

Slovenian Epistemic and Deontic Modals in Socially Unacceptable Discourse Online

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Abstract

In this paper, we investigate the use of epistemic and deontic modal expressions in Slovenian Facebook comments. Modals are linguistic expressions that can be strategically used to fulfill the face-saving dimension of communication and to linguistically mask discriminatory discourse. We compile a list of modal expressions that have a tendency towards a single modal reading in order to enable robust corpus searches. Using this set of modals, we first show that deontic, but not epistemic, modals are significantly more frequent in socially unacceptable comments. In the qualitative part of the paper, we discuss the use of modals expressing deontic and epistemic necessity from the perspective of discourse pragmatics. We explore how the communicative strategy of face-saving interacts with personal and impersonal syntax in the case of deontic modals, and how hedging and boosting interacts with irony in the case of epistemic modals.

1. Introduction

Hate speech and other forms of socially unacceptable discourse have a negative effect on society (Delgado, 2019; Gelber and McNamara, 2016). For instance, calls to action targeting specific demographics on social media have been shown to lead to offline consequences such as real-world violence (Siegel, 2020). Linguistically, socially unacceptable attitudes are often disseminated in a dissimulated form, using pragmatic markers which superficially lessen the strength of intolerant claims or violent calls to action; nevertheless, the discursive markers of such dissimulated discourse are still not well known (Lorenzi-Bailly and Guellouz, 2019), especially outside of English social media.

In this paper, we look at the use of Slovenian modal expressions as key pragmatic contributors to the dissimulation of unacceptable discourse on social media. We first look at how the use of epistemic modals, which convey the speaker's truth commitment, and the use of deontic modals, which convey how the world should or must be according to a set of contextually determined circumstances, differ between unacceptable and acceptable discourse in the case of Slovenian Facebook comments obtained from the *FRENK* corpus (Ljubešič et al., 2021).

We then turn to a qualitative analysis of modals conveying logical necessity. We discuss how the meaning of deontic necessity, which corresponds to some kind of obligation that needs to be fulfilled by the agent of the modalised proposition, can have a secondary pragmatic meaning that is akin to face-saving observed with epistemic modals and that arises with syntactically impersonal modals. We then discuss how epistemic modals are used to achieve a face-saving effect, either as hedging or boosting devices or as the intensifiers of irony.

The paper is structured as follows. Section 2. presents the semantic and pragmatic properties of epistemic and deontic modals, while Section 3. presents some of the re-

lated corpus-linguistic work on modality in socially unacceptable discourse. Section 4. describes the make-up of the *FRENK* corpus in terms of the subtypes of socially unacceptable discourse and the criteria for the selection of the analysed modals. Section 5. presents the quantitative analysis, wherein epistemic and deontic modals are compared between the acceptable and unacceptable supersets in *FRENK*. Section 6. presents the qualitative analysis, where certain deontic and epistemic necessity modals are discussed in terms of their pragmatic functions. Section 7. concludes the paper.

2. Theoretical background

2.1. The semantics of epistemic and deontic modals

Modal expressions are semantic operators that interpret a prejacent proposition within the irrealis realm of possibility (Kratzer, 2012). There are two key semantic components to modals – one is the modal force, which corresponds to the logical strength of the modal expression and roughly ranges from possibility via likelihood to necessity, and the other is the type of modality,¹ according to which the evaluation of the possibility is tied to the actual world.²

There are two main types of modality – epistemic on the one hand and root on the other (Coates, 1983; Kratzer, 2012; von Stechow, 2006). Epistemic modals tie the evaluation of the possibility or necessity to the speaker's knowledge about the actual world. For instance, the possibility adverb *morda* in (1), taken from the *FRENK* corpus, has the reading which says that there is a possibility that the referents of the indefinite subject *nekaj jih* ("some of them")

¹For formal semanticists viewing modals as quantifiers over possible worlds (von Stechow, 2006; Kratzer, 2012), there are actually three semantic components – *modal force*, *modal base*, and *the ordering source*; for ease of exposition, we conflate the modal base and ordering source under the simplified *modality type* component of meaning.

²The italics in the examples are always our own and ²used to highlight the modal under scrutiny.

will stay in the country. This possibility reading is epistemic as it conveys that the speaker is not sure whether the possibility of their staying will actually turn out to be the case.

- (1) [N]ekaj jih bo *morda*_{EPISTEMIC} ostalo v naših krajih.
“Some of them will *possibly* stay in our country.”

Root modality, on the other hand, is not tied to the speaker’s (un)certainly about the truth of the proposition. Rather, it ascribes the possibility to certain, usually unspecified, facts about the actual world. There are several subtypes of root modality, but the one we are interested in this paper is the deontic subtype, in which the evaluation of possibility or necessity is tied to some contextually determined authority, such as a set of rules, the law, or even the speaker (Palmer, 2001, 10). An example of a deontic modal is the verb *dovoliti* in example (2), again taken from *FRENK*. This verb also denotes possibility in terms of modal force, so the deontic possibility reading roughly translates to *they should not be given the possibility* (i.e., be allowed) *to change our culture*.

- (2) [S]vededa se jim ne sme *dovoliti*_{DEONTIC}[,] da bi spremenil nase (*sic*) kulturo.
“They should not be *allowed* to change our culture.”

Note that a single modal can have different readings in terms of modality type. This is, for instance, the case with the necessity modal *morati*, where the epistemic reading in (3a) conveys that the speaker is certain (i.e., epistemic necessity) that whomever they are referring to is a bonafide Slovenian. By contrast, the deontic reading in (3b) says that what needs to be necessarily done is preparing for the competition. Such readings are disambiguated contextually.

- (3) a. Ta *mora*_{EPISTEMIC} biti pravi Slovenec, ni dvoma.
“He *must* be a bonafide Slovenian, no doubt about it.”
b. Pripraviti se bodo *morali*_{DEONTIC} tudi na konkurenco, ki je zdaj še nimajo.
“They *must* also prepare for the competitors which they do not have.”

(Roeder and Hansen, 2006, 163)

2.2. The pragmatics of epistemic and deontic modals

Modality expresses the speaker’s subjective attitudes and opinions (Palmer, 2001), which is why the pragmatic aspects of the modalised utterance play an important role in discourse.

Epistemic modals fulfill what Halliday (1970) calls the interpersonal dimension of the utterance. In this sense, epistemic modals show the following three pragmatic uses (Coates, 1987) related to Brown et al. (1987)’s Politeness Theory. First, they are used as part of the negative politeness strategy to save the addressee’s negative face, when for instance the speaker tries to facilitate open discussion by not assuming the addressee’s stance on the conversational issue in advance. Second, epistemic modals can be used as an *addressee-oriented* positive politeness strategy,

which involves the preservation of the positive image of the addressee and prevents them from feeling inferior to the speaker. Finally, they are used as part of a *speaker-oriented* positive politeness strategy, which involves the preservation of the positive image of the speaker by enabling the smooth withdrawal from a statement that can be perceived as a boast, threat, or similar.

Related to such politeness strategies, modals fulfil the conversational role of so-called hedging or boosting devices (Hyland, 2005). Epistemic modals function as hedges when the speaker uses them to reduce their commitment to the truth of the propositional content – i.e., to signal their hesitation or uncertainty in what is being expressed, which is a type of face-saving strategy in and of itself. (González García, 2000; Hyland, 1998). In terms of modal force, it is weak epistemic modals denoting possibility that typically correspond to hedges, though certain necessity modals can also acquire such a function in certain contexts, as we will show in the qualitative analysis.

Strong epistemic modals, which express certainty or high commitment of the speaker to the truth of the utterance, typically function as boosters and are used by the speaker to convince his or her audience, make his or her utterance argumentatively stronger, close the dialogue for further deliberation (Vukovic, 2014), stress the common knowledge and group membership (Hyland, 2005), and so forth. Such boosters can also be used manipulatively to boost a claim that is otherwise controversial or highly particular (Vukovic, 2014).

Deontic modality also fulfils interpersonal roles in communication. Because deontic modals express notions such as obligation and permission, they have to do with negotiating social power between an authority and the discourse participant to whom the permission is granted or obligation imposed upon (Winter and Gärdenfors, 1995). Deontic statements often involve a power imbalance between interlocutors (which is especially evident in case it is not in the interest of the agent to fulfil the obligation), so the use of deontic modals is often paired up with other pragmatic devices denoting politeness or face-saving. Politeness is thus “an overarching pragmatological function that can be overtly or covertly marked in deontic and epistemic modal utterances” (González García, 2000, 127).

3. Related work on modality in hate speech

The linguistic and pragmatic characteristics of modality have not yet been extensively explored in the literature on online socially unacceptable discourse. One exception is the work done by Ayuningtias et al. (2021), who analyses YouTube comments related to the 2019 Christchurch mosque shootings. They find that clauses with deontic modals outnumber those with epistemic modals, and that the main discursive strategy of commenters in socially unacceptable comments is to use deontic modals to incite violent action against members of the New Zealand Muslim community.

Other corpus linguistic studies investigate modal markers from the perspective of stance. Chilwa (2015), for example, analyses the stance expressed in the Tweets of two radical militant groups, Boko Haram and Al Shabaab.

Among other stance-related elements, she investigates the use of hedges (including weak epistemic modals) and boosters (including strong epistemic modals). The results show that boosters are more frequent than hedges although their overall frequency in the data was low. According to the author, the low frequency of hedges shows that radicalist discourse does not exhibit the tendency to mitigate commitment, which goes hand in hand with the slightly higher presence of boosters that are used as a rhetorical strategy to support (possibly unfounded) statements and to influence, radicalise and win over their readers by projecting assertiveness.

Another study on stance in the context is by Sindoni (2018), who looks at the verbal and multimodal construction of hate speech in British mainstream media. She analyses epistemic modal operators (among other related devices) in order to uncover the writer’s stance and attitude towards the content conveyed in the news item. She finds that modality is strategically used to present the author’s opinions as facts, while the opinions of others are reported as hypotheses and assumptions.

4. The *FRENK* corpus

4.1. Corpus make-up

Subcorpus	Tokens	
Acceptable	92,922	34%
Offensive	143,948	53%
Inappropriate	1,471	1%
Violent	8,789	3%
Not relevant	24,572	9%
Σ	271,702	100%

Table 1: The make-up of the *FRENK* corpus in terms of socially (un)acceptable discourse.

For this study, we have used *FRENK*, a 270,000-token corpus of Slovenian Facebook comments of mostly socially unacceptable discourse (Ljubešić et al., 2019). The Facebook comments in the *FRENK* corpus concern two major topics – migrants, generally in the context of the 2015 European migrant crisis, and the LGBTQ community, mostly in the context of their civil rights – and are manually annotated for several different kinds of discourse.³ The annotations distinguish whether the discourse is aimed towards a target’s personal background, such as sexual orientation, race, religion, and ethnicity, or their belonging to a particular group, such as political party. They also distinguish the type of the discourse itself, which falls into 4 broad categories, one being acceptable discourse and the others different kinds of socially unacceptable discourse (de Maiti et al., 2019, 38):

- Acceptable discourse
- Socially unacceptable discourse

³The annotations are performed on the comment level while also taking into account the features of the entire discussion thread.

Modal	Syntax	Modality	Force	AF
<i>naj</i> _{IND}	Adverb	Deontic	Likelihood	886
<i>morati</i>	Verb	Deontic	Necessity	489
<i>treba</i>	Adjective	Deontic	Necessity	306
<i>smeti</i>	Verb	Deontic	Possibility	150
<i>verjetno</i>	Adverb	Epistemic	Likelihood	123
<i>mogoče</i>	Adverb	Epistemic	Possibility	92
<i>dovoliti</i>	Verb	Deontic	Possibility	55
<i>morda</i>	Adverb	Epistemic	Possibility	46
<i>najbrž</i>	Adverb	Epistemic	Likelihood	29
<i>ziher</i>	Adverb	Epistemic	Necessity	25
<i>zagotovo</i>	Adverb	Epistemic	Necessity	16
<i>potrebno</i>	Adjective	Deontic	Necessity	4
Σ				2,221

Table 2: The analysed modals; AF stands for absolute frequency.

- Offensive discourse, which corresponds to abusive, threatening or defamatory speech that is targeted towards someone on the basis of their background or group participation.
- Violent discourse, which contains threats or calls to physical violence and is often punishable by law (Fišer et al., 2017, 49).
- Inappropriate speech, which contains offensive language but is not directed at anyone in particular.

For our study, we have created two subsets of comments: the *acceptable subset* containing comments tagged as *acceptable*, and the *unacceptable subset* containing comments tagged as *offensive*, *violent* or *inappropriate*. This decision is based on the frequency distributions as shown in Table 1. We can observe that the *FRENK* subcorpora are uneven in terms of size, with the violent and inappropriate sets contain significantly fewer comments than the acceptable and offensive sets. Because violent discourse is generally less frequent than offensive discourse in linguistic corpora,⁴ it is difficult to annotate automatically (Evkoski et al., 2022), so one of the crucial features of *FRENK* is the fact that the annotations into discourse type were done manually, employing 8 trained annotators per Facebook comment (Ljubešić et al., 2019, 9). Note that about 9% of the Facebook comments are marked as Not relevant, which refers to comments with incorrect topic classification (*ibid.*, 5).

The latest, that is, version 1.1, of the *FRENK* corpus, which also includes texts in Croatian and English, is available for download from the CLARIN.SI repository (Ljubešić et al., 2021). However, the online version, which is accessible through CLARIN.SI’s noSketch Engine concordancer and which we have used for the purposes of this paper,⁵ is not yet available to the public.

4.2. The modals analysed in the study

Table 2 shows that there are 12 modal expressions used in the study. We have selected the modals using the following two criteria.

The first criterion is the modal’s tendency towards a single modal reading. As discussed in Section 2.1., modals are in principle ambiguous in terms of their modality type. However, corpus data show that certain modals have an overwhelming preference for a single reading; for instance, while the modal auxiliary *morati* can theoretically have both the epistemic and the deontic interpretations (Roeder and Hansen, 2006, 162–163), as was shown in (3), the epistemic reading (3a) is actually extremely rare in attested usage, and in the case of the *FRENK* corpus completely non-existent.⁶ Similarly, whenever the adverb *naj* is used in the indicative rather than conditional mood (glossed with the subscript IND in Tables 2 and 4), its meaning is always some shade of the deontic reading (command, wish, etc.). Thus, all the modals in Table 2 are either unambiguously deontic or unambiguously epistemic, so they function as a robust set for testing how deontic and epistemic modality manifests itself in different types of discourse without confounding examples with unintended interpretations.

Second, some lexemes known to convey modal interpretations also frequently occur with a superficially similar propositional meaning that, however, is not modal. Such is the adverb *itak*, as in example (4), also taken from *FRENK*.

- (4) Krsanstvo pa *itak* izvira iz istih krajev kot islam in juduizem (*sic*).
“Of course, Christianity comes from the same place as Islam and Judaism.”

This adverb differs from e.g. the certainty adverb *zagotovo* in that it does not convey the speaker’s degree of certainty,⁷ but rather simply intensifies whatever he or she knows to be actually the case (the historical-geographic source of Christianity). Because such non-modal readings are usually as frequent as the modal meaning in attested usage, we have omitted them from our study.

Lastly, note that in terms of part of speech, the modals in Table 2 do not constitute a syntactically homogenous set.

⁴This is also a result of the EU Code of conduct and terms of service of social media platforms, according to which content deemed illegal due to its hateful character needs to be taken down.

⁵<https://www.clarin.si/noske>

⁶The frequency counts were performed on lemmas, as this is sufficient for distinguishing the part of speech as well; for instance, the lemma *mogoče* corresponds to the adverbial forms, whereas the lemma *mogoč* corresponds to the adjectival ones; however, the adjectival form when used predicatively is consistently ambiguous between the non-epistemic and epistemic interpretations, see Lenardič and Fišer (2021) for discussion and examples.

⁷*Zagotovo* has the synonym *gotovo*; we have excluded it from our overview because it is too frequently used in the non-modal sense, as in (1), which is mostly typical of non-standard Slovenian.

- (1) Postrelit in *gotovo*.
“Shoot them all – that’s the end of it.”

Modal	Acceptable		Unacceptable		A/U	U/A
	AF	RF	AF	RF		
<i>verjetno</i>	52	559.6	66	428.0	1.3	0.8
<i>morda</i>	24	258.3	19	123.2	2.1	0.5
<i>mogoče</i>	29	312.1	55	356.7	0.9	1.1
<i>najbrž</i>	12	129.1	13	84.3	1.5	0.7
<i>zagotovo</i>	3	32.3	13	84.3	0.4	2.6
<i>ziher</i>	8	86.0	15	97.3	0.9	1.1
Σ	128	1,377.4	181	1,173.7	1.2	0.9

Table 3: The distribution of epistemic modals in the *FRENK* corpus; AF stands for absolute frequency and RF for relative frequency, normalised to a million tokens.

While most modals are syntactically adverbs (e.g., *morda*, *ziher*), some are verbs selecting for finite clausal complements, such as *dovoliti* in (2), verbs selecting for non-finite complements, such as *morati* in (3), and predicative adjectives (of the syntactic frame *It is necessary to*) selecting for non-finite complements, such as *treba* (see the examples in Section 6.1.). However, such syntactic differences have no bearing on the modal interpretation – in all cases, the modals remain sentential operators that take semantic scope over the proposition denoted by the clause.

5. Quantitative Analysis

Tables 3 and 4 show how the Slovenian modals are distributed between the acceptable and unacceptable subsets for the unambiguously epistemic and deontic modals, respectively. The unacceptable subset brings together the three subtypes – offensive, inappropriate, and violent – introduced in Section 4.1.. The acceptable and unacceptable sets contain 92, 922 and 154, 208 tokens, respectively.

In the epistemic set (Table 3), half of the modals – that is, the possibility modal *mogoče* and the necessity modals *ziher* and *zagotovo* – are more frequent in the corpus of unacceptable discourse, while the remaining 3 modals – that is, the possibility modal *morda* and the logically synonymous likelihood modals *najbrž* and *verjetno* – are more frequent in the subset of socially acceptable discourse. Overall, the six epistemic modals are 1.2 times more frequently used in acceptable discourse than they are in unacceptable discourse.

The distribution is reversed in the set of unambiguously deontic modals (Table 4). Here, all modals, save for the possibility verb *smeti* (“to allow”), are more characteristic of unacceptable rather than acceptable discourse, with the deontic necessity adjective *treba* and deontic likelihood adverb *naj_{IND}* showing the largest preference for the unacceptable set. Overall, the 6 deontic modals are 1.3 times more frequently used in socially unacceptable discourse than they are in acceptable discourse.

Statistically, we have tested the overall differences in frequency between the unacceptable and acceptable sets for both the epistemic (Table 3) and deontic (4) modals using the log-likelihood statistic. This statistic is used to “establish whether the differences [between pairwise frequencies in two corpora with different sizes] are likely to be due to chance or are statistically significant” (Brezina, 2018, 83–84). The formula for calculating the log likelihood statistic

Modal	Acceptable		Unacceptable		A/U	U/A
	AF	RF	AF	RF		
<i>naj</i> _{IND}	227	2,442.9	583	3,780.6	0.6	1.5
<i>morati</i>	151	1,625.0	292	1,893.6	0.9	1.2
<i>treba</i>	87	936.3	197	1,277.5	0.7	1.4
<i>smeti</i>	41	441.2	60	389.1	1.1	0.9
<i>dovoliti</i>	17	183.0	34	220.5	0.8	1.2
<i>potrebno</i>	1	10.8	3	19.5	0.6	1.8
Σ	524	5,639.1	1,169	7,580.7	0.74	1.3

Table 4: The distribution of deontic modals in the *FRENK* corpus.

is given in (5), where the observed values $O_{1,2}$ correspond to the absolute frequencies of a modal in the unacceptable and acceptable sets.

$$(5) \quad 2 \times \left(O_1 \times \ln \frac{O_1}{E_1} + O_2 \times \ln \frac{O_2}{E_2} \right)$$

It turns out that the overall greater occurrence of epistemic modals in the acceptable set (AF = 128 tokens, RF = 1,377.4 tokens/million) than in the unacceptable set (AF = 181 tokens, RF = 1,173.7 tokens/million) is statistically insignificant at $p < 0.05$; log likelihood = 1.902, $p = 0.165$. By contrast, the greater occurrence of deontic modals in the unacceptable set (AF = 1,169 tokens; RF = 7,580.7 tokens/million) than in the acceptable one (AF = 524 tokens; RF = 5,639.1 tokens/million) is statistically significant at the same cut-off point; log likelihood = 32.8, $p = 9 \times 10^{-9}$.

Using the online tool *Calc* (Cvrček, 2021), we have also calculated the Difference Index (DIN) – an effect-size metric – for the overall difference between the acceptable and unacceptable deontic sets. The DIN value is -14.687 , which indicates that the deontic modals’ preference for the unacceptable set, although statistically significant, is relatively small (Fidler and Cvrček, 2015, 230). In addition, *Calc* automatically computes the confidence intervals for the relativised frequencies, which is $5,639.1 \pm 471.4$ for the overall acceptable RF and $7,580.7 \pm 426.9$ for the unacceptable RF at the 0.05 significance level. The fact that the intervals do not overlap further confirms that the difference is not accidental.

These findings are related to those in the literature (see Section 3.) as follows. Just like in Ayuningtias et al. (2021)’s work on socially unacceptable discourse in YouTube comments, our deontic modals significantly outnumber epistemic modals in both the acceptable and unacceptable sets (e.g., 1,169 deontic modals vs. 181 epistemic modals under unacceptable). Second, both modals of epistemic necessity in Table 3 – that is, *zagotovo* and *ziher* (“certainly”) – differ from most of the weaker modals, like *morda* (“possibly”) and *najbrž* (“likely”), in that they are more frequent in unacceptable discourse; this is similar to the finding by Chiluya (2015), who shows that strong epistemic modals are more frequent than weak ones in the case of Tweets by radical militant groups. However and in contrast to Chiluya (2015), our statistically significant finding is not the difference in modal force, but rather the difference in modality type, as discussed above.

6. Qualitative analysis

6.1. Deontic modals in violent discourse

In Section 5., it was shown that deontic modals are more typical of unacceptable rather than acceptable discourse, a finding that was shown to be statistically significant.

To look at the pragmatics of deontic modals and their discursive role in relation to socially unacceptable discourse, let’s first recall from Section 4.1. that the socially unacceptable discourse in the *FRENK* corpus is further subdivided into several subtypes. Here we focus on two – offensive discourse on the one hand and violent on the other. It turns out that all of the surveyed deontic modals, with the exception of the auxiliary *morati*, are actually more prominent in violent discourse than in offensive discourse; this is shown in Table 5, where for instance *treba* is almost four times as frequent in the violent-speech subset (RF = 4437.3 tokens per million) than it is in the offensive subset (RF = 1083.7 tokens per million).

What is interesting is that *treba* and *morati* are synonymous, possibly completely so, in terms of modal logic, as both entail necessities in terms of modal force and in most cases have a deontic reading that has to do with a contextually determined obligation.⁸ However, despite the synonymy, *treba* is by far more frequent in violent speech than it is in offensive, while *morati* is the only deontic modal that is more prominent in offensive than in violent speech.

The difference in the distribution of the two synonymous modals can be tied to the fact that they vastly differ in their communicative function, which crucially is observable within the same subset. Put plainly, the chief difference is that *treba* occurs in considerably more hateful statements than *morati*, even though the statements all qualify as violent hate speech rather than offensive speech in that some kind of incitement towards violence is expressed in the modalised statement.

For instance, let’s first consider some typical examples with *treba* from the violent subset:

- (6) a. To golazen *treba* zaplinit, momentalno!!!!
“These vermin *must* be gassed at once!”
- b. Pederčine je *treba* peljat nekam in postrelit.
“Faggots *must* be taken somewhere and shot.”
- c. Ni *treba* par tisoč Voltov, dovolj je 220, da ga strese in opozori, da bo čez par metrov stražar s puško.
“We don’t *need* a couple of thousand Volts; 220 is enough to electrocute them and warn them that, a couple of metres further on, an armed guard is waiting.”

⁸Note that in negated sentences with *treba*, negation takes scope over necessity, which means the interpretation is “it is **not necessary**” rather than “it is **necessary not**”; a more principled investigation into how this interaction affects the pragmatics of the modalised propositions is left for future work, though we note that negation in examples such as (6c) behaves in a similar manner to the so-called *metalinguistic negation* (Martins, 2020), as the commenter merely objects to the specific number of Volts, but still condones the violent action i.e. the electrocution of migrants.

Modal	Acceptable	Violent	Offensive
<i>treba</i>	936.3	4,437.4	1,083.7
<i>potrebno</i>	10.8	568.9	243.1
<i>dovoliti</i>	183.0	341.3	213.2
<i>smeti</i>	441.2	682.7	405.7
<i>morati</i>	1,625.0	1,479.1	1,910.4
<i>naj</i> _{IND}	2,442.9	6,371.6	3,647.2
Σ	5,639.2	13,881.0	7,503.3

Table 5: The distribution of deontic modals between the Offensive and Violent subsets of *FRENK*; the frequencies are relative and normalized to a million tokens.

The chief linguistic characteristic of the *treba* examples boils down to lexical choice. The most prominent nominal collocate in the violent subset for the *treba* examples, calculated on the basis of the Mutual Information statistic, is *golazen* “vermin”, which can be seen in example (6a), where migrants are referred to as such. According to Assimakopoulos et al. (2017, 41) such metaphoric expressions “are an intrinsic part of the Othering process, and central to identity construction”. In the case of animal metaphors such as *MIGRANTS ARE VERMIN*, migrants are conceptually construed and stereotyped as an invasive out-group that is maximally different from the in-group to which the speaker considers themselves to belong (*ibid.*). The other most prominent nominal collocate is *elektrika* (“electricity”); metaphors containing this lexeme or lexemes related to electricity (volts, to shock, etc.) often have implied reference, where the undergoers of the verbal event, i.e., migrants, are not directly mentioned, as shown in example (6c). Curiously, when the targets of violent speech are not migrants but members of the LGBT community, instead of metaphors like *golazen*, slurs such as *pedri* (“faggots”) are used, as in example (6b).

Note that it is not only *treba* which patterns with such charged lexical items; for instance, the adverb *naj*, which denotes the speaker’s desire in terms of deontic modality, also frequently occurs with the electricity metaphor, as in (7).

- (7) *Elektriko v žice spustit. Naj kurbe skuri!*
“Electrify the fence wires! *May* it burn the whores!”

The examples with *morati*, on the other hand, are significantly less lexically charged, as shown in (8), and the statements framed in a more indirect way.

- (8) a. Vse Evropske države bi *morale* bolj grobo udarit po migrantih.
“All European countries should *have to* more strictly strike back against migrants.”
b. Kdo nas zaščiti[,] a *moramo* mi tud nabavit pištolo
“Who will protect us? Do we also *have to* buy a gun?”
c. Evropa bi *morala* stopiti skupaj hermetično zapreti meje.
“Europe should *have to* come together and hermetically close the borders.”

Even when the *morati* examples convey that it is necessary that some kind of action be taken against e.g. migrants, as in example (8a), the verbs used are such that they no longer convey explicit violent acts, such as *postreliti* (“to shoot”), *zapliniti* (“to gas”), and *stresti* (“to electrocute”) in the *treba* examples (6), but express non-violent acts, as in the case of the verbal phrase *zapreti meje* “close the borders” in (8c). Indeed, the calls to violent action with *morati* are significantly more tentative, as many of the cases of deontic *morati* are embedded under the conditional mood clitic *bi*, which leads to a composite meaning where the deontic necessity is interpreted as a suggestion rather a direct command, as in examples (8a) and (8c), which also is not the case with *treba*.

To sum up the discussion so far, we have observed that while *treba* and *morati* both convey deontic necessity (roughly an obligation that needs to be met), they are paired up with quite substantially different statements in terms of hateful rhetoric in the case of the same type of unacceptable discourse, i.e., violent speech. Further, *morati* is also the only deontic modal which is less typical of violent speech than it is of offensive speech.

We suggest that the difference is tied to the way the pragmatics of deontic modals interact with their core syntactic and semantic properties. As discussed in Section 2.2., pragmatically deontic modals fulfil the interpersonal function in communication. The interpersonal dimension has to do with the fact that the deontic necessity, i.e., obligation, is ascribed by the speaker to whoever corresponds to the agent of the verbal event in the modalised proposition; concretely, in the case of example (8a), the speaker says that it is European countries that have the obligation to strike back against migrants.

The chief difference between the *treba* (6) and the *morati* (8) examples, manifested in the discussed lexical differences, lies in this interpersonal pragmatic dimension, which is crucially influenced by the syntax of the expressions. *Treba* is an impersonal predicative adjective which, in contrast to *morati*, syntactically precludes the use of a nominative grammatical subject that would be interpreted as the agent in the modalised proposition (Rossi and Zinken, 2016). Consequently, all the statements in the *treba* set of examples are such that the agent has an undefined, arbitrary reference – for instance, it is unclear who is expected to “gas the vermin” in example (6a). What happens pragmatically is that the subject-less syntax of the adjective *treba* allows the speaker to sidestep the ascription of obligation to a specific agent, thus largely obviating what is perhaps the core interpersonal aspect of deontic modality. This cannot be really avoided with *morati*, which is a personal verb that obligatorily selects for a grammatical subject in active clauses – in other words, because of its personal syntax, *morati* presents a bigger interpersonal burden on the speaker, as he or she needs to specifically name the person or institution that is required to fulfill the obligation.

Note that, in the violent subset, there is only one example where *morati* is used with the verb *dobiti* (“get”), which induces a passive-like interpretation (9). Here, the grammatical subject headed by *Vsak* (“everyone”) is interpreted as the target of the violent action rather than the agent. It is

Modal	Acceptable	Violent	Offensive
<i>morda</i>	258.3	0.0	169.3
<i>mogoče</i>	312.1	113.8	555.8
<i>verjetno</i>	559.6	341.3	451.6
<i>najbrž</i>	129.1	0.0	90.3
<i>ziher</i>	86.0	113.8	97.3
<i>zagotovo</i>	32.3	113.8	83.4
Σ	1,377.4	682.7	1,447.5

Table 6: The distribution of epistemic modals between the Acceptable, Violent, and Offensive subsets of *FRENK*; the frequencies are relative and normalized to a million tokens.

telling that this is also the only example with *morati* which is closer in the use of lexically charged items (i.e., being “shot in the head” rather than “the closing of borders” in the previous examples) to the *treba* examples, as this passive-like construction also precludes the use of an agentive noun phrase (unless it is introduced by the Slovenian equivalent of the *by*-phrase, but there are no such examples in the corpus).

- (9) [V]sak, ki se približa našim ženskam in otrokom, *mora* dobiti metek v čelo.
“Everyone who gets close to our women and children *must* be shot in the head.”

In short, the interpersonal structure influences the degree of hateful rhetoric, in the sense that speakers are more ready to use degrading metaphors, slurs and violent verbal expressions when they can avoid ascribing the obligation to someone specific. We follow Luukka and Markkanen (1997) by suggesting that impersonality has a similar hedging effect to epistemic modals, in the sense that the unexpressed agent in impersonals introduces a degree of semantic vagueness to the proposition, as does uncertainty brought about by the epistemic reading. Thus, with *treba*, deontic imposition and epistemic face-saving meet in one and the same lexeme.

6.2. Epistemic modals in offensive and acceptable discourse

Epistemic modals are slightly more frequent in acceptable comments, although the difference is not statistically significant, as was shown in Section 5. In order to explore further the possible differences and similarities in the use of epistemic modals between different types of comments, we look at their distribution in three subcorpora, namely in acceptable, offensive and violent comments. The distribution is shown in Table 6. We find that epistemic modals are very infrequent in the violent comments (even unattested for *morda* “possibly” and *najbrž* “likely”) in contrast to deontic modals, which are more frequent almost across the board in the violent set (Table 5). On the other hand, the epistemic modals show a similar distribution between acceptable and offensive comments in contrast to violent comments.

We now look at the pragmatics of the epistemic necessity modal *ziher* (“certainly”), as it exhibits the most comparable frequency between the acceptable and offensive subcorpora.

In offensive comments, *ziher* is used either as a booster (10) or a hedge (11), a discursive function which the commenter uses as part of the face-saving strategy. Boosting is shown in example (10).

- (10) Begunca? Ekonomske migrante pa picke, ki se ne znajo borit za svoj kos zemlje *ZIHER* ne!!!!!!
“Accepting a refugee? *CERTAINLY* not accepting economic migrants and cunts who don’t know how to fight for their piece of land!!!!!!”

In this example, the use of the modal conveys the lexical meaning of certainty and thus the full speaker’s truth commitment to the propositional content. By being accompanied by excessive exclamatory punctuation, upper case letters and contemptuous argumentation, the modal pragmatically acts as a booster emphasizing the speaker’s commitment. The face-saving dimension comes about because the assertiveness conveyed by the modal helps legitimize the speaker as a member of the in-group that is exclusionary of migrant out-group.

- (11) [K]r k cerarju nej gredo *zihr* ma veliko stanovanje ... bedaki.
“They better go to the prime minister Cerar, he *surely* has a big flat ... assholes.”

Contrary to the previous example, the modal in (11) pragmatically hedges the propositional content by invoking the presumed shared knowledge of the in-group, which concerns the size of the prime minister’s home. Here, hedging is related to the fact that the modal activates the face-saving strategy which protects the speaker from the accusation of making an unfounded claim, as the modalised statement, despite entailing certainty, is still weaker than the unmodalised variant which would otherwise report that the speaker holds factual knowledge about the prime minister’s apartment.

While the offensive comments predominantly feature *ziher* in such a hedging or boosting role, in the large majority of the acceptable comments, the modal conveys an additional figurative meaning – i.e., that of irony, which we also claim is related to face-saving and contributes an additional persuasive effect in terms of discourse pragmatics (Gibbs and Izett, 2005; Attardo, 2000).

Example (12) conveys a proposition whose ironic meaning is emphasized by the modal *ziher*.

- (12) Itak, dejmo vsi lagat, to je *ziher* prav :)
“Of course, let’s all lie, that’s *certainly* the right thing to do :)”

The ironic reading of this example is suggested by the use of the intensifying adverb *itak* (“of course”), exaggeration by means of the collective reading of the plural pronoun *vs* (“everyone”), the use of the verb in the first-person *dejmo* (“let’s”), and the use of the emoticon. Finally, the face-saving strategy enacted in this example has two dimensions. The first is the protection of the speaker’s face since the irony not only enables the speaker to capitalise on the use of a sophisticated rhetorical device, but also to claim group affiliation by clearly stating the values that the

group has in common. The second aspect is the protection of the addressee's face since the irony helps tone down the speaker's criticism – according to Gibbs and Izett (2005), ironic criticism is accepted better or in a friendlier way than direct critiques.

7. Conclusion

This paper has presented a corpus investigation of epistemic and deontic modal expressions in Slovenian Facebook comments in the *FRENK* corpus.

We have first proposed a set of Slovenian modals that show an overwhelming tendency towards a single modal reading. Because of such unambiguity, they constitute a robust set that allows for precise quantitative comparisons between different types of discourse without irrelevant confounding examples and for careful manual analysis of the corpus examples. Quantitatively, we have shown that deontic modals are a prominent feature of unacceptable discourse, and that they are especially prominent in discourse that concerns incitement to violent action, which is legally prosecutable.

In terms of discourse pragmatics, we have first shown that modals which are completely synonymous both in terms of force and modality type can nevertheless profoundly differ in the degree of hateful rhetoric in the same type of socially unacceptable discourse. We have shown that what makes a difference in such examples is the presence of impersonal syntax, which offers speakers the ability to linguistically obviate the ascription of the denoted obligation to a particular agent. We have suggested that this sort of face-saving strategy of ambiguity by way of impersonality correlates with the speaker's tendency to use dehumanising language, such as slurs or degrading metaphors. In the case of epistemic modals, we have shown that acceptable and offensive comments, which are highly similar at their surface linguistic level, differ pragmatically in relation to face-saving; while offensive comments use epistemic modals as simple hedging or boosting devices, acceptable comments use the modals to convey ironic statements in which the irony is emphasised by the modal. We have claimed that the irony also contributes to the face-saving pragmatics.

In future work, we intend to explore how deontic and epistemic modals also differ based on topic (migrants on the one hand and the LGBTQ community on the other). We also want to explore if and how the discourse differs if the unacceptable comments are either directed towards a person's individual background (e.g., race, ethnicity) or group affiliation (e.g., political party).

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