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STANCES ON THE *XYLELLA FASTIDIOSA* BACTERIUM AND THE CORONAVIRUS IN THE PUBLIC DISCOURSE

Abstract

The paper deals with the stances on the *Xylella fastidiosa* (*Xf*) bacterium and the coronavirus in the public discourse. Relying on Hyland's stance model (2005), we seek to identify the linguistic devices (hedges, boosters, attitude markers and self-mentions), used in both contexts, which helped the authors express their opinions. The corpus comprises articles on *Xf* and the coronavirus collected from the internet sources in English. The findings indicate that the most frequent stance markers in both subcorpora include hedges and boosters. There are slight differences in the marker frequencies, depending on the disease in question. The conclusion discusses the role of stance markers in impacting attitudes while reporting on these two important issues and their use in communicating tentativeness or certainty.

Key words: stance, metadiscourse, public discourse, *Xylella fastidiosa*, coronavirus

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1. Introduction

In recent years, the global pandemic of the coronavirus has greatly affected all parts of the world and brought about a number of devastating consequences. The *Xylella fastidiosa* (*Xf*) bacterium also caused enormous turmoil in the world of plants when it was detected in Europe back in 2013. This paper explores the stances on the *X. fastidiosa* bacterium and the coronavirus in the public discourse. We chose to focus on these diseases in particular since they have had similar lethal effects in the human and plant world. The bacterium *X. fastidiosa* is the cause of a complex of symptoms occurring in the affected plants, which may eventually lead to their complete destruction (e.g., Saponari et al. 2019). As such, it is well-known to scientists, but relatively unknown to the wider public. On the other hand, we have a well-known virus, the coronavirus SARS-CoV-2, which has caused serious and sometimes fatal covid-19 infections in people since 2020. The coronavirus has been well-discussed in the public discourse in the previous four years (e.g., Pascual-Ferrá, Alperstein & Barnett 2022; Prada, Langbecker & Catalan-Matamoros 2023; Xue et al. 2020).

In our analysis, we rely on Hyland's stance model (2005) and seek to identify the linguistic devices (hedges, boosters, attitude markers and self-mentions), used in both contexts, which helped the authors express their opinions and establish an interaction with their readership. This is important since stance markers are the devices used by the authors to communicate their personal views and judgements or assessments of certain ideas. Hence, through the analysis of stance markers, it is possible to identify the publicly communicated attitudes towards two burning issues reported in the media outlets.

The corpus compiled for the purposes of the research comprises articles on *X. fastidiosa* and the coronavirus collected from the internet sources in English in two time periods – the year 2020, which marked the beginning of the coronavirus pandemic in Europe, and 2022, which marked the pandemic's gradual settling and subsiding. The aims of the analysis include: (1) the identification of the frequencies of stance markers both in the articles about *X. fastidiosa* and those about the coronavirus, (2) establishing the similarities and differences between the frequencies and types of stance markers in the articles about these two diseases, and (3) the comparison between the stances expressed by the journalists who wrote the articles and the experts (mostly scientists) who frequently commented on the issues related to these two diseases.

The paper is organised as follows. In section 2, we elaborate on the notion of epistemic stance and stance markers, and in section 3 we discuss previous studies on disease discourses, with a particular focus on the studies on *X. fastidiosa* and the coronavirus. Section 4 provides information on the materials and methodology used in the study. Section 5 contains the results of our quantitative and qualitative analyses, while section 6 discusses the findings and outlines the concluding remarks.

2. Epistemic stance and stance markers

Hyland (2005: 176) defines stance “as an attitudinal dimension”, which includes “features which refer to the ways writers present themselves and convey their judgements, opinions, and commitments”. According to Hyland (2005: 178), stance encompasses “writer-oriented features of interaction” and serves as a means of showing the writer’s commitment to a certain claim, comment on its possible accuracy or credibility or the writer’s attitude towards an entity or a proposition (Hyland 2005: 178). Other authors (e.g., Marín Arrese 2011) further distinguish between the notions of effective and evaluative stance. The effective stance relates to the way in which a speaker or writer positions himself/herself in terms of events, engaging in acts that aim to shape or impact reality, while the epistemic stance relates to the way in which a speaker or writer positions himself/herself regarding knowledge about events, engaging in acts that aim to assess the probability of an event or evaluate the truth of a statement related to the event (Marín Arrese 2011: 260).

The means of expressing stance or stance markers include hedges, boosters, attitude markers and self-mentions. According to Hyland (2005), hedges are used to indicate that the writer is hesitant to completely endorse a statement, implying also that statements are grounded in plausible reasoning rather than unequivocal certainty, whereas boosters can assist writers in presenting their work confidently. Further, attitude markers play an important role as they reveal the writer’s emotional position towards claims, while self-mentions serve to denote the author’s direct presence in the text, determined by the first-person pronouns and possessive adjectives (Hyland 2005). This definition of stance as an attitudinal dimension highlights its role in expressing writers’ attitudes, opinions, and commitments. This implies that texts are not merely factual, but also

reflect the subjective positions of their authors. Thus, the identification of stance markers in texts and a detailed analysis of their functions can provide valuable insights into the author's intended message.

There are various previous studies on the use of stance markers in different genres, such as research articles (e.g., McGrath & Kuteeva 2012), learner and professional research reports (Crosthwaite, Cheung & Jiang 2017), academic blogs and three-minute theses (Zou & Hyland 2022) etc. Several studies by Marín Arrese (2008, 2011, 2015) investigated the features of stance and the use of stance markers in the public discourse. The results showed that there were differences in the expression of author commitment and subjectivity in different genres, e.g., between opinion columns and leading articles (Marín Arrese 2008). Further, in both the political and journalistic discourse, the identified differences in epistemic stance strategies could be attributed to intercultural differences, in this specific case, existing between the public discourse in English and in Spanish (Marín Arrese 2011, 2015).

All the aforementioned studies point to the importance of taking into account stance markers and understanding their versatility within different contexts and languages. Further, their results underline that different genres can influence the way in which authors convey their attitudes and engage with their audience.

3. Previous semantic and pragmatic studies of the disease discourses

There are numerous previous studies which have dealt with the representations of different diseases in the public discourse, mainly investigating them from the point of view of (cognitive) semantics. Major studies of the disease discourses so far have focused on the FMD – foot and mouth disease (e.g., Nerlich, Hamilton & Rowe 2002; Nerlich 2007), SARS – severe acute respiratory syndrome (e.g., Wallis & Nerlich 2005), avian flu (e.g., Koteyko, Brown & Crawford 2008), MRSA – methicillin-resistant *Staphylococcus aureus* (e.g., Crawford et al. 2008) and multi-drug resistant bacteria (Peters et al. 2019). They have shown that language is a potent device “in shaping the impact of epidemic disease” (Wallis & Nerlich 2005: 2630) and that the modelling of the infectious diseases outbreak in the media has consequences for developing the remedy policies.

The only study to date which explored the representations of *X. fastidiosa* in the media discourse of online sources in English is authored by Vesić Pavlović and Đorđević (2022). It found that *X. fastidiosa* and the effects it induced were dominantly described via the lexical fields of destruction, killing and war, with the fields of fear, other diseases, the supernatural and hostility being present as well. Further, the discourse on *X. fastidiosa* abounded with the instantiations of the WAR metaphor, which is usually found in reporting on grave diseases and has the purpose of raising awareness of the consequences of the disease and prompting immediate actions with this respect.

Recently, different studies have also examined the conceptual metaphors employed in the conceptualisation of the coronavirus and covid-19. They particularly focused on the frequency and aptness of using the WAR metaphor (Semino 2021), specifically in political communication regarding this disease (e.g., Castro Seixas 2021; Panzeri, Di Paola & Domaneschi 2021). It was shown that WAR metaphors were prevalent in the communication about the new disease at the beginning of the pandemic, but that the FIRE metaphor may also be appropriate and versatile in communicating the nature and the consequences of the covid-19 disease (Semino 2021).

Shen and Tao (2021) analysed the use of stance markers in the texts on covid-19 in two genres, medical research articles and newspaper opinion columns collected from the New York Times, both written in English. The study established some similarities and differences in the occurrence of stance markers in these two different genres. Stance markers were used more frequently in the newspaper opinion columns than in the medical research articles. The reason for this, according to the study authors, may lie in different conventions of these two genres. Still, the most frequently occurring categories of stance markers were the same in both genres. Hedges were used most frequently in both sub-corpora, since they serve to communicate caution and uncertainty, while attitude markers were used to the lowest extent. Boosters were used moderately in both genres. The use of self-mentions was somewhat higher in terms of frequency in the newspaper articles; the first person singular forms were more characteristic of the texts in the opinion columns and the first person plural forms of those in the category of medical research articles.

Chen and Li (2023) explored the distribution of interactional metadiscourse, including stance markers, in news commentaries on the topic of COVID-19, retrieved from China Daily and the New York Times.

They found that interactional metadiscourse was used more in the New York Times commentaries than in those of China Daily, and there were also significant differences in the frequencies of hedges, self-mentions and engagement markers in this media outlet. This prompted the authors to conclude that the New York Times commentaries involved a higher level of explicit interaction with their readership and expressions of a clear personal stance when it came to their views. Attitude markers had the highest rate of occurrence in the commentaries from China Daily, which may indicate that the authors of these texts wished to convey their explicit personal views regarding the discussed topic, namely, COVID-19.

4. Materials and methodology

4.1 Materials

The corpus compiled for this research consists of articles related to the *X. fastidiosa* bacterium and the coronavirus. The articles were collected from the internet sources in English in two time periods – the year 2020, which marked the beginning of the coronavirus pandemic in Europe, and 2022, which marked the gradual settling and subsiding of the pandemic. The presence of *X. fastidiosa* was relatively consistent in both observed time periods.

The website used for compiling the subcorpus of texts for *X. fastidiosa* was the *Olive Oil Times*¹, since a previous study (Vesić Pavlović & Đorđević 2022) showed that it provided extensive coverage of the developments surrounding the *X. fastidiosa* bacterium, which is generally not such a common topic in other, mainstream media in English. All the articles containing the key words *Xylella fastidiosa* in the years 2020 and 2022 were included in this subcorpus.

For the coronavirus subcorpus, the texts were compiled from the *Euronews* website². The website was searched both for the terms coronavirus and COVID-19. The time period covered also included the years 2020 and 2022, with certain particularities. Namely, when it comes to the year 2020, the initial year of the pandemic, the coronavirus was the most topical issue of the year and the number of texts dealing with this issue in 2020 was extremely large. That is why we selected only the texts from the month

¹ Web address: <https://www.oliveoiltimes.com/>.

² Web address: <https://www.euronews.com/>.

when the disease started to spread rapidly, April 2020, which proved to be extremely “productive” regarding the number of published texts on the coronavirus. In 2022, the number of texts that explicitly dealt with the virus and the pandemic on the *Euronews* website started to decrease significantly, as the issue was no longer new. Therefore, we selected the texts published from the beginning of May 2022 to the end of the year, as this period marked the gradual subsiding of the pandemic in Europe.

Special attention was paid to ensure that all the texts included in the corpus actually discussed the issues surrounding the two diseases, and did not merely contain the keyword, while the text was actually about something else. In other words, the texts in the compiled corpus specifically deal with the topics of *X. fastidiosa* and the coronavirus and COVID-19.

Using the afore-described procedure, we retrieved 67 texts in total, with 45,528 tokens ($N_{xf} = 21,490$, $N_{cv} = 24,038$). Table 1 provides details of the subcorpora, categorised by disease and year.

Table 1. The number of texts and tokens in two subcorpora

Xf	Number of texts	Number of tokens	Coronavirus	Number of texts	Number of tokens
2020	19	10,243	2020	17	11,556
2022	14	11,247	2022	17	12,482
Total	33	21,490	Total	34	24,038

4.2 Methodology

Following Hyland’s model (2005), the texts from both subcorpora were first carefully read by both authors, focusing on identifying all possible stance markers. These observed markers were subsequently categorised into hedges, boosters, attitude markers, and self-mentions. The comparison of the identified markers and the discussion surrounding the ambiguous instances of stance markers continued until a consensus was reached. Following this, a quantitative analysis was carried out to assess the frequency of these stance markers. The interpretation of the findings was conducted within the research objectives, aiming to explain how the identified stance markers reflected attitudes, opinions, or uncertainties related to the issues pertaining to *Xylella fastidiosa* and the coronavirus.

5. Results

5.1 The distribution of stance markers in the analysed corpus

In this part of the research results, we first present the frequencies of the identified stance markers in the overall corpus of the texts on two diseases, and then provide an overview of their frequencies in two different observed time periods per disease, relying on the raw frequencies of the occurrence of stance markers and normalised frequencies (per 1,000 words), which enables a more precise interpretation and comparison of the findings. At the end of this section, in keeping with the aims of the study, we reflect on the differences between the stance marker frequencies in the two subcorpora, in the statements and comments given by the experts on the matter and the journalists.

Generally speaking, in both observed subcorpora, the most frequent stance markers were hedges (with the normalised frequency at 15.31 for the texts on the coronavirus, and 10.38 for the texts on *X. fastidiosa*), followed by boosters (the normalised frequency at 10.73 in the coronavirus texts, and 9.07 in the *X. fastidiosa* texts) (Table 2). Attitude markers were used with much lower frequencies in both observed subcorpora, and self-mentions were used least.

Table 2. The frequencies of stance markers in the total corpus of newspaper articles on the *Xylella fastidiosa* and the coronavirus

Stance markers	<i>Xylella fastidiosa</i>		Coronavirus	
	RF ³	NF	RF	NF
Hedges	223	10.38	368	15.31
Boosters	195	9.07	258	10.73
Attitude markers	58	2.70	99	4.12
Self-mentions	54	2.51	81	3.37
Total	530	24.66	806	33.53

³ RF stands for “raw frequency”, NF for “normalised frequency”.

We also notice that the frequency of use of all stance markers, namely, hedges, boosters, attitude markers, and self-mentions, in the articles on the coronavirus is much higher (normalised frequency at 33.53), compared to the occurrence of these markers in the articles on *X. fastidiosa* (normalised frequency at 24.66). A significantly higher usage of hedges in the coronavirus subcorpus (normalised frequency at 15.31, compared to 10.38 in the texts on *X. fastidiosa*) suggests a more cautious approach in reporting on this disease compared to *X. fastidiosa*. In contrast, it can be also noted that fewer expressions of attitude markers and self-mentions were found in the *Xylella fastidiosa* articles, which may imply a more reserved emotional position and lack of personal involvement.

The occurrences of stance markers in the newspaper articles on *Xylella fastidiosa* in the two observed periods, the years of 2020 and 2022, can be seen in Table 3. We can notice an increase in the use of hedges from 2020 to 2022 (from 9.57 to 11.11), which may indicate a consistent mitigation of statements on this topic, as well as a rise in the use of self-mentions (from 1.66 to 3.38), possibly implying a shift towards more personalised or experiential engagement with this subject over time. The occurrence of boosters and attitude markers remained relatively stable in the two time periods, showing only a slight decrease from 2020 to 2022, which may suggest a consistent tone in the coverage of this topic.

Table 3. The frequencies of stance markers in the articles on *X. fastidiosa* in two observed time periods

Stance markers	2020		2022	
	<i>RF</i>	<i>NF</i>	<i>RF</i>	<i>NF</i>
Hedges	98	9.57	125	11.11
Boosters	95	9.27	102	9.07
Attitude markers	29	2.83	29	2.58
Self-mentions	17	1.66	38	3.38
Total	239	23.33	294	26.14

Table 4 displays the frequencies of stance markers in newspaper articles about the coronavirus for the years 2020 and 2022. Hedges and boosters were the most dominantly used stance markers in both time periods. We

also notice an increase in the frequency of hedges, boosters and attitude markers from 2020 to 2022. The higher usage of boosters in texts from 2022 might suggest a more confident tone in the media coverage of the coronavirus, which is expected given the increased knowledge about the virus two years into the pandemic. However, the higher frequency of hedges in 2022 potentially suggests an even more hesitant tone in reporting on the coronavirus pandemic, brought about by numerous uncertainties and lack of predictability of the virus in the preceding period. In addition, the rise in the use of attitude markers indicates a growing focus on viewpoints in the later period of the pandemic. In contrast, the decrease in the use of self-mentions (from 4.93 to 2.00 in the year 2022) might signal a shift towards more objective reporting on the virus or a reduced emphasis on personal experiences.

Table 4. The frequencies of stance markers in the articles on the coronavirus in the two observed time periods

Stance markers	2020		2022	
	<i>RF</i>	<i>NF</i>	<i>RF</i>	<i>NF</i>
Hedges	157	13.59	211	16.90
Boosters	119	10.30	140	11.22
Attitude markers	40	3.46	58	4.65
Self-mentions	57	4.93	25	2.00
Total	373	32.28	434	34.77

Table 5 shows the frequencies of stance markers in articles about two diseases, categorised by whether they were used by journalists or experts.

Table 5. The frequencies of stance markers in the articles on *X. fastidiosa* and the coronavirus used by journalists and experts

Stance markers	<i>Xylella fastidiosa</i>				Coronavirus			
	Journalists		Experts		Journalists		Experts	
	RF	NF	RF	NF	RF	NF	RF	NF
Hedges	136	6.33	87	4.05	258	10.37	110	4.58
Boosters	127	5.91	68	3.16	154	6.41	104	4.33
Attitude markers	30	1.40	28	1.30	48	2.04	50	2.08
Self-mentions	1	0.05	53	2.47	3	0.12	78	3.24
Total	294	13.68	236	10.98	464	19.30	342	14.23

First of all, it can be seen that, overall, the journalists who discussed the coronavirus used significantly more stance markers than those discussing *Xylella fastidiosa* (with the normalised frequency at 19.30 compared to 13.68). Additionally, the journalists used more hedges when writing about the coronavirus than when writing about *X. fastidiosa* (10.37 compared to 6.33), while the use of boosters was relatively similar (6.41 in the texts on coronavirus compared to 5.91 in the texts on *X. fastidiosa*). The use of attitude markers was slightly higher among the journalists writing about the coronavirus (2.04 compared to 1.40), while the journalists' use of self-mentions was relatively low in both observed subcorpora.

When it comes to experts, those who talked about the coronavirus also used more stance markers in general than those talking about the *X. fastidiosa* bacterium (with the normalised frequency at 14.23 compared to 10.98). The experts were relatively uniform in their use of hedges when discussing both topics (the normalised frequencies of 4.58 and 4.05), and used boosters slightly more when reflecting on the coronavirus (4.33 compared to 3.16). Attitude markers were used to a somewhat higher extent by the experts discussing the coronavirus than when discussing *X. fastidiosa* (2.08 compared to 1.30), and the same applies to self-mentions (3.24 compared to 2.47).

When we compare the use of stance markers among journalists and experts talking about the same topic, the most prominent differences in discussing the coronavirus are observed in the use of hedges and self-mentions. Namely, the experts used far fewer hedges (10.37 in journalists, 4.58 in experts), which may indicate that they were less tentative when discussing these thorny issues, and far more self-mentions (0.12 in journalists, 3.24 in experts), which implies that they sought to emphasise personal involvement in the specific subject topic. The journalists seem to be slightly more confident in their arguments than the experts, since they used more boosters (6.41 compared to 4.33). When discussing *X. fastidiosa*, the use of hedges was also more prominent among the journalists, but not as much as in the coronavirus texts (6.33 in journalists, 4.05 in experts). The experts also used significantly more self-mentions (2.47 compared to 0.05 in journalists), while the journalists reporting on *X. fastidiosa* supported their claims using more boosters (5.91 compared to 3.16 in experts).

5.2 Illustrative examples of stance markers' occurrence and use by type

In this section, we provide examples of the use of stance markers in the texts on both diseases and discuss their functions.

First, we focus on the examples of hedges in both subcorpora, starting with those from the texts dealing with *X. fastidiosa*. In ex. (1), the adverb *potentially* is used to hedge the claim about the compound's effectiveness, while the modal expression *can be used* suggests a possibility regarding its utility in organic agriculture. In ex. (2), the use of the phrase *the assumption that* signals that the statement is based on an opinion rather than a confirmed fact, recognising the speculative nature of the claim and possibilities of alternative scenarios. The phrase *in my opinion* (ex. 3) explicitly signals the author's subjective viewpoint, indicating a personal stance towards the communicated issue. In ex. (4), the use of adverbs *nearly*, *approximately* and *about* indicates close proximity to a specific value or situation, implying that the stated data on the origins and spreading of the bacterium may vary slightly.

- 1) We experimented with a compound based on zinc, copper, and citric acid – protected by an international patent – that *can be used*

- in organic agriculture and is *potentially* capable of reaching the bacterium in the olive tree xylem. (Xf2020⁴)
- 2) Albeit, that this is based on *the assumption that* we only consider one introduction of the pathogen and not multiple introductions. (Xf2020)
 - 3) *In my opinion*, at the time of the discovery of the disease, none of these criteria was manageable in a decisive manner. (Xf2020)
 - 4) Since *Xylella fastidiosa* was first discovered in the region *nearly* 10 years ago, it has spread to *approximately* 8,000 square kilometres, *about* 40 percent of Puglia. (Xf2022)

Examples (5) to (8) illustrate hedges in the subcorpus of the texts discussing the coronavirus. The use of the phrase *appears to be* (ex. 5) suggests a tentative judgment about the effectiveness of a vaccine against COVID-19. Similarly, the modal expression *could have been foreseen* (ex. 6) and the modal adverb *probably* (ex. 7) convey varying degrees of uncertainty and probability regarding the statements made about the virus and its spreading. The use of the noun *indication* in the phrase *an indication that* (ex. 8) suggests that the information provided about the ways of the spreading of the coronavirus is not stated as an absolute fact but rather as a possible interpretation.

- 5) A promising way of combating COVID-19 *appears to be* with a vaccine that manipulates a part of the virus known as RNA. (CV2020)
- 6) What's happening *could have been foreseen*, but policies and decision-making went the other way. (CV2020)
- 7) It's *probably* better mixing with the same people day after day, instead of mixing with different people. (CV2022)
- 8) And this is *an indication that* the virus started spreading in people who worked at the market but then started to spread into the local community. (CV2022)

Boosters serve to show the author's confidence in the statement made. Examples (9) to (12) are illustrative examples of boosters in the subcorpus of texts about *X. fastidiosa*. In ex. (9), the use of the modal expression *must have suffered* implies a strong judgement, highlighting the gravity

⁴ Abbreviations in brackets identify the subcorpus from which an example was taken: *Xf* stands for the *X. fastidiosa* subcorpus and *CV* stands for the coronavirus subcorpus, followed by the respective year.

of the situation in which the farmers whose trees were affected by the bacterium found themselves. The use of the lexical verb *found* in ex. (10) indicates the identification of the potential cost associated with the spread of the disease induced by *X. fastidiosa*, implying that the information is factual and revealed through research. Ex. (11) employs the verb *showed* to highlight the presentation of the findings from a study on the bacterium based on empirical data. The use of the verb *demonstrated* in ex. (12) implies the act of proving an important finding related to the origin of the *X. fastidiosa* bacterium.

- 9) In order to be eligible for the income support, farmers *must have suffered* at least a 30 percent loss in their gross salable production due to *Xylella fastidiosa* in a single crop year. (Xf2020)
- 10) They *found* that the potential cost could be measured in billions of euros if the spread of the disease is not mitigated effectively. (Xf2020)
- 11) Results *showed* that almost all producing territories are susceptible to infection from *Xf*, with the affected area varying between 85 and 99 percent of the olive groves of each country. (Xf2020)
- 12) The data comparison of the genetic sequences reported in the study *demonstrated* that the *Xylella fastidiosa* bacterium from the olive trees is directly related to Central American variants. (Xf2022)

Illustrative boosters from the texts on the coronavirus are shown in examples (13) to (16). The use of the verb *show* in ex. (13) emphasises the empirical basis of the claim that the virus attacks the nervous system. In ex. (14), the phrase *it's clear that* indicates a clear conclusion on the further spreading of the virus and the prognosis on its outcomes, based on available evidence or reasoning. The use of the adverb *really* in ex. (15) emphasises the importance of the discussed suggestions for further activities aimed at stopping the disease, while the use of the phrase *the fact that* in ex. (16) highlights the reliability and truthfulness of the information presented.

- 13) Research and experience on the ground *show* that the SARS-CoV-2 virus can attack the central nervous system. (CV2020)
- 14) And *it's clear that* many more people across the continent will still get infected and some, unfortunately, will die. (CV2020)
- 15) It is *really* important that surveillance for this virus continues, that testing remains strong, that sequencing is intelligent, and that we

have good geographic representation so that we have good eyes and ears on the virus. (CV2022)

- 16) The second truth masked underneath this sudden transition is *the fact that* some people are neither willing nor ready to move on from the virus, at least not so fast. (CV2022)

Examples (17) to (22) show instances of attitude markers in the two analysed subcorpora. Bearing in mind that attitude markers reflect various stances on the discussed topics, the adverbs *fortunately* and *hopefully* in ex. (17) express a mix of relief and optimism about the diversity of olive varieties and the potential for resistance to *X. fastidiosa*. In ex. (18), the use of the adverb *drastically* indicates a strong stance on the effectiveness of the bacterium containment measures. Again, in ex. (19), the adverb *successfully* indicates a positive view of the foundation's ability to replace *Xylella*-stricken areas with new trees. The use of the phrase *it is very unfortunate that* in ex. (20) expresses a negative evaluation of the situation in which the coronavirus originated. In ex. (21), the phrase *it is so important that* emphasises the significance of collective action in combating the virus. Further, in ex. (22), the use of the adverb *dramatically* emphasises the significant impact of vaccines on reducing severe disease and death in the covid-19 pandemic.

- 17) *Fortunately*, there is a wide range of olive varieties with a multitude of different agronomic characteristics, and *hopefully*, there will also be some with resistance to *Xylella fastidiosa*. (Xf2022)
- 18) Most of the containment measures aim to *drastically* reduce the opportunities for the insect to reproduce and mature in the vegetation found near the olive groves. (Xf2022)
- 19) The project comes on the heels of a previous experiment in nearby Minervino di Lecce, where the foundation *successfully* replaced a *Xylella*-stricken area with 11,000 new trees. (Xf2022)
- 20) *It's very unfortunate that* this started in China. (CV2020)
- 21) *So it is so important that* we all work together. (CV2020)
- 22) Although vaccines *dramatically* reduce the chances of severe disease and death, they have not made a significant dent on transmission. (CV2022)

The examples below illustrate various linguistic realisations of self-mentions in the *X. fastidiosa* (ex. 23 to 25) and the coronavirus subcorpora (ex. 26 to 28), using both the first person singular and the first person

plural. The use of *we* and *our* in ex. (23) to (25) emphasises collective involvement in investigating the origins and progress of the bacterium, as well as a shared responsibility in its eradication. In ex. (26), the use of the phrase *my (focus)* emphasises the speaker's commitment related to the efforts regarding the stopping of the spread of the coronavirus. Further, *I myself* in ex. (27) highlights the personal involvement of the speaker in solving various virus-related problems. Then, in ex. (28), *our (research)* implies the speaker's collective engagement, pointing to the importance of their findings and potential impact.

- 23) *We* started to implement this treatment and, pretty fast, *we* had good results visible with the naked eye, therefore *we* continued. (Xf2020)
- 24) *We* found the infection spread to 50 olive trees in the Monopoli surroundings. (Xf2020)
- 25) *Our* analysis suggests that the pathogen had arrived in Italy with a single introduction from Costa Rica, confirming 2008 as the most likely year when *Xylella* was introduced in Italy. (Xf2022)
- 26) *My* focus is on saving lives and *my* focus is on working in partnership with member states to ensure that we contain the spread of the virus. (CV2020)
- 27) *I myself* speak with the health ministers several times a week, in order to be able to solve problems when they arise. (CV2020)
- 28) Long COVID is still poorly understood, but *we* hope through *our* research that *we* can contribute to better identification and management of this condition, which *our* data and others' suggest may ultimately affect millions of people in the UK alone. (CV2022)

6. Discussion and concluding remarks

This study focused on the analysis of stance markers occurring in the texts on two diseases, *X. fastidiosa* and the coronavirus, gathered from online sources in English during the years of 2020 and 2022. Using Hyland's model of stance (2005), we identified and categorised stance markers (hedges, boosters, attitude markers, and self-mentions) within these texts. We conducted a quantitative analysis to calculate the raw and normalised frequencies of the occurrence of stance markers in the two subcorpora, as well as a qualitative analysis to delve deeper into the specific linguistic manifestations and functions of the markers identified.

Our findings indicate that the overall normalised frequency of all types of stance markers was significantly higher in the articles on the coronavirus than in the *X. fastidiosa* articles. Hedges were the most frequently used stance markers overall, which suggests a dominantly cautious overtone in the reporting style on the diseases. This result is in line with the previous findings of Shen and Tao (2021) and Chen and Li (2023) referring to public discourse communication on the coronavirus. On the other hand, boosters were the second most used category of stance markers, which does imply a note of confidence in the claims made about some aspects of these diseases. The lower use of attitude markers and self-mentions points to a more restrained and less personally involved tone when reporting on such sensitive issues.

The changes in the use of stance markers observed over time, particularly in the coronavirus coverage from 2020 to 2022, suggest that media discourse is variable. Compared to the year 2020, the frequency of hedges, boosters and attitude markers in the communications on the coronavirus increased in 2022. The rise in hedges indicates that the tone of reporting on the virus was still cautious and uncertainty was present, while the increased use of boosters in 2022 reflects the fact that knowledge and awareness of the virus were on the increase, which brought about a more confident tone in reporting. The higher use of attitude markers in the coronavirus texts in 2022 suggests a greater focus on different perspectives, necessary for the adequate coverage of a very complex topic such as the new virus and the accompanying diseases. The frequencies of stance markers in the newspaper articles on *Xylella fastidiosa* for 2020 and 2022 varied less, with a mild increase in the use of hedges and self-mentions. The frequencies of boosters and attitude markers remained relatively constant, with only a slight decrease, suggesting a consistent tone in the reporting of *Xylella fastidiosa* across the two time periods, which is in line with the fact that the course of the bacterium epidemic remained relatively consistent.

Finally, our analysis established that varying degrees of personal involvement in communicating news on the diseases can be noted depending on the author of the statement, namely, journalists and experts. The journalists used more stance markers in total when reporting on the coronavirus than when reporting on *X. fastidiosa*; additionally, they were more tentative when writing about the new virus and employed more hedges than the experts. The journalists did not use many self-mentions when reporting on either disease, which is understandable, since they

opted to rely on credible sources instead. As for the experts, those who commented on the coronavirus used more stance markers overall than those commenting on *X. fastidiosa*. However, they did not hedge much more when discussing the coronavirus, and even supported their claims by boosters to a slightly higher extent when talking about the coronavirus. The experts used more self-mentions, particularly in the texts on the coronavirus, which indicates a stronger personal connection to the topic. Based on these findings, it can be argued that both groups, the journalists and the experts, tended to communicate more tentatively when talking about the new disease than about the previously known bacterium. Additionally, more certainty about both diseases was communicated by the experts.

The obtained findings point to an important role of stance markers in communicating the attitudes towards diseases in the public discourse during difficult periods, such as pandemics, in this case, those caused by the coronavirus and environmental threats like *Xylella fastidiosa*. The prevailing caution communicated by the analysed texts indicates high awareness of the necessity to consider the context when shaping communication strategies during crisis situations. It is also shown that stances and perceptions at the beginning and during different stages of pandemics or outbreaks of diseases may vary. Therefore, we may argue that our research provided valuable insights into the strategies utilised in the public discourse during health crises.

Still, this study is limited in scope since it comprised reporting on these two diseases over a relatively short time period. Future research could expand the time span and monitor media reporting and expert discussions at different stages of outbreaks – the beginning, the peak, and the end. Additionally, the analysis of stance markers previously conducted for the coronavirus and *Xylella fastidiosa* could be extended to examine reporting on other current epidemics, such as, for example, the African swine fever virus, in both English and some other languages, e.g., Serbian. By comparing findings on some other disease with those obtained in our current study, researchers could identify trends in how emerging diseases are portrayed in the media over time, which might be beneficial for communicating more efficiently and accurately during pandemics.

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