fight off the Serbians.

The other instances of NPIs in final clauses in the data set can be analysed using the same prerequisite-goal-scheme:

- (547) [context:] Ein bißchen macht er bei der weiland NVA [sic!] Karriere, die seine Effizienz beim Aufschnippeln von Kranken und dem Erkennen von „Simulanten“ durchaus zu schätzen weiß. Erst als einer dieser Simulanten stirbt, fällt er in Ungnade [...].

In seinem Verständnis war alles sowieso eine
 in his understanding was everything anyway a
 Intrige, um seiner Überlegenheit **Abbruch** zu **tun**.
 conspiracy to his superiority damage to do

“He had a bit of a career with the NVA [the army of the German Democratic Republic], where they valued his efficiency in cutting up the ill and discerning “malingerers”. Only after one of those malingerers died, he fell out of favour [...]. In his eyes, it was all a conspiracy in order to deny and harm his superiority.”

Corpus ID 398

In the mind of the subject, external forces spun a conspiracy against him in order to make him fall out of favour and damage his image. Thus, the prerequisite-goal structure and the negative implicature look as follows:

- (548) [It was all a conspiracy] PREREQUISITE
 [in order to deny and harm his superiority] GOAL

Negative implicature: If the conspiracy against the subject had not been spun, his superiority would not have been denied and harmed.

The corpus example of *fassen können* “to be able to grasp” can be analysed in the same vein:

- (549) [context:] Dance-Jahre waren im letzten Jahrtausend ja noch wie Hundejahre; alles ging rasend schnell.

Man musste das reguläre Lebenstempo in etwa
 one had.to the regular life.speed in about
 mit dem Faktor Sieben [sic!] multiplizieren, um die
 with the factor seven multiply to the
 technischen wie künstlerischen Neuentwicklungen überhaupt
 technical like artistic new.developments at.all
fassen zu **können**.

grasp INF.PART can

[context:] Heute ist das nicht mehr so:

“Dance years were like dog years in the last millenium; everything went at a tremendous rate. One had to multiply the regular pace of life by about factor seven in order to be able to even grasp the technical and artistic innovations. Today it is not like that anymore:”

Corpus ID 1729

The prerequisite-goal-structure and the negative implicature arising from this context are as follows:

(550) [One had to multiply the regular pace of life by about factor seven] PREREQUISITE
[in order to be able to even grasp the technical and artistic innovations.] GOAL

Negative implicature: If one didn’t multiply the regular pace of life by the factor seven, one would not have been able to grasp the technical and artistic innovations.

There is one final example of the NPI *sich scheren um* in a final clause. However, this example comes with a caveat: the final clause is embedded in a *wenn*-clause that is ambiguous between a temporal and a conditional reading, which in turn is in the scope of *nur* “only”.⁵⁶

(551) [context:] Man sollte glauben, dass das genug wäre, um Oliver’s Aufmerksamkeit zu erregen.
Aber nur, wenn Ollie nüchtern genug ist,
but only if Ollie sober enough is
um **sich** **um** irgendwas zu **scheren**.
to REFL about anything INF.PART care
One should believe that this should be enough to get Oliver’s attention. But only if/when Ollie is sober enough to care about anything.

Corpus ID 256

Despite this caveat, the pragmatic structure of the final clause can be analysed along the same lines as the previous examples, giving rise to a negative implicature:

(552) [But only if/when Ollie is sober enough] PREREQUISITE
[to care about anything] GOAL

⁵⁶ One could argue that this example should be classified under the category of “multiple licensors”. However, since its pragmatic structure in the final clause fits with the structure of the other final clauses, it is still discussed here.

Negative implicature: If Ollie is not sober enough, he will not care.

To summarise, I propose the following analysis for the verbal NPis in final clauses: the nonveridical final clause which contains the NPI expresses a goal which can be reached if the prerequisite contained in the main clause is fulfilled. This structure gives rise to a negative reversal implicature with the structure in (553)(b): if the prerequisite is not met, then the goal cannot be reached. This reversal implicature can be seen as a source of pragmatic licensing of the NPI in the final clause.

- (553)
- | | |
|----|--|
| a. | P [means or prerequisite] _{main clause} – Q [purpose or goal] _{final clause} |
| b. | Negative implicature: $\neg P \rightarrow \neg Q$ |

5.4.3.3 Temporal clauses

There are four cases of NPIs in temporal clauses in the corpus data set: three instances of *sich erwehren können* “to be able to avoid sth.” in “before”-clauses with the complementizer *ehe* “before”, and one instance of *wahrhaben wollen* “to want to acknowledge” in an *until*-temporal clause with the complementizer *bis* “until”. “Before”-clauses are a known licensing environment for NPIs, although their status has been cause for some debate. “Until”-clauses have also been observed to host NPIs in some cases, although the reason for their ability to host NPIs seems to be less than clear. Linebarger (1987) suggests that “NPIs in ‘before’-clauses appear to require negative implicature” (Linebarger 1987: 378), comparing the following examples containing the minimizer NPI *budge an inch*:

(554) We had to kick the mule hard before it budged an inch.

(555) *The mule sighed before it budged an inch. (Linebarger 1987: 379)

Linebarger suggests that the structure “*P* before *Q*” gives rise to the negative implicature “(NOT *Q*) unless *P*”, given the overtones of causality” (Linebarger 1987: 378). Thus, Linebarger’s example cited in (554) gives rise to the negative implicature “The mule did not budge an inch until we kicked it”. For the contrasting example in (555), Linebarger (1987: 378) argues that “the most natural use of [(555)] is simply to describe a sequence of events, one of which preceded the other, rather than to express the proposition that ‘The mule didn’t budge an inch until it had sighed’”, which Linebarger (1987: 378) deems “simply an unlikely message”. While I agree with Linebarger’s proposal of negative implicatures being responsible for the presence of NPIs and will argue for this approach, it needs to be mentioned that there has been considerable debate as to the status of “before”-clauses and other temporal clauses. Linebarger (1987) herself states that “before”-clauses are downward entailing using the following examples to illustrate:

(556) a. We had to kick the mule before it moved.

b. We had to kick the mule before it moved rightward.

(557) a. The mule sighed before it moved.

b. The mule sighed before it moved rightward. (Linebarger 1987: 379)

Linebarger (1987: 379) herself states that these examples are not fully downward entailing: “Recall that it is necessary to neutralize the implicature that the sentence in the ‘before’-clause is true; in order to evaluate the entailments, it is necessary to grant that

in both cases the mule really did move rightward.” “Granting in both cases that the mule did move rightward” seems akin to Strawson DE, in which the consequent must be defined, and its presuppositions satisfied in order to evaluate the entailment relations. Indeed, in the later literature on “before”-clauses it seems to be the consensus that “before”-clauses are not truly downward entailing, but rather Strawson downward entailing in the sense of von Fintel (1999) (see Condoravdi, 2010; Krifka, 2010). “Before”-clauses have also previously been assumed to be “anti-additive in linear models of time” (Zwarts (1995: 299), referring to Sanchez Valencia et al., 1993). However, since the consensus seems to be nowadays that “before”-clauses are not truly downward entailing, but Strawson DE, they can, by definition, not be truly anti-additive.

Condoravdi (2010) proposes a uniform analysis of temporal clauses with the complementizers *before*, *after*, *until*, and *since*, and attributes their (partially limited) ability to host NPIs to Strawson DE. Krifka (2010) challenges Condoravdi’s (2010) analysis of these temporal clauses, but also puts their ability to host NPIs down to Strawson DE. Krifka (2010) argues for an analysis of “before” as a temporal negation, while Condoravdi’s (2010) analysis of *before* does not contain a negation, amongst other differences. The full debate on the correct analysis of these temporal clauses, which pose a considerable theoretical challenge, is beyond the scope of this thesis, and thus I will remain agnostic on what the correct semantic analysis should be. Since the primary concern of the present thesis are the licensing mechanisms of NPIs, I will focus on Condoravdi’s (2010) and Krifka’s (2010) analysis of Strawson downward entailingness being the source of NPI licensing in certain temporal clauses. As stated in Section 2.4.2, Giannakidou (2006) criticises the approach of assuming Strawson DE as the determining factor for NPI licensing, arguing that “[w]eakening DE systematically either overgenerates or undergenerates, in either case failing to characterize the correct set of licensors” (Giannakidou 2006: 575). Giannakidou (2006) does not discuss temporal clauses specifically, but other Strawson-DE environments such as “only” and emotive factives (see Section 2.4.2), suggesting the pragmatic “rescuing by negative implicature” strategy to explain the ability of those environments to host NPIs. Since temporal clauses cannot be shown to be fully downward entailing, such a pragmatic licensing strategy like rescuing by negative implicature may also be used to explain the presence of NPIs in the temporal clauses found in the present corpus study. The three instances of “before”-clauses with the

complementizer *ehe* “before” containing the NPI *sich erwehren können* “to be able to avoid/fight off) are shown below:

- (558) [context:] Als Christopher auf das Tor zugeschritten kam, piffen die Burschen einen Trauermarsch.

Einer	von	ihnen	trat	an	ihn	heran	und
one	of	them	stepped	to	him	close	and
heftete	ihm,	<u>ehe</u>	er	sich	dessen	erwehren	
attached	him	before	he	REFL	of.this	fight.off	
konnte ,	ebenfalls	eine	Schleife	vor	die	Brust.	
could	also	a	bow	onto	the	chest	

“When Christopher came marching towards the gate, the boys were whistling a funeral march. One of them stepped towards him and attached a bow to his chest before he could avoid/do anything against it.”

Corpus ID 1513

- (559) [context:] Es ist ja bekannt, mit welcher Furchtlosigkeit Affenmütter ihr Junges verteidigen.

<u>Ehe</u>	ich	mich	des	überraschenden	Angriffs	erwehren	
before	I	REFL	the.GEN	surprising	attack	fight.off	
konnte ,	schlug		mir	die	Alte	die	scharfen
could	hit.PAST.TENSE	me	the	old.NOUN	the	sharp	
Krallen	der	rechten	Hand	ins	Gesicht	und	
claws	the.GEN	right	hand	in.the	face	and	
riß	mir	die	Wange	auf [...]			
ripped	me	the	cheek	open			

“It is known with what fearlessness monkey mothers defend their young. Before I could fight off the surprising attack, the old [monkey] hit me in the face with her shard claws and ripped my cheek open [...]”

Corpus ID 1521

- (560) [context:] »Temperament! das [sic!] hab ich gern.«

Und	ehe	ich	mich	seiner	erwehren	konnte,	
and	before	I	REFL	his	fight.off	could	
hatte	er	den	Arm	um	meinen	Leib	
had	he	the	arm	around	my	body	

gelegt und mich fest an sich herangedrückt.
 put and me tight onto him pressed

[context:] Mir brauste das Blut im Gehirn.

“‘Temperament! I like that!’ And before I could fight him off, he had put his arms around my body and pushed me tightly against him. My blood was rushing in my brain.”

Corpus ID 1538

In all three cases, the “before”-clauses are nonveridical. In all three corpus examples there is a structure “*P* before *Q*”, expressing that *P* happened before *Q*. The modal verb *können* “can” in the NPI may be what contributes to the nonveridicality of the “before”-clauses: all three examples express that *P* happened before *Q* **could** happen, giving rise to the negative implicature that *Q* did not happen. This is shown for all three cases below, the corpus examples shortened for clarity:

- (561) [*Einer von ihnen [...] heftete ihm ebenfalls eine Schleife vor die Brust*]**P**
 [*ehe er sich dessen erwehren konnte.*]**Q**
 [One of them [...] attached a bow to his chest]**P**
 [before he could avoid it.]**Q**

Negative implicature: He was not able to avoid getting a bow attached.

- (562) [*Ehe ich mich des überraschenden Angriffs erwehren konnte.*]**Q**
 [*schlug mir die Alte [...] ins Gesicht*]**P**
 [Before I could fight it off]**Q** [the old [monkey] hit me in the face.]**P**

Negative implicature: I could not avoid the hit.

- (563) [*Und ehe ich mich seiner erwehren konnte.*]**Q**
 [*hatte er den Arm um meinen Leib gelegt*]**P**
 [And before I could fight him off]**Q** [he had put his arm around my body]**P**

Negative implicature: I could not fight him off.

The common pragmatic structure of these three cases thus looks like the following:

(564)	a. [<i>P</i> veridical] _{MAIN CLAUSE} [<i>before Q</i> nonveridical] _{TEMPORAL CLAUSE}
	b. Negative implicature: $\neg Q$

While the “before”-clauses containing NPis in the corpus were all nonveridical, the “until”-clause containing an NPI in the corpus data is in fact veridical. Nonveridicality

can thus not be solely responsible for the presence of NPIs in some temporal clauses. Instead, I would like to argue that the following example with an NPI in a veridical “until”-clause gives rise to a negative implicature, too:

- (565) [context:] Und pro Tag hören durchschnittlich 60 ukrainische Patienten die Diagnose „positiv“.
 Bei Wowa hat es ein paar Jahre gedauert,
 with Wowa has it a couple years taken
bis er die Diagnose überhaupt **wahrhaben wollte**.
 until he the diagnosis even acknowledge wanted
 [context:] Erst als er fast bis auf die Knochen abgemagert war, fing er an, Medikamente zu nehmen.
 “About 60 Ukrainian patients per day hear the diagnosis “positive” on average per day. For Wowa it took a few years until he even wanted to acknowledge the diagnosis. Only when he was emaciated down to his bones, he started taking medication.”

Corpus ID 2314

- (566) **Negative implicature:** Wowa did not want to acknowledge the diagnosis for a long time.

Here, the context makes the negative implicature available, particularly through the last sentence expressing that the patient had to get to a very ill state before he acknowledged his illness. The temporal structure of “until”, “*P* until *Q*”, with *P* denoting a long period of time, seems to be a source for the negative implicature. If *P* denotes a short time, such as “three minutes”, the example becomes odd:

- (567) #*Bei Wowa hat es drei Minuten gedauert, bis er die Diagnose wahrhaben wollte.*
 #For Wowa it took three minutes until he wanted to acknowledge the diagnosis.

Condoravdi (2010) also notes an interaction between a long duration described in a temporal “since” clause and the presence of NPIs in English, showing examples like the following:

- (568) It has been over five years since there was **any** film in our office.
 (Condoravdi 2010: 906)

It may thus be plausible that the duration of an interval described in a temporal clause interacts with the ability of the clause to host NPIs at some level, possibly by making negative implicatures available that can rescue the NPI. Intuitively, Condoravdi’s

(2010) example in (568) gives rise to the negative implicature in (569), while shortening the time span in the temporal clause in (570) makes the whole sentence odd and implausible:

(569) We have not had a film in our office for five years.

(570) #It has been three minutes since there was any film in our office.

The full analysis of temporal clauses and durations interacting with NPIs is beyond the scope of the present work. In the words of Krifka (2010: 928): “No doubt it will be quite some time before *before* and *after*, and then some more until *until* and *since* have revealed all of their secrets.” For the instances of NPIs in temporal clauses found in the present corpus study, I suggest that they are pragmatically licensed by a negative implicature in the sense of Giannakidou’s (2006) rescuing mechanism.

5.4.4 Contrast

A truly unexpected type of contexts that NPIs appeared in in the corpus data were contrastive contexts: these are contexts that do not have any licenser that could scope over the NPI in the relevant domain but seem to have a contrastive flavour to them. To my knowledge, contrastive contexts have not yet been described as contexts that can host NPIs. Due to the unexpectedness of this finding, the pattern took a while to crystallize during the annotation process. However, after repeatedly reviewing the cases of NPIs in environments that did not have a clear licenser scoping over them, the pattern of contrastiveness emerged. Note that during the annotation process the contrastive examples were reviewed meticulously and agreed upon between my supervisor and me as contrastive in order to ensure that they were carefully distinguished from cases of NPIs that were simply unlicensed. For the contrastive cases, there is a strong intuition that there is something going on in the broader pragmatic context that contributes to the acceptability of the NPI. In some cases, the contrast was overt in the sense that the clause containing the NPI contrasts with another clause which contains an NPI licenser that cannot scope over the NPI due to its clausal position. In other cases, there was no such overt contrast between an NPI clause and a negated clause. In a number of cases, contrastive environments contained (modal/focus) particles such as *doch*, *schon*, or *auch*, which might contribute to the contrastive meaning in a given example. These cases were annotated separately in the contrast category. After discussing overt vs. implicit cases of contrast found in the corpus study, we will turn to these particles. Table 49 below gives an overview of the 64 cases of 18 different NPIs that were annotated as occurring in contrastive contexts in the data set, including the contrastive cases with certain particles. Note that the particles are not translated in the table because, without context, it is difficult to translate them directly.

NPI	Contrast	Contrast <i>auch</i>	Contrast <i>doch</i>	Contrast <i>nur</i>	Contrast <i>schon</i>	Contrast <i>zwar</i>	Total
<i>Abbruch tun</i> “to spoil sth.”	3	1				1	5
<i>absprechen können</i> “to be able to deprive sb. of sth. ”	5			2		1	8
<i>anders können</i> “to be able to act differently”	2	10					12
<i>anhaben können</i> “to be able to harm”	2			1			3
<i>ausstehen können</i> “to be able to stand sth./sb.”	3		1				4
<i>enden wollen</i> “sth. will have an end”	1						1
<i>erwehren können</i> “to be able to avoid sth. ”	3						3
<i>hinwegtäuschen können</i> “to be able to obscure sth.”	2				2		4
<i>missen wollen</i> “to want to miss”	1						1
<i>mit ansehen können</i> “to be able to bear sth.”	1						1
<i>nicht mehr / noch hören können</i> “to be able to hear any longer”		1					1
<i>sich (d)reinreden lassen</i> “to be swayed”				2			2
<i>sich (etwas) befehlen zu lassen</i> “to be bossed around”	2						2
<i>sich deuteln lassen</i> “to leave room for interpretation”	3						3
<i>sich scheren um</i> “to care about sth./sb. ”	7	1		1			9
<i>sich unterkriegen lassen</i> “to keep one’s chin up” (with negation)				1			1
<i>verwundern können</i> “to be able to amaze sb.”	1				2		3
<i>wahrhaben wollen</i> “to want to admit sth.”		1					1
Total	36	14	1	7	4	2	64

Table 49: NPIs in contrastive contexts in the corpus data

5.4.4.1 Overt contrast

In some cases, there is overt contrast between a clause with an unlicensed NPI and a contrasting elliptical clause that contains negation. The example below in (571) shows such a case of overt contrast with the NPI *sich deuteln lassen* “to leave room for interpretation”. In the second clause, the NPI is elided as shown in (572):

- (571) Am Mordparagrafen **läßt sich deuteln**, an der
on.the murder.paragraph lets REFL interpret on the
Strafprozeßordnung nicht: [...]
code.of.criminal.conduct not
“The murder paragraph leaves room for interpretation, the code of criminal
conduct does not. [...]”
Corpus ID 800

- (572) *Am Mordparagrafen **läßt sich deuteln**, an der Strafprozeßordnung ~~lässt sich nicht deuteln~~*: [...]
The murder paragraph leaves room for interpretation, the code of criminal
conduct does not ~~leave room for interpretation~~.

The first clause contains the NPI, yet there is no licenser in the first clause. The second clause is an elliptical structure in which there is a negation *nicht* “not” present, but the NPI is elided. The negation in the second, contrasting clause cannot take scope over the NPI in the first clause. Yet, the NPI in the first clause sounds natural. There is a clear contrast between the first and the second clause: a contrast between something that does leave room for interpretation and something that does not. This contrast may be responsible for the acceptability of the otherwise unlicensed NPI in the first clause.

Another case of overt contrast between a clause containing an unlicensed NPI and a second contrasting clause containing overt negation that cannot scope over the NPI in the first clause is shown below:

- (573) [context:] Der Bürger, der schnell und heftig auf die Barrikaden geht, ist eine neue Realität.
Man **kann** seinem Protest im Einzelfall die
one can his protest in.the individual.case the
Berechtigung **absprechen**, ignorieren aber kann man ihn
legitimacy deny ignore but can one it
nicht.

not

“The citizen that is quick to protest heavily is a new reality. One can deny the legitimacy of the protest in an individual case, but one cannot ignore it.”

Corpus ID 1063

In this case, the NPI *absprechen können* “to be able to deny/deprive sb. of sth.” appears in the first clause that does not exhibit any type of overt NPI licenser. The second, contrasting clause does not contain an NPI, but it contains the negation *nicht* “not”, which again cannot scope over the NPI in the first clause. The contrastiveness of the two clauses is additionally marked by the contrastive marker *aber* “but” in the second clause. Again, the NPI in the first clause is not licensed, but the contrast between the first and second clause may be responsible for the acceptability of the NPI. Another case of overt contrast between a first clause containing an NPI and a second, elliptical clause containing a negation is given below:

- (574) Man **kann** einem „Merkel muss weg“-Brüller vielleicht
one can a “Merkel must go”-shouter maybe
den moralischen Kompass **absprechen**, nicht aber seine
the moral compass deny not but his
Authentizität.
authenticity

“One may be able to deny the moral compass of a “Merkel must go”-screamer, but not his authenticity.”

Corpus ID 1114

Again, the contrast is marked explicitly by the contrastive marker *aber* “but”. The first clause contains the NPI *absprechen können* “to be able to deny/deprive sb. of sth.”, which is elided in the second, negated clause. The negation in the second clause can once again not scope over the NPI in the first clause; however, the contrast between the two clauses may be responsible for the acceptability of the NPI in the first clause.

The following example demonstrates that the order of “unlicensed NPI in the first clause and licenser in the second clause” can also be reversed. In (575), we see a licensed case of the NPI *anders können* “to be able to act differently” in a quote in the first clause, and an unlicensed case of the same NPI in the second clause, resulting in overt contrast between the two:

- (575) Der Grundsatz: ›hier stehe ich, ich **kann**
the thought hier stand I I can
nicht anders< galt nicht für ihn. Er
not different applied not for him he
konnte anders, wenn es die größere Wirkung
could different when it the greater effect
erheischte.
made
“The motto “Here I stand, I cannot act differently” did not apply to him. He
could act differently when it resulted in the greater effect.”
Corpus ID 785

Overt cases of contrast do not seem to be limited to *nicht* as the licenser in the contrasting clause. In the following example, there is overt contrast between a clause with an unlicensed NPI *sich scheren um* “to care about” and a contrasting clause containing the anti-additive operator *kein* “no”:

- (576) Wir haben eine Zukunft. Wir haben jemanden, der
we have a future we have somebody REL
sich um uns **schert.** Wenn die anderen im
REFL about us cares when the others in.the
Knast landen, kümmert sich keiner um sie.
prison end.up cares REFL nobody about them
“We have a future. We have someone who cares about us. If the others end
up in prison, nobody will care about them.”
Corpus ID 287

The contrasting elements in this example are the speaker and the addressee(s): *wir* “we”, who have someone to care for them, and *die anderen* “the others”, who have nobody to care for them. The anti-additive operator *kein* “no” can in no way scope over the NPI *sich scheren um*. Still, the overt contrast seems to make the NPI in the first clause totally acceptable.

In some cases in the corpus data, the contrast is not only **overt**, but also **explicitly marked** by a contrastive marker. In (573) and (574) above, this is the case: the contrast is explicitly marked by the contrastive marker *aber* “but”. In the following example,

there is an unlicensed NPI *sich scheren um* “to care about” in the first clause, contrasting with the same NPI licensed by *nur* “only” in the second clause. The contrast is explicitly marked by the contrastive adverb *andererseits* “on the other hand”, underlined in the example for clarity:

- (577) Michael ist der Spion. Er **schert sich**
 Michael is the spy he cares REFL
um Worte wie „geheim“. Ich, andererseits, **schere**
 about words like secret I on.the.other.hand care
mich nur **darum**, wer es ist, gegen
 REFL only about.that who it is against
 den ich kämpfen soll.
 REL I fight should
 “Michael is the spy. He cares about words like “secret”. I, on the other hand, only care about who it is that I am supposed to fight.”
 Corpus ID 246

In one case, there is overt contrast between a conjunct containing the unlicensed NPI *sich scheren um* “to care about” and a second conjunct containing the downward entailing licenser *wenig* “few” in a comparative form *weniger* “less”. The contrast is explicitly marked by the comparative structure *je mehr ... desto weniger* “the more ... the less”, underlined for clarity:

- (578) [context:] Ich sollte dann womöglich mehr Informationsmaterial der Piratenpartei mitnehmen.
Je mehr Zeit die armen Seelen damit
 the more time the poor souls with.that
 verbringen, sich um Innenpolitik zu scheren, desto
 spend REFL about domestic.policy to care the
weniger Menschen drehen sie eine LSR-Zeitung an.
 less people turn they a LSR.newspaper PART
 [context:] Das wird ein Spaß.
 “I should possibly take more information material from the Pirate Party [political party in Germany]. The more time the poor souls spend by caring about domestic policy, the less people they can flog an LSR newspaper to. That will be fun.”

Corpus ID 168

Note that this comparative structure is different from the “than”-comparative clauses described in Section 5.4.3.3: there is no “than”-comparative clause which contains the NPI, but instead the structure “the more ... the less”, which marks an overt contrast between the two conjuncts. A final case of overt contrast to be presented here contains the NPI *enden wollen* (with negation “to go on and on”, lit. “to want to end”) and a second clause containing the same NPI licensed by the anti-additive negation *nie* “never”:

- (579) [context: a conversation that the 1st-person narrator really enjoyed]
 Als wir auflegten, setzte ich mich wieder an meinen Platz, aß eine Grapefruit und schaute mir Angela Davis-Interviews [sic!] an.
 Manche Sätze **wollen enden**. Andere **wollen nie enden**.
 some sentences want end others want never end
 “When we hung up, I sat back down in my place, ate a grapefruit and watched Angela Davis interviews. Some sentences want to end. Others never want to end [others want to go on and on].”

Corpus ID 1491

In this case, there is a contrast between the sentences that want to end and the sentences that do not. Again, the negation in the second clause cannot scope over the NPI in the first clause, and again, the contrast itself seems to give rise to the acceptability of the NPI. In this particular case, one could even argue that the first clause “Some sentences want to end” gives rise to the scalar implicature that “not all sentences want to end”, which is spelled out explicitly in the second clause. Thus, in this case, there is a negative implicature that is reinforced, resulting in a case of overt contrast.

5.4.4.2 Non-overt contrast

In most cases annotated as contrastive in the data set, the contrast is not overt in the sense that an unlicensed NPI is contrasting with a clause with an overt licenser. For the non-overt cases I propose that the contrastive contexts that the NPIs appear in give rise to a negative implicature which contrasts with a positive assertion containing the NPI. The negative implicature then licenses the NPI pragmatically in the sense of NPI rescuing (Giannakidou, 2006). The negative implicature can arise from the broader context. Consider the following example:

- (580) [context:] Ausgerechnet seitens der ARD wird nun gestichelt, die Rechte seien nicht einmal die Hälfte dessen Wert [sic!] gewesen, was RTL gezahlt habe.
„Die ARD soll **sich um** ihre Sportarten
the ARD should REFL about their sport.disciplines
scheren“, kontert Bolhöfer.
care counters Bolhöfer
[context:] Man ist derzeit leicht gereizt im RTL-Lager.
“Out of all people, somebody from the ARD was now making snide remarks about how the rights [to televising a sporting event] were not worth half of what RTL had paid. “ARD should care about their own sporting events!”, Bolhöfer says. One is slightly annoyed at RTL.”

Corpus ID 46

This example is about a spat between two German TV broadcasters – one public (ARD) and one private (RTL), with the ARD claiming that RTL paid too much for a broadcasting license of some sporting event. The RTL spokesperson utters the sentence in quotation marks, which contains the NPI *sich scheren um* “to care about”. The NPI is not licensed in this case as there is no potential licenser in the clause. The assertion is also veridical, hence nonveridicality of the assertion cannot be the cause for the acceptability of the NPI. Instead, in this context, the assertion gives rise to a negative implicature which contrasts with the positive assertion containing the NPI:

- (581) a. **Positive assertion:** The ARD should care about their own sporting events.
b. **Negative implicature:** The ARD should not care about RTL’s sporting events.

This negative implicature can then pragmatically license the NPI in the sense of “rescuing by nonveridicality” as suggested by Giannakidou (2006). The pattern of a posi-

tive assertion containing an NPI contrasting with a negative implicature that rescues – or pragmatically licenses – the NPI can also be observed in the following examples:

(582) [context:] Fundamentalistische Demokraten und Rechtsstaatsadvokaten mag der sich abzeichnende Sturz Olmerts erfreuen.

Noch **kann** er, der wohl abgebrühteste Taktiker
 still can he the PART most.ruthless tactician
 der israelischen Politik, **sich** der Sturmangriffe **erwehren**.
 the.GEN Israeli politics REFL the storm.attacks fight.off

[context:] Doch auch wenn er im Amt bleibt, ist Olmert mit seiner Politik am Ende angelangt.

“Fundamentalist democrats and advocates of the state under the rule of law may be happy about the likely downfall of Olmert. For now, he, the most ruthless tactician in Israelian politics, is able to still fight off the attacks. But even if he stays in power, his politics have reached an end.”

Corpus ID 1639

- (583) a. **Positive assertion:** For now, Olmert can still fight off the attacks.
 b. **Negative implicature:** He will not be able to fight off the attacks for much longer.

In (582), there is a positive assertion containing the unlicensed NPI *sich erwehren können* “to be able to avoid/fight off”. The context that follows this assertion gives rise to the negative implicature that he will not be able to fight the attacks off for much longer. This implicature arises from the assertion that his politics have come to an end, even if he manages to stay in power. This negative implicature contrasts with the preceding positive assertion, and pragmatically licenses the otherwise unlicensed NPI in the assertion.

A similar case is found in (584): there is an unlicensed NPI in a positive assertion that the president acknowledged his downfall after some hesitation. In this case, the phrase *nach einigem Zögern* “after some hesitation” is the source for the negative implicature that arises in this context, namely that the president did not want to acknowledge his downfall for a long time. This negative implicature stands in contrast to the positive assertion and pragmatically licenses the NPI.

(584) [context:] Georgiens Präsident [...] ist vom Volk gestürzt worden.

Nach einigem Zögern **wollte** er das dann endlich
 after some hesitation wanted he that then finally

auch **wahrhaben.**

also acknowledge

“Georgia’s president [...] was brought down by the people. After some hesitation, he finally wanted to acknowledge it.”

Corpus ID 2145

- (585) a. **Negative implicature:** The president did not want to acknowledge his downfall.
b. **Positive assertion:** After some hesitation, the president acknowledged his downfall.

The following example demonstrates that the negative implicatures can also arise from a more global context:

- (586) [context:] Es muss nicht immer die Flaute in Bett und Beziehung sein, die dazu führt, dass man nicht gemeinsam einschläft - auch der Wunsch nach einem erholsamen Schlaf kann ein Grund sein, nachts zum Single zu werden. Denn die Schlafposition verrät nicht nur etwas über das Verhältnis zueinander, sondern auch über den Einzelnen: Und einige Menschen drehen sich tatsächlich so unglücklich, dass Ihr Schlaf zu einem nächtlichen Schnarch-Konzert wird.

Und das **tut** der Qualität einer Beziehung auf
and that does the quality a.GEN relationship on
Dauer mit Sicherheit **Abbruch.**
duration with security damage

“Going through a sexual low in a relationship isn’t always the reason for not falling asleep together. The desire for good sleep can be a valid reason to be single at night. The sleeping position is not only telling on the relationship, but also on the individual: and some people sleep in such distorted positions that their sleep becomes a snoring concert. And this certainly harms the quality of the relationship in the long run.”

Corpus ID 437

- (587) a. **Negative implicature:** Sleeping in separate beds does not necessarily harm a relationship.
b. **Positive assertion:** Nightly snoring concerts will harm a relationship.

The negative implicature here arises from the more global context: starting from the positive assertion that contains the NPI, one needs to go back several sentences to understand what the author of the text intends to say. Without context, the assertion containing the NPI would sound less acceptable. However, if we interpret the positive assertion as contrasting with an alternative of what could harm a relationship, the

following negative implicature arises from the context: separate beds are not necessarily detrimental to a relationship, in contrast to nightly snoring concerts. The need for a wider context to derive the negative implicature is consistent with Giannakidou's (2006) definition of "rescuing by nonveridicality", as rescuing is not restricted to a narrow domain: an NPI "can be rescued in the scope of a veridical expression β in a sentence S, if the **global** context C of S makes a proposition S' available which contains a nonveridical expression β " (Giannakidou 2006: 596, emphasis added).

While for some cases the negative implicature arises from the global context, in other cases, negative implicatures seem to be tied to specific words: given below, there are two examples of the NPI *ausstehen können* "to be able to stand" in the scope of *die einzige/die eine* "the only":

- (588) »Familien sind eine ganz große Scheiße«, denkt
 families are a very big shit thinks
 er bei der Beerdigung seiner Großmutter Ada,
 he at the funeral of his grandmother Ada
 der einzigsten Angehörigen, die er einigermaßen **ausstehen**
 the only relative REL he somewhat stand
konnte.
 could

"'Families are a huge nuisance', he thinks at the funeral of his grandmother Ada, the only relative he could stand to some extent."

Corpus ID 516

- (589) Sie gehen mit Carla, der einen Person,
 they go with Carla the one person
 die ich einigermaßen **ausstehen kann**, und sie
 REL I somewhat stand can and she
 will, dass wir zwei beste Freunde werden –
 wants that we two best friends become
 schon verstanden.
 already understood

"They are going with Carla, the one person that I can stand to some extent, and she wants us two to become best friends – understood."

Corpus ID 533

As already discussed in Section 5.3.3.3, the expression “the only” is known to be able to host certain NPIs in its restrictor in English and Dutch (Hoeksema 2012: 23 f.). The contexts above show that its German counterparts *die einzige* and stressed *die eine* can function as an NPI hosting environment as well. The restrictor of “the only” is not downward entailing, but Strawson DE at most, as the inference from (590)(a) to (590)(b) only holds if the consequent is defined and its presupposition are satisfied. That is, if we already know that Pia speaks Italian and we encounter the sentence in (590)(a), we can infer (590)(b):

- (590) a. *Pia ist die einzige in der Klasse, die eine Fremdsprache spricht.*
 Pia is the only person in the class that speaks a foreign language.
 b. *Pia ist die einzige in der Klasse, die Italienisch spricht.*
 Pia is the only person in the class that speaks Italian.

Keeping with the spirit of Giannakidou (2006), who argues against Strawson DE as the source of NPI licensing as “[w]eakening DE systematically either overgenerates or undergenerates” (Giannakidou 2006: 575), I propose that in the corpus examples shown above, negative implicatures are responsible for the acceptability of the NPI:

- (591) *Ada war die einzige Angehörige, die er einigermaßen **ausstehen konnte**.*
 Ada was the only relative he could stand to some extent.
 Negative implicature: He could not stand any other relatives.
- (592) *Carla ist die eine Person, die er einigermaßen **ausstehen kann**.*
 Carla is the only person he can stand to some extent.
 Negative implicature: He cannot stand any other person in the relevant context.

Basically, to say that person X is the only person the subject can stand in the relevant domain conventionally implicates that the subject cannot stand any other person in the relevant domain by denying all the relevant alternatives that the subject could like. This inference does not seem to be the presupposition of “the only” in this context: it disappears under negation and in questions as shown in the following presupposition tests:

- (593) a. *Ada war nicht die einzige Angehörige, die er ausstehen konnte.*
 Ada was not the only relative he could stand.
 b. *War Ada die einzige Angehörige, die er ausstehen konnte?*
 Was Ada the only relative he could stand?
 c. *>/> Er konnte keine anderen Verwandten ausstehen.*
 >/> He could not stand any other relatives.

In line with Giannakidou (1998: 142), I argue that the negative implicature that arises from “the only” is conventional because it can be reinforced without creating redundancy as shown in (594)(b), but it cannot be felicitously cancelled as shown in (595)(b):

(594) a. *Ada war die einzige Angehörige, die er ausstehen konnte.*

Ada was the only relative he could stand.

b. *Alle anderen konnte er nicht leiden.*

He couldn’t stand any of the others.

(595) a. *Ada war die einzige Angehörige, die er ausstehen konnte.*

Ada was the only relative he could stand.

b. *#Die anderen fand er aber auch ganz nett.*

#But he didn’t mind the others.

To conclude, I argue that “the only” gives rise to a negative implicature which contrasts with its assertion, pragmatically licensing the NPI in its scope. This is consistent with Giannakidou’s (2006) suggestion that NPIs in the scope of “only” get rescued via negative implicatures.

Another case in which the negative implicature seems to be closely tied to a particular lexical element seems to be the following case of *höchstens* “at most”:

(596) Zum Glück kann sie diesmal nicht durch
to.the luck can she this.time not by
Rost gestoppt werden. Höchstens Feuer **könnte** diesem
rust stopped AUX.PASS at.most fire could this
schönen Spielmaterial etwas **anhaben**.
beautiful play.material something harm
“Luckily this time it cannot be stopped by rust. At most, fire could do harm
to this beautiful playing material.”

Corpus ID 1364

As mentioned in Section 5.3.3, the quantifying determiner “at most N” is known to be downward entailing in its first argument (van der Wouden 1994: 39). Downward monotonicity can also be shown in its German counterpart *höchstens N*, as shown in (597):

(597) *Petra hat höchstens drei Kinder.*

→ *Petra hat höchstens drei Töchter.*

Petra has at most three children.
→ Petra has at most three daughters.

Höchstens “at most” without a following number is not a quantifying determiner, but an adverb that expresses exception, and it does not seem to be downward entailing, as the entailment in (598) doesn’t hold:

(598) *Petra mag Tiere im Allgemeinen nicht. Höchstens Pferde findet sie ganz okay.*
→ *Höchstens Shetland-Ponys findet sie ganz okay.*

Petra doesn’t like animals in general. At most she thinks horses are okay.
→ At most she thinks Shetland ponies are okay.

Turning back to the example with *höchstens* “at most” found in the corpus data, I propose that *höchstens* gives rise to a negative implicature:

(599) *Höchstens Feuer könnte diesem schönen Spielmaterial etwas anhaben.*

At most, fire could do harm to this beautiful playing material.
Negative implicature: Nothing else could do harm to the material.

In saying that at most fire could have an impact, *höchstens* “at most” highlights the alternatives of what could do harm to the material and denies them via negative implicature. The implicature seems to be conventional, as it can be reinforced without producing redundancy, but it cannot be felicitously cancelled, as shown in (600) and (601) respectively:

(600) *Höchstens Feuer könnte dem Material etwas anhaben, sonst nichts.*
At most fire could do damage to the material, nothing else.

(601) *Höchstens Feuer könnte dem Material etwas anhaben.*
#Feuchtigkeit oder Schimmel könnten ihm auch etwas anhaben.

At most fire could do damage to the material.
#Damp and mould could also damage it.

5.4.4.3 Contrast and (modal) particles and adverbs

As shown in Table 49, it was noted that in several cases of NPIs in contrastive contexts, the (modal) particles *auch*, *doch*, *nur*, *schon*, and the adverb *zwar* also appeared. They were annotated separately in order to explore if they interact with the contrastive character of the contexts.

Contrast and *auch*

The particle *auch* “also/too” appeared 14 times in relevant domains in contrastive contexts, 10 times out of those with the NPI *anders können* “to be able to act differently”. All ten examples have very similar meaning. One is given below for illustration:

- (602) [context:] Camilla habe sich die Kopfhörer aufgesetzt und ihren musikalischen Einsatz sehr genossen, berichtet das Magazin Hello. Ihr Gatte Prinz Charles, der britische Thronfolger, habe ihr *zufrieden* zugeschaut. Übertreiben es die Windsors mal wieder mit der Modernität?

Sie **können** auch **anders:**

they can also different

[context:] Als Weihnachtskarte verschicken Charles und Camilla in diesem Jahr ein Foto von ihrer Hochzeit am 9. April in Windsor.

“Camilla had put on the headphones and enjoyed her musical performance, Hello magazine reports. Her husband Prince Charles is reported to have watched her contently. Are the Windsors overdoing it with their modern antics once again? They can also act differently: Charles and Camilla are sending a photo from their wedding on the 9th of April in Windsor as their Christmas card this year.”

Corpus ID 786

The particle *auch* “too” seems to be highly relevant for contrastive cases of the NPI *anders können* “to be able to act differently”. Leaving it out in the example above would render it unacceptable. As an NPI, *(nicht) anders können* expresses the subject’s inability to act differently than it does. Using this NPI with *auch* instead of a negative licenser highlights an alternative to the inability to act, contrary to expectation. The contrast in these cases arises between the expectation of being unable to act differently and the assertion that the subject is in fact able to act differently. In the example cited above, the contrast is made between the royal family’s efforts to appear modern and their ability to keep with tradition. In the other corpus examples of *anders können* and

auch, the contrast is similarly between an expected (perhaps usual) inability to act differently and the alternative to that, highlighted by the particle *auch*.

The systematic meaning contribution that *auch* has to contrastive cases of *anders können* does not extend to other NPIs:

(603) [context:] Die Visualisierungen heiterten die Schwarzseher merklich auf.

Aber	zugleich	tat	es	leider	<u>auch</u>	ihren
but	at.the.same.time	did	it	unfortunately	also	their.DAT
Testergebnisse [sic!] Abbruch.						
test.results		damage				

[context:] So trafen die aufgemunterten Pessimisten mit ihren Wurf Pfeilen häufiger am Ziel vorbei.

“The visualizations cheered the pessimist up noticeably. But at the same time, it also had a negative impact on their test results. The cheered-up pessimists missed the targets more often with their throwing arrows.”

Corpus ID 411

In the example above the particle *auch* does not seem to add anything to the contrastive meaning. That is, it could be left out and the contrast between the cheerier mood and the lowered performance of the pessimists would not disappear, nor would the sentence become unacceptable. I thus conclude that *auch* makes a systematic meaning contribution to contrastive cases of the NPI *anders können*, but not necessarily to other NPIs.

There was only one instance of the particle *doch* in the contrastive cases in the data set, with the NPI *ausstehen können* “to be able to stand”, given below:

- (604) [context:] Denn die Luxemburgerin hat ihre Erlebnisse auf der 8000 Kilometer langen Fahrt zu einem Roadmovie auf Schienen mit Screwball-Charme verarbeitet.

Noch mehr als den einzelnen Reisestationen widmet
even more than the individual travel.stops turns

sie sich den Charakteren der Gruppe –

she REFL the characters the.GEN group

die sich am Ende dann doch ein bisschen

REL REFL at.the end then PART a bit

ausstehen können, weil eine chinesische Mauer

stand can because a Chinese wall

im Nebel, russische Kohlsuppe und viel Alkohol

in.the fog Russian cabbage.soup and much alcohol

auch Menschen zusammenschweißen, die im

also humans weld.together REL in.the

Alltag wenig gemein haben.

everyday.life little in.common have

“The Luxembourg national has turned her experiences of the 8000-kilometre trip into a road movie on train tracks with Screwball charm. Even more than on the individual stops of the journey she focuses on the individual characters in the group – who in the end can stand each other after all, because the Chinese Wall in foggy conditions, Russian cabbage soup and a lot of alcohol can bring people together who have little in common in everyday life.”

Corpus ID 514

In this particular case, *doch* has a strong contribution to the contrastive meaning. It expresses that the proposition in the sentence it is embedded in is contrary to a stronger expectation: in this case, the expectation is that people who have nothing in common will not be able to stand each other, which contrasts with the proposition expressed in the clause with the NPI and *doch*, namely that the individuals in question are able to get along because of shared experiences – contrary to expectation. Thus, in this example, the particle *doch* is vital to the contrastive meaning. Since there were no more

instances of *doch* in contrastive contexts, no further inferences about its contribution to contrast can be drawn for now.

Contrast and *nur*

There were seven cases in which the particle *nur* “only” appeared in contrastive contexts. Despite *nur* being a licenser in its own right, these cases were annotated as contrastive after careful consideration for several reasons. Consider the following example:

- (605) Der Staat **kann** der Familie durchaus etwas
the state can the family absolutely something
anhaben, allerdings nur, wenn ganz bestimmte Punkte
impact although only when very definite points
erfüllt sind.
fulfilled are
“The state can definitely impact the family, but only if certain criteria are met.”

Corpus ID 1422

The particle *nur* does not appear in the same clause as the NPI *anhaben können* “to be able to harm”. Thus, it must be ruled out as a licenser in this case. The contrast between the first and the second conjunct is explicitly marked by *allerdings* “on the other hand”. The particle *nur* focuses a conditional clause in the second conjunct. The first conjunct expresses that the state is able to harm families, and the second conjunct expresses that this is only the case under certain circumstances. The whole example thus expresses that usually, the state cannot interfere with families, but in certain circumstances it can. This is the contrast between the first and the second conjunct, which I argue gives rise to a negative implicature: that under most circumstances, the state cannot interfere with families. In this case, it is clear that *nur* cannot be viewed as the licenser of the preceding NPI.

In the following example, the case is not quite as clear:

- (606) [context:] Irgendwo habe ich das Argument gesehen, daß nach deutschem
Recht ein Diensteanbieter die pseudonyme oder anonyme Teilnahme
gestatten muß.
Das Problem ist jedoch, daß **sich** Google

the problem is but that REFL Google
nur dann **um** deutsches Recht **schert**, wenn
 only then about German right cares when
 es ums Zensieren geht, aber nicht dann,
 it about censorship is but not then
 wenn es um Benutzerrechte geht ...
 when it about user.rights is

“Somewhere I saw the argument that in German law a provider needs to allow attending with a pseudonym or anonymously. The problem is, however, that Google only cares about German laws when it’s about censorship, but not, when it’s about user rights.”

Corpus ID 207

In (605), the particle *nur* is in the same clause as the NPI *sich scheren um* “to care about”, unlike in the previous example in (605). On the other hand, *nur* has focus over *dann* “then” and the following conditional⁵⁷ clause and not over the NPI. In this respect, (605) is similar to (605): in both examples, certain conditions are defined under which the proposition that the NPI expresses does apply, in contrast to other (regular) cases: (605) expresses that Google only cares about German law when it comes to censorship, but not when it comes to user rights. Similarly, (605) expresses that the state can only interfere in families under certain circumstances. In both cases, *nur* “only” appears to focus the conditional rather than the NPI-containing clause. In addition, the clause containing the NPI and *nur* stands in explicit contrast to the following clause, which expresses under which circumstances Google does not care about German law. This contrast is explicitly marked by the contrastive marker *aber* “but”. The contrastive context as well as the question whether *nur* can be viewed as the licenser of the NPI if it focuses the conditional clause lead to the annotation of this example as contrastive involving the particle *nur*, rather than simply *nur* as the licenser. The pattern that *nur* produces in contrastive contexts is the following: it defines the conditions under which the proposition expressed by the non-negated NPI apply as an exception from the rule. This pattern can also be seen in other examples:

(607) Ins Training **läßt** er **sich** nur von einigen
 into.the training lets he REFL only by some

⁵⁷ The clause also has a temporal reading.

ausgesuchten Vertrauten **dreinreden.** Auf Schlagzeilen
 selected confidants talk.into on headlines
 gibt er nichts.
 gives he nothing

“He only lets himself be swayed by some selected confidants when it comes to the training. He doesn’t give anything about headlines.”

Corpus ID 1027

In (607) the NPI is again in the same clause as *nur*, thus *nur* might simply be considered as the licenser. However, similarly to the two examples shown above, (607) is a contrastive context which conveys that the proposition expressed by the unlicensed NPI – in this case, *sich reinreden lassen* “to be swayed” – applies under certain conditions only. The particle *nur* has focus over these conditions: the subject in the example is only swayed by a selected few confidants. This stands in overt contrast to the headlines, which are mentioned in the following negated clause.

The same pattern can be seen without overt contrast in the following example containing the NPI *absprechen können* “to be able to deny”:

(608) Einer Person **kann** nur dann die Verantwortung
 a.DAT person can only then the responsibility
 für seine [sic!] Handlungen **abgesprochen** werden, wenn
 for his actions denied AUX.PASS when
 diese eine unmittelbare Folge seiner [sic!] Psychose
 this a immediate consequence of.his psychosis
 darstellen.

pose

“A person’s responsibility for their actions can only be denied if they [the actions] are an immediate consequence of their psychosis.”

Corpus ID 1062

Again, the very specific conditions under which an individual can be absolved from responsibility to their own actions are defined in the conditional clause in the focus of *nur* “only”. There is no overt contrast in the following context. Instead, I would like to propose, the *nur*-clause gives rise to a negative implicature: that under no other circumstances than the one expressed in the *nur*-clause people can be absolved of the

responsibility for their actions. Of course, in this case *nur* is again in the same clause as the NPI *absprechen können*. Thus, one might simply assume *nur* to be the licensor of the NPI. However, remember that in the first example of contrastive *nur* the particle was not in the same clause as the NPI and cannot be considered as the licensor. All five examples show a remarkable similarity in that *nur* focuses the specific conditions under which exceptions to the rule can be made. This is the reason I annotated the contrastive *nur* cases as their own category. Future research is needed to tease apart the intertwined effects of *nur*, conditionals and contrast in these cases.

Another particle that could play into contrastive readings is *schon*. In the following example, it combines with *eher* “more” and the NPI *verwundern können* “to be able to amaze”:

- (609) [context:] Rechnet man die Kosten pro Tag Olympia-TV gegen ein Länderspiel der deutschen Nationalelf auf, dann liegen die Kosten für die Übertragungsrechte mit jeweils über vier Millionen Euro beinahe auf einer Höhe. So gerechnet, ist Olympia alles andere als ein überteuert eingekauftes Fernsehprogramm.

Dass	ARD	und	ZDF	mit	480	Mitarbeitern
that	ARD	and	ZDF	with	480	employees
mehr	Personal	nach	London	geschickt	haben,	als
more	staff	to	London	sent	have	than
deutsche	Sportler (392)	bei	Olympia	vertreten	sind,	
German	athletes (392)	at	Olympics	present	are	
kann	den	Gebührenzahler	<u>schon</u>	eher	verwundern.	
can	the	license.fee.payer	PART	more	confuse	

“If one calculates the cost per day of TV coverage of the Olympic Games and compares it to a [football] match of the German national team, one can see that the cost for the broadcasting rights is comparable at over four million Euro each. If one calculates it this way, the Olympic Games are not an overpriced TV programme at all. The fact that ARD and ZDF [German public TV stations] have sent 480 employees to London, which is more than there are German athletes (392) at the Olympics, could be more astounding to the license-fee payers.”

Corpus ID 2059

In (609), a comparison is made between the cost of the broadcasting rights and the number of employees the TV stations have sent to the Olympics. The cost of the broadcasting rights is relativized, while the number of employees is compared to the number of athletes, which it exceeds. The last sentence expresses that the number of employees could be more astounding. Taking the global context into consideration, the negative implicature arises that the amount of money is not that astounding after all. This negative implicature contrasts with the assertion that the number of employees is astounding. The particle combination *schon eher* serves to highlight this contrast between the numbers, giving rise to the negative implicature.

Lastly, contrastive contexts including the adverbial connector *zwar* were annotated separately. In all three cases in the corpus data, *zwar* appeared in conjunction with the contrastive markers *aber* and *doch* “but”, which is not surprising: it can generally only appear together with those markers. Upon closer inspection, it turns out that *zwar* does not contribute to contrastiveness, but rather marks it explicitly in conjunction with “but”. In the two examples shown below, the NPI is in a clause with *zwar*, which contrasts with the following clause headed by “but”:

- (610) Daß er seine ersten Dollars für einen
 that he his first dollars for a
 zwielichtigen Chef verdienen muß, **tut** dem Idealismus
 dodgy boss earn must does the idealism
zwar ein bißchen **Abbruch**, doch gottseidank [sic!]
 PART a bit harm but thank.god
 wird „Bruiser“ Stone (Mickey Rourke) schnell von
 AUX.PASS „Bruiser“ Stone (Mickey Rourke) quickly by
 der Justiz aus dem Weg geräumt.
 the justice out.of the way taken
 “The fact that he has to earn his first dollars for a dodgy boss does harm the idealism a bit but thank God “Bruiser” Stone (Mickey Rourke) gets taken out by the justice system quickly.”

Corpus ID 425

- (611) Eine 1236 von Kaiser Friedrich II. bestellte Kommission
 a 1236 by Kaiser Friedrich II. ordered commission
 ebenso wie moderne Gerichte und Sachverständige
 also like modern courts and experts [...]
 haben dieser Beschuldigung zwar ihr Recht
 have this accusation PART POSS right
absprechen, aber nicht das Leben nehmen **können**.
 deny but not the life take can
 “A commission that Kaiser Friedrich II ordered in 1236 as well as modern courts and experts [...] have been able to deny the right of this accusation but have not been able to take its life.”

This explicit contrast itself seems to be sufficient to render the otherwise unlicensed NPIs acceptable. Thus, cases with *zwar* and *aber/doch* “but” are simply cases of explicitly marked contrast.

To summarize, in this section I have reported instances of otherwise unlicensed NPIs which appear in contrastive contexts. To my knowledge, contrastive contexts have not been described as NPI-hosting contexts in the previous literature. The contrastive contexts can be distinguished into overt contrast and non-overt contrast. In overt cases, a clause containing an unlicensed NPI contrasts with another clause with an NPI licensor such as *nicht* “not”, *kein* “no”, *wenig* “few”. In non-overt cases, there is no such contrasting clause containing a licensor. Instead, I have argued, non-overt contrastive contexts give rise to a negative implicature which contrasts with the assertion containing the otherwise unlicensed NPI. The NPI is then pragmatically licensed in the sense of “rescuing by nonveridicality” (Giannakidou 2006). The negative implicature can arise from specific triggers such as “the only” (*der/die/das einzige* or stressed *der/die/das eine*), or from the global context the NPI is embedded in. Overt and non-overt contrast can be explicitly marked by contrastive markers. Explicit contrastive marking is optional. Importantly, the finding that NPIs can appear in contrastive contexts further supports the assumption that a pragmatic licensing mechanism for NPIs is needed to explain the distributional facts. The reasons for this are twofold: in the overt cases, the NPI licensors cannot take scope over the NPI, thus the NPI cannot be technically licensed in the semantic sense. Secondly, in the non-overt cases of contrast, there is no potential licensor at all. Instead, those contexts appear to give rise to negative implicatures. This pragmatic licensing mechanism can be modelled in terms of Giannakidou’s (2006) NPI rescuing mechanism, as will be shown in detail in Section 6.1, where the implications of the corpus data presented here for pragmatic licensing mechanisms in general are discussed.

5.4.5 Unclassified: subjunctive mood, the domain widener *überhaupt*, multiple licensors, and unlicensed cases

There was a number of cases in the corpus study that could not be classified into the categories of licensing environments discussed thus far. These cases include the following:

- a) NPIs with no overt licensors, but in the subjunctive mood
- b) Two cases in which the domain-widener *überhaupt* seems to play a role
- c) Cases with multiple potential licensors
- d) Fully unlicensed cases

For documentary purposes, I will briefly comment on each of these groups in the remainder of this chapter.

Subjunctive mood

There were overall 32 cases of NPIs where the verbal NPI appeared in the subjunctive, but with no obvious other licensor. Three of them appeared in the so-called subjunctive I, which is mainly used to describe indirect speech and can also, *inter alia*, express the irrealis (see Wöllstein 2022: 240 ff.). The rest appeared in the subjunctive II, which has the function of expressing the irrealis or potentialis and is as such nonveridical. The three cases of subjunctive I all have an irrealis interpretation, as shown in the example below:

- (612) Die Fürther Fast-Absteiger taten tatsächlich so, als
the Fürther almost.relegated.team did in.fact so as.if
könne dieser eine Derbysieg über eine
can.SUBJUNCTIVE this a derby.win over a
ansonsten fatale Saison **hinwegtäuschen**.
otherwise fatal season gloss.over
“The almost-relegated team from Fürth indeed pretended that this one derby win could gloss over the reast of the fatal season.”

Corpus ID 1134

A comparison of the instances of NPIs in the subjunctive mood to unlicensed cases shows that for most NPIs that appear in subjunctive mood, there are even more instances which are totally unlicensed. This suggests that the NPIs in questions may

not be fully grammaticalized yet, that is, they are semi-NPIs. If this were the case, we could simply classify the subjunctive cases as unlicensed cases. Table 50 below shows the comparison:

NPI	Subjunctive mood	No licensor	Total
<i>Abbruch tun</i> “to spoil sth.”	6	14	20
<i>absprechen können</i> “to be able to deprive sb. of sth.”	6	5	11
<i>anfechten</i> “to irritate”	1	1	2
<i>anhaben können</i> “to be able to harm”	1	1	2
<i>enden wollen</i> “sth. will have an end”	1	5	6
<i>erwehren können</i> “to be able to avoid sth.”	4	13	17
<i>hinwegtäuschen können</i> “to be able to obscure sth.”	5	12	17
<i>nicht mehr / noch hören können</i> “to be able to hear any longer”	1		1
<i>sich (etwas) befehlen zu lassen</i> “to be bossed around”	1	1	2
<i>sich scheren um</i> “to care about sth./sb. ”	2	2	4
<i>verdenken können</i> “to hold sth. against sb.”	1		1
<i>verwundern können</i> “to be able to amaze sb.”	3	7	10
<i>wahrhaben wollen</i> “to want to admit sth.”	1	4	5
Total	32	61	93

Table 50: Comparison of NPIs in subjunctive mood and with no licensor in the corpus data

There were two cases in the corpus in which the domain widener *überhaupt* seems to play a role in increasing the acceptability of the NPI. The examples are given below:

- (613) Es macht mir nichts aus, Interviews zu geben.
 it makes me nothing PART interviews INF.PART give
 Im Gegenteil, es ist mir lieber, wenn **sich**
 in.the opposite it is to.me preferred if REFL
 Leute überhaupt **um** einen **scheren**.
 people at.all about one care
 “I don’t mind giving interviews. On the contrary, I prefer it if people care about me at all.”

Corpus ID 195

- (614) [context:] Über den trockenen Technokratismus, mit dem Verne sein Wissen an den Leser bringt, muss man noch heute staunen: eine verblüffende, oft begeisternde, gelegentlich aber auch ziemlich langweilige Umdeutung literarischen Schaffens als Mittel zur Faktenvermittlung –
 umso erstaunlicher, wenn man sich vor Augen
 the.more astounding if/when one REFL before eyes
 hält, dass Vernes Mondbücher die ersten waren,
 holds that Verne.gen moon.books the first were
 die **sich** überhaupt **um** eine plausible technische
 REL REFL at.all about a plausible technical
 Beschreibung der Weltraumfahrt **scherten**.
 description the.GEN space.travel cared
 “One still marvels today at the dry technocratism with which Verne brings his knowledge to his readers: a surprising, often enthralling, but sometimes pretty boring reinterpretation of literary production as a means to convey facts – all the more astonishing when one acknowledges that Verne’s books about the moon were the first ones that even cared about a plausible technical description of space journeys.”

Corpus ID 43

Now, the presence of the NPIs in both examples does not pose a theoretical problem: in (613), *sich scheren um* “to care about” appears in a conditional clause, and in (614), the same NPI appears in the scope of a superlative, both of which are known NPI

licensors.⁵⁸ The presence of *überhaupt* is also not surprising per se – remember *überhaupt* as a strengthener of negation is an NPI that was tested in Experiment 1 and 2. From a theoretical point of view, we could happily state that the two examples above are simply instances of two difference NPIs in the scope of one and the same licensor. What makes these cases interesting, and the reason I am singling them out here, is the intuition that in both cases, *überhaupt* somehow increases the acceptability of the sentences. Leaving it out reduces the acceptability somewhat:

- (615) Im Gegenteil, es ist mir lieber,
 in.the contrary it is me.DAT preferred
 ??wenn **sich** Leute **um** einen **scheren**.
 if REFL people about one care
 “On the contrary, I prefer it if people care about me.”

- (616) [...] dass Vernes Mondbücher die ersten waren,
 that Verne.GEN moon.books the first were
 ??die **sich** **um** eine plausible technische
 that REFL about a plausible technical
 Beschreibung der Weltraumfahrt **scherten**.
 description the.GEN space.travel care
 “[...] that Verne’s books about the moon were the first ones that even cared
 about a plausible technical description of space journeys.”

I won’t suggest that leaving *überhaupt* out makes the sentences unacceptable altogether. My intuition is simply that it reduces the acceptability or even changes the interpretation of the sentences, as can also be seen in the English translations: leaving “at all” and “even” out of the translations seems to change the meaning slightly. The contribution of *überhaupt* seems to be the strengthening of the assertions by widening the domain, something which is well-captured in the scalar approaches to NPI licensing reported in Section 2.3. In scalar approaches, it is assumed that the role of an NPI is always to strengthen the assertion, which is what seems to be happening in the

⁵⁸ The superlative has not been covered specifically in the present thesis because it did not show up as a pattern in the corpus study reported in Section 5 and was not part of the experiments reported in Section 4, either. However, the superlative is a known licensing environment and as such included in the CoDII corpus, as reported in Section 3.1.

examples above that include *überhaupt*. The role of *überhaupt* seems to be to widen the domain of quantification and thereby highlight the relevant alternatives. This possibly triggers negative implicature: the assertion in (613) “I’m glad if people care about me at all” seems to give rise to the negative implicature that it is not very often that people care about the speaker. Similarly, the assertion in (616) “These books were the first that even cared about x at all” implicates or even implies by virtue of the expression *die Ersten* “the first” that no-one had previously cared about x. It is an interesting observation that adding a domain widener renders assertions with already licensed NPIs more natural. This fits well with the assumption of scalar accounts that NPIs are typically used to strengthen the assertion.

Multiple licensors and unlicensed cases

As described in Section 5.2.3, cases with multiple potential licensors received one of two treatments. If there was a strong licensor such as *kein* “no” in conjunction with a weak licensor such as a question, the example was annotated as licensed by the strong licensor as the strong licensor clearly trumps the licensing power of the question. Recall that there were only cases of questions with propositional negation in the data set; had there been questions with non-propositional negation, they would have been annotated separately. Alas, none such cases appeared in the corpus data collected for the present dissertation. Unlike for combinations of strong and weak licensors, in cases with more than one weak licensor, however, it could not be decided which licensor is ultimately responsible for the licensing of the NPI (see Section 5.2.3 for a corpus example). Those cases (N = 26) were classified as containing multiple licensors and did not receive further analysis.

In addition, there were 75 cases of NPIs in which no potential licensor could be identified. This may point to the NPI in question not being fully grammaticalized as an NPI (yet), or not actually being an NPI, particularly in cases with high numbers of unlicensed corpus hits. Another reason may be that some corpus hits with no licensor have a compositional reading which is different from the NPI but was hard to distinguish from it and was therefore not deleted from the corpus study. Table 51 below gives an overview of unlicensed cases. An example of an unlicensed case of *Abbruch tun* “to

spoil sth.” is given below. For all corpus hits with no licensor and multiple licensors, see the online data repository created for this dissertation project.⁵⁹

- (617) Der 2. Weltkrieg tat der Reiselust der
the second world.war did the travel.fondness the.GEN
Deutschen deutlich Abbruch.
Germans clearly damage
“World war II had a clear negative impact on the Germans’ fondness of travel.”

Corpus ID 370

NPIs	N
<i>Abbruch tun</i> “to spoil sth.”	14
<i>absprechen können</i> “to be able to deprive sb. of sth.”	5
<i>anfechten</i> “to irritate”	1
<i>anhaben können</i> “to be able to harm”	1
<i>enden wollen</i> “sth. will have an end”	5
<i>erwehren können</i> “to be able to avoid sth.”	13
<i>fassen können</i> “to be able to grasp sth.”	1
<i>hinwegtäuschen können</i> “to be able to obscure sth.”	12
<i>missen wollen</i> “to want to miss”	1
<i>sich (d)reinreden lassen</i> “to be swayed”	2
<i>sich (etwas) befehlen zu lassen</i> “to be bossed around”	1
<i>sich scheren um</i> “to care about sth./sb.”	2
<i>sich unterkriegen lassen</i> “to keep one’s chin up” (with negation)	6
<i>verwundern können</i> “to be able to amaze sb.”	7
<i>wahrhaben wollen</i> “to want to admit sth.”	4
Total	75

Table 51: NPIs with no licensor in the corpus data

⁵⁹ Available at: <https://osf.io/2bwak/>, DOI 10.17605/OSF.IO/2BWAK

6 General discussion

In this section, I will discuss the implications of the data reported in Sections 4 and 5. In particular, I will focus on the following topics: 1) the assumption of a secondary, pragmatic licensing mechanism for NPIs, 2) NPIs in questions and particularly the interaction of NPIs and rhetoricity in questions, and 3) the issue of what makes an NPI an NPI, where I will delve into a more speculative area. Since the experiments reported in Section 4 have already been discussed in detail in Section 4.3, the general discussion will at first focus more on the implications from the corpus data reported in Section 5, particularly on the NPIs in non-negative contexts discussed in Section 5.4. In Section 5, I stated that the corpus data demonstrates the following points:

- 1) There is a larger variety in non-negative licensing contexts for NPIs than has previously been assumed.
- 2) Some licensing environments that do not look negative at first glance can be shown to be downward entailing.
- 3) Other licensing environments cannot be explained by downward-entailing licensing theories and require a different licensing strategy altogether, namely pragmatic licensing (cf. Section 2.4).
- 4) This does not only hold for (well-researched) minimizer-type NPIs, but also for (less well-researched) verbal NPIs.

Point 1 was illustrated particularly in Section 5.4, which demonstrated that NPIs can appear in more non-negative contexts than have previously been assumed. These contexts are again given in Table 52. While some of the non-negative licensing contexts have previously been described in the literature, others have not: the observation that in some cases, non-negative nouns such as *Teufel* “devil” or *einen Pfifferling* “a chanterelle” seem to be able to license the NPI *sich scheren um* “to care about” was previously made by Richter and Soehn (2006) and Hoeksema (2009). The present corpus study showed that this licensing pattern extends to more specific nouns than previously assumed and even extends to linguistically creative, context-dependent expressions.

Group	Licensor	Licensor type	N
Non-negative nouns with negative emotional valence	<i>einen Deut</i>	Minimizer	1
	<i>einen Dreck, feuchten Kehricht, Teufel</i>	Non-NPI noun with negative emotional valence	57
	free minimizer	Minimizer	5
“Easy”-type adverbial modifiers	EASY: <i>leicht (schlankerhand, schnell, unschwer, zu viel)</i>	“easy”	28
Non-negative clauses	<i>als</i> -clause (comparative)	“than”-comparative	155
	Comparative	Comparative	2
	Final clause (<i>um, damit</i>)	Final clause	7
	Temporal clause	Temporal clause	4
Contrastive environments	Contrast	Contrast	65

Table 52: Non-negative licensing environments

“Easy”-type adverbial modifiers, on the other hand, have – to my knowledge – not been described as potential “licensors” for NPIs in the previous literature. Interestingly, the very existence of this “licensing” pattern puts into question the NPI-hood of the items they can license. Regarding this question, I speculated that the NPIs may not be fully grammaticalized as NPIs yet and may thus be regarded as “semi-NPIs” as suggested by Hoeksema (1994). This assumption is also backed up by the results of Experiment 1, where particularly cluster [2] received relatively high ratings in the unlicensed condition, but still exhibited a decline in acceptability with declining negativity. Alternatively, I speculated that verbal modification with “easy”-type modifiers may happen in analogy to NPI licensing by “difficult”-type modifiers. This may also point to the items in question perhaps not being fully grammaticalized NPIs, albeit exhibiting a high degree of idiosyncrasy in that they do require some form of modification. Note that both these explanations are not mutually exclusive.

Turning to the different non-negative clause types, two types are well known as NPI-hosting environments, while one appears to be a relatively new discovery. As discussed in Sections 5.4.3.1 and 5.4.3.3, comparative clauses and temporal clauses, *before*-clauses in particular, have long been described as NPI-hosting contexts in the literature. Final clauses, on the other hand, have only recently been found to be NPI hosts in corpus work on two German NPIs by Sailer (2022, December 14th), who ob-

served that the NPI *auf einen grünen Zweig kommen* (lit. “onto a green twig come”, “to get somewhere”) can appear in final clauses. The present corpus study extends the empirical data base for NPIs in final clauses, showing that at least four verbal NPIs can appear in them as well: *Abbruch tun* “to spoil sth.”, *erwehren können* “to be able to avoid sth.”, *fassen können* “to be able to grasp sth.”, and *sich scheren um* “to care about sth./sb.” (see also Table 48).

Lastly, the present corpus study has uncovered 65 cases of NPIs in contrastive contexts. Contrastive contexts have, to my knowledge, not been described in the literature as relevant contexts for NPI licensing. In some of these cases, there is an overt contrast between an unlicensed NPI in one clause and another clause which contains a licenser. In the non-overt cases of contrast, I argued that these contexts give rise to a negative implicature that can in turn pragmatically license the NPI.

This brings me to the second point: some licensing environments that do not look negative at first glance can be shown to be downward entailing. This applies specifically to the licensers *schwer* and *schwerlich* “difficult” and the structure *zu* ADJECTIVE *um* “too ADJECTIVE to”, which have been described in Section 5.3.3 on downward entailing licensers. At first glance, *schwer(lich)* “difficult” is not a negative operator in the classical sense. However, as described for English by Kennedy (2001), “polar adjectives” such as *difficult* can “generate monotone decreasing contexts” (Kennedy 2001: 201). This downward monotonicity was also shown for *schwer* and *schwerlich* in Section 5.3.3. Similarly, the structure “too ADJECTIVE to” does not look downward entailing or negative at first sight but has been previously described as being able to host NPIs by Linebarger (1987) and Danescu-Niculescu-Mizil et al. (2009) for English. It has been shown to be downward entailing in German as well in Section 5.3.3.

Turning to the third point, I have argued that other environments discussed in Section 5 cannot be explained by classical semantic licensing theory and require a different licensing mechanism altogether: a secondary, pragmatic licensing mechanism, as has been previously proposed by Linebarger (1987), Sedivy (1990), Giannakidou (2006), and Sailer (2022). A pragmatic licensing mechanism is required particularly for the analysis of comparative clauses, final clauses, temporal clauses, and contrastive contexts. In the following, I will discuss the nature of this pragmatic licensing mechanism, comparing Giannakidou’s (2006) and Sailer’s (2022) approaches in particular.

Finally, turning to the fourth point: “unusual” licensing contexts for NPIs such as the ones mentioned above have previously been described as hosting minimizer NPIs (Sedivy, 1990; Sailer, 2022). The corpus data presented here has shown that the phenomenon of these licensing contexts extends beyond the realm of minimizers in German, namely, to verbal NPIs that are neither minimizers nor scalar in any way.

6.1 Pragmatic approaches to NPI licensing

As described in Section 2.4, pragmatic approaches to NPI licensing were primarily suggested to explain the presence of NPIs in the scope of *only* and adversative predicates like *to be surprised* by Linebarger (1987) and Giannakidou (2006). Both of these contexts are well-known for their ability to host NPIs. Yet, it could not be shown successfully that these contexts are downward entailing like other NPI licensing contexts. In order to maintain the theoretical assumption that NPIs appear exclusively in downward entailing environments, several attempts have been made to weaken the notion of downward entailment: most notably in the form of Strawson downward entailment (von Fintel, 1999; see Section 2.1.2), but also as “psychological downward entailment” (Linebarger 1987: 367), or “weak downward entailment” (Hoeksema, 1986). As described in Sections 2.1.2 and 2.4, the main criticism of weakening the notion of downward entailment is that it “overgenerates [...] and predicts general licensing across PIs [polarity items] and languages” and does not arrive at the correct description of distributional facts about NPIs crosslinguistically (Giannakidou 2006: 578). Atlas (1996) and Linebarger (1987: 367 ff.) make similar arguments against the weakening of the notion of downward monotonicity. To explain the presence of NPIs in the scope of *only*, both Linebarger (1987) and Giannakidou (2006) have suggested that *only* can give rise to a negative implicature. Consequently, an assertion like (618) gives rise to the negative implicature in (619), formalised in (620) akin to the suggestion made by Linebarger (1987: 372) (see (109)).

(618) Only Mary speaks Italian.

(619) Everybody who is not Mary does not speak Italian.

(620) $\forall x(\neg[x = \text{Mary}] \rightarrow \neg(P(x)))$

This analysis is not necessarily incompatible with von Fintel’s (1999) analysis of *only* being Strawson downward entailing. In von Fintel’s (1999) view, the assertion in (621) Strawson-downward entails (622) if we take the consequent as defined (and true) and the presuppositions are satisfied. In other words, if I know that Mary speaks Italian and someone tells me that out of the relevant set of people, only Mary speaks a foreign language, then I can conclude that out of the set of relevant people, only Mary speaks Italian. At the same time, when it comes to the relevant alternatives, I can conclude that out of the relevant set of people, everybody who is not Mary does not speak Italian. This is the negative entailment given in (623), which corresponds to the negative implicature in the analyses of Linebarger (1987) and Giannakidou (2006).

- (621) Only Mary speaks a foreign language.
 (622) Only Mary speaks Italian.
 (623) Everybody who is not Mary does not speak Italian.

This goes to show that the analyses for why NPIs can appear in the scope of *only* by von Fintel (1999) vs. Linebarger (1987) and Giannakidou (2006) are not necessarily mutually exclusive. Von Fintel’s (1999) analysis does not exclude the possibility of negative implicatures arising. The difference between the approaches is merely that von Fintel (1999) attributes the presence of the NPI to Strawson DE, while Linebarger (1987) and Giannakidou (2006) attribute it to the negative implicature that arises from assertions such as (618) and (621). As described in Section 2.4, Giannakidou (2006) makes a strong case against assuming a weakened notion of downward entailment as underlying the licensing NPIs, arguing that “if we allow the context-givenness of a valid subset inference to influence DE, even positive sentences become DE. And if we allow this form of DE to sanction PIs, then we predict PIs in positive sentences too, as long as the subset inference is part of shared knowledge.” (Giannakidou 2006: 581) I agree with this argument, and I share Giannakidou’s (2006) view on the following two theoretical questions: we should assume nonveridicality as a more “conservative extension of DE” as “the key semantic notion for PI [polarity item] licensing” (Giannakidou 2006: 578). And secondly, in cases where nonveridicality cannot explain the presence of NPIs, such as in the scope of *only* or adversative predicates, we should assume a secondary, pragmatic NPI licensing mechanism.

The data presented in Sedivy (1990) and Sailer (2022) supports the assumption that a secondary, pragmatic licensing mechanism is needed. As shown in Section 2.4, the presence of (a subclass of) NPIs in rising declaratives or emphatic VERUM-focus contexts cannot be explained in terms of downward entailment nor easily in terms of nonveridicality in the case of assertions with VERUM. The answer in the VERUM-focus context in (624) is neither downward entailing nor nonveridical. Instead, as described in Section 2.4, Sailer (2022) proposes the use-conditional analysis given in (625).

(624) A: You don’t **give a damn** about our relationship.

B: I DO **give a damn**!

(625) TRUE(**give-damn(speaker)**) ^{tc|uc} (salient-utt(¬give-damn(speaker)))
 (Sailer 2022: 746)

In this analysis, the utterance in (624) can only be felicitously made if the conditions in (625) are met: that is, if there is a salient previous utterance that the speaker does

not give a damn. Consequently, the assertion cannot be made out of the blue as it is the previous context that sanctions this NPI. This seems to be an adequate description of the data observed by Sedivy (1990) and Sailer (2022). Similarly, rising declaratives such as (151), repeated in (626), are not downward entailing. The rising declarative in (627) does not entail the rising declarative in (628):

- (626) Chris hat (tatsächlich) einen Finger krumm gemacht, um
Chris has actually a finger bent made to
zu helfen?
INF.PART help

“Chris really has lifted a finger to help?”

(Sailer 2022: 739)

- (627) Chris hat tatsächlich Gemüse gegessen?
Chris has actually vegetables eaten
“Chris has actually eaten vegetables?”

- (628) Chris hat tatsächlich Karotten gegessen?
Chris has actually carrots eaten
“Chris has actually eaten carrots?”

Since it has long been observed that NPIs usually cannot appear in rising declaratives in contrast to polar questions (see Horn (2016: 295 f.) for discussion), it is not clear if nonveridicality could be the underlying factor in explaining the presence of minimizer NPIs in rising declaratives in Sailer’s (2022) and Sedivy’s (1990) data. If that were the case, one would not expect to find a difference in the licensing ability of polar questions with interrogative syntax and rising declaratives. Indeed, the NPIs in rising declaratives observed by Sedivy (1990) and Sailer (2022) are a rather unusual case. As described in Section 2.4, Sailer (2022) proposes the use-conditional analysis shown in (152), repeated in (629). This analysis makes it clear that an NPI can only appear in a declarative question if there is an assertion in the previous utterance content that the speaker was convinced that $\neg$ NPI. Sailer’s (2022) analysis of (a limited subset of) NPIs in declarative questions is thus pragmatic in nature. This seems adequate given that NPIs are normally not licensed in rising declaratives.

(629) ASSERT_{Add} (... npi ...)^{tc|uc}⟨convinceds_p(¬(... npi ...))⟩ (Sailer 2022: 747)

The corpus data presented in Section 5.4 has provided further evidence to support the assumption of a secondary, pragmatic licensing mechanism in cases where downward entailment or its extension nonveridicality do not apply. In Section 5.4.3.1, I presented the analysis of comparatives by Giannakidou and Yoon (2013), who propose that NPIs in comparatives are not licensed in the semantic sense, but rather “rescued” in the sense of Giannakidou’s (2006) “rescuing by nonveridicality”. I applied this analysis to the German corpus data, arguing in accordance with Giannakidou and Yoon (2013) that a secondary, pragmatic licensing mechanism is what makes NPIs in comparatives acceptable.

In Section 5.4.3.2, I discussed NPIs in final clauses. (German) NPIs in final clauses are a relatively new observation, to my knowledge, which was recently described by Sailer (2022, December 14th) for two German NPIs and observed for four more NPIs in the corpus study in Section 5.4.3.2 (see Table 48). For NPIs in final clauses, I suggested the general analysis in (553), repeated in (630):

- (630)
- | |
|--|
| <p>a. P [means or prerequisite]_{main clause} – Q [purpose or goal]_{final clause}</p> <p>b. Negative implicature: $\neg P \rightarrow \neg Q$</p> |
|--|

I propose that NPIs in final clauses are part of a structure that expresses a means or prerequisite to a certain purpose or goal expressed in the main clause, as shown in (630)(a). Furthermore, I suggest that this structure gives rise to a negative implicature as described in (630)(b), which in turn sanctions the NPI in the final clause. Thus, in my view, the occurrence of NPIs in final clauses is further evidence that supports the assumption of a secondary, pragmatic licensing mechanism.

In Section 5.4.3.3, I discussed the temporal clauses found in the corpus data. While Condoravdi (2010) and Krifka (2010) attributed the ability of (some) temporal clauses to host NPIs to Strawson DE, I agree with Giannakidou’s (2006) principled criticism of Strawson DE as an NPI licensing factor. Since not all temporal clauses found in the corpus data were nonveridical, I concluded that nonveridicality cannot be the sole source of NPI acceptability in temporal clauses. Instead, in accordance with Linebarger

(1987) I argued that (some) temporal clauses can give rise to negative implicatures which in turn sanction the NPIs in the temporal clauses.

Further evidence to support the hypothesis of a secondary, pragmatic licensing mechanism comes from the contrastive contexts described in Section 5.4.4. To my knowledge, contrastive contexts have not been previously observed to be NPI-hosting contexts. In the contrastive contexts, there was no licenser whatsoever that we could attribute the semantic licensing of NPIs to. The reason for the presence of NPIs must thus lie within the realm of pragmatics. I described a number of cases of **overt contrast** where there was an unlicensed NPI in one clause contrasting with another clause that contained an NPI licenser. The presence of NPIs in overt contrast could be explained along the lines of Sailer’s (2022) use-conditional analysis. For emphatic VERUM-focus contexts as shown in (624), Sailer (2022) gives the analysis in (625), which he words as follows: “A *lift-finger*-type NPI is licensed if the sentence is a reaction to a salient proposition in which the NPI would be licensed.” (Sailer 2022: 747) Analogously, one could generalize the appearance of NPIs in overt contrast as follows, adapted from Giannakidou’s (2006: 596) definition of “rescuing by nonveridicality” (given in (130), repeated in (493)):

(631)	NPIs in contexts with overt contrast
	In German, a verbal NPI α can appear in the scope of a veridical expression β in a clause S without a licenser if S stands in overt contrast to an adjacent clause S' which contains an NPI licenser.

In Sailer’s (2022) terms, an analysis for NPIs in contexts with overt contrast could look as follows:

(632) ASSERT_{speaker} (... NPI ...) ^{tc} | ^{uc} <**contrasting-utterance**_{speaker} ($\neg$ (...NPI...))>

A speaker can assert an utterance with an unlicensed NPI in the truth-conditional content if in the utterance context there is a contrasting utterance by the same speaker which contains an NPI licenser, and both utterances stand in contrast to each other. If we apply this analysis to specific examples of overt contrast, it could look like this:

(633) Am Mordparagrafen **läßt** **sich** **deuteln**, an der
on.the murder.paragraph lets REFL interpret on the
Strafprozeßordnung nicht:

code.of.criminal.conduct not

“The murder paragraph leaves room for interpretation, the code of criminal conduct does not. [...]”

Corpus ID 800

- (634) ASSERT_{speaker} ([leaves room for interpretation]_{NPI} (A))^{tc}
|^{uc} <contrasting-utterance_{speaker} (¬ ([leaves room for interpretation]_{NPI} (B)))>

In other words, a speaker can assert that *A leaves room for interpretation* (with “leaves room for interpretation” being an otherwise unlicensed NPI) in the truth-conditional content if the same speaker also asserts an adjacent utterance in the utterance context which contrasts with the first assertion and contains an NPI licenser; namely, if the speaker also asserts that *B does **not** leave room for interpretation* (in contrast to A). In this example, we have an elliptical clause in which the unlicensed NPI in question contrasts with an elided, negated copy of itself, resulting in a contrast between the positive assertion *A leaves room for interpretation* and the negative assertion *B does **not** leave room for interpretation*.

The corpus data has shown that the overt contrast does not necessarily need to be between an NPI and a copy of itself – the NPI can also, for instance, stand in contrast with a completely different negated predicate, like in the following example:

- (635) [context:] Der Bürger, der schnell und heftig auf die Barrikaden geht, ist eine neue Realität.
Man **kann** seinem Protest im Einzelfall die
one can his protest in.the individual.case the
Berechtigung **absprechen**, ignorieren aber kann man ihn
legitimacy deny ignore but can one it
nicht.
not
“The citizen that is quick to protest heavily is a new reality. One can deny the legitimacy of the protest in an individual case, but one cannot ignore it.”

Corpus ID 1063

For this configuration, where there is not a contrast between an unlicensed NPI and a licensed copy of the same NPI, but with another predicate with an NPI licenser, the analysis in (632) needs to be adapted slightly as in (636):

(636) ASSERT_{speaker} ([deny-legitimacy]_{NPI} (protest))^{tc}
 |^{uc} <contrasting-utterance_{speaker} (¬ (ignore (protest)))>

In other words, a speaker can assert an utterance with an otherwise unlicensed NPI in the truth-conditional content if there is a contrasting utterance by the same speaker in the utterance context in which there is an NPI licenser which scopes over a different predicate that stands in contrast to the predicate denoted by the unlicensed NPI. In this particular case, there is a contrast between *denying the legitimacy of the protest* and *ignoring the protest*, with the latter being the negated utterance.

For **non-overt contrast**, a similar generalization can be made, except that there is no overt licenser in a contrasting clause, but there must be an implicature available which contains a negative licenser and stands in contrast to the assertion the unlicensed NPI appears in. This implicature can arise from a particular word such as *Zögern* “hesitation”, as shown in (641)-(642) below, or from the wider context C. This generalization, adapted from Giannakidou’s (2006: 596) “rescuing by nonveridicality”, can be formulated as follows:

(637)	NPIs in contexts with non-overt contrast
	In German, a verbal NPI α can appear in the scope of a veridical expression β in a clause S without a licenser present if a) the global context C makes a proposition S’ available which contains a negation and stands in contrast to S, and b) α can be associated with the negation in S’.

In Sailer’s (2022) terms, a general analysis of NPIs in contexts with non-overt contrast could look like this:

(638) ASSERT_{speaker} (... NPI ...) ^{tc}
 |^{uc} <CONTRASTING IMPLICATURE **convinced**_{speaker} (¬ (...NPI...))>

To spell it out: a speaker can assert an utterance with an otherwise unlicensed NPI in the truth-conditional content if an implicature arises from the utterance context which stands in contrast with the assertion that contains the otherwise unlicensed NPI. This implicature must contain a negative licenser that can be associated with the otherwise

unlicensed NPI in the assertion. Applied to a concrete example from the corpus data, the analysis could look like this:

(639) [context:] Ausgerechnet seitens der ARD wird nun gestichelt, die Rechte seien nicht einmal die Hälfte dessen Wert [sic!] gewesen, was RTL gezahlt habe.

„Die ARD soll **sich um** ihre Sportarten
the ARD should REFL about their sport.disciplines
scheren“, kontert Bolhöfer.
care counters Bolhöfer

[context:] Man ist derzeit leicht gereizt im RTL-Lager.

“Out of all people, somebody from the ARD was now making snide remarks about how the rights [to televising a sporting event] were not worth half of what RTL had paid. “ARD should care about their own sporting events!”, Bolhöfer says. One is slightly annoyed at RTL.”

Corpus ID 46

(640) ASSERT_{speaker} (should ([care.about]_{NPI} (A, ARD)))^{tc}
|^{uc} <CONTR. IMPL. **convinced**_{speaker} (should ¬ ([care.about]_{NPI} (B, ARD))))

That is, a speaker can assert an utterance S without an otherwise unlicensed NPI in the truth-conditional content if the utterance context gives rise to an implicature S' that a) stands in contrast to the assertion S that contains the otherwise unlicensed NPI, and b) the contrasting implicature S' contains a negative licenser that can be associated with the otherwise unlicensed NPI in S. In the example above, the speaker utters that the ARD should care about their own sporting events A, with “care about” being the unlicensed NPI. This context gives rise to the negative implicature that *the ARD should not care about other sporting events B*. This negative implicature stands in contrast to the positive assertion made by the speaker that *the ARD should care about their own sporting events*. Since the negative implicature can be associated with the otherwise unlicensed NPI in the positive assertion, and the positive assertion and the negative implicature stand in contrast with each other, the negative implicature renders the otherwise unlicensed NPI acceptable via pragmatic licensing.

Similarly, for the example in (641), the general analysis of negative implicatures in non-overt contrast in (638) can be adapted as shown in (642):

- (641) [context:] Georgiens Präsident [...] ist vom Volk gestürzt worden.
 Nach einigem Zögern **wollte** er das dann endlich
 after some hesitation wanted he that then finally
 auch **wahrhaben**.
 also acknowledge
 “Georgia’s president [...] was brought down by the people. After some
 hesitation, he finally wanted to acknowledge it.”

Corpus ID 2145

- (642) ASSERT_{speaker} ([[want.acknowledge]_{NPI} (fact, president))^{tc}
 |^{uc} <CONTR. IMPL. **convinced**_{speaker} (¬ ([want.acknowledge]_{NPI} (fact, president))))

In other words, an utterance S with an otherwise unlicensed NPI like in (641) can be made if the utterance context gives rise to a negative implicature S’ that stands in contrast to S, and S’ contains a negative licenser that can be associated with the NPI in S. In the example in (641), the assertion S *that after some hesitation, he finally wanted to acknowledge it* stands in contrast to the negative implicature S’ that *he did not want to acknowledge it for a long time*. This implicature arises from the phrase *after some hesitation* in S’, i.e. the implicature is directly tied to the word *hesitation* in particular, which implies directly that the subject in question did not want to perform the action described for some time. Like in the examples discussed above, the negative implicature can be associated with the otherwise unlicensed NPI in S, and thus makes is acceptable via the mechanism of pragmatic licensing.

In sum, the data presented in this dissertation has provided further evidence for the assumption of a secondary pragmatic licensing mechanism. Putting the results from Experiment 1 and 2, presented in Section 4, side to side with the corpus data presented in Section 5, one can see that the licensing patterns are too idiosyncratic to assume that there is just a semantic licensing mechanism that is concentric and based on the strength of negation: as I have just demonstrated, there is simply too much evidence that cannot be explained by just a semantic licensing mechanism. On the other hand, the results of Experiment 1 do reflect the hierarchy of negative expressions as described by Zwarts (1986, 1998) and van der Wouden (1994). This is visualized nicely in Figure 14, shown in 4.1.2. It would be preposterous to deny a semantic

licensing mechanism altogether. Therefore, I agree with Giannakidou (2006) and Sailer (2022) that we must assume a secondary pragmatic licensing mechanism. Linebarger (1987) also suggested a secondary pragmatic licensing mechanism by conversational implicature. The fundamental difference between the Linebarger approach and the Giannakidou/Sailer approaches is that Linebarger (1987) assumes a primary licensing mechanism at LF that is purely syntactic. Giannakidou (2006) and Sailer (2022), on the other hand, assume a semantic primary licensing mechanism based on downward entailment, with nonveridicality as a conservative extension of DE. In addition, Linebarger (1987) “proposes global sanctioning as a general condition on NPIs, whereas Giannakidou (2006) offers it as a secondary mode that works only with a subset of NPIs” (Giannakidou/Yoon 2013: 88).

In this thesis, I have mostly adopted a Giannakidou-style analysis of licensing by negative implicature. The reason for this is that Giannakidou’s (2006) definition of “rescuing by nonveridicality” has proven to be very adaptable to different types of licensing contexts. In addition, it is very versatile because it makes different contextual inferences available for NPI rescuing: conventional implicatures, conversational implicatures, entailments, and presuppositions (see Giannakidou/Yoon 2013: 88).⁶⁰ As such, it allows us to capture rescuing by conventional implicatures that arise from specific words such as *Zögern* “hesitation” as well as conversational implicatures that arise from a broader context.

It must be noted that Giannakidou’s (2006) rescuing approach and Sailer’s (2022) use-conditional analysis do not necessarily contradict each other. In a way, both approaches simply come from different perspectives: while Giannakidou’s (2006) rescuing approach is formulated in an open manner and thus adaptable to different licensing contexts, Sailer’s (2022) use-conditional approach looks at the use conditions of specific NPIs and specific licensing contexts, namely minimizer NPIs and VERUM-focus contexts and declarative questions. While Giannakidou’s (2006) definition of rescuing leaves open which part of non-literal content – conventional or conversational implicature, presupposition or entailment – is responsible for the rescuing of an NPI in a specific context, Sailer (2022) builds these meaning components into specific tiers of the semantic-pragmatic interface: in his discourse model, conventional implicatures

⁶⁰ This stands in contrast to Linebarger’s (1987) analysis, which only takes conversational implicatures into account.

and use-conditional content arises from the first layer of truth-conditional content, while generalized conversational implicatures arise from the conventional content, and particularized conversational implicatures arise from the utterance content (see Figure 2 and Sailer 2022: 745). On the basis of this model, Sailer (2022) formulates the use conditions for NPIs in specific contexts. This approach relies on a meticulous analysis of particular NPIs in particular contexts. Adapting such a detailed analysis to every NPI I have investigated in the present dissertation to formulate each NPI's particular use-conditional meaning is beyond the scope of this work but may well prove fruitful in future research, especially if one wishes to describe the idiosyncratic licensing patterns of specific NPIs.

Regarding the subtypes of NPIs that can be licensed pragmatically, both Giannakidou (2006) and Sailer (2022) propose that pragmatic licensing can only affect a subset of NPIs such as *any*-type domain widening NPIs and minimizers. With regards to this, the corpus data presented in Section 5 suggests that at least in German, pragmatic licensing can in principle sanction more than just domain widening or minimizer NPIs. The data from the corpus study demonstrated that there is a plethora of verbal NPIs that are not minimizers or scalar in any way that can appear in contexts where they are presumably licensed by negative implicatures in a secondary, pragmatic licensing mechanism.

To conclude the discussion on pragmatic licensing, I would like to address a common criticism of pragmatic approaches, formulated comprehensively by Penka (2020: 646):

The problem with [the] pragmatic approach to NPI licensing is that it is not restrictive enough and severely overgenerates. Because there are many inferences of any given sentence and many different ways to represent them, it will always be possible to come up with a Negative Implicatum, and it is unclear how and under which conditions precisely this Negative Implicatum is salient enough for an NPI to be licensed.

(Penka 2020: 646)

I share this criticism by Penka (2020) and will admit that while Giannakidou's (2006) concept of "rescuing by nonveridicality" is versatile and has been adapted by me for

this very reason, it is open to this type of criticism: it does not make clear which part of non-literal meaning is accessible to NPIs in a given context. However, this is the price to pay for the versatility of the account, and since Giannakidou (2006) limits rescuing to a certain type of NPIs, it would be unfair to say that this account is totally unrestrictive.

I believe that Penka's (2020) concerns could be addressed by following Sailer's (2022) approach to pragmatic licensing: firstly, Sailer (2022) restricts pragmatic licensing to conventional implicatures and generalized conversational implicatures. That is, licensing by particularized conversational implicatures is not permitted in Sailer's (2022) account. This reduces the set of possible negative implicatures one could derive from any given assertion significantly, as it abstracts away from specific conversational contexts and restricts negative implicatures that can license NPIs to ones that are tied more closely to linguistic meaning. That is, in this account we do not expect a negative implicature that may arise from a particular conversation to license NPIs out of the blue, which seems to capture the reality of NPI licensing correctly. Rather, pragmatic NPI licensing is restricted to contexts in which negative implicatures arise routinely, namely to conventional implicatures and generalized conversational implicatures. This restriction is, in my view, in principle able to deal with the concerns that pragmatic licensing approaches may not be restrictive enough and overgenerate heavily. Secondly, the detailed analysis that Sailer (2022) gives for a particular type of NPIs in particular contexts analyses very specifically the use conditions per NPI per context. In this analysis, it is clear which NPI can access which level of meaning representation. This approach addresses Penka's (2020: 646) concern of "under which conditions precisely this Negative Implicatum is salient enough for an NPI to be licensed": it is captured precisely in the individual use conditions of particular NPIs in particular contexts.

To conclude, I believe that Giannakidou's (2006) approach of "rescuing by nonveridicality" provides a framework that is versatile enough to capture the correct distributional patterns of different (types of) NPIs across contexts and languages. I have demonstrated this by applying the rescuing approach to different types of licensing contexts from my corpus data containing German verbal NPIs. The fact that German verbal NPIs can appear in such contexts, while Giannakidou (2006) attested that only domain widening or minimizer NPIs can appear in them, is not per se a problem: ultimately, which type of NPI can appear in which context crosslinguistically is an empir-

ical question. The criticism that the rescuing approach may face – that it is not restrictive enough – can be addressed by refining the pragmatic licensing conditions in the sense of Sailer (2022): namely that NPIs cannot be pragmatically licensed by particularized conversational implicatures. Under the umbrella of the rescuing approach, a detailed analysis of use conditions in the style of Sailer (2022) – as shown above for the examples of overt and non-overt licensing in (633), (635), (639), and (641) – may prove to be a fruitful way forwards in explaining the idiosyncratic distributional patterns of particular NPIs, while also not losing sight of the bigger picture and underlying patterns of semantic vs. pragmatic licensing.

6.2 Nonveridicality, questions, and rhetoricity

Since the topics of nonveridicality, questions, and rhetorical questions played a big part in Experiments 1 and 2, I want to address them again here. As outlined in Sections 2.2 and 4, I follow Giannakidou (1998 ff.) in assuming that nonveridicality is the defining factor in why questions can host NPIs, even though that question deserves more attention than can be given in the scope of this thesis, particularly regarding the inability of declarative questions to host NPIs normally (see Horn 2016: 295 f. for discussion). Experiment 1 had a control condition for nonveridicality, in which the NPIs were embedded under the nonveridical lexical operator *vielleicht* “maybe”. This was an explorative condition with which we set out to see if nonveridicality per se can license NPIs in German or at least enhance their acceptability in contrast to unlicensed cases of NPIs in positive assertions. This was not the case: NPIs in the *vielleicht* condition were overall rated just as bad as NPIs in positive assertions, highlighting the special role that questions do play in NPI licensing. However, this finding is not a problem for the nonveridicality theory in and of itself: for one, it simply tells us that the nonveridical lexical operator *vielleicht* “maybe” cannot license NPIs in German. In a way, this was to be expected: to my knowledge, such operators have not previously been described as NPI licensors crosslinguistically. Secondly, Giannakidou’s (1998) theory of nonveridicality does not stipulate that every nonveridical context can license NPIs. It merely states that what underpins the licensing contexts of NPIs in the semantic sense is nonveridicality rather than downward entailment, which is an important extension of the DE theory because it explains the ability of questions to license NPIs. In other words, nonveridicality is the prerequisite for a context or operator to (semantically) license NPIs, but not every nonveridical context hosts NPIs crosslinguistically.

One motivation of Experiment 1 and 2 was to find out specifically which NPIs are not licensed in questions. This question was asked because those NPIs can be used as diagnostics in negative polar questions, which are often referred to as biased questions, to find out whether the negation a negative polar question contains is propositional or non-propositional (Horn 1989) (see Introduction). If it is not known if e.g. the NPI *sonderlich* “particularly” is licensed in questions in German, we cannot diagnose whether the negation in (643) is propositional or not:

(643) Kann Peter nicht **sonderlich** gut backen?
can Peter not particularly well bake
“Can Peter not bake particularly well?”
“Isn’t Peter pretty good at baking?”

The reason for this is that there are two potential licensors in (643): the negation operator and the question operator. If *sonderlich* is not licensed in questions and requires a stronger licensor, then we can conclude that the negation in (643) must be propositional because *sonderlich* would otherwise be unacceptable in the question. If, on the other hand, an NPI is licensed in questions, it cannot be used as a diagnostic in such cases, as it remains unclear whether it is licensed by the question or by the negation. Thus, if we want to find good diagnostics for (non)propositional negation in negative polar questions, we need to find out which NPIs are not acceptable in questions in German. The ratings of NPIs in questions gave us just that: Figure 19 is the complement image of the results shown in Figure 16, showing only NPIs that received a median acceptability rating of ≤ 3 , as indicated by the black dots.

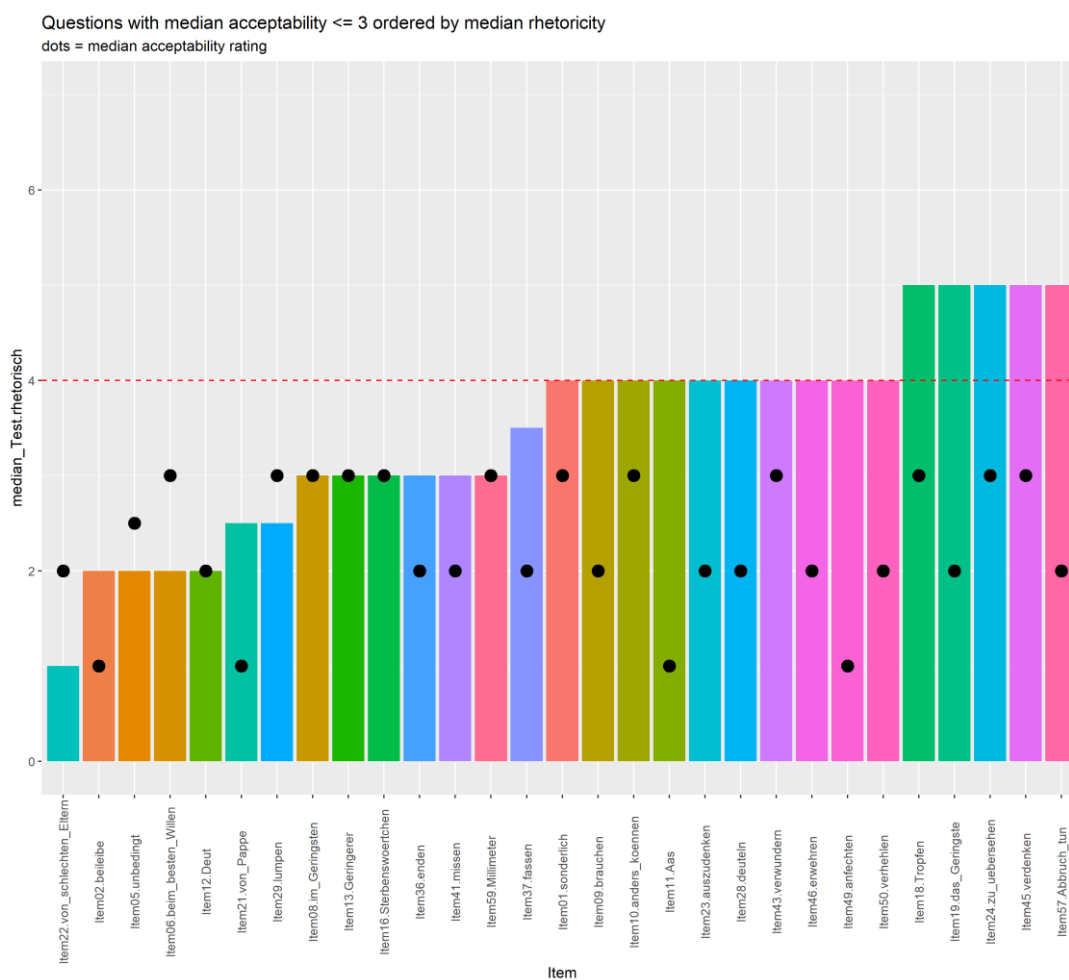


Figure 19: Questions with median acceptability of ≤ 3 ordered by median rhetoricity. Black dots indicate median acceptability.

Turning to rhetoricity, we need to ask ourselves what makes a question containing an NPI rhetorical, and why do not all questions with NPIs appear to be rhetorical? Experiment 2 showed that non-minimizer NPIs can appear in rhetorical questions and minimizer NPIs are not restricted to rhetorical questions. This went against the predictions made on the basis of van Rooy (2003), according to which only questions containing domain widening NPIs or minimizer NPIs would have been expected to be rated as rhetorical. Secondly, minimizer NPIs in questions should always make the questions rhetorical according to van Rooy's (2003) theory. Thus, Experiment 2 showed that there is no strict if-then relationship between domain widening/minimizer NPIs and rhetorical questions: a question with a domain widening minimizer NPI can be perceived as rhetorical or not. Conversely, there is no strict if-then relationship between non-minimizers and neutral questions: a question containing a non-minimizer does not

necessarily have to be perceived as a neutral question. Now, one can ask: what is the relationship between NPIs and rhetorical questions, then?

Firstly, it goes without saying that rhetoricity can arise from context, independently of whether a question contains an NPI or not. Rhetoricity is thus not solely tied to the presence of NPIs. Whether a question will be perceived as rhetorical will largely depend on context, intonation, the facial expression of the speaker, and so on. Questions do not need to contain NPIs to be perceived as rhetorical. Setting that aside, one can still ask why questions with NPIs do so often appear to be rhetorical. Recall that in the corpus data, 186 out of 218 questions were judged to be rhetorical, although that may also have to do with the fact that all the corpus data came from written language. I believe that there may be different sources of rhetoricity when it comes to NPIs in questions. Firstly, I believe that the explanation by van Rooy (2003) of why questions containing minimizer NPIs are rhetorical is very plausible: if the question is settled to the point that it is only left open whether the minimal amount or nothing applies, the answer to the question will not be very informative either way: for a question like (644), whether Mary never helped her neighbour or whether she helped her neighbour to the minimal amount does not make a big difference.

(644) Did Mary **ever lift a finger** to help her neighbour?

Secondly, in order to ask a question like (644), the speaker needs to have sufficient evidence that Mary has not helped her neighbour very much. Out of the blue, this question would be very odd. The reason why not all minimizer NPIs in questions were rated as rhetorical may also be partly due to the design of the experiment: recall from Section 4 that all items were embedded in short context stories (see Table 9). This was done in order to prevent items as being judged as bad because they appeared out of the blue. While constructing the contexts, I took great care to make the question appear as unbiased and neutral as possible because the goal was to test the acceptability of NPIs in neutral questions. This may have contributed to some minimizer-NPI questions being rated as less rhetorical than they would be in a more natural linguistic setting. Secondly, during the construction of the contexts I noticed that at least in some cases, it was very difficult to construct a context that would aid a neutral question interpretation where both answers p and $\neg p$ would be perceived as equally likely answers. For some questions, this seemed to be near impossible as inserting a specific NPI would almost inevitably make the question rhetorical. One such case was the NPI

bei Trost sein (lit. “with consolation be”, “to be sane”). The question in (645) can almost not be read as non-rhetorical: the neutral reading of “Is Philipp sane?” as an information-seeking question simply doesn’t seem to be available, and the rhetorical reading “Is Philipp insane?” is the only appropriate translation.

- (645) **Ist** Philipp **bei** **Trost**?
 is Philipp with consolation
 “Is Philipp insane?”

I believe that the reason behind this could be the expressive meaning of expressions like *bei Trost sein*, along with their use conditions. The expression *bei Trost sein* in itself seems to convey a certain amount of expressive meaning. It is not a neutral expression that solely expresses descriptive meaning. That is, a speaker cannot normally use this expression to neutrally describe the bad mental space of another person. In this sense, it may simply not be possible to use this expression to neutrally enquire if a person is sane or not. This effect may not have to do with NPI-hood per se but rather with expressivity: if we use a similarly expressive verb like *spinnen* (lit. “spin”, “to be mad”) and put it in a question, we get the same rhetorical effect. The question in (646) can, in my view, not have a neutral, information-seeking interpretation:

- (646) **Spinnst** du?
 spin.2.SG you
 “Are you mad?”

This suggests that in some cases, the rhetoricity of a question may be due to the expressive meaning of the NPI rather than to the NPI status itself. As can be seen with the non-NPI in (646), the expressive meaning seems to be so dominant that it overrides the descriptive meaning of the expression, and the expression can thus not be used to ask a neutral question.

In contrast, an NPI that has no, or less expressive meaning seems to be able to appear in a neutral question rather easily. The NPI *zur Sache tun* (lit. “to the thing do”, “to matter”) seems to be able to convey a neutral reading in a question, but may also be interpreted rhetorically, depending on context:

- (647) **Tut** das **was** **zur** Sache?
 does this sth. to.the thing
 “Does this matter?”

Aside from expressivity, there is another possible source of rhetoricity for questions with NPIs: by virtue of being **negative** polarity items, NPIs predominantly occur in contexts with negations. It might thus be plausible that when inserted into a polar question with the possible answers p and $\neg p$, the NPI highlights the negative answer due to its strong association with negation. This would likely produce at least a biased reading towards the negative answer, and, depending on context, a rhetorical reading. Take, for example, the question in (648), which contains the NPI *sich reinreden lassen* “to be swayed”. As a polar question, it has the two possible answers p and $\neg p$ given in (649)(a) and (b):

- (648) **Lässt** die Kanzlerin **sich** **reinreden**, wenn es
 lets the chancellor.FEM REFL talk.into when it
 um die Migrationspolitik geht?
 about the migration.politics goes
 “Can the chancellor be swayed when it comes to migration policies?”

(649)	a.	p <i>Sie lässt sich reinreden.</i> “She can be swayed.”	b.	$\neg p$ <i>Sie lässt sich <u>nicht</u> reinreden.</i> “She cannot be swayed.”

By virtue of being an NPI, *sich reinreden lassen* “to be swayed” has a strong association with negation. This corresponds to the cell with the negative answer in (649)(b). In contrast, it rarely appears without any licenser like in the cell with the negative answer in (649)(a). It is not inconceivable that the strong link between the NPI and its usual companion, the negation, could serve to highlight the negative answer in (649)(b) and thus produce a bias towards the negative answer simply because of the statistical association between the NPI and the negation.

To conclude, I argue that there may be several different sources that could contribute to the rhetoricity of questions containing NPIs: for domain widening and minimizer NPIs, van Rooy’s (2003) theory seems to be the adequate semantic-pragmatic explanation. For non-minimizer NPIs, their degree of expressivity may play a role. And thirdly, NPIs may have a proclivity to highlight the negative answers to polar questions simply by virtue of their status as NPIs. Ultimately, the issue of NPIs and their inter-

action with rhetoricity requires further scrutiny in future research, but I believe that the previously named avenues may be fruitful to explore in that regard.

6.3 The final question: what makes an NPI an NPI?

Lastly, we shall turn to the question of what makes an NPI an NPI. Related to this is the question formulated by Penka (2020: 651) of “why there are elements in natural language that are sensitive to logical properties of the context in which they appear”. “Moreover”, Penka (2020: 651) states, “it is puzzling why it is precisely downward entailment, rather than any other logical property, that is decisive for NPI licensing.” Giannakidou (2011) gives a similar criticism of the DE theory: it does not explain **why** NPIs should appear in those contexts. As such, the DE approach, as fruitful as it is, seems to be a purely descriptive theory. Given that there are NPIs with very similar meaning to non-NPIs and even PPIs, it is clear that NPIs must have a lexical feature that indicates that they must be in the scope of negation. How else could we explain the coexistence of the PPI *ziemlich*, the NPI *sonderlich* and the non-polarity item *besonders* in German, which are all adverbial modifiers that have the very similar meaning of “especially” (and their English counterparts, the PPI *pretty* and the NPI *particularly*). But this lexical feature still does not explain why an NPI is an NPI. There is no straightforward answer to this, so in this section I will delve into a more speculative area.

The scalar approaches by Kadmon and Landman (1993) and Krifka (1995) described in Section 2.3 have the objective to answer this exact question of why scalar NPIs are NPIs, and what their pragmatic function is. The function and effect of scalar NPIs have been described in Section 2.3: their role is to strengthen the assertion. Recall (650) and (651), which is the same assertion plus the domain widening NPI *any*. As described in Section 2.3, *any* widens the domain of quantification and thus rules out even exceptions to what one would normally consider within the domain of quantification (cooking potatoes vs. rotten potatoes, etc.). Similarly, the assertion in (653) with the minimizer *a drop* is stronger than the assertion in (652): it conveys that there are no exceptions to the rule that Simon doesn’t drink. He never drinks, not even at a party, not even on New Year’s Eve, not even to drown his sorrows when Liverpool FC has lost the Champions League final.

(650) I don’t have potatoes.

(651) I don’t have **any** potatoes.

(652) Simon doesn’t drink.

(653) Simon doesn’t drink **a drop**.

Thus, for minimizer NPIs and other scalar, domain widening NPIs the issue is settled, in my view: they function to make assertions stronger and signal reduced tolerance to exceptions, as analysed by Kadmon and Landman (1993) and Krifka (1995) and following. Questions are likely made rhetorical by them as there is only a minimal issue left to settle, as per van Rooy's (2003) analysis. But importantly: not all NPIs are minimizers or scalar in any way. In fact, the majority of the NPIs investigated in the present dissertation project are not scalar. This poses the question of what makes them NPIs.

For idiomatic NPIs such as *nicht das Gelbe vom Ei sein* (lit. "not to be the yolk of the egg", "not to be great") I assume that they are simply idioms where the licenser is part of the idiom. But what about the verbal NPIs from the corpus study, for example verbs of intolerance such as *hören können* "to be able to hear" and *ausstehen können* "to be able to stand", or verbs of resilience such as *sich nicht reinreden lassen* "to be swayed"? For these groups, I suspect that their proclivity to appear in negative contexts may have to do with pragmatic reasons. In the following, I will walk through the semantic clusters of verbal NPIs as identified by Hoeksema (1994) and myself in the case of verbs of resilience, as described in Section 3.3.⁶¹

Verbs of intolerance

For verbs of intolerance, I believe that there may simply be a stronger communicative need when a speaker is not able to tolerate something than when a speaker is able to tolerate something. For example, in an energy- and cost-of-living crisis when people genuinely struggle to pay for their everyday needs such as heating and food, they probably feel the urge to communicate (and complain) about that because it is a situation out of the ordinary. In contrast, if life is normal and butter isn't super cheap, but just the regular price, it would probably be less likely that people feel the need to communicate about run-of-the-mill butter prices. In such an unremarkable situation, it would be strange to assert to a colleague something like (654) to communicate that the butter price was tolerable and not out of the ordinary. In contrast, in a situation with high inflation, it would be perfectly natural to make an assertion like (655), because the prices are out of the ordinary and inflicting peoples' lives. Thus, it is more natural

⁶¹ In the discussion I will leave out Hoeksema's (1994) verbs of minimal degree, as they are covered by the scalar approaches due to being minimizers. I will also leave out the groups of "others", as they have no shared semantic-pragmatics structure that I could base such a speculative analysis on.

to have a communicative need when something is not tolerable rather than when something is tolerable.

(654) I went to the supermarket yesterday, bought some dinner. Oh yeah, and butter was the same price as always.

(655) Have you been to the supermarket this week? The butter price has doubled again since last Thursday!

Taking a concrete verbal NPI of intolerance such as *nicht mehr hören können* “not to be able to hear any longer”, there may similarly be a higher need to communicate if hearing something again and again becomes intolerable, rather than when it is still tolerable and thus unremarkable. Take a scenario where a woman gets asked by her neighbour for years when she’s finally getting pregnant. In a scenario where the woman finds that question annoying and intolerable, she might feel the need to communicate that and utter something like (656). In contrast, if she doesn’t mind the questions and still finds them tolerable, it would be odd to utter something like (657). There is simply less need to communicate if something is just a regular, tolerable chit-chat between neighbours.

(656) Mein Nachbar fragt mich seit Jahren, wann ich
my neighbour asks me since years when I
endlich schwanger werde. Ich **kann** es nicht **mehr hören!**
finally pregnant become I can it not more hear
“My neighbour has been asking me for years when I’m finally getting pregnant. I can’t bear to hear it anymore!”

(657) Mein Nachbar fragt mich seit Jahren, wann ich
my neighbour asks me since years when I
endlich schwanger werde. Ich finde die Frage völlig ok,
finally pregnant become I find the question totally ok
#ich **kann** es **noch hören.**
I can it still hear
“My neighbour has been asking me for years when I’m finally getting pregnant. I think that’s an okay question, #I can still hear it.”

Taking another verb of intolerance like *ausstehen können* “to be able to stand”, there is possibly again a higher need to communicate when a speaker cannot stand somebody

else, rather than when that somebody else is just an unremarkable, tolerable person that the speaker feels quite neutral about. Thus, uttering something like (658) seems perfectly natural, while the utterance in (659) is odd:

(658) Mein Kollege lässt immer die meiste Arbeit an
my colleague lets always the most work on
mir hängen. Ich **kann** den Mann nicht **ausstehen**!
me hang I can the man not stand
“My colleague always leaves most of the work to me. I cannot stand that guy!”

(659) Mein Kollege macht seinen Teil der Arbeit immer
my colleague makes his part the.GEN work always
ordentlich. #Ich kann den Mann ausstehen.
tidy I can the man stand
“My colleague always does his share of our work. #I can stand that man.”

This higher communicative need in intolerable situations may well be the reason of why verbs of intolerance tend to associate with negation, as observed by Hoeksema (1994) crosslinguistically. This is speculative, but in my view, it is not implausible to assume that when a certain verb often appears with negation, over time that association between verb and negation can grammaticalize and something like a (semi-)NPI can emerge.

Verbs of indifference

In a similar fashion, for verbs of indifference, one could speculate about needs for communication: when there is an issue that could be bothersome to a person, but that issue does actually not bother the person as much, contrary to expectations, there could be a communicative need to express that. This may arise in situations where such a problem is *at issue*, i.e. it is in the question under discussion. For example, take the verb of indifference *Abbruch tun* “to spoil sth.”. Imagine a scenario where there is a company that has financial difficulties and the balance sheet doesn’t look good at the end of the year. In such a scenario, one would perhaps expect that a bad balance sheet might cause the company’s manager to be in a bad mood. If this issue is discussed, and

the bad numbers do not affect the manager negatively, contrary to expectations, one might plausibly assert something like (660):

- (660) Die schlechte Bilanz **tut** der Laune des
 the bad balance does the.DAT mood the.GEN
 Geschäftsführers keinen **Abbruch**.
 manager.GEN no damage
 “The bad balance sheet doesn’t spoil the manager’s good mood.”

Similarly, if the economy is looking bad for a country and the statistics on economic growth are looking very negative, one could imagine journalists at a press conference wanting to discuss the issue with the Minister of Economic Affairs. If the minister does not want to talk about the issue and instead wants to convey that one year of less economic growth doesn’t make a big difference in the grand scheme of things, she might choose to utter something like (661), using the indifference-NPI *zu besagen haben* “to matter”:

- (661) Die negativen Zahlen **haben** nicht viel **zu** **besagen**.
 the negative figures have not much INF.PART say
 “The negative figures don’t mean much.”

Now, of course, in both of these contexts it would also be plausible that the issues do actually make a difference to the people they concern, in line with the expectations, and a negative expression is not needed. Still, there could be a communicative need to say when something does not matter, contrary to expectations. Such a communicative need could serve as the basis of a frequent association between a particular verb of indifference and negation, which could in turn grammaticalize said verb of indifference into a (semi-)NPI.

Verbs of resilience

For verbs of resilience, we can speculate in a similar fashion. In Section 3.3, I characterized the common semantics of verbs of resilience as expressing a resilience of their subjects to some outer factors which the subjects resist against. Now, if such a negative outer influence comes up, one might commonly expect that the subjects are negatively influenced by it. If the subjects, contrary to expectations, remain resilient despite the

negative influences from the outside, this may give rise to a need for communication, as the resilience is less expected. This can be illustrated using some corpus examples already cited in Section 3.3. Take the example in (662). In this example, the subject became blind as a child due to several illnesses. This can be considered as a negative outer influence that would normally influence someone's life negatively. In the case in (662), the subject seems to have lived a good life despite this hardship, contrary to common expectations. This may have prompted the author to use the verb of resilience in the scope of *kaum* "hardly", in order to express that the impact on the subject's life was not as negative as expected.

- (662) Als sie 1946 mit sieben Jahren an den
 when she 1946 with seven years on the
 Folgen von Scharlach und Diphtherie erblindete,
 consequences of scarlet.fever and diphtheria blind.went
ließ sie **sich** kaum **beirren**.
 let.PAST.TENSE she REFL hardly irritate
 "When she became blind as the consequence of scarlet fever and diphtheria
 at the age of seven in 1946, she hardly let herself be irritated by it."
 Corpus ID 905

Similarly, in (663) the subject is described as a petite woman (who might be perceived as fragile by some), who faced severe adversities in her life in being sent to prison several times for political activism. The author uses the verb of resilience *sich unterkriegen lassen* "to let oneself get down" in the scope of *nie* "never" to express that contrary to common expectations, the subject didn't allow herself to be thrown off by being a political prisoner.

- (663) Mehrmals hat die zierliche 50-Jährige für ihr
 several.times has the petite 50-year-old for her
 Engagement im Gefängnis gesessen, doch sie
 commitment in.the prison sat but she
ließ **sich** nie **unterkriegen** und emigrierte
 let.PAST.TENSE REFL never get.down and emigrated
 auch nicht wie viele andere Intellektuelle
 also not like many other intellectuals

in den letzten Jahren.

in the last years

“The petite 50-year-old has been to prison several times because of her commitment, but she never let herself get down, and unlike to many other intellectuals in the last years, never emigrated.”

Corpus ID 943

So, in my analysis the verbs of resilience are used when there is a communicative need to express that contrary to expectation, the subjects remained resilient to negative outer influences. Importantly, in this particular construction of *lassen* and a full verb, the resilience is only expressed in the negative form. This may be the reason why an association between the verb cluster and negation has arisen that slowly grammaticalizes towards a (semi-)NPI.⁶²

Modal verbs

Why do modal verbs have a tendency to become NPIs (for example in the case of *brauchen* “need”) or to combine with other verbs, turning them into NPIs? The answer to this question is far from clear. The sheer number of NPIs that have modal meaning components (see Section 3.3, Table 6 for an overview) is striking. This suggests that NPI-hood and modality are somehow intertwined. This observation is not new. Postma (2002) notes: “From Aristotle’s *Organon* forward, it has been a well-known fact in semantics and logic that negation and modality are closely related. [...] The nature of this relation, however, has remained unclear.” (Postma 2002: 1)⁶³ Solving this problem is beyond the scope of this thesis. I will, however, add a few observations on the effect of modal verbs in NPI contexts.

Looking at NPIs such as *nicht mehr hören können* “not to be able to hear anymore”, the question is really what makes this verb + modal verb combination an NPI. Neither the full verb *hören* nor the modal verb *können* are NPIs, so what makes the combination of them an NPI? The first thing I noticed is that there is a meaning shift in the NPI reading. In principle, the combination of *hören können* “to be able to hear” has a fully

⁶² It may well be the construction *sich nicht VERB lassen* “REFL not VERB let” that forms the cluster of resilience verbs, with more verbs than are listed in the CoDII corpus. For example, the verb combination *sich nicht beeindruckt lassen* “to not let oneself be impressed” seems to express the same form of subject resilience as the other verbs of resilience, despite not being listed in the CoDII corpus.

⁶³ This page number refers to a downloadable manuscript of Postma (2002), downloaded from https://www.academia.edu/26538653/Negative_polarity_and_modality_in_Middle_Dutch_ghe_participle_constructions on 5.6.2023

compositional, transparent meaning: being able to hear something. This doesn't change when one adds the negation, the meaning remains compositional: not being able to hear something. Both the non-negated and the negated compositional meanings are illustrated below.

(664) Ich kann die Musik von der Kneipe gegenüber im
 I can the music from the bar opposite in.the
 Schlafzimmer hören, so laut ist die heute.
 bedroom hear so loud is it today
 "I can hear the music from the bar opposite in the bedroom, it is that loud today."

(665) Ich kann die Musik von der Kneipe gegenüber
 I can the music from the bar opposite
 nicht hören, die ist ziemlich leise heute.
 not hear it is pretty quiet today
 "I cannot hear the music from the bar opposite, the volume is pretty low today."

In the compositional meaning, *können* "can" simply expresses a dynamic ability modal. Now compare the negated compositional meaning in (665) to the NPI reading in (666):

(666) Die Kneipe gegenüber spielt den ganzen Tag Helene
 the bar opposite plays the whole day Helene
 Fischer, ich kann es nicht mehr hören!
 Fischer I can it not more hear
 "The bar opposite has been playing Helene Fischer all day, I can't stand to listen to it anymore!"

There is a contrast between the compositional meaning and the NPI meaning. More specifically: in the NPI reading, there is a meaning shift. The modal verb in the NPI reading no longer conveys a dynamic ability reading. From the example in (666), it becomes clear that the speaker is actually physically able to hear the music, or else she wouldn't be able to complain. Thus, the NPI reading expresses something else than an

ability modal. The meaning shifts from ability to volition, resulting in the intolerance reading in the negated version: the verb *können*, in the NPI reading, does not express that the speaker is not physically able to hear the music. It conveys that the speaker no longer wants to listen to the music, thus expressing (in)volition and intolerance. My intuition is that in assertions like (666), the effect of the ability-modal verb is akin to the effect of scalar (minimizer) NPIs: it serves to strengthen the assertion. Stating that I **cannot** stand to hear something anymore seems intuitively stronger and more expressive than merely stating that I do not **want** to hear something anymore. Shifting the modal meaning from ability to volition while using an ability modal might be used by a speaker to convey that the urge to make the music stop is due to something stronger than simply not wanting to listen to it anymore. Stating that one **cannot** listen to it anymore may insinuate some sort of physical or mental reason that goes beyond simply not wanting to listen anymore. This is, of course, speculation, but it may give a hint as to why modal verbs have a proclivity to appear in negative contexts: speakers may use them to strengthen their assertions, in similar fashion to scalar NPIs. The connection between modality and polarity, negation and NPIs remains to be understood through future research. Perhaps, though, the empirical work done in the present thesis can contribute to further enlightenment on this issue in the future.

7 Conclusion and outlook

In this dissertation project, I have set out to gain a broader empirical overview over the licensing conditions of a large set of German negative polarity items. The reasons for this were twofold: firstly, I observed that in the literature on NPIs in general, research is often focused on a relatively small subset of NPIs, such as *any*, *ever*, *yet*, and minimizers. This is particularly true for the literature on scalar approaches for NPI licensing. This is not a criticism of scalar approaches *per se*: it is natural that they focus on the aforementioned types of NPIs as they seek to explain their particular semantic and pragmatic impact. However, we must not make the mistake to assume that we can treat all NPIs uniformly as scalar, and we must not confuse the phenomenon of scalar NPIs with the phenomenon of negative polarity items in general.

Secondly, I argued that particularly when NPIs are used as diagnostics for other linguistic phenomena such as (non)propositional negation, we ought to know the exact licensing conditions of those NPIs. Regarding (non)propositional negation, it is particularly relevant to know whether a given NPI is licensed in questions or not. The empirical work conducted for this dissertation project should help to overcome this problem: the results of Experiment 1 and 2 provide experimental evidence with regards to the licensing conditions of 60 German NPIs, which can serve as a starting point for designing future experiments and linguistic tests that use NPIs for diagnostic purposes. It should also support research conducted of NPIs to study the phenomenon itself by providing empirically backed up insights into the licensing patterns of a large number of NPIs.

In the present thesis, I have addressed this fallacy by casting a wide empirical net, so to speak, and looked beyond the phenomenon of scalar NPIs. The collection of NPIs in the CoDII corpus alone is indicative that not all NPIs are scalar, and the research presented within this dissertation further supports this. The 31 verbal NPIs in the corpus study reported in Section 5 are ostensibly non-scalar, and forcing them on implausible ad-hoc scales in order to maintain a solely scalar approach to NPI licensing does not seem to be a fruitful basis for further analysis. Instead, I argue that we need to abandon treating scalar NPIs as *pars-pro-toto* to capture the whole phenomenon of NPI-hood. It must be acknowledged that while scalar approaches to NPI licensing have proven very fruitful, they only capture a subclass of the NPI landscape. The downward-entailment approach to NPI licensing is more versatile in this regard: it is applicable

to every type of NPI as its focus is the description of the distribution of NPIs based on the logical properties of the contexts they appear in. Note that the downward-entailment approach and the scalar approach are not mutually exclusive. They both have their advantages and disadvantages: while the downward-entailment approach can describe the distribution of any NPI regardless of its semantics, it does not explain **why** an NPI is an NPI and for what reasons exactly NPIs should appear in downward entailing contexts, as criticised by Giannakidou (2011). In this regard, the scalar approaches are more explanatory as they take the common semantics of minimizer and domain widening NPIs to explain why they appear in negative contexts: to make the statements they appear in stronger. Future research should, in my view, seek to unify the advantages of both approaches: it should make use of the descriptive power that the downward-entailment approach provides, regardless of what type of NPI is described; and it should take the explanatory impetus of the scalar approaches in order to motivate **why** NPIs appear in negative contexts rather than simply stating **that** they do.

Experiment 1 sought to classify 60 German NPIs according to the downward-entailment approach into superstrong, strong, weak, and superweak NPIs. While there is some noise in the data, the results revealed several clusters of NPIs that are in accordance with the predictions made with regards to the DE theory: superstrong NPIs and (super)weak NPIs. In order to reduce the noise in the data, it would be desirable to run follow-up experiments in future research, possibly with a reduced number of NPIs, to get a clearer picture of the exact licensing conditions per NPI. The results of Experiment 1 overall showed a rather graded decline in acceptability rather than clear-cut down-steps between conditions. For one, it is not surprising that experimental results yield a messier picture than idealized theoretical models such as the downward-entailment approach. However, what this graded decline in acceptability shows rather beautifully is that the different strengths of negative operators used in the different conditions seem to actually bear some sort of psychological reality in the internal grammatical system of speakers which can be measured in acceptability ratings, with gradually declining negativity producing gradually declining acceptability. Experiment 2, while providing corroborating evidence for the acceptability ratings of NPIs in polar questions in Experiment 1, has also shown that the relationship between NPIs in questions and rhetoricity is not unidimensional: not every question containing a minimizer NPI necessarily receives a rhetorical interpretation, and not every question that does receive

a rhetorical interpretation contains a minimizer NPI. In the General discussion I hypothesized that the rhetoricity of questions containing NPIs has multiple different sources: aside from the obvious statement that context will play a huge role in whether a question is interpreted as rhetorical, I speculated that the rhetoricity of a question may also depend on the level of expressive meaning that the NPI it contains conveys. I showed that predicates with expressive meaning seem to produce rhetoricity when put in questions, regardless of their status as NPIs. Hence, aside from the minimizer theory put forward by van Rooy (2003), the expressivity of NPIs may be another source that systematically contributes to rhetorical interpretations of questions. Exploring this avenue may be interesting for future research.

The corpus study reported in Section 5 has shown that the landscape of licensing contexts for NPIs is even greater than had been previously assumed, and that the unusual licensing contexts reported by Sedivy (1990) and Sailer (2022) extend beyond the phenomenon of minimizer NPIs. While the vast majority of the data reported in the corpus study can be explained by the semantic approach to NPI licensing, namely downward entailment, the corpus study also provided further evidence for the long-standing idea that a secondary, pragmatic licensing strategy is required to fully explain the distributional data of NPIs crosslinguistically. Some of the non-negative clause types that I argued to require such a strategy have previously been described in the literature, namely comparative clauses, temporal clauses, and most recently final clauses, as described by Sailer (2022, December 14th). For comparative and temporal clauses, different analyses have been made which tried to explain their ability to host NPIs in terms of semantic licensing or (Strawson) downward entailment. These approaches have, in my view, not proven to be very fruitful, and hence I argued for a secondary, pragmatic licensing mechanism in the sense of Giannakidou's (2006) rescuing approach as a more elegant solution to the problem. Still, the debate on these cases may not be settled, particularly with regards to temporal clauses, different temporal connectives, and their fine semantics. However, in the corpus study I did identify one type of NPI licensing context that has not been previously described and that absolutely points to the necessity to assume a secondary, pragmatic licensing mechanism: contrastive contexts. Especially in non-overt contrastive cases, a pragmatic strategy is required in my view, and it is unlikely to find an alternative semantic explanation of why these contexts can host NPIs: firstly, there is simply no overt licenser to derive a semantic analysis from in these contexts. And secondly, in contrast to structures like

comparatives or temporal clauses, which share a distinct semantic structure, the contrastive contexts are far too diverse to identify such a structural semantic commonality. The reason they are similar to each other lies purely in their pragmatics: in my analysis, it lies in the fact that they give rise to negative implicatures which contrast with the assertion that the unlicensed NPIs appear in. This, in turn, licenses the NPI through a pragmatic mechanism: via negative implicatures.

How exactly such a secondary, pragmatic licensing mechanism should be formulated to be as versatile as possible while also not overgenerating will require some further scrutiny in future research. In Section 6.1, I have spelled out the different advantages of the very versatile approach by Giannakidou (2006) and the use-conditional perspective of Sailer (2022), which takes a very detailed look at the exact use conditions of specific NPIs in specific contexts. Both approaches, I have argued, are not mutually exclusive, but can rather complement each other: Giannakidou's (2006) rescuing approach is a versatile theory that can be applied to lots of different contexts that require pragmatic licensing strategies, as I have done for several contexts in the present thesis. Sailer's (2022) more fine-grained approach, on the other hand, can prevent an account like Giannakidou's (2006) rescuing approach from overgenerating. It thus addresses a common criticism of pragmatic approaches to NPI licensing, namely that they are not precise enough. I believe that combining both types of theories could provide a fruitful ground for the comprehensive analysis of NPIs in contexts that require a pragmatic analysis in future research.

Lastly, I touched on the rather philosophical question of what makes an NPI an NPI. In Section 6.3, I took a scalar-approach style perspective to try to explain, albeit on a speculative basis, why certain verb groups, particularly those identified by Hoeksema (1994), tend to cluster in the NPI domain: I speculated that the common semantics of verbs of intolerance, verbs of indifference, and the verbs of resilience, which I identified as a consistent verbal subgroup of NPIs in this thesis, may be the very explanation of why they tend to appear in negative contexts. I speculated that speakers may simply have a higher urge to communicate when they cannot tolerate something vs. when they can. I furthermore speculated that there may be a higher need to communicate when a speaker doesn't care about a negative outer stimulus, which may explain why verbs of indifference tend to appear in negative contexts. Similarly, I speculated that there may be a higher communicative need when a subject is resilient to negative outer influences, contrary to common expectations, and this may be why

verbs of resilience tend to cluster in negative contexts. This clustering, ultimately driven by human nature and communicative needs, may be the driving force behind these verb groups grammaticalizing into (semi-)NPIs over time. Whether this avenue of thinking leads us further will need to be explored in future research. However, I have reason to believe that it may, given that it borrows the starting point of scalar approaches, and the success of scalar approaches in explaining the pragmatic effects of a certain subgroup of NPIs in negative contexts and questions speaks for itself. A combination of the descriptive power of the downward-entailment, semantic licensing approach and the explanatory power of the scalar approaches could well provide a good basis for a comprehensive theory of (semantic) NPI licensing in the future. Similarly, a combination of the elegance and versatility of a Giannakidou-style approach to pragmatic licensing with the detail-orientation and preciseness of a Sailer-style use conditional approach could lead to a concise account of pragmatic licensing. Ultimately, there are many good linguistic theories of NPI licensing on the market, which have incorporated a plethora of observations crosslinguistically and throughout history. Future research needs to combine the strengths of the individual theories. What I have provided with this thesis is further evidence which will aid the forming of adequate, concise and comprehensive theories of NPI licensing in future research.

8 References

- Anderssen, J. (2006). Generalized domain widening *überhaupt*. West Coast Conference on Formal Linguistics (WCCFL), 25. 58–66.
- Atlas, J. D. (1996). Only noun phrases, pseudo-negative quantifiers, negative polarity items, and monotonicity. *Journal of Semantics* 13. 265–328.
- Baker, C. L. (1970). Double negatives. *Linguistic inquiry*, 1(2), 169–186.
- Caponigro, I., & Sprouse, J. (2007). Rhetorical questions as questions. In *Proceedings of Sinn und Bedeutung*, 11, 121–133).
- Chierchia, G. (2013). *Logic in Grammar*. Oxford University Press.
- Condoravdi, C. (2010). NPI licensing in temporal clauses. *Natural Language & Linguistic Theory* 28: 4.
- Crnič, L. (2014a). Non-monotonicity in NPI licensing. *Natural Language Semantics*, 22, 169–217.
- Crnič, L. (2014b). Against a dogma on NPI licensing. *The art and craft of semantics: A festschrift for Irene Heim*, 1, 117–145.
- Danescu-Niculescu-Mizil, C., Lee, L., & Ducott, R. (2009). Without a ‘doubt’? Unsupervised discovery of downward-entailing operators. *Proceedings of NAACL HLT*, pp. 137–145.
- Den Dikken, M. 2002. Direct and indirect polarity item licensing. *Journal of Comparative Germanic Linguistics* 5: 35–66
- Drenhaus, H., Blaszczyk, J., & Schütte, J. (2007). Some psycholinguistic comments on NPI licensing. *Sinn und Bedeutung*, 11, 180–193.
- Drenhaus, H., Saddy, D., & Frisch, S. (2005). Processing negative polarity items: When negation comes through the backdoor. *Linguistic evidence: Empirical, theoretical, and computational perspectives*, 145–165.
- Dudenredaktion (2016). *Duden – die Grammatik : Struktur und Verwendung der deutschen Sprache. Sätze – Wortgruppen – Wörter*. Bibliographisches Institut GmbH.
- DWDS – *Digitales Wörterbuch der deutschen Sprache*, published by the Berlin-Brandenburgischen Akademie der Wissenschaften, <<https://www.dwds.de/d/wb-dwdsweb>>, accessed on 17.3.2023.
- Erb, M. C. (2001). *Finite auxiliaries in German*. Doctoral dissertation, University of Tilburg.
- Fauconnier, G. (1975a). Polarity and the scale principle. In: CLS 11, 188–99. Chicago: Chicago Linguistic Society.

- Fauconnier, G. (1975b). Pragmatic scales and logical structure. *Linguistic inquiry*, 6(3), 353–375.
- Gajewski, J. R. (2011). Licensing strong NPIs. *Natural Language Semantics*, 19(2), 109–148.
- Giannakidou, A. & Yoon, S. (2013). No NPI licensing in comparatives. In R. Baglini, T. Grinsell, J. Keane, A. R. Singerman, and J. Thomas (eds.), *CLS 46: 2010: Proceedings of the forty-sixth annual meeting of the Chicago Linguistic Society 46*, Chicago, ILL. University of Chicago: Chicago.
- Giannakidou, A. (1997). *The Landscape of Polarity Items*. Ph.D. dissertation. University of Groningen.
- Giannakidou, A. (1998). *Polarity Sensitivity as (Non)veridical Dependency*. John Benjamins, Linguistik Aktuell.
- Giannakidou, A. (2002). Licensing and sensitivity in polarity items: From downward entailment to nonveridicality. In: M. Andronis, A. Pycha & K. Yoshimura (eds.), *Proceedings of the Annual Meeting of the Chicago Linguistic Society (= CLS)*, 38. Chicago, IL: Chicago Linguistic Society, 29–53.
- Giannakidou, A. (2006). Only, emotive factive verbs, and the dual nature of polarity dependency. *Language*, 82: 575–603
- Giannakidou, A. (2011). Negative and positive polarity items. In: Maienborn, C., von Stechow, K., & Portner, P. (eds.), *Semantics: An international handbook of natural language meaning*, 1660–1712. Berlin: Mouton de Gruyter.
- Giannakidou, A., & Yoon, S. (2013). No NPI licensing in comparatives. In: R. Baglini, T. Grinsell, J. Keane, A. R. Singerman, and J. Thomas (eds.), *CLS 46: 2010: Proceedings of the forty-sixth annual meeting of the Chicago Linguistic Society 46*, Chicago, ILL. University of Chicago: Chicago
- Giannakidou, A., & Yoon, S. (2017). *Rethinking negative polarity and free choice in comparatives: a crosslinguistic perspective*. Ms. Available at: <https://lingbuzz.net/lingbuzz/003679/current.pdf>, accessed on 18.12.2023
- Guerzoni, E. (2004). Even-NPIs in yes/no questions. *Natural Language Semantics*, 12(4), 319–343.
- Han, C. H. (2002). Interpreting interrogatives as rhetorical questions. *Lingua*, 112(3), 201–229.
- Hegarty, M. (2016). Root modality. In *Modality and Propositional Attitudes* (pp. 62–90). Cambridge: Cambridge University Press. doi:10.1017/CBO9781316084434.004.
- Heim, I. (1984). A Note on Negative Polarity and Downward Entailingness. *North East Linguistics Society: Vol. 14*, Article 8. Available at: <https://scholarworks.umass.edu/nels/vol14/iss1/8>

- Heim, I. (2006). *Remarks on comparative clauses as generalized quantifiers*. Ms. Available at: <https://semantics.uchicago.edu/kennedy/classes/f07/comparatives/heim-comparativesasGQs.pdf>, accessed on 18.12.2023
- Hoeksema, J. (1983). Negative polarity and the comparative. *Natural Language & Linguistic Theory*, 1, 403–434.
- Hoeksema, J. (1986). Monotonie en superlatieven. *Proeven van taalwetenschap*, 38–49.
- Hoeksema, J. (1994). On the grammaticalization of negative polarity items. In *Annual Meeting of the Berkeley Linguistics Society* (Vol. 20, No. 1, pp. 273–282). DOI: <https://doi.org/10.3765/bls.v20i1.1458>
- Hoeksema, J. (2009). Jespersen Recycled. In: van Gelderen, E. (ed.). *Cyclical Change*. John Benjamins, Amsterdam/Philadelphia, 15–34. Available at: <https://www.let.rug.nl/hoeksema/Jespersen%20Recycled.pdf>, retrieved on 8.12.2023
- Hoeksema, J. (2012). On the Natural History of Negative Polarity Items. In *Linguistic Analysis*, 38(1/2), 2012, 3–33.
- Höhle, T. N. (2018). Über Verum-Fokus im Deutschen. In: Müller, S., Reis, M., & Richter, F. (eds.). *Beiträge zur deutschen Grammatik: Gesammelte Schriften von Tilman N. Höhle*, 381–416. Berlin: Language Science Press. DOI:10.5281/zenodo.1169681.
- Horn, L. R. (1989). *A Natural History of Negation*. Chicago, IL: The University of Chicago Press.
- Horn, L. R. (2001). Flaubert triggers, squattive negation, and other quirks of grammar. In: Hoeksema, J., Rullmann, H., Sánchez-Valencia, V., & van der Wouden, T. (eds.). *Perspectives on Negation and Polarity Items*. Benjamins, Amsterdam, 173–200
- Horn, L. R. (2016). Licensing NPIs: Some Negative (and Positive) Results. In: Larri-vée, P., Lee, C. (eds.): *Negation and Polarity: Experimental Perspectives. Language, Cognition, and Mind*, vol 1. Springer, Cham. https://doi.org/10.1007/978-3-319-17464-8_12
- Huckauf, A., Heller, D., & Gouzoulis-Mayfrank, E. (2003). Ein Instrument zur Messung der Wirkung emotionaler Valenzen auf die Wortverarbeitung [An instrument for the measurement of effects of emotional valence on word processing]. *Zeitschrift für Psychologie mit Zeitschrift für angewandte Psychologie und Sprache & Kognition*, 211(3), 129–137.
- Jespersen, O. (1917). *Negation in English and Other Languages*. Copenhagen: Host.
- Kadmon, N., & Landman, F. (1993). Any. *Linguistics and philosophy*, 16(4), 353–422.

- Kas, M. (1993). *Essays on Boolean functions and negative polarity*. Groningen dissertation.
- Kennedy, C. (2001). On the monotonicity of polar adjectives. *Perspectives on negation and polarity items*, 201–221.
- Klima, E. S. (1964). Negation in English. In: Fodor, & Katz, J. (eds.). *The Structure of Language*. Prentice Hall. Englewood Cliffs.
- Krifka, M. (1994). The semantics and pragmatics of weak and strong polarity items in assertions. In *Semantics and Linguistic Theory*, 4, 195–219.
- Krifka, M. (1995). The semantics and pragmatics of polarity items. *Linguistic Analysis* 25: 209–258.
- Krifka, M. (2010). *Before and After* without coercion: comment on the paper by Cleo Condoravdi. *Nat Lang Linguist Theory* 28, 911–929. <https://doi.org/10.1007/s11049-010-9116-y>.
- Ladd, D. Robert (1981). A first look at the semantics and pragmatics of negative questions and tag questions. *Papers from the Regional Meeting of Chicago Linguistics Society* 17: 164–171.
- Ladusaw, W. A. (1979). *Polarity Sensitivity as Inherent Scope Relations*. The University of Texas at Austin.
- Lahiri, U. (1998). Focus and negative polarity in Hindi. *Natural Language Semantics* 6: 57–123.
- Lakoff, R. (1970). Some reasons why there can't be any some-any rule. *Language* 45, 608–15.
- Lassiter, D. (2013). *Conditional antecedents provide no evidence for a grammatical theory of scalar implicature*. Ms. Available at: <https://raw.githubusercontent.com/danlassiter2/danlassiter2.github.io/master/papers/Lassiter-SI-conditionals-draft.pdf>, retrieved on 24.11.2023
- Leiner, D. J. (2019). SoSci Survey (Version 3.1.06) [Computer software]. Available at <https://www.soscisurvey.de>.
- Levinson, S. C. (2000). *Presumptive Meanings: The Theory of Generalized Conversational Implicature*. Cambridge, MA: MIT Press.
- Linebarger, M. (1980). *The Grammar of Negative Polarity*. PhD thesis. MIT.
- Linebarger, M. (1987). Negative Polarity and Grammatical Representation. *Linguistics and Philosophy*, 10(3), 325–387.
- Liu, M. (2010). Universal Quantification and NPI Licensing. In: *Proceedings of Sinn und Bedeutung* 14, 273–288.

- Liu, M., König, P., & Mueller, J. L. (2019). Novel ERP evidence for processing differences between negative and positive polarity items in German. *Frontiers in psychology*, 10, 376.
- Maechler, M., Rousseeuw, P., Struyf, A., Hubert, and M., Hornik, K. (2019). cluster: Cluster Analysis Basics and Extensions. R package version 2.1.0.
- Marx-Moyse, J. (1985). Modaler Infinitiv in Verbindung mit einem Subjektsatz im Deutschen. *Zeitschrift für Sprachwissenschaft*, 4(1), 37–67.
- Penka, D. (2020). Negative and Positive Polarity Items. In M. T. Putnam & B. R. Page (eds.). *The Cambridge Handbook of Germanic Linguistics* (pp. 639–660). chapter, Cambridge: Cambridge University Press.
- Postma, G. (2002). Negative polarity and modality in Middle Dutch ghe-particle constructions. In Barbiers, S., Wurff, W., & Beukema, F. (eds.): *Modality and its interaction with the verbal system*, 47, 205. Downloaded from: https://www.academia.edu/26538653/Negative_polarity_and_modality_in_Middle_Dutch_ghe_particle_constructions_on_5.6.2023
- Progovac, L. (1994). *Negative and positive polarity: A binding approach*. Cambridge: Cambridge University Press.
- R Core Team (2019). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL <https://www.R-project.org/>.
- Reis, M. (2001). Bilden Modalverben im Deutschen eine syntaktische Klasse? In: Müller, R., & and M. Reis (eds.). *Modalität und Modalverben im Deutschen*, 287–318. Hamburg: Buske.
- Repp, S. (2013). Common ground management: Modal particles, illocutionary negation and VERUM. In: Gutzmann, D. & Gärtner, H.-M. (eds.). *Beyond Expressives – Explorations in Use-conditional Meaning*. Leiden, Boston: Emerald. CRISPI Series. 231–274.
- Richter, F. & Soehn, J.-P. (2006). Braucht niemanden zu scheren: A survey of NPI licensing in German. In: Stefan Müller (ed.). *Proceedings of the 13th International Conference on Head-Driven Phrase Structure Grammar*, Varna, 421–440. DOI: 10.21248/hpsg.2006.23.
- Richter, F., and Radó, J. (2014). Negative polarity in German: Some experimental results. *Journal of semantics*, 31(1), 43–65.
- Rojas-Esponda, T. (2014). A discourse model for überhaupt. *Semantics & Pragmatics*, 7, Article 1: 1–45.
- Romero, M. (2015). High negation in subjunctive conditionals and polar questions. *Proceedings of Sinn und Bedeutung* (Vol. 19, pp. 519–536).
- Romero, M., & Han, C. H. (2004). On negative yes/no questions. *Linguistics and philosophy*, 27(5), 609–658.

- Saddy, D., Drenhaus, H., & Frisch, S. (2004). Processing polarity items: Contrastive licensing costs. *Brain and language*, 90(1-3), 495–502.
- Sadock, J. M. (1971). Queclaratives. In *Seventh Regional Meeting of the Chicago Linguistic Society*, 7, 223–232.
- Sadock, J. M., (1974). *Towards a linguistic theory of speech acts*. New York: Academic Press.
- Sailer, M. (2021). Minimizer negative polarity items in non-negative contexts. In *Proceedings of the 28th International Conference on Head-Driven Phrase Structure Grammar*, Frankfurt/Main (pp. 348–368).
- Sailer, M. (2022). Use-conditional licensing of strong Negative Polarity Items. In *Proceedings of Sinn und Bedeutung* (Vol. 26, pp. 734–752).
- Sailer, M. (2022, December 14th). *NPI-licensing in enriched semantic representations*. Talk at Linguistischer Arbeitskreis, Cologne. Slides available at: https://www.english-linguistics.de/blog/wp-content/uploads/2023/02/Sailer_Koeln22_NPIs.pdf
- Sailer, M. and Trawiński, B. (2006b). The Collection of Distributionally Idiosyncratic Items: A Multilingual Resource for Linguistic Research. In *Proceedings of the 5th International Conference on Language Resources and Evaluation, LREC 2006*, 471–474. Genoa, Italy.
- Sailer, M. and Trawiński, B. (2006a). Die Sammlung unikaler Wörter des Deutschen. Aufbau-prinzipien und erste Auswertungsergebnisse [The Collection of German Bound Words. Design Principles and First Evaluation]. In: Häcki Buhofer, A., & Burger, H. (eds.). *Phraseology in Motion I. Methoden und Kritik. Akten der Internationalen Tagung zur Phraseologie* (Basel, 2004), Series: Phraseologie und Parämiologie, 19, 439–450. Hohengehren: Schneider Verlag.
- Sanchez Valencia, V. M., van der Wouden, T., & Zwarts, F. (1993). Polarity and the flow of time. In: de Boer, A., de Jong, J., & Landeweerd, R. (eds.). *Language and Cognition 3 Yearbook of the Research Group for Theoretical and Experimental Linguistics of the University of Groningen*. Groningen, 209–218.
- Schaebicke, K., Seeliger, H. & Repp, S. (2021). The Diverse Landscape of Negative Polarity Items: On the Use of German NPIs as Experimental Diagnostics. *Journal of Psycholinguistic Research*, 50(6), 1461–1486. <https://doi.org/10.1007/s10936-021-09793-0>
- Schwab, J. (2022). Lexical variation in NPI illusions – NPI illusions as a scalar phenomenon. *Glossa Psycholinguistics* 1(1): 21, pp. 1–28. DOI: <https://doi.org/10.5070/G6011106>
- Schwab, J., Liu, M., & Mueller, J. L. (2021). On the acquisition of polarity items: 11- to 12-year-olds’ comprehension of German NPIs and PPIs. *Journal of Psycholinguistic Research*, 50(6), 1487–1509.
- Schwarzschild, R., & Wilkinson, K. (2002). Quantifiers in comparatives: A Semantics of Degree based on Intervals. *Natural Language Semantics*, 10: 1–41.

- Sedivy, J. (1990). Against a unified analysis of negative polarity licensing. *Cahiers Linguistiques D'Ottawa* 18, 95–105.
- Soehn, J. P., Trawiński, B., & Lichte, T. (2010). Spotting, collecting and documenting negative polarity items. *Natural Language & Linguistic Theory*, 28, 931–952.
- Stefanowitsch, A. (2009). Bedeutung und Gebrauch in der Konstruktionsgrammatik. Wie kompositionell sind modale Infinitive im Deutschen? *Zeitschrift für Germanistische Linguistik*, 37(3), 565–592.
- Sudo, Y. (2013). Biased polar questions in English and Japanese. In *Beyond expressives: Explorations in use-conditional meaning*, 275–295. Brill.
- Trawiński, B. and Soehn, J.-P. (2008). A Multilingual Database of Polarity Items. In *Proceedings of the Sixth International Conference on Language Resources and Evaluation (LREC'08)*. European Language Resources Association (ELRA): Marrakech, Morocco.
- Trawiński, B., Soehn, J.-P., Sailer, M., and Richter, F. (2008). A Multilingual Electronic Database of Distributionally Idiosyncratic Items. In: Bernal, E., & DeCesaris, J. (eds.). *Proceedings of the XIII Euralex International Congress*, Series: Activitats, Volume 20, 1445–1451. Universitat Pompeu Fabra: Barcelona, Spain.
- Van der Wouden, T. (1994). *Negative Contexts*. Ph.D. dissertation. University of Groningen.
- Van Rooy, R. (2003). Negative polarity items in questions: Strength as relevance. *Journal of Semantics*, 20(3), 239–273.
- Von Stechow, K. (1999). NPI licensing, Strawson entailment, and context dependency. *Journal of semantics*, 16(2), 97–148.
- Wöllstein, Angelika. ([2022]). *Duden, die Grammatik* (10., völlig neu verfasste Auflage). Berlin: Dudenverlag.
- Yurchenko, A., Den Ouden, D. B., Hoeksema, J., Dragoy, O., Hoeks, J. C., & Stowe, L. A. (2013). Processing polarity: ERP evidence for differences between positive and negative polarity. *Neuropsychologia*, 51(1), 132–141.
- Zeijlstra, H. (2018). Does neg-raising involve neg-raising?. *Topoi*, 37, 417–433.
- Zwarts, F. (1986). *Categoriale Grammatica en Algebraische Semantiek. Een studie naar negatie en polariteit in het Nederlands*. Ph.D. dissertation. University of Groningen.
- Zwarts, F. (1995). Nonveridical contexts. *Linguistic Analysis* 25, 286–312.
- Zwarts, F. (1998). Three types of polarity. In *Plurality and quantification*, 177–238. Springer, Dordrecht.

Online resources

<https://www.english-linguistics.de/codii/>

<https://www.english-linguistics.de/codii/codiinpi/de/list-complete.xhtml>

<https://osf.io/5vsgj/> (DOI 10.17605/OSF.IO/5VSGJ)

<https://osf.io/2bwak/>, DOI 10.17605/OSF.IO/2BWAK

9 Appendix

The online resources created for this dissertation project can be found under the following links:

The experimental items as well as the results of Experiment 1 and 2 can be found under the following link:

<https://osf.io/5vsgj/> (DOI 10.17605/OSF.IO/5VSGJ)

The corpus data as well as the documentation of search queries and corpora searched for each NPI can be found under the following link:

<https://osf.io/2bwak/>, DOI 10.17605/OSF.IO/2BWAK

List of NPIs in the CoDII grouped morphosyntactically

NPI	class (CoDII)	POS (CoDII)	Morphosyntactic group	Verbal vs. nonverbal
beileibe	weak	ADV	ADV	non-verbal
jemals	weak	ADV	ADV	non-verbal
noch so	weak	ADV	ADV	non-verbal
so recht	weak	ADV	ADV	non-verbal
sonderlich	weak	ADJD	ADV	non-verbal
überhaupt	strong	ADV	ADV	non-verbal
unbedingt gern	strong	ADV	ADV	non-verbal
weiter verwunderlich	super- strong	ADV	ADV	non-verbal
aber auch gar	strong	ADV	<i>gar</i> -Particle combination	non-verbal
erst gar	strong	ADV	<i>gar</i> -Particle combination	non-verbal
gar	strong	ADV	<i>gar</i> -Particle combination	non-verbal
gleich gar	weak	ADV	<i>gar</i> -Particle combination	non-verbal
schon gar	weak	ADV	<i>gar</i> -Particle combination	non-verbal
so gar	strong	ADV	<i>gar</i> -Particle combination	non-verbal
Aas	superstr ong	NN	NP	non-verbal
das Geringste	weak	NP	NP	non-verbal
Deut	weak	NN	NP	non-verbal
Geringerer	strong	NN	NP	non-verbal
Heller (roter)	weak	NP	NP	non-verbal
Mark (müde)	weak	NP	NP	non-verbal
Menschenseele	weak	NN	NP	non-verbal
Millimeter (bewegen) (abweichen)	weak	NN VP	NP	non-verbal
Pieps	weak	NN	NP	non-verbal
Sterbenswörtchen	strong	NN	NP	non-verbal
Ton	strong	NN	NP	non-verbal
Tropfen	strong	NN	NP	non-verbal
auch nur irgendein/irgendetwas	weak	ADV	Part+Pron	non-verbal
beim besten Willen	weak	PP	PP	non-verbal
im Entferntesten	weak	PP	PP	non-verbal
im Geringsten	weak	PP	PP	non-verbal
mit dem besten Willen	weak	PP	PP	non-verbal
von ungefähr	weak	PP	PP	non-verbal

(kein) Stein auf dem anderen bleiben	weak	VP	Idiom	verbal
(kein) Stein auf dem anderen lassen	strong	VP	Idiom	verbal
(keine) zehn Pferde bringen	superstrong	VP	Idiom	verbal
(viel) Federlesen(s) machen	weak	VP	Idiom	verbal
alle Tassen im Schrank haben	weak	VP	Idiom	verbal
auf (k)eine Kuhhaut gehen	strong	VP	Idiom	verbal
auf den Kopf gefallen sein	weak	VP	Idiom	verbal
auf den Mund / das Maul gefallen sein	weak	VP	Idiom	verbal
auf einen grünen Zweig kommen	weak	VP	Idiom	verbal
Augen für etwas (anderes) haben	weak	VP	Idiom	verbal
aus dem Staunen herauskommen	strong	VP	Idiom	verbal
aus seinem Herzen eine Mördergrube machen	weak	VP	Idiom	verbal
aus seiner Haut heraus können	weak	VP	Idiom	verbal
bis drei zählen können	weak	VP	Idiom	verbal
das Gelbe vom Ei sein	weak	VP	Idiom	verbal
das Papier wert sein	weak	VP	Idiom	verbal
der Weisheit letzter Schluss sein	weak	VP	Idiom	verbal
die geringste/leiseste Ahnung haben	strong	VP	Idiom	verbal
die Miene verziehen	strong	VP	Idiom	verbal
die Welt noch verstehen	weak	VP	Idiom	verbal
die/eine Rede sein können	weak	VP	Idiom	verbal
ein Bein auf den Boden bringen	weak	VP	Idiom	verbal
ein Blatt vor den Mund nehmen	weak	VP	Idiom	verbal
ein gutes Haar an etwas lassen	weak	VP	Idiom	verbal
ein Kostverächter sein	weak	VP	Idiom	verbal
ein Vertun geben	weak	VP	Idiom	verbal
ein Wässerchen trüben können	weak	VP	Idiom	verbal
eine (andere) Wahl bleiben	weak	VP	Idiom	verbal
einen blassen Schimmer haben	weak	VP	Idiom	verbal
einen Blumentopf gewinnen	weak	VP	Idiom	verbal
einen Finger / Hand rühren für jemanden	weak	VP	Idiom	verbal
einen Finger krumm machen	weak	VP	Idiom	verbal
einen Funken Anstand (im Leibe) haben	weak	VP	Idiom	verbal
einen Funken Verstand im Kopf haben	weak	VP	Idiom	verbal

einen Hehl machen	weak	VP	Idiom	verbal
einen Pfifferling wert sein	weak	VP	Idiom	verbal
einer (gewissen) Ironie entbehren	superstrong	VP	Idiom	verbal
einer Fliege etwas zuleide tun	weak	VP	Idiom	verbal
etwas am Hut haben mit jemandem / etwas	weak	VP	Idiom	verbal
etwas anderes übrig bleiben	weak	VP	Idiom	verbal
etwas zu melden haben	weak	VP	Idiom	verbal
geheuer sein / vorkommen	weak	VP	Idiom	verbal
genug bekommen können	weak	VP	Idiom	verbal
gerade als etwas / jemand gelten	superstrong	VP	Idiom	verbal
Gutes ahnen	weak	VP	Idiom	verbal
Gutes schwanken	strong	VP	Idiom	verbal
hinten und vorne nicht reichen	superstrong	VP	Idiom	verbal
Honiglecken (etwas ist kein Honiglecken)	strong	NN VP	Idiom	verbal
im Traum daran denken	weak	VP	Idiom	verbal
in die Tüte kommen	weak	VP	Idiom	verbal
jemandem die Butter auf dem Brot gönnen	strong	VP	Idiom	verbal
jemandem ein Haar krümmen	weak	VP	Idiom	verbal
jemandem eine andere Wahl bleiben	weak	VP	Idiom	verbal
jemandem grün sein	weak	VP	Idiom	verbal
jemandem gut sein	superstrong	VP	Idiom	verbal
jemandem in den Kopf wollen	strong	VP	Idiom	verbal
jemanden eines Blickes würdigen	strong	VP	Idiom	verbal
jemandes/jedermanns Sache sein	strong	VP	Idiom	verbal
kein Kraut gewachsen sein	weak	VP	Idiom	verbal
klug werden aus etwas	weak	VP	Idiom	verbal
kommen lassen auf	strong	VP	Idiom	verbal
Kosten und Mühen scheuen	strong	VP	Idiom	verbal
lange fackeln	weak	VP	Idiom	verbal
mit der Wimper zucken	weak	VP	Idiom	verbal
nicht schlecht staunen	superstrong	VP	Idiom	verbal
noch sein (nicht mehr sein)	superstrong	VP	Idiom	verbal
ohne sein	strong	VP	Idiom	verbal
Pardon geben	strong	VP	Idiom	verbal

richtig im Kopf sein	weak	VP	Idiom	verbal
seinen Augen / Ohren trauen	weak	VP	Idiom	verbal
sich graue Haare wachsen lassen	weak	VP	Idiom	verbal
sich in die Karten sehen / gucken lassen	weak	VP	Idiom	verbal
sich von der Hand weisen lassen	strong	VP	Idiom	verbal
sich zweimal sagen lassen	weak	VP	Idiom	verbal
sie (noch) alle haben	weak	VP	Idiom	verbal
übers Herz bringen	weak	VP	Idiom	verbal
von der Hand zu weisen sein	strong	VP	Idiom	verbal
von der Seite weichen	weak	VP	Idiom	verbal
wissen, wo einem der Kopf steht	strong	VP	Idiom	verbal
zum Besten stehen / bestellt sein	weak	VP	Idiom	verbal
anders können	strong	VP	Modalverb	verbal
brauchen (zu)	weak	VP	Modalverb	verbal
dafürkönnen	weak	VV	Modalverb	verbal
umhinkönnen	weak	VV	Modalverb	verbal
bei Trost sein	weak	VP	PP+sein	verbal
von Pappe sein	superstrong	VP	PP+sein	verbal
von schlechten Eltern sein	strong	VP	PP+sein	verbal
absprechen können	weak	VP	V+Modalverb	verbal
anhaben können	weak	VP	V+Modalverb	verbal
ausstehen können	weak	VP	V+Modalverb	verbal
enden wollen	weak	VP	V+Modalverb	verbal
etwas fassen können	weak	VP	V+Modalverb	verbal
etwas wahrhaben wollen	weak	VP	V+Modalverb	verbal
hinwegtäuschen können	weak	VP	V+Modalverb	verbal
jemandem etwas anhaben können	weak	VP	V+Modalverb	verbal
lassen können von	weak	VP	V+Modalverb	verbal
mehr hören können	weak	VP	V+Modalverb	verbal
missen wollen	weak	VP	V+Modalverb	verbal
mit ansehen können	weak	VP	V+Modalverb	verbal
sich enthalten können zu	strong	VP	V+Modalverb	verbal
sich erwehren können	weak	VP	V+Modalverb	verbal
verwundern können	weak	VP	V+Modalverb	verbal
auszudenken (sein)	strong	VP	V+sein	verbal
zu deuteln sein / geben	weak	VP	V+sein	verbal
zu fassen sein	weak	VP	V+sein	verbal
zu rütteln sein / geben	weak	VP	V+sein	verbal
zu übersehen sein	weak	VP	V+sein	verbal
anfechten (etwas ficht jemanden an)	weak	VVFIN	Verb	verbal

beschreiben	strong	VVFIN	Verb	verbal
gehen über	weak	VP	Verb	verbal
nachstehen in	weak	VP	Verb	verbal
scheren um	weak	VV	Verb	verbal
umhinkommen	weak	VV	Verb	verbal
verdenken	weak	VV	Verb	verbal
verhehlen	weak	VVFIN	Verb	verbal
es sich nehmen lassen	strong	VP	Verb + lassen	verbal
sich (d)reinreden lassen	weak	VP	Verb + lassen	verbal
sich (etwas) befehlen lassen	strong	VP	Verb + lassen	verbal
sich beirren lassen	strong	VP	Verb + lassen	verbal
sich deuteln lassen	strong	VP	Verb + lassen	verbal
sich lumpen lassen	weak	VP	Verb + lassen	verbal
sich rütteln lassen	weak	VP	Verb + lassen	verbal
sich unterkriegen lassen	weak	VP	Verb + lassen	verbal
Abbruch tun	weak	VP	VP	verbal
anders zu erwarten sein	weak	VP	VP	verbal
es angehen	weak	VP	VP	verbal
müde werden zu	strong	VP	VP	verbal
nutze / nütze sein zu	weak	VP	VP	verbal
sich so haben	superstrong	VP	VP	verbal
zu besagen haben	weak	VP	VP	verbal
zu reden von	strong	VP	VP	verbal
zu suchen haben	weak	VP	VP	verbal
zur Sache tun	weak	VP	VP	verbal

Experimental Items from Experiment 1 & 2

Item no.	NPI	English translation
Item 01	<i>sonderlich</i>	particularly
Item 02	<i>beileibe</i>	by no means, at all
Item 03	<i>so recht</i>	that well
Item 04	<i>überhaupt</i>	at all
Item 05	<i>unbedingt gern</i>	necessarily, lit. 'necessarily willingly'
Item 06	<i>beim besten Willen</i>	with the best will
Item 07	<i>im Entferntesten</i>	in the slightest
Item 08	<i>im Geringsten</i>	in the slightest
Item 09	<i>brauchen (zu)</i>	need
Item 10	<i>anders können</i>	to be able to act differently, lit. different can
Item 11	<i>Aas</i>	(not) a soul, lit. carrion
Item 12	<i>Deut</i>	brass farthing
Item 13	<i>Geringerer</i>	less a figure, lit. lesser
Item 14	<i>Menschenseele</i>	living soul, lit. human soul
Item 15	<i>Pieps</i>	beep
Item 16	<i>Sterbenswörtchen</i>	dying word
Item 17	<i>Ton</i>	sound
Item 18	<i>Tropfen</i>	drop
Item 19	<i>das Geringste</i>	the least
Item 20	<i>bei Trost sein</i>	to be in one's right mind, lit.: with consolation be
Item 21	<i>von Pappe sein</i>	to be of sound quality, lit.: of cardboard be
Item 22	<i>von schlechten Eltern sein</i>	to be alright, lit. to be of bad parents

Item 23	<i>auszudenken (sein)</i>	to be conceivable, lit.: make.up be
Item 24	<i>zu übersehen sein</i>	to be conspicuous, lit. to overlook be
Item 25	<i>sich (etwas) befehlen lassen</i>	to be bossed around, lit. REFL sth. order let
Item 26	<i>sich (d)reinreden lassen</i>	to be swayed, lit.: REFL interfere let
Item 27	<i>sich beirren lassen</i>	to let oneself be misled, lit. REFL mislead let
Item 28	<i>sich deuteln lassen</i>	to leave room for interpretation, lit.: to interpret be vs. REFL interpret let
Item 29	<i>sich lumpen lassen</i>	to splash out (no literal reading for the verb lumpen available synchronously), lit. REFL lumpen let
Item 30	<i>sich rütteln lassen</i>	there is (no) doubt about sth., lit. itself shake let
Item 31	<i>sich unterkriegen lassen</i>	(with negation) to keep one's chin up, lit. REFL get.down let
Item 32	<i>es sich nehmen lassen</i>	(with negation) to insist on sth., lit. it REFL withdraw let
Item 33	<i>anhaben können</i>	to be able to harm, lit. on.have can
Item 34	<i>absprechen können</i>	not to be able to deprive sb. of sth., lit. deny can
Item 35	<i>ausstehen können</i>	to be able to stand sth./sb., lit. stand can
Item 36	<i>enden wollen</i>	(with negation) to go on and on, lit. end want
Item 37	<i>etwas fassen können</i>	to be able to grasp sth., lit. grasp can
Item 38	<i>etwas wahrhaben wollen</i>	to want to admit sth.
Item 39	<i>hinwegtäuschen können</i>	to be able to obscure the fact that ..., lit. deceive can
Item 40	<i>lassen können von</i>	can help doing, lit. let can from
Item 41	<i>missen wollen</i>	to want to miss, lit. miss want
Item 42	<i>mit ansehen können</i>	to be able to bear sth., lit. with behold can

Item 43	<i>verwundern können</i>	to be able to amaze sb., lit. amaze can
Item 44	<i>mehr hören können</i>	to be able to hear any longer, lit. any.longer hear can
Item 45	<i>verdenken können</i>	to hold sth. against sb., lit. hold.against can
Item 46	<i>sich erwehren können</i>	to be able to avoid sth., lit. REFL to ward off can
Item 47	<i>nachstehen (in)</i>	to be inferior, lit. to after.stand in
Item 48	<i>scheren um</i>	to care about sth./sb., lit. REFL care about
Item 49	<i>anfechten (etwas ficht jemanden an)</i>	to irritate, lit. on.fence
Item 50	<i>verhehlen</i>	to dissemble
Item 51	<i>nutze / nütze sein zu</i>	to be of any use, lit. useful be to
Item 52	<i>zu besagen haben</i>	to mean sth.
Item 53	<i>zu suchen haben</i>	to have no business to be somewhere, lit. to search have
Item 54	<i>zur Sache tun</i>	to matter, lit.: to.the thing do
Item 55	<i>gehen über</i>	to go above
Item 56	<i>dafürkönnen</i>	to be one's fault
Item 57	<i>Abbruch tun</i>	to spoil sth., lit. breaking.off do
Item 58	<i>von ungefähr kommen</i>	to happen by accident, lit. from roughly come
Item 59	<i>(k)einen Millimeter bewegen</i>	to budge an inch, lit. to move (no) millimeter
Item 60	<i>auch nur irgendein</i>	any whatsoever, lit.: also only anyone

Overview: NPIs in downward entailing contexts in the corpus data

NPI	bloß "only"	kaum "hardly"	Antecedent of a conditional clause	negative deverbal noun	nur "only"	schwer "difficult"	schwerlich "difficult"	selten "rarely"	ungern "reluctantly"	wenig "few"	Total
<i>Abbruch tun</i> "to spoil sth."		34			2					22	67
<i>absprechen können</i> "to be able to deprive sb. of sth."		5	1			1	4			2	13
<i>anders können</i> "to be able to act differently"		1									1
<i>anfechten</i> "to irritate"										1	1
<i>anhaben können</i> "to be able to harm"		26	1		2					77	107
<i>ausstehen können</i> "to be able to stand sth./sb."										4	4
<i>brauchen (zu)</i> "to need"	2	2			23					2	30
<i>enden wollen</i> "sth. will have an end"		3									3

<i>erwehren</i> können "to be able to avoid sth."		71	1		15	20	2	1		3	113
<i>fassen können</i> "to be able to grasp sth."		51				1					52
<i>hinweg- täuschen</i> können "to be able to obscure sth."		5	1		3		1			1	11
<i>lassen können</i> von "can help doing"		1				1					2
<i>missen wollen</i> "to want to miss"		2								5	7
<i>mit ansehen</i> können "to be able to bear sth."		9	1		1						11
<i>nicht mehr / noch hören</i> können "to be able to hear any longer"		6								1	7
<i>sich</i> (d)reinreden		2							6	5	14

<i>lassen</i> "to be swayed"											
<i>sich (etwas) befehlen zu lassen</i> "to be bossed around"										1	1
<i>sich beirren lassen</i> "to let oneself be misled"		14			1					16	50
<i>sich deuteln lassen</i> "to leave room for interpretation"		1								1	2
<i>sich lumpen lassen</i> "to splash out"		3								1	4
<i>sich rütteln lassen</i> "there is (no) doubt about sth."		7				1	1			4	13
<i>sich scheren um</i> "to care about sth./sb."		8	2					1		57	77
<i>sich unterkriegen lassen</i> "to keep one's				1						1	2

chin up" (with negation)											
<i>umhinkönnen</i> "to do otherwise"		13				1				2	16
<i>verdenken</i> <i>können</i> "to hold sth. against sb."		20								4	24
<i>verwundern</i> <i>können</i> "to be able to amaze sb."		36			10					2	48
<i>wahrhaben</i> <i>wollen</i> "to want to admit sth."		9			3	1		1	2	9	31
<i>zu besagen</i> <i>haben</i> "to mean sth."										1	1
<i>zu übersehen</i> <i>sein</i> "to be conspicuous"		26				21	4			1	52
Total	2	355	7	1	60	47	12	3	8	223	764

