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Understanding Linguistics in World Englishes throughout Covid-19: Modal Verbs

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Abstract

This corpus-based study focuses on the nine English central modal verbs (*can, could, may, might, must, shall, should, will* and *would*) from the 20 English-speaking countries of the Coronavirus Corpus. A wide variety of databases are now available to researchers in the Coronavirus Corpus, which allows for the exploration of large datasets of varieties of English all over the globe. Because research on modal verbs throughout the period of Covid-19 is limited, this study investigates the frequency and distribution of the nine core modals across the 15-month period (from January 2020 to March 2021), a period of imposing restrictions which certainly make an impact in society and communication. Rather than focusing on the traditional difference between inner and outer-circle varieties (as done, for example, by Collins 2009), I have classified countries into two groups, based on the anti-Covid-19 policy adopted, namely mitigation or suppression. As a result, the distribution of modal verbs across the different months differ greatly. The results suggest that the new imposing social restrictions on countries correlates pretty neatly with a higher frequency of the nine core modals.

Keywords: modal verbs, Covid-19, distribution, suppression and mitigation strategies.

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1. Introduction

The present paper develops a detailed research which includes a diachronic study of language from several varieties of English within the period of Coronavirus disease-19 (Covid-19). In general linguistics, the study of how language changes over time is perhaps one of the few areas of linguistics wholly reliant on the creation and analysis of specialized corpora (Millar 2009, 191). In other words, corpus-based investigations of recent language change are an interesting area of diachronic study and they usually cover span centuries (192). However, whether other studies like Miller (2009) and Leech (2011), two of the main works that cover the frequency of modal verbs within decades, a unique aspect of the present study includes the time period of the Covid-19 crisis, typically uncovered for its “recent appearance” in the world.

On 31 December 2019, the World Health Organization (WHO) was informed of cases of pneumonia of unknown cause in Wuhan City, China. However, the novel coronavirus was not declared as a world pandemic until 11 March 2020. This historical moment is characterized by authorities imposing measures of physical distancing to contain the spread of the virus (Mondada *et al.* 2020, 444). As a consequence, language use in society may lead to different linguistic forms such as mandatory or imperative statements. Therefore, this paper will focus on how the effect of Covid-19 affects communication, in particular the distribution and frequency of the nine central modals (*can, could, may, might, must, shall, should, would* and *will*) from 20 varieties of English across the 15-month period of Covid-19 (from January 2020 to March 2021). The hypothesis and the difference in the frequency and distribution of central modals may be ascribed to the different restrictive measures taken during the Covid-19 period.

2. Theoretical background

2.1. Recent Diachronic Shifts in Modals

Research on central modal verbs in varieties of English is well documented, especially regarding British and American English. One of the earliest diachronic studies on modal verbs (Leech 2003), indicated that the use of certain modal verbs in British and American English seen in the Brown family corpora has significantly declined from the 1960s to the 1990s. One possible explanation that Leech provides is that the decrease of central modal verbs may be justified by a slow rise in the frequency of semi-modals (Leech 2011, 561). In contrast, Millar (2009) backs up his study with a generalized research within TIME, a well known magazine corpus that deals as well with different insights into variation of British and American English, and demonstrates that some central modal verbs are actually increasing in frequency.

The research results seen in the Brown Corpus used by Leech (2003) and the TIME Corpus used by Millar (2009) are offered with different forms, as they certainly have different sizes, sources and shorter or longer time spans. The relatively small Brown Corpus with the 30 year chronological gap (between 1961 and 1991) used by Leech “may not present a wholly accurate picture of language change” (Millar 2009, 208). On the other hand, TIME Corpus may have the advantage of a bigger picture, with a greater “coverage of the language” (Leech 2011, 552), from the 1920’s to 2000’s, suggesting a general increase of frequency in modal verbs. Both diachronic studies were therefore to investigate the frequency of modal verbs within the 20th century, but they do not share the same expanded periods of time.

Moreover, in response to Millar (2009), Leech (2011) shares other new data extracted from the Corpus of Contemporary American English (COHA), which has a finer temporal resolution than his previous one (Leech 2003). He added to the Brown family corpora the BLOB-1931 corpus, enabling the Brown family corpora to cover three data points (1931, 1961, 1991). This research, in comparison to Millar (2009), still favours the distinct patterns of change in the modal verbs: a modal verb that extensively declines is *shall*; those that are considered mid-frequency modal verbs like *may* and *must* decline slightly; and those that are more frequent *can*, *could*, *will* and *would* remain relatively stable. The modal verbs *can*, *could* and *may*, substantially increase in Millar’s TIME, whereas in COHA they all remain stable or decrease, and for *must* and *shall* both decrease and correlate with TIME.

In other varieties of English beyond British and American English there is less research on diachronic changes, yet there are some written. For example, Wasserman and van Rooy (2014) reported that in the historical development of the White South African English (WSAfrE) both modal verbs *can* and especially *must* are more frequented in comparison to those seen in other native varieties such as British and American English (Wasserman and van Rooy 2014, 32). Seems like the high-frequency of *can* and *must* are credited to the high-frequency modals of *kan* and *moet/moes*, which are direct cognates in Afrikaans (47). The constant contact between WSAfrE and Afrikaans is therefore a plausible factor for the high frequency of these two modals *can* and *must*.

Another related analysis is the work of Collins (2009). In this case he deals with a set of five representatives of his “Outer Circle” – Philippine English (Phile), Singapore English (SingE), Hong Kong English (HKE), Indian English (IndE), and Kenyan English (KenE). Since spoken corpora are not available and are not able to provide comparable information about spoken English (Collins 2009, 283), Collins nevertheless shows a general decline of the modals in writing texts, especially for the SEA varieties (Phile, SingE and HKE) (292). Since the variety

of English writing may be interpreted as an evidence of conservatism, because it possesses older forms and has the tendency to linger longer than speech (286), we can observe that this set is leading the decline of the modals. For instance, some of the modal verbs in decline that Collins provides are *must*, *shall*, *should* or *will*. Once again, like in Leech (2003, 2011), an evidence of this decrease is due to the “acceptance of the “quasi-modals” (285). Thus, IndE and KenE seem very conservative in accepting quasi-modals, whereas the SEA varieties on average show a greater degree of acceptance and seem to be more innovative.

2.2. Covid-19 and Communication

In times of global crises such as Covid-19, effective communication is of vital importance. Covid-19 has not only acted upon our “social interactions” (Mondada 2020, 443), but also has changed the way we communicate. The new linguistic forms of many health organizations and government agencies are now “imperative for media professionals” to develop an anti-Covid-19 strategy (Su *et al.* 2021, 5), information which is rapidly absorbed by individuals, groups and different institutions from all over the world. Hence, since it is necessary for media professionals, health experts, and government officials to develop an anti-Covid-19 strategy (5), which is a method that will certainly involve new communication, a use of imperative mandatory language would be expected. In this scenario, for the time period over which “control measures can be sustained” (James *et al.* 2020, 2), all media have to deliver the anti-Covid-19 “control strategy” to the public (Su *et al.* 2021, 6), and we can hypothesize that the frequency of modal verbs may undergo changes as a result of more or less imperative discourse. For this reason, in section 4.1 below I analyse the frequency of the nine central modal verbs in 20 English-speaking countries across the 15-month period of Covid-19.

Taking this into account, the general frequency analysis and distribution of the nine central modal verbs vary. According to Iftimie *et al.* (2020), “several countries have seen a two-wave pattern of reported cases” (2), with a first wave in spring 2020 and a second one in mid-summer 2020. The first wave of the reported cases of Covid-19, which began in early April 2020, coincides with the first increase of the overall total of the nine central modal verbs (see figure 1 below). One explanation of this increase is probably because the heads of government had to “introduce a series of strict prevention measures” (2), including home confinement. The second wave, which began in August 2020, does not correspond with the overall distribution of the nine central modal verbs of the 20 English-speaking countries, but it does correlate pretty neatly with, for instance, United Kingdom (see figure 9 below). In addition to these two waves reported in Iftimie *et al.* (2020), there may be another speculated third wave. In the case of

United Kingdom there are three cases of increase in frequency of the nine central modal verbs: spring 2020, mid-summer 2020 and post-Christmas 2020 (further analysis and distribution of the nine central modal verbs of several English-speaking countries will be discussed below). The lack of correspondence of the third wave in United Kingdom (and second wave in the 20 English-speaking countries) is due to the early submission of Iftimie *et al.* (2020), which was submitted in November 2020 and no further information could be added. Then, no third wave in post-Christmas was compiled in this study.

Nevertheless, within the speculated post-Christmas wave the governments from the 20 English-speaking countries had to reintroduce new serious restrictive measures, methods that would once again may emerge new linguistic forms far from our daily and usual communication. Even though during the month of December most governments provided “flexible measures” to help and support families, we can still find imperative statements. In other words, new language is expected to be more “mandatory” in this scenario, especially for the modals of obligation. An example of mandatory or imperative statements with *must* and *should*, two modal verbs that predominantly express the meaning of stronger and weaker obligation (Bao 2010, 1729), is illustrated in (1), (2) and (3). All examples are taken from the Coronavirus Corpus.

- (1) All participants ***must*** wear masks and practice social distancing (Patch US, 16/01/21)
- (2) All individuals ***must*** wear masks or face coverings and maintain six feet of physical distancing (and.com US, 28/01/21)
- (3) Everyone ***should*** wear a mask in public settings and when around people who don't live with (courant.com US, 27/01/21)

The modal verbs *must* and *should* observed in these examples, with the former probably being more frequent, would then be expected to correlate with government restrictions in order to reduce the transmission of Covid-19. In the next section the methodology of all data collection is presented in detail.

3. Methodology

3.1 The Data

This study adopts a corpus-based approach and, for that reason, it analyses the Coronavirus Corpus (Davies 2019), which includes online journals, newspapers and magazines from 20 English-speaking countries: six inner-circle varieties (US, UK, CAN, IRE, AUS and NZ) and

14 outer-circle varieties (India, Sri Lanka, Pakistan, Bangladesh, Malaysia, Singapore, Philippines, Hong Kong, South Africa, Nigeria, Ghana, Kenya, Tanzania and Jamaica). Research on world Englishes gained “momentum after the 1990s with the gradual release of various corpora” such as the International Corpus of English (ICE), the Corpus of Global Web-based English (GloWbE, Davies 2013) or the Coronavirus Corpus itself (Suárez-Gómez, Loureiro-Porto, and Fuchs 2020, 370). Since “the study of language changes over time it is perhaps one of the few areas of linguistics wholly reliant on the creation and analysis of specialised corpora” (Millar 2009, 191). The Coronavirus Corpus, compiled by Mark Davies at Brigham Young University, represents a great resource for the frequency-based analyses, it shows what people are actually saying in online texts, and it is designed to be a record of the social, cultural, and economic impact of the coronavirus (Covid-19) in 2020 and beyond. In relation to its size, the corpus was about 1,044 million words when I conducted this research (although it grows by 3 or 4 million words each day). It is accessible through a free online interface (<https://www.english-corpora.org/corona/>), which allows the user to compare between different time periods (such as days or months) and to restrict searches by countries individually.

The present study will focus on the frequency exhibited by nine central modal verbs in the 20 English-speaking countries represented in the Coronavirus Corpus from January 2020 to March 2021 (15 months). This time span allows us to study the language used over a large part of the Covid-19 pandemic and in the different waves undergone, which are characterized by different kinds of measures, from lockdown to the easing of rules.

3.2. The Varieties

The first step adopted in the process of frequency analysis for the nine central modal verbs was to run a query in the form of [MODAL VERB].[v*] within the search box, having the central modal verb written between the first square brackets. The extension .[v*] was meant to exclude nouns such as *can*, *may*, *must* or *will* from the counting. The normalized frequency (per million words) of each central modal in each variety was copied from the Chart option, and pasted on an Excel spreadsheet, which allowed me to obtain general as well as specific results.

The overall frequency and distribution of the nine central modal verbs in the corpus as a whole is shown in Figure 1. Table 1, in turn, exhibits the frequency per million words of each individual modal following a heat map pattern in which the meaning of colours ranges from sharp decline in frequency (dark red) to sharp increase in frequency (dark green). The process for gathering such colours was to select the dataset for which I wanted to generate a heat map.

In this case, I selected the rows one by one of each modal verb on the Excel “Home” tab, clicked on “Conditional Formatting”, and then on “Colour Scales.” Interestingly enough, the peaks in frequency observed both in Figure 1 and Table 1 coincide with the two-wave pattern mentioned above in Iftimie *et al.* (2020) (see section 2.2 above). The two highest peaks in Figure 1 correspond to April 2020 and January 2021, which correlate pretty neatly with the two biggest waves: spring 2020 and post-Christmas 2020. It is precisely in these two moments that the most severe social restrictions were imposed. Likewise, the lowest frequency of modals after the beginning of the pandemic is found in July 2020, when most rules were eased. We therefore have evidence of a change over time for these two increases in frequency of the central modal verbs.

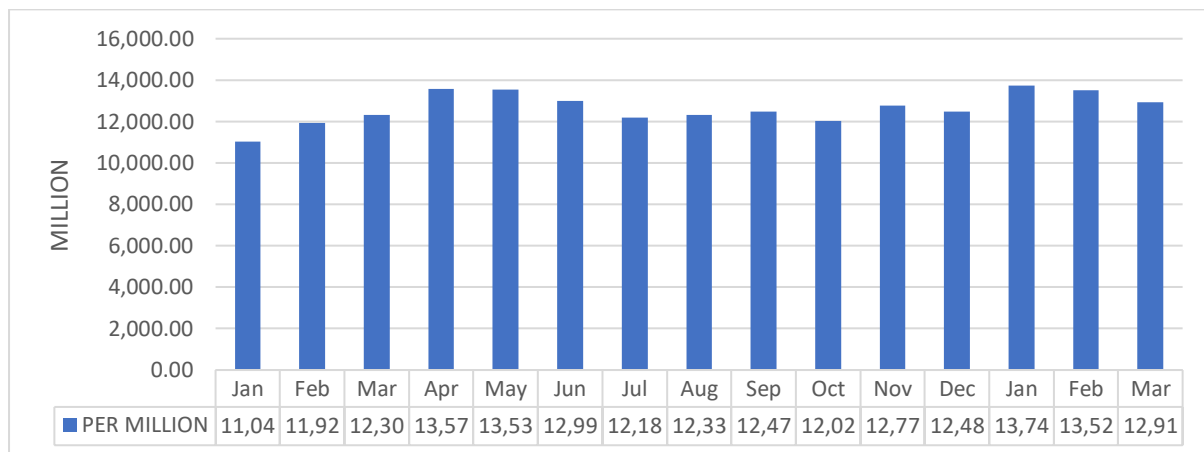


Figure 1. Overall distribution of the nine central modal verbs in the English-Speaking countries across the 15 months of Covid-19.

This general overview clearly suggests that imposing social restrictions correlates with a higher frequency of the core modals. For this reason, my next step was to determine whether the frequency of modals in the pandemic varied from one territory to another. Rather than focusing on the traditional difference between inner and outer-circle varieties (as done, for example, by Collins 2009), I have classified countries into two groups, based on the anti-Covid-19 policy adopted, namely mitigation or suppression. These two groups are defined as two types of control strategy which serve to simulate the spread of Covid-19 (James 2020, 4). Both strategies, which are “fraught with uncertainty” (2), have different aims and are employed by most of the English-speaking countries. While the outcome of mitigation “allows the epidemic to go ahead at a controlled rate”, the suppression strategy aims “to keep the number of infections to a minimum for as long as possible” (8). This consequently means that restrictions to social mobility and contact will inevitably differ and my hypothesis is that this

Modals/Months	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	diff Jan20- Mar21	%Jan20- Mar21	TOT.PER. MIL
can	2,330.31	2,120.61	2,436.76	2,894.72	2,719.10	2,564.11	2,390.76	2,446.99	2,506.15	2,315.17	2,507.45	2,366.27	2,586.90	2,650.30	2,542.32	212.01	9%	37,377.92
could	1,024.22	1,235.51	979.54	1,180.95	1,188.50	1,201.36	1,143.36	1,164.36	1,204.21	1,184.78	1,265.88	1,207.57	1,264.62	1,320.63	1,241.09	216.87	21%	17,806.68
may	941.93	997.49	881.07	979.64	955.6	950.01	865.65	898.98	888.61	909.13	957.07	876.66	969.18	1,010.48	992.3	50.37	5%	14,073.80
might	272.47	351.31	298.05	355.37	351.19	351.94	324.94	338.76	335.09	327.33	398.73	366.52	375.85	384.34	341.4	68.93	25%	5,173.29
must	364.02	321.23	382.87	478.47	486.41	435.03	414.39	402.07	429.93	403.86	411.52	381.01	470.18	417.6	388.9	24.88	7%	6,187.49
shall	35.15	29.87	59.55	62.03	59.77	54.46	45.76	44.27	41.83	45.89	41.01	45.96	52.34	45.89	45.79	10.64	30%	709.57
should	897.93	899.79	899.24	979.99	956.08	898.91	849.64	868.7	882.12	871.22	854.12	839.54	962.62	941.22	886.17	-11.76	-1%	13,487.29
will	3,737.07	4,299.37	4,819.22	4,881.68	4,992.97	4,775.68	4,408.23	4,407.09	4,408.54	4,170.07	4,565.67	4,600.01	5,116.35	4,783.79	4,606.00	868.93	23%	68,571.74
would	1,438.92	1,665.40	1,549.47	1,761.26	1,823.29	1,768.14	1,739.58	1,762.73	1,779.62	1,794.85	1,775.80	1,802.59	1,948.05	1,966.07	1,874.54	435.62	30%	26,450.31
TOT.PER.MIL	11,042.02	11,920.58	12,305.77	13,574.11	13,532.91	12,999.64	12,182.31	12,333.95	12,476.10	12,022.30	12,777.25	12,466.23	13,746.09	13,520.32	12,918.51	1,876.49	17%	189,838.09

Table 1. Overall distribution of the nine central modal verbs from the 20 English-speaking countries across the 15 months of Covid-19.

correlates with the frequency of the nine central modal verbs, for each strategy may well develop a different style of communication in each country.

For space reasons, not all varieties can be discussed here, and I have selected those in which the frequency of the central modals exhibits more variation. These are: US, Canada, Great Britain and South Africa (representing the mitigation strategy), and Australia, New Zealand, Singapore and Malaysia (representing the suppression strategy). However, before analyzing these data, I would like to compare the overall distribution of the nine central modals of both inner and outer-circle varieties (Kachru, Greenbaum, and Svartvik 1985, 12).

4. Results

4.1. Inner- and Outer-circle varieties of English

The results from Figure 2 (representing the inner-circle varieties: AmE, CanE, BrE, IreE, AusE and NZE) and Figure 3 (representing the outer-circle varieties: IndE, SrLE, PakE, BangE, MalE, SingE, PhilE, HKE, SAfE, NigE, GhaE, KenE, TanzE and JamE) clearly show different patterns of the overall distribution across the 15-month period. In Figure 2 we can observe that the frequencies of the nine central modals have a progressive increase, while in Figure 3 exhibits a steady decrease from January 2020 to March 2021, with the exception of the increases in April 2020 and January 2021.

The results in Figures 2 and 3 also differ greatly in months. The sharpest increase of both figures is shown in Figure 2, in concrete March 2020 (with more than 1,600 tokens of difference from previous month and a total of more than 8,600 tokens per million words); yet it is not the highest peak of the time span. The highest peak in frequency of the nine central modals across the 15-month period in Figure 2 is observed in February 2021 (with more than 11,000 tokens per million words). In Figure 3 the highest peak is shown in February 2020 (with

more than 4,000 tokens per million words). As we can observe in Figures 2 and 3, there is a time span of twelve months of difference between the two highest peaks in frequency. In addition, the inner- and outer-circle varieties correlate pretty neatly with two waves (out of 3 if we include the speculated post-Christmas one) of Covid-19.

Therefore, following the heat map pattern in Table 3 (representing the outer-circle varieties), the main increase of the overall distribution of the nine central modals is shown in spring 2020, whereas in Table 2 (representing inner-circle varieties) the main increase of the overall distribution of the nine central modals is shown in post-Christmas.

In addition, in Tables 2 and 3 we can observe not only the frequencies of the nine central modals in each month, but also the penultimate column quantifying the percentage difference between the frequency of modal verbs in January 2020 and March 2021 (%Jan20-Mar21). Table 2 raises in total by 56%, while Table 3 exhibits an overall decrease of the nine central modals by -45%. For this reason, the dark red colour (the sharp decline in frequency) shown in Table 2 appears mainly in January and February 2020, while the dark green colour (the sharp increase in frequency) is shown mainly in January 2021 onwards. Table 3, in contrast, shows the dark red colour expanded in November and December 2020, and February and March 2021, whereas, the green colour is observed mainly in January, February, April and May 2020, which is right at the beginning of the time span seen in this study.

Regarding specific modals, the results in the percentage column also show substantial changes. In Table 2, for example, the highest percentage increase accounts for the modal verb *might* (73%), and those that follow are *would* (68%), *will* (67%) and *could* (58%), which also surpass the overall total average of the nine central modal verbs (56%). Table 3, however, shows the lowest frequency count for the modal verb *might* (-60%). The modals *can* (-54%), *should* (-54%), *could* (-52%) and *may* (-48%) are also under the overall total average of the outer-circle varieties (-45%). Thus, *might* appears to be the most readily identifiable pattern of change, in one way or the other, from the nine central modal verbs in both tables.

Furthermore, while Table 3 contains the only increase for the modal verb *shall* (7%), in Table 2 it is the less frequent one (28%). Therefore, the changes of modals seen in the inner-circle varieties show an increase of frequency of all the modals, while the changes of modals in the outer-circle varieties exhibit a decrease of frequency, except for *shall*. In an attempt to describe and explain the observed differences in several countries, the results of the frequency of the nine central modals within the two strategies (mitigation and suppression) were performed.

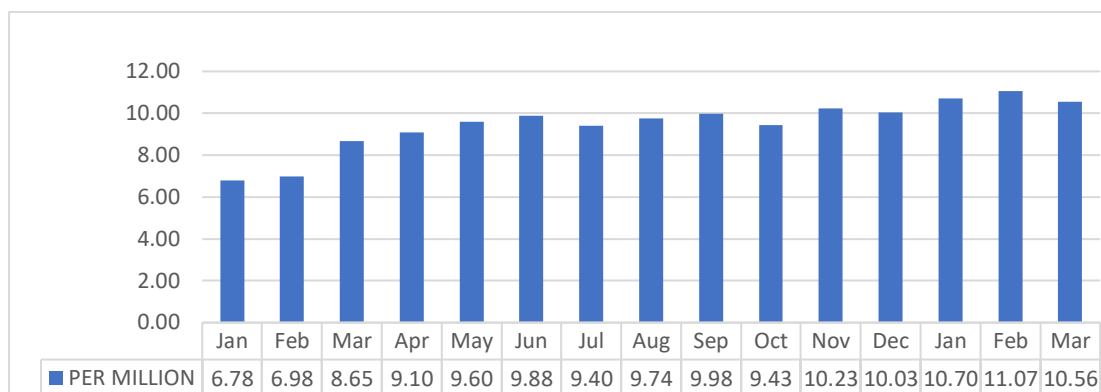


Figure 2. Overall distribution of the nine central modal verbs from the inner-circle varieties of English across the 15 months of Covid-19.

Modals/Months	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	diff.Jan20-	%Jan20-	TOT.PER.
																Mar21	Mar21	MIL
can	1,456.77	1,250.69	1,753.60	2,017.67	1,980.87	1,978.50	1,853.52	1,947.15	2,029.44	1,821.89	2,041.51	1,923.98	2,076.72	2,226.56	2,114.08	657.31	45%	28,472.95
could	670.69	768.02	709.09	831.17	886.39	958.79	919.83	964.1	1,011.12	973.96	1,044.99	1,019.10	1,041.27	1,137.61	1,063.00	392.31	58%	13,999.13
may	631.18	577.74	609.41	646.46	679.79	723.7	666.1	707.43	707.71	722.68	776.46	719.82	767.72	853.04	841.6	210.42	33%	10,630.84
might	172.34	229.19	222.4	256.12	270.12	287.43	268.65	286.98	287.57	276.94	350.83	319.57	319.06	339.23	297.48	125.14	73%	4,183.91
must	205.44	166.75	239.43	275.7	295.23	290.57	286.3	283.04	313.19	287.33	302.15	272.94	338.45	312.3	289.16	83.72	41%	4,157.98
shall	17.17	10.56	20.62	20.41	19.98	20.99	17.43	19.12	17.64	22.3	23.29	13.39	17.55	19.41	22.01	4.84	28%	281.87
should	495.76	501.02	588.3	595.05	609.3	621.96	608.49	644.16	667.79	646.22	649.57	645.74	710.25	742.78	694.74	198.98	40%	9,421.13
will	2,209.60	2,482.54	3,410.26	3,261.11	3,544.44	3,636.72	3,408.53	3,458.44	3,491.43	3,224.55	3,605.27	3,644.12	3,911.52	3,805.83	3,691.31	1481.71	67%	50,785.67
would	922.31	993.07	1,101.54	1,194.19	1,317.98	1,357.42	1,367.79	1,428.19	1,450.64	1,450.34	1,431.61	1,468.06	1,517.31	1,637.13	1,550.02	627.71	68%	20,187.60
TOT.PER.MIL	6,781.26	6,979.58	8,654.65	9,097.88	9,604.10	9,876.08	9,396.64	9,738.61	9,976.53	9,426.21	10,225.68	10,026.72	10,699.85	11,073.89	10,563.40	3,782.14	56%	142,121.08

Table 2. Overall distribution of the nine central modal verbs from the inner-circle varieties of English across the 15 months of Covid-19.

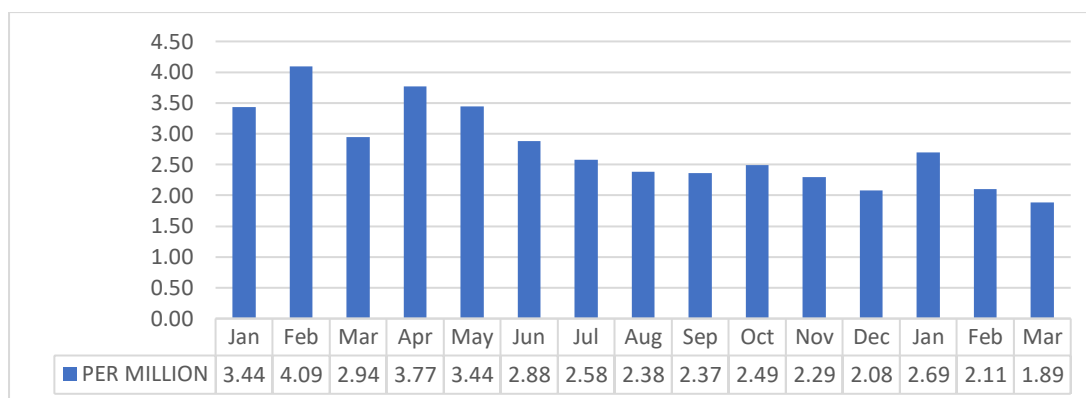


Figure 3. Overall distribution of the nine central modal verbs from the outer-circle varieties of English across the 15 months of Covid-19.

Modals/Months	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	diff.Jan20- Mar21	%Jan20- Mar21	TOT.PER. MIL
can	697.66	704.75	535.35	721.14	633.79	528.93	489.8	451.99	444.64	467.83	406.52	356.98	429.95	345.78	319.18	-378.48	-54%	7,534.29
could	292.23	393.25	230.81	302.03	269.29	222.48	206.66	185.18	184.7	203.74	196.86	160.45	197.71	155.87	139.86	-152.37	-52%	3,341.12
may	234.6	339.92	217.26	276.65	237.55	201.91	181.58	164.2	165.45	174.29	158.75	136.24	179.45	137.22	122.77	-111.83	-48%	2,927.84
might	76.43	96.17	62.04	82.07	69.85	56.29	49.34	46.18	44.61	48.03	40.74	37.12	45.42	35.69	30.71	-45.72	-60%	820.69
must	135.42	129.98	122.58	177.3	172.15	136.22	119.88	112	111.32	111.38	100.38	92.95	120.18	94.62	83.98	-51.44	-38%	1,820.34
shall	16.48	16.01	35.14	37.93	37.73	32.16	27.21	23.35	23.92	23.45	17.27	19.15	24.63	18.88	17.69	1.21	7%	371.00
should	348.76	337.51	265.72	342.89	314.13	259.13	225.34	207.88	204.02	217.92	185.09	169.4	228.9	173.18	160.55	-188.21	-54%	3,640.42
will	1,195.19	1,497.82	1,094.16	1,335.51	1,252.59	1,054.15	927.07	872.09	870.06	910.55	874.59	820.56	1,085.51	859	752.37	-442.82	-37%	15,401.22
would	438.27	574.98	381.87	497.64	456.87	388.62	349.12	316.92	316.62	335.57	313.13	287.61	381.21	285.21	263.75	-174.52	-40%	5,587.39
TOT.PER.MIL	3,435.04	4,090.39	2,944.93	3,773.16	3,443.95	2,879.89	2,576.00	2,379.79	2,365.34	2,492.76	2,293.33	2,080.46	2,692.96	2,105.45	1,890.86	-1544.18	-45%	41,444.31

Table 3. Overall distribution of the nine central modal verbs from the outer-circle varieties of English across the 15 months of Covid-19.

4.2. Suppression and Mitigation Strategies

The results of the nine central modal verbs within the suppression and mitigation strategies show noticeable differences between both. All countries in the analysis of the overall distribution of the nine central modals in the suppression strategy (Australia, New Zealand, Malaysia and Singapore) have similar patterns of change and distribution. As we can observe in Figures 4, 5, 6 and 7 (countries representing suppression strategy) coincide with the first wave pattern in spring 2020 reported in Iftimie *et al.* (2020) (see section 2.2 above). The first imposing social restrictions were developed in this moment to prevent the epidemic. The core modals thus appear to show a marked increase in frequency mainly in the months of February and April 2020. Australia, for instance, exhibits the highest increase of frequency in modals (with more than 800 tokens per million words), while New Zealand, Malaysia and Singapore show the highest peaks in February (with more than 600, 400 and 800 tokens per million words respectively). Hence, there are no periods of alternating in frequency in modals from April onwards. In fact, the results show that from April onwards there is a progressive decline of the overall total of the nine central modals, which probably indicates that these countries did not suffer the consequences of a second or third wave because the first restrictive measures taken in spring 2020 were likely enough.

Following the heat map pattern, Tables 4, 5, 6 and 7 exhibit a summary of the frequencies (words per million) of the nine central modal verbs in each month. However, the penultimate column (the percentage column) quantifies the difference between the observed frequency of modal verbs in January 2020 and March 2021. The results show that most modal verbs exhibit an overall decrease for the four countries. For instance, the sharpest decrease in the overall average is shown in Singapore (-73%), with the modal *might* being the less frequent (-83%). The modals *should* (-78%), *can* (-77%), *would* (-76%) and *may* (-75%) follow and they do not

surpass the overall average either (-45%). Note as well that the frequencies are plotted per colours: dark green (sharp increase in frequency) and dark red (sharp decline in frequency). For Australia, New Zealand, Malaysia and Singapore, the sharp increase (dark green) in frequency of all modals is mainly shown in February, March and April 2020. Then, the suppression strategies employed by these countries may have succeeded in delaying the spread of Covid-19 from these months onwards.

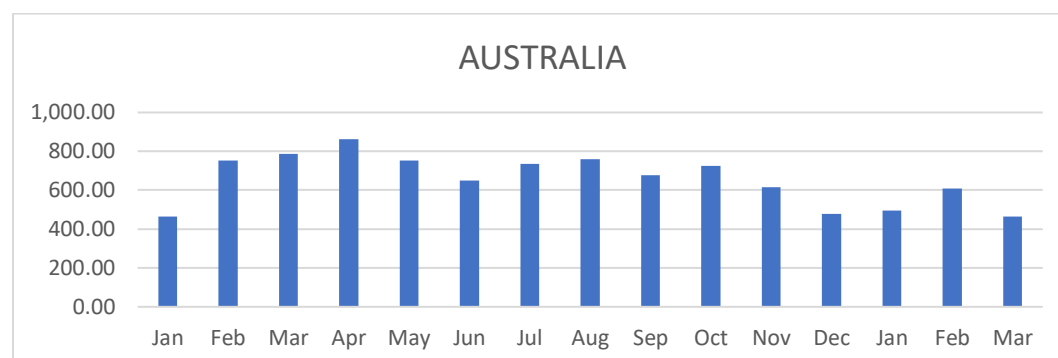


Figure 4. Overall distribution of the nine central modal verbs from Australia across the 15 months of Covid-19.

Modals/Months	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	diff.Jan20-Mar21	%Jan20-Mar21	TOT.PER.MIL
can	106.81	140.33	161.3	185.03	152.02	128.33	149.32	161.62	146.99	145.44	116.87	87.93	87.03	112.7	93.97	-12.84	-12%	1,975.69
could	38.96	78.58	67.76	82.45	72.9	62.82	70.01	73.66	69.69	78.16	57.16	45.57	43.76	49.19	35.87	-3.09	-8%	926.54
may	24.39	46.78	44.9	51.7	45.57	41.16	40.95	42.16	37.39	42.99	41.84	28.05	28.6	31.07	28.39	4	16%	575.94
might	11.31	22.56	24.42	27.83	24.06	20.61	21.77	21.16	18	19.2	16.5	13.68	12.49	15.16	10.89	-0.42	-4%	279.64
must	41.82	42.36	34.98	37.45	29.38	21.31	29.71	31.31	25.57	24.96	22.16	18.23	28.72	34.94	28.38	-13.44	-32%	451.28
shall	0.14	0.21	0.61	0.79	0.86	0.84	0.42	0.69	0.73	0.67	4.95	1.52	0.71	2.08	1.25	1.11	793%	16.47
should	53	57.26	57.86	57.75	48.44	43.31	52.16	57.63	48.13	49.51	42.37	33.17	37.22	45.25	35.57	-17.43	-33%	718.63
will	134.87	260.58	282.37	292	263.15	231.5	257.06	252.11	228.19	254.76	233.16	180.8	184.64	229.76	166.08	31.21	23%	3,451.03
would	51.77	103.21	112.75	127.07	115.65	99.22	114.74	119.91	103.75	108.79	80.37	67.73	71.87	87.74	65.07	13.3	26%	1,429.64
TOT.PER.MIL	463.07	751.87	786.95	862.07	752.03	649.10	736.14	760.25	678.44	724.48	615.38	476.68	495.04	607.89	465.47	2.4	1%	9,824.86

Table 4. Overall distribution of the nine central modal verbs from Australia across the 15 months of Covid-19.

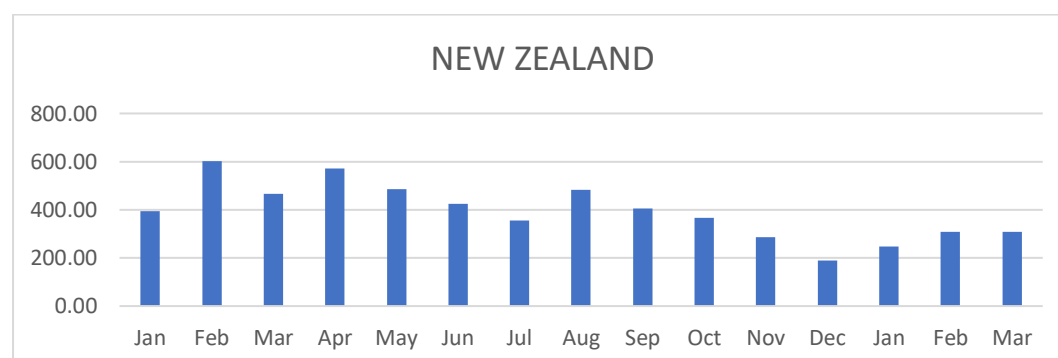


Figure 5. Overall distribution of the nine central modal verbs from New Zealand across the 15 months of Covid-19.

Modals/Months	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	diff.Jan20- Mar21	%Jan20- Mar21	TOT.PER. MIL
can	91.01	95.62	88.36	117.49	94.63	85.34	67.31	93.07	80.51	63.59	51.07	33.56	45.31	55.1	58.14	-31.87	-35%	1,121.11
could	34.06	55.75	39.13	51.45	45.04	38.51	33.71	42.6	36.83	33.87	25.77	17.28	23.84	27.7	27.23	-6.83	-20%	532.77
may	28.2	46.57	29.12	34.47	26.65	24.48	20.07	28.64	21.7	21.93	16.48	9	14.69	16.82	18.72	-9.48	-34%	357.54
might	12.67	24.01	15.17	18.8	15.67	13.69	12.42	18.01	13.21	12.16	8.56	6.06	6.21	8.83	8.65	-4.02	-32%	194.12
must	10.9	12.9	13.56	16.36	14.64	11.9	10.24	14.79	11.27	10.27	7.75	5.79	8.32	9.67	9.13	-1.77	-16%	167.49
shall	0.14	0.48	0.7	0.83	0.43	0.19	0.5	0.53	0.94	0.86	0.67	0.47	0.12	0.35	0.41	0.27	193%	7.62
should	28.61	48.78	36.45	41.55	31.18	31.73	26.13	40.17	28.74	25.33	20.03	12.38	19.17	22.81	22.53	-6.08	-21%	435.59
will	122.88	223.6	178.78	201.6	176.27	150.82	120.48	162.17	140.79	133.07	111.48	71.08	88.87	116.11	115.72	-7.16	-6%	2,113.72
would	65.53	95.42	65.64	88.84	80.49	68.35	65.51	82.54	71.69	66.72	45.45	32.46	42.24	49.77	47.64	-17.89	-27%	968.29
TOT.PER MIL	394.00	603.13	466.91	571.39	485.00	425.01	356.37	482.52	405.68	367.80	287.26	188.08	248.77	307.16	308.17	-84.83	-22%	5,898.25

Table 5. Overall distribution of the nine central modal verbs from New Zealand across the 15 months of Covid-19.

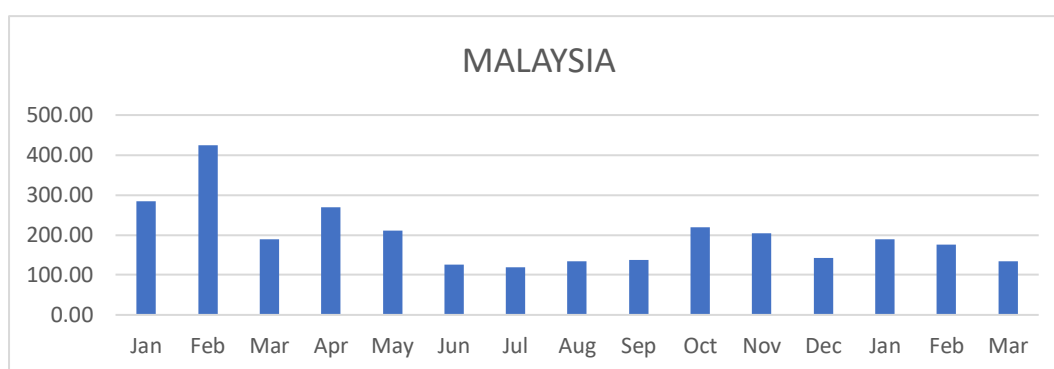


Figure 6. Overall distribution of the nine central modal verbs from Malaysia across the 15 months of Covid-19.

Modals/Months	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	diff.Jan20- Mar21	%Jan20- Mar21	TOT.PER. MIL
can	61.58	73.96	40.07	60.86	43.71	21.75	22.89	28.15	26.96	44.49	34.96	23.74	32.18	28.12	26.32	-35.26	-57%	568.74
could	25.48	41.12	15.35	22.69	16.95	10.5	10.14	10.33	10.92	18.17	17.27	10.83	13.44	13.37	10.31	-15.17	-60%	246.87
may	19.62	29.11	11.22	17.67	13.02	8.21	7.75	8.55	7.67	10.5	11.65	7.93	10.6	8.52	8.78	-10.84	-55%	180.80
might	7.36	10	3.78	6.45	4.91	2.35	1.95	3.09	2.53	3.9	2.9	2.4	2.67	2.08	1.66	-5.7	-77%	58.03
must	8.31	13.87	7.96	11.89	10.86	7.11	5.42	6.03	6.2	12.43	10.75	7.66	10.22	8.9	6.3	-2.01	-24%	133.91
shall	0.68	0.55	0.37	0.64	0.55	0.37	0.42	0.61	0.49	0.65	0.37	0.35	0.69	0.42	0.57	-0.11	-16%	7.73
should	24.11	33.81	16.47	23.85	17.17	9.68	9.65	12.7	10.9	20.69	17.59	9.94	16.92	12.57	11.56	-12.55	-52%	247.61
will	104.22	155.78	69.11	89.95	73.71	46.81	44.71	46.78	49.64	71.65	77.08	56.79	70.21	70.79	47.64	-56.58	-54%	1,074.87
would	33.65	67.06	24.75	36.11	29.21	19.48	16	17.62	21.78	36.51	32	23.44	31.79	31.07	21.79	-11.86	-35%	442.26
TOT.PER MIL	285.01	425.26	189.08	270.11	210.09	126.26	118.93	133.86	137.09	218.99	204.57	143.08	188.72	175.84	134.93	-150.08	-53%	2,961.82

Table 6. Overall distribution of the nine central modal verbs from Malaysia across the 15 months of Covid-19.

In contrast to the results of the modal verbs observed in the suppression strategy, the distribution of modals exhibited in the countries that follow the mitigation strategy appears more complicated. As we can see in Figure 8 (representing US) the results show a progressive increase from January 2020 to March 2021, with the exception of the slight falls from over 3,900 and 5,700 tokens per million in January and September 2020 to less than 3,400 and 5,000 tokens per million respectively in February and October 2020. Secondly, the highest peak in time span is shown in February 2021 (with more than 7,300 tokens per million words), which

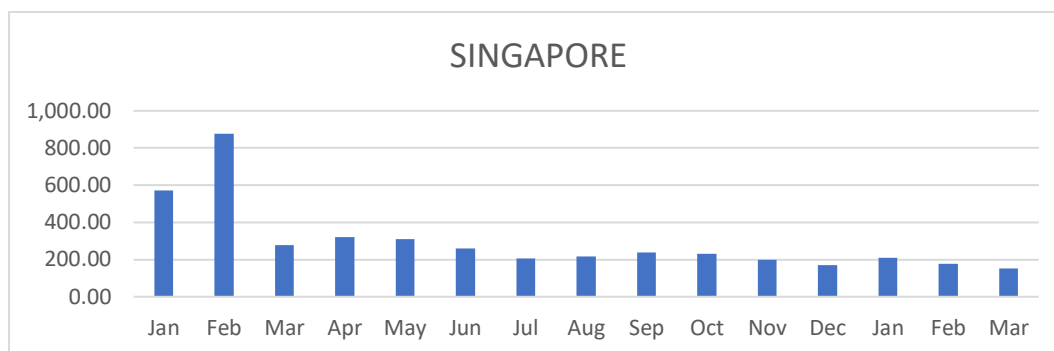


Figure 7. Overall distribution of the nine central modal verbs from Singapore across the 15 months of Covid-19.

Modals/Months	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	diff.Jan20- Mar21	%Jan20- Mar21	TOT.PER. MIL
can	106.94	154.75	55.03	69.39	65.81	53.79	42.01	46.2	51.45	48.46	38.73	30.83	36.09	30.4	25.1	-81.84	-77%	854.98
could	47.27	81.41	25.03	28.26	25.95	20.51	18.52	18.73	23.14	20.57	19.99	16.53	18.28	17.97	12.58	-34.69	-73%	394.74
may	39.51	80.31	24.19	24.28	24.53	18.74	15.6	17.81	20.83	17.9	14.16	11.46	15.6	11.66	9.68	-29.83	-75%	346.26
might	16.76	23.73	7.28	9.47	7.83	6.22	4.97	4.91	5.1	5.41	4.48	4.09	4.09	4.6	2.81	-13.95	-83%	111.75
must	15.8	24.01	8.61	11.97	10.32	8.97	6.66	7.86	9.23	8.73	6.98	5.81	7.73	5.8	5.9	-9.9	-63%	144.38
shall	0.95	1.66	0.91	1.24	1.56	1.18	1.11	0.86	1.81	1.12	0.51	0.63	0.87	0.4	0.67	-0.28	-29%	15.48
should	57.9	78.31	25.18	25.12	24.55	21.04	18.76	18.35	20.22	20.43	14.89	14.07	17.28	12.75	12.49	-45.41	-78%	381.34
will	191.96	320.95	97.72	112.7	113.29	98.89	70.96	77.28	76.76	80.48	70.92	63.15	85.04	70.15	61.51	-130.45	-68%	1,591.76
would	93.19	111.08	33.71	37.18	35.86	30	26.19	25.13	28.17	28.53	27.68	22.81	26.13	24.21	22.37	-70.82	-76%	572.24
TOT.PER MIL	570.28	876.21	277.66	319.61	309.70	259.34	204.78	217.13	236.71	231.63	198.34	169.38	211.11	177.94	153.11	-417.17	-73%	4,412.93

Table 7. Overall distribution of the nine central modal verbs from Singapore across the 15 months of Covid-19.

is the highest frequency in relation to all months and countries analyzed in this study.

From the results shown in Table 8, there are several increases in frequency of the nine central modals. As a group, the total average of modal verbs observed in the percentage column makes up 81%. The individual modals *might* (127%), *would* (97%), *could* (95%) and *will* (85%) are the only ones that surpass the overall average, whereas *can* (75%), *should* (63%), *must* (61%) and *may* (49%), with also also a considerable increase, are the less frequent with *shall* (7%). The most drastic increase is shown with *might*, which goes from over 97 tokens per million in January 2020 to more than 220 tokens per million in March 2021, but still far from the most frequent modal verb *will* (with more than 2,400 tokens per million words).

In comparison to Figure 8, the results shown in Figure 9 (representing UK) differ greatly. As we can observe, UK undergoes three main increases: spring 2020, summer 2020 and post-Christmas 2020. These three increases, once again, correlate pretty neatly with the two first waves reported in Iftimie *et al.* (2020) and the third speculated wave in post-Christmas. It is apparent that the highest increases (in comparison to their previous months) are shown in March and September 2020 and January 2021 with more than 300 tokens per million words in each month. Thus, these fluctuations do indeed reflect socio-political changes, and they are

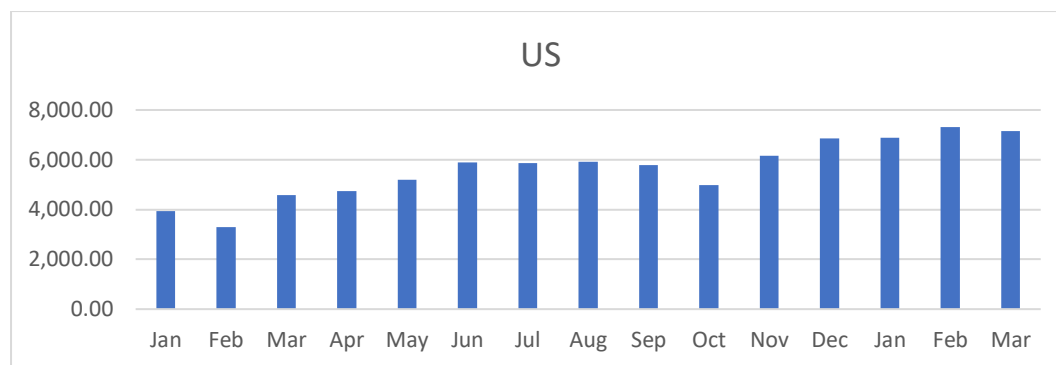


Figure 8. Overall distribution of the nine central modal verbs from US across the 15 months of Covid-19.

Modals/Months	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	diff.Jan20- Mar21	%Jan20- Mar21	TOT.PER. MIL
can	816.46	591.95	925.97	1,064.15	1,065.29	1,157.28	1,136.44	1,158.00	1,145.35	926.64	1,223.90	1,289.26	1,327.32	1,475.49	1,430.58	614.12	75%	16,724.08
could	398.08	371.87	355.22	432.06	493.4	605.5	607.04	621.45	629.67	566.55	686.05	749.05	723.46	812.3	775.03	376.95	95%	8,826.73
may	370.29	277.49	309.3	321.98	360.18	434.15	414.12	427.66	413.46	359.6	472.04	489.37	484.37	555.99	552.51	182.22	49%	6,242.51
might	97.41	104.73	109.91	129.21	147.69	181.31	180.67	186.32	184.03	165.87	213.99	223.71	213.03	249.23	220.8	123.39	127%	2,607.91
must	110.76	60.99	109.77	127.11	150.92	163.06	168.49	157.91	164.88	132.93	172.78	175.05	194.35	184.57	178.39	67.63	61%	2,251.96
shall	14.17	6.35	12.43	12.25	11.93	11.05	11.89	11.03	8.14	10.22	9.11	7.68	12.71	11.24	15.1	0.93	7%	165.30
should	285.69	232.99	290.15	299.84	324	364.97	372.74	369.29	374.15	328.55	384.31	442.13	444.58	496.25	465.85	180.16	63%	5,475.49
will	1,287.92	1,180.45	1,895.39	1,749.46	1,926.95	2,140.47	2,104.30	2,082.02	1,968.61	1,659.03	2,100.74	2,429.79	2,470.59	2,379.05	2,407.39	1109.47	85%	29,792.16
would	557.61	478.39	577.92	607.72	710.97	822.44	880.33	912.56	885.8	832.81	903.34	1,043.05	1,013.66	1,144.34	1,098.86	541.25	97%	12,469.80
TOT. PER MIL	3,948.39	3,305.21	4,586.06	4,733.78	5,191.33	5,880.23	5,876.02	5,926.24	5,774.09	4,982.20	6,166.26	6,849.09	6,884.07	7,308.46	7,144.51	3196.12	81%	84,555.94

Table 8. Overall distribution of the nine central modal verbs from US across the 15 months of Covid-19.

almost certainly dependent upon a highly complicated interplay of different social and cultural factors (Millar 2009, 213) such as Covid-19 (more of these social terms will be discussed in the next section).

From the results shown in Table 9, the overall average of the nine central modal verbs in the penultimate column appears to have increased with 66%. For individual modals, the modal verb *must* increases and, in fact, has the highest percentage with 160% in only a 15-month period of time. In addition, the second modal with the highest percentage is *should* (86%), which can also have the root deontic sense. With these two modals having a sense of obligation, even though one with a weaker sense and the other with a stronger one, we may deduce that both have gained considerable ground with the restrictive announcements of authorities during the period of Covid-19 in Britain. Nevertheless, *must* and *should* may also have an epistemic use, which means that they may not only be ascribed to a deontic sense. This is an interesting area for further inquiry.

In figure 10 (representing South Africa), the results differ from both US and UK (the other two countries that employed the mitigation strategy). In this case, South Africa exhibits two sharp increases in frequency: spring 2020 and post-Christmas 2020. The highest peak is seen

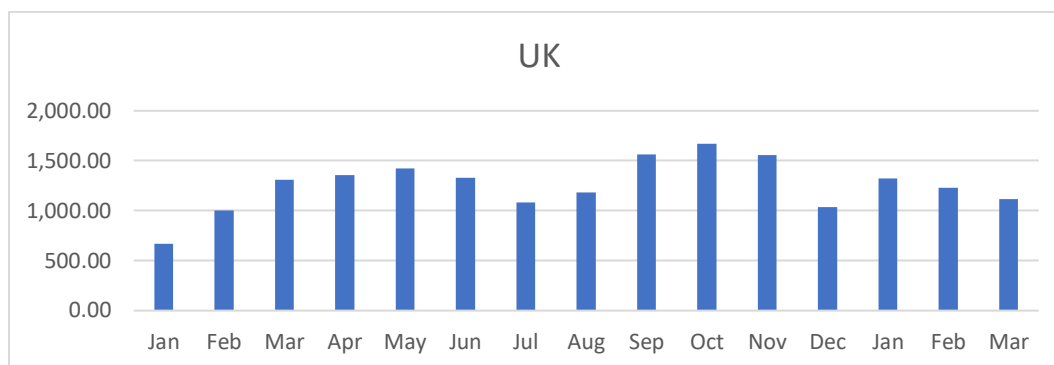


Figure 9. Overall distribution of the nine central modal verbs from UK across the 15 months of Covid-19.

Modals/Months	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	diff.Jan20- Mar21	%Jan20- Mar21	TOT.PER. MIL
can	144.41	165.72	262.45	295.92	300.47	268.9	222.24	255.47	334.45	332.1	314.61	217.47	276.86	263.46	223.09	78.68	54%	3,877.62
could	78.34	134.95	124.77	128.43	128.9	121.33	96.68	112.62	143.79	150.55	139.68	92.87	112.99	120.02	105.7	27.36	35%	1,791.62
may	56.4	81.96	106.24	111.66	107.03	99.3	81.81	89.08	111.37	166.5	106.63	68.48	85.2	84.31	83.78	27.38	49%	1,439.75
might	19.21	32.7	34.12	35.03	37.96	34.1	24.45	29.72	36.87	37.16	72.09	42.22	47.76	31.95	25.27	6.08	32%	540.61
must	12.4	20.63	35.89	49.2	50.77	46.58	36.52	38.31	64.45	65.44	48.6	31.57	50.7	37.02	32.25	19.85	160%	620.33
shall	2.32	2.48	5	3.91	3.49	5.25	3.11	3.67	5.1	8.23	3.88	1.67	2.02	2.17	2.47	0.15	6%	54.77
should	41.69	76.65	102.33	97.87	101.34	86.12	75.25	85.33	115.59	138.98	106.36	72.81	96.23	82.74	77.51	35.82	86%	1,356.80
will	237.46	351.65	478.61	459.91	506.88	502.36	408.69	423.88	563.78	565.64	567.59	378.16	496.75	448.92	420.49	183.03	77%	6,810.77
would	79.29	137.85	159.88	172.42	183.24	167.08	134.11	143.12	187.26	206.91	194.87	128.95	157.31	158.57	146.45	67.16	85%	2,357.31
TOT.PER MIL	671.52	1,004.59	1,309.29	1,354.35	1,420.08	1,331.02	1,082.86	1,181.20	1,562.66	1,671.51	1,554.31	1,034.20	1,325.82	1,229.16	1,117.01	445.49	68%	18,849.58

Table 9. Overall distribution of the nine central modal verbs from UK across the 15 months of Covid-19.

in April 2020 with more than 600 tokens per million words, and the second in January 2021 with more than 460 tokens per million words. Table 10, in turn, shows the percentage difference (between January 2020 and March 2021) of the nine central modals individually. Like in Table 9 (representing UK), *must* has the highest increase in frequency with 14% and is the only modal verb that increases, while all the rest show a decrease under 0%. The most pronounced falls are for *shall* (-44%), *might* (-41%), *can* (-40%), *may* (-38%) and *could* (-34%). The other modal verbs show a less extreme fall: *should* (-21%), *will* (-16%) and *would* (-7%).

Following the heat map pattern, those countries that simulated mitigation strategies exhibit changes in frequency different from those seen in the suppression strategy. While Tables 4, 5, 6 and 7 (representing the suppression strategy) show the dark green colour (sharp increase in frequency) in spring 2020, Tables 8, 9 and 10 (representing the mitigation strategy) show the dark green colour in post-Christmas 2020, summer 2020, and spring 2020 respectively. In contrast, the dark red colour (sharp increase in frequency) observed in the countries with the suppression strategy is shown in post-Christmas 2020, except for Table 6 (representing Malaysia) which shows it in summer 2020. As for the countries with the mitigation strategy,

the dark red is more distributed: February 2020 (Tables 8), January 2020 (Table 9) and March 2021 (Table 10).

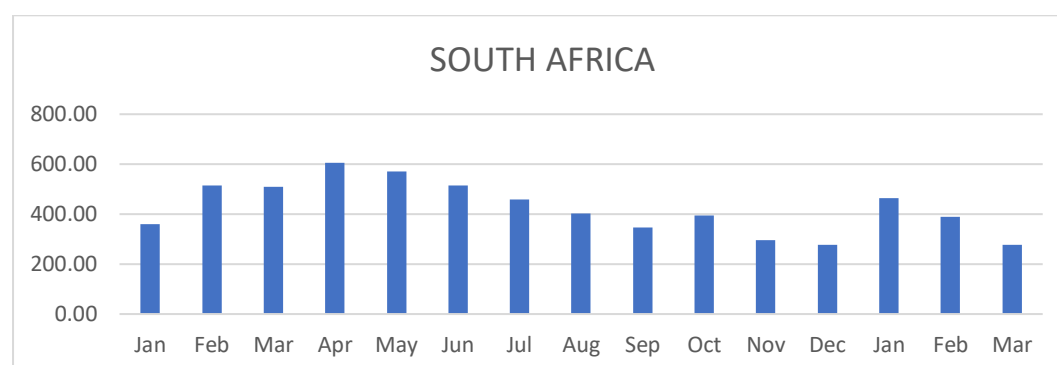


Figure 10. Overall distribution of the nine central modal verbs from South Africa across the 15 months of Covid-19.

Modals/Months	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	diff.Jan20- Mar21	%Jan20- Mar21	TOT.PER. MIL
can	81.06	91.48	84.69	108.09	103.48	94.73	88.44	78.09	67.42	73.91	56.79	51.34	76.91	65.46	48.98	-32.08	-40%	1,170.87
could	34.33	55.06	41.2	46.08	45.4	40.06	37.62	32.48	26.97	29.58	23.33	20.45	34.3	28.72	22.78	-11.55	-34%	518.36
may	27.11	42.43	36.1	42.9	40.31	40.34	35.9	31.69	26.37	30.65	21.73	20.37	30.74	27.77	16.83	-10.28	-38%	471.24
might	8.99	11.45	10.01	13.86	11.58	10.94	9.49	7.89	6.53	7.37	6.07	5.57	8.32	6.35	5.32	-3.67	-41%	129.74
must	12.94	18.97	22.8	34.17	35.48	31.21	27.07	24.12	19.96	20.71	14.33	14.33	24.08	23.17	14.79	1.85	14%	338.13
shall	0.82	0.9	1.83	2.06	1.29	1.59	0.99	0.73	1.22	1.14	0.39	0.87	0.85	0.89	0.46	-0.36	-44%	16.03
should	30.11	35.39	37.1	51.41	48.85	39.68	39.57	31.4	28.74	32.54	24.47	20.89	36.31	33.59	23.9	-6.21	-21%	513.95
will	124.38	184.14	214.01	230.6	208.88	193.8	159.51	145.55	128.46	148.47	112.71	109.43	188.5	155.69	104.98	-19.4	-16%	2,409.11
would	40.73	75.2	62.08	77.19	75.95	62.91	58.78	49.72	42.13	50.35	37.09	34.57	64.07	46.93	37.97	-2.76	-7%	815.67
TOT.PER.MIL	360.47	515.02	509.82	606.36	571.22	515.26	457.37	401.67	347.80	394.72	296.91	277.82	464.08	388.57	276.01	-84.46	-23%	6,383.10

Table 10. Overall distribution of the nine central modal verbs from South Africa across the 15 months of Covid-19.

5. Discussion and Conclusion

The results from the analyses of the Coronavirus Corpus show that changes in frequency of the nine central modal verbs appear to be similar for the countries that employed the suppression strategy, but not for those that developed the mitigation strategy. The following discussion focuses on possible explanations for both strategies with the explanatory hypothesis of democratization change during the period of Covid-19.

The mitigation strategy (representing US, UK and South Africa) and the suppression strategy (representing New Zealand, Australia, Malaysia and Singapore) show noticeable differences. For those countries that simulated the mitigation strategy, such developments vary over time, while the countries of suppression strategy do not vary. During the 15-month period the countries that employed the mitigation strategy have had more striking fluctuations of frequency from one season to another. To this I have no convincing answer, although I feel

that the kinds of fluctuations observed in the Coronavirus Corpus may evidence a process of democratization linked to the three waves seen in this paper.

The label democratization itself tends to be linked to social changes such as the global pandemic. The development of Covid-19 may have helped to influence an important impact on the democratic language use and language change in society. Thus, the process of becoming democratic to a greater or lesser degree may distribute the frequencies of the nine central modals, especially in both suppression and mitigation strategies. As we can see in Tables 4, 5, 6 and 7 (countries representing suppression strategy) the dark green colour is expanded mainly in spring 2020, which correlates pretty neatly with the first imposing restrictions of Covid-19. As for Tables 8, 9 and 10 (countries representing mitigation strategy), there are three variants: spring, summer and post-Christmas 2020. A possible explanation of these results may be due to the influence of how the expression of power and authority (new democratic language) may have changed over the last 15 months. Governments of the mitigation strategy may have included constant language changes initiated in spring 2020, and then in summer and post-Christmas 2020. That is, language change is claimed to be responsible for the increase and decline in frequency of the nine central modal verbs. For example, the “social aspect of keeping distance” may stop being democratic because linguistic democratization encompasses more markers than those related to social restrictive measures. Therefore, the vast majority of Western countries may have suffered the consequences of a second and third wave independently and took similar restrictive measures from the first wave.

In the case of UK, the deontic modals *must* and *should* show a considerable increase in the percentage column. While Miller (2009) displays a “substantial decline” in the frequency of *must* (204), the strong preference for *must* in BrE is plain here, when compared to the other varieties of English. The modal *must* has gained ground over other modals, which demonstrates that the use of language may be associated with the claims of power and authority, which is clearly a change of democratization. The notion of democratization of language may also be associated with South Africa, for the modal *must* is the highest in frequency. However, seems like the high-frequency of *must* is credited to the high-frequency of *moet/moes*, a corresponding cognate in Afrikaans (Wasserman and van Rooy 2014, 48). The constant contact between WSAfrE and Afrikaans is therefore a plausible factor for the high frequency of the modal *must*.

In sum, the contributions included in this issue provide a representative picture of language change. We may think that Covid-19 does reflect socio-political changes in linguistic form, that is, the power and authority of governments certainly increased the frequency in modals whether in the first, second or third wave across the 15-month period. Most governments had

to develop anti-Covid-19 strategies, which altered the frequency of modals. Hence, we believe that the most important conclusion of this work is that language use reflects what occurs in society, and changes in society precede language change (Loureiro-Porto and Hiltunen 2020, 216). The changes in language may not always be smooth and unidirectional but there may be evidenced in external events like Covid-19.

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