Reporting Trends in Sustainability and Climate Change Discourse:

A corpus study about reporting verbs in global news

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Term: AT23
Subject: English (Linguistics)
Level: Bachelor
Course code: 2EN10E
Abstract
In news reports, journalists often make references to what spokespersons from public organizations have announced. While doing so, reporting verbs are not an uncommon occurrence (Li, Zhao & Lou, 2023: 2). This study, analyzes reporting verbs that occur with either Greenpeace and WWF, also referred to as green organizations, or with British Petroleum and Exxon, also referred to as oil companies.

Over the years, the trends of reporting verb utilization have changed, turning more colloquial than before (Mair 1998: 153). A strong indicator of this is the increase of the verb say that is also one of the most common reporting verbs in this study. It should be noted that out of 22 266 verb occurrences, the verb say peaked at 13 808 (62.01 percent). The oil companies represented 47.18 percent of all the instances and the green organizations peaked at 52.82 percent.

Another noteworthy finding is the difference in reporting verb usage, where urgency verbs such as call and warn were more frequently occurring with the green organizations. The RVs that occurred with oil companies, on the other hand, were more neutral discourse verbs such as report, announce and say.

Keywords
Corpus, Linguistics, Reporting Verbs, Media, Metonymy, Quantitative Analysis, Qualitative Analysis

Thanks
First and foremost, I would like to thank my supervisor Magnus Levin for inspiring this paper with his previous research. Also, his support during my process has been incredible, thank you for providing me with such professionalism throughout this paper. Secondly, I would like to thank all of my supporting family members as well
as my wonderful friends. I would never have done this without their invaluable support.
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Abbreviations

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<th>RV</th>
<th>Reporting verb</th>
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<tbody>
<tr>
<td>WWF</td>
<td>World Wide Fund for Nature</td>
</tr>
<tr>
<td>BP</td>
<td>British Petroleum</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
</tr>
<tr>
<td>COCA</td>
<td>Corpus of Contemporary American English</td>
</tr>
<tr>
<td>NOW Corpus</td>
<td>News On the Web Corpus</td>
</tr>
<tr>
<td>GloWbE Corpus</td>
<td>Global Web-Based English Corpus</td>
</tr>
<tr>
<td>BrE</td>
<td>British English</td>
</tr>
<tr>
<td>AmE</td>
<td>American English</td>
</tr>
<tr>
<td>LC</td>
<td>Learner Corpus</td>
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<tr>
<td>EC</td>
<td>Expert Corpus</td>
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</table>
1 Introduction & aim

In media discourse, reporters may refer back to statements made by spokespersons of organizations in the public sphere. Thus, reporters attempt to mediate what a speaker communicates; it is essentially discourse that comes from another source than the writer that may occur in a reporting clause. In such reporting, the appearance of metonymic subjects, as shown in (1) and (2) below, could be prominent.

(1) Greenpeace said the treaty must have an immediate cap on plastic production.
    (NOW Corpus, Kenya, 2023)

(2) BP said it will be exporting large quantities of green hydrogen and ammonia by then. (NOW Corpus, New Zealand, 2023)

Lakoff & Johnson explain that human cognition has a systematic way of making referential connections in language. Accordingly, humans create cognitive pathways derived from real-world experience, also known as association. In (1) and (2), for example, the organizations are cited even if the statements most likely came from a spokesperson. These two examples, however, also show how metonymy posits organizations into living entities capable of communication (Lakoff & Johnson, 2003: 35–37).

Interestingly, when a journalist reports what a spokesperson from an organization announces, they may use reporting verbs. It has been repeatedly suggested that reporting verbs (RVs) alter the stance that a writer takes in a text, and, arguably some RVs could profoundly affect a reporting clause (Li, Zhao & Lou, 2023; Liardét & Black 2019; Hyland 2002). Liardét & Black (2019) show that reporting verbs have different functions in reporting clauses as they communicate a biased or neutral stance to the referent. Specific verbs have a particular semantic meaning. If, for instance, an author uses the verb warn in contrast to claim, the communicative message in the reporting clause changes. Notably, trends in RV usage could therefore display different types of bias as it displays the stance that a reporter may take (Liardét & Black, 2019: 37–38).

It is well-known that organizations such as Greenpeace and the World Wide Fund for Nature (henceforth WWF) argue that petroleum has been exacerbating global temperature rise. It is hypothesized that ubiquitous temperature rise originates from excessive consumption, production and industrialization (NASA, 2023). On the other hand, British
Petroleum PLC (henceforth BP) and Exxon were two of the major oil distributors in the world in 2023, with earnings reaching up to about $234 (Macrotrends, 2023a), and $355 billion USD respectively (Macrotrends, 2023b). Therefore it is reasonable to assume that these oil companies could be seen as adversaries, or at least as having conflicting interests, of Greenpeace and WWF.

The aim of this essay is to compare how verbs are used when reporters describe statements made by spokespersons from these two opposing organizations. To that end, the aim is to analyze how journalists utilize RVs to describe discourse, and how that may alter stance-taking in news reporting. The language data will come from the News on the web corpus (Davies, 2016). There will be one quantitative and one qualitative aspect of this essay. The quantitative aspect will cover the most frequent verbs, followed by a categorization of them and statistical analyses. The qualitative analyses will make it possible to analyze the different stances produced by the verbs. The metonymic entities chosen for this essay are the following: WWF, Greenpeace, British Petroleum and Exxon. This method was mainly inspired by Lindquist & Levin’s (2018: 111–136) study on metonymy.

These are the research questions that this paper will answer:

- Which are the most frequently occurring reporting verbs and, how do the reporting verbs affect the stance?
- What categories of verbs used as reporting verbs can be identified, and what are their corresponding frequencies?
- Are there any trends in reporting verb utilization between the oil companies and the green organizations, and why may they appear?

2 Theoretical background

This chapter starts with section 2.1 which addresses discursive stance in text. This is followed by section 2.2 which explains and defines what RVs are, also referring to a previous study by Liardét & Black (2019) on RVs and stance taking. The section also explains what colloquialization is and presents a framework on how to categorize RVs. Section 2.3 outlines a previous study on metonymy by Lindquist & Levin (2018), that also inspired the subject of this paper. Lastly, section 2.4 shows how the aim of the paper could be maintained by utilizing some of the global goals from the UN assembly.
2.1 Discursive stance in text and definition of stance

Iedema, Feez & White (1994) suggest that stance appears at the border between subjectivity and objectivity in a text. Moreover, they also state that news reporting can never be entirely objective: “The way events are observed, interpreted and reported will always be conditioned by the social background and ideological perspective of journalists, editors and management” (Iedema, Feez & White, 1994: 3). Malmström (2007) suggests that stance-taking appears when a writer has a certain value positioning when referring to another author. He suggests that stance can be found by analyzing explanatory elaborations, hedges, adjectives and RVs (for clarification see sections 3.3.6, 3.3.7, 3.3.8 and pages 77–79 in Malmström’s thesis). Instead Liardét & Black (2019) maintain that stance concerns a writer’s alignment and evaluation of the credibility of a cited source. They maintain that writers create “a tapestry of evidence and authorial stance, crafting an argument that appears objective but is largely biased by positioning, emphasis and omission” (Liardét & Black, 2019: 36–37).

In this research paper, I maintain that stance may be shown by all of these three perspectives. Arguably, stance towards a cited author could be manifested by the way writers express themselves in a text. This could be indicated by objective or subjective writing in a text or by emphasis, omission and alignment of a referred source. It could also be indicated by explanatory elaborations, adjectives, adverbs, hedging or choice of verbs.

2.2 Reporting verbs

Reporting verbs are frequently used when a writer refers to what another author has previously written or reported. This usually entails using either an integral or non-integral way of passing the information from a cited source. The former is the focus in this essay, which is why an explanation of the latter will be skipped. An integral source involves a direct or indirect speech reporting of information such as Greenpeace says that. However, in direct speech reporting the reporting clause would involve a citation with citations marks (Liardét & Black 2019: 38; Cambridge Dictionary, 2024b; Cambridge Dictionary 2024c). The definition of a reporting verb in this essay is therefore defined as when a verb is utilized to pass on information that comes from another source either directly or indirectly. In this essay, this includes spoken and written text (Cambridge Dictionary, 2024a).

Liardét & Black (2019) illustrate how undergraduate scholars of English and expert writers of English use RVs to construct intertextuality, critical analyses and application of their sources’ argumentation onto their own works differently. They compiled two corpora in order to analyze how writers’ attitudes are shown toward a referenced author, one learner
corpus (LC) and one expert corpus (EC). The LC population consisted of undergraduate assignments from English as a First Language (L1) and English as an Additional Language (EAL). The EC population consisted of research articles from expert articles from the top 20 rated journals (Liardét & Black, 2019: 41–43). They found that these two populations used RVs differently. The finalized verb list for the LC consisted of the following RVs, starting with the highest frequency verb: state, show, according to, find, suggest, reveal, argue, indicate, discuss and report. For the EC population there were some differences in usage. However, the top 3 RVs suggest, show and find and the sixth one argue were also in the LC population. Apart from those, the rest of the RVs were different. This is the entire EC list starting with the highest frequency verb: suggest, show, find, examine, focus, argue, use, provide, note and propose (for more exact numbers concerning the LC and EC verbs see Table 3 and 4 in Liardét & Black (2019: 43–48)).

As noted above, Liardét & Black (2019) find some differences in the use of RVs in academia. They note that the choice of RV creates a communicative bond with the readers. Since the two populations used them differently, they displayed patterns of stance-taking on integrated evidence in academic writing practices. The EC often presented another author’s research as highly “valid, compelling, plausible” (Liardét & Black, 2019: 44) by resorting to RVs such as find, show and provide, and the LC population mostly used RVs that adhered to the type called expand structure. This category includes verbs such as claim, describe and suggest. These types of verbs give their academic writing a vague stance. A few of the verbs from their study will also be explored (or brought up as examples) in this essay such as the RVs claim, report and find.

In this essay, there are frequent mentions of the term colloquialization. Therefore, it is important to define what colloquialization entails. To that end, this essay refers to Mair’s (1998) description of colloquialization, who describes it as an ongoing process of informalization or incorporating previously more formal writing procedures into informal ones. Colloquialization as such, could therefore be present in how someone decides to incorporate direct speech through the usage of colloquial verbs in writing. Mair’s definition of colloquialization is how it is perceived in the present study as well (Mair, 1998: 153).

In a previous study, Hyland (2002) describes a way of categorizing reporting verbs “to the type of activity they referred to” (Hyland, 2002: 118). He identifies three main categories: research acts, cognition acts and discourse acts. The first category, research acts, relates to verbs such as discover, notice, show, analyze, calculate and explore. The verbs in this category represent kinds of “experimental activities or actions carried out in the real world”
The second category, called *cognition acts*, relates to mental activities that take place within the mind of a person and includes verbs such as *believe, think, assume, suspect* and *consider*. Lastly, in *discourse acts*, the verbs relate to linguistic activities or research activities such as *discuss, report, state, say* or *hypothesize*. These three categories, however, have several subcategories as displayed by Hyland (2002: 119):

![Figure 1. Categorization table](attachment:image.png)

With this figure, Hyland argues that RVs can be categorized into sub-categories. As a result, this model was chosen for the present study. However, Hyland notes that categorizing RVs is a complex process since verbs could intersect with more than one of the definitions in the table depending on the interpreter. The method is therefore partly relying on subjectivity (Hyland, 2002: 118–119).

By looking at several researchers, such as Hyland (2002), Liardét & Black (2019), Jarkovská & Kučirková (2021), Huang (2022) and Li, Zhao & Lou (2023), they provide insightful perspectives on RVs in general. All these former studies played a crucial role in identifying what RVs are and how they appear in discourse. Liardét & Black, however, display some contradictions towards Hyland’s suggestion about the verb *find* as will be shown in section 4.

### 2.3 Metonymy, verb usage and metonymic subjects

While Lakoff & Johnson (2003) explain that metonyms can be used as referential devices between entities, they are also used to give an insight into real-time occurrences:

> Metonymy, on the other hand, has primarily a referential function, that is, it allows us to use one entity to stand for another. But metonymy is not merely a referential device. It also serves the function of providing understanding. (Lakoff & Johnson, 2003: 36)
They argue that metonymic categories are an integral part of our cognitive structures: “These sentences are not random. They are instances of certain general metonymic concepts in terms of which we organize our thoughts and actions” (Lakoff & Johnson, 2003: 39). However, Lakoff & Johnson show that metonymy is divided into different systematic concepts. In their book, they display seven different types. In this study, there are mainly two relevant ones called INSTITUTION FOR PEOPLE RESPONSIBLE and THE PLACE FOR THE INSTITUTION, as illustrated in (3) and (4) from Lakoff & Johnson (2003: 38–39):

(3) **Exxon** has raised its prices again.
(4) **The White House** isn’t saying anything.

Lindquist & Levin (2018) also conducted a study on metonymy, which was the main inspiration for this paper. They analyze different trends in verb utilization and metonymic subjects between BrE and AmE, both quantitatively and qualitatively. To that end, their study was mostly directed towards the AmE corpus, COCA, and the BrE corpus, GloWbE. Lindquist & Levin (2018: 131–133) show that one of the more common verbs that appeared after *Downing Street* and *White House* in GloWbE and COCA respectively, was *say*. This is also congruent with what Mair (1998: 153–154) has found in his study regarding an ongoing colloquialization in news reporting.

Lindquist & Levin show that metonymic language may refer to specific places or people in power differently. Take the following three examples for instance (Lindquist & Levin, 2018: 130–132).

(5) You know that I met the president in the **White House**.
(6) **The White House** says the Obamacare web site will be running smoothly by the end of next week.
(7) And that’s why McCain says he’s determined to change the way **Washington** works and reduce the flood of money that pour into political campaigns

With these three examples, Lindquist & Levin show what metonymy is and when a statement should not count as a metonymic statement. In (5), for instance, the example does not illustrate a metonymic statement since the **White House** is referred to in a literal sense. In (6), however, it is a metonymy since the **White House** refers to the president or a spokesperson.
Even if (6) and (7) may look similar at first glance, in (7), \textit{Washington} refers to a broader political context, not only to the president in the White House as it does in (6).

\subsection*{2.4 The 2030 Agenda and definition of sustainability and climate change discourse}

This essay uses the United Nations (UN) sustainability goals as a framework. In short, it was chosen because it displays the assembly’s perception of sustainability and climate change. There are currently 193 member states in its assembly (UN 2023). This assembly created an initiative called the 2030 Agenda with 178 part-taking countries (UN, no date). The 2030 Agenda was created by the members of the UN and has 17 goals. This initiative is supposed to aid processes working against unsustainable fossil fuels, poverty, hunger, general poor societal conditions and unclean water, to name a few. Overall, the agenda is supposed to empower responsible consumption, promote a sustainable world and improve equality between genders, countries and social classes (The Global Goals, no date). Of these 17 goals, six were deemed as being relevant to the aim of this essay. There are short descriptions of the chosen goals, as displayed in Table 1. The function of this framework was to operationalize the goals of the 2030. As such, when manual searches in the corpus were made, this framework made it possible to either accept or disregard instances in the NOW corpus.

\begin{table}[h]
\centering
\begin{tabular}{|l|l|}
\hline
\textbf{The goals} & \textbf{Short description / Operational indicator} \\
\hline
1. Responsible consumption and production & Promotion of production in ways that could reverse the harmful effects of industrialization. Implement frameworks that will aid developing countries. Encourage recycling and sustainability. \\
\hline
2. Life on land & Protecting and restoring sustainable solutions for an alive ecosystem, is the focal point. Less deforestation and biodiversity in natural habitats. Combat trafficking of protected species on a global level. \\
\hline
3. Life below water & Protect and restore the ecosystems from pollution, promotion of sustainable sea laws, small scale fishers, economic benefits from sustainable sources, and combat overfishing. \\
\hline
4. Clean water and sanitation. & Safe and affordable drinking water with improved quality, putting restrictions on pollution by hazardous chemicals. \\
\hline
\end{tabular}
\caption{Delimitation of the 17 sustainability goals.}
\end{table}
Below are two examples that were manually selected from the NOW corpus.

(8) The WWF says climate change is increasingly becoming a major threat to habitats and ecosystems (Great Britain, 2022)
(9) WWF calls for crack down on' tiger farms' Close all tiger farms, (Ireland, 2016)

In (8), for instance, goals two, three and six apply as it attempts to create awareness concerning the effect of climate change and on habitats and ecosystems (arguably both life on land and water could be viewed as different habitats in the ecosystem). In (9), goal number 2 applies because it refers to inhumane tiger farms. However, this framework will not be presented again as its sole purpose is to display how instances were selected from the corpus.

3 Material & Method

3.1 Material

The chosen material is from a corpus that was compiled from news on the web, namely, the NOW corpus. However, it is important to bear in mind that changing corpus may lead to different conclusions due to its international context with language samples from 20 different English-speaking countries. As such, this investigation is focusing on trends concerning metonymy use in global English. However, using a geographically specific corpus, such as an American or British one, may give other results.

Furthermore, the six global sustainability goals were taken from The Global Goals website (No date). The goals were used in order to manually find statements relating to sustainability and climate change discourse. Arguably, there are probably different perspectives on sustainability apart from the labeling by the UN assembly, and some may have a completely different view of sustainability and climate change discourse. Also, the six
goals were chosen by the present author, which could arguably be seen as subjective since that governs the focus, and the outcome of the findings.

Due to the specificity of the investigated RVs, the findings in this essay should only be affiliated to news reports and should not be used to generalize outside of that context. Another set of verbs would display completely different meanings inside the statements.

A corpus may be useful for a plethora of research purposes because it enables research about language variation, vocabulary or phraseology, to name a few (Lindquist & Levin, 2018: passim). However, as with most methods, corpus linguistics may have some disadvantages too. Semino & Short (2004) note that corpus linguistics has been criticized because it can only account for a limited part of language. They bring forth an important notion: Although a larger database makes it possible to draw statistically significant conclusions, corpus research cannot account for all cases of language use; rather it stands for a sample from a specific context (Semino & Short, 2004: 5–9).

The corpus used in this essay consists of 18.2 billion words covering news on the web since 2010 up until the present day. The corpus was chosen due to accessibility, relevance and quantity of words and because it covers English utilization from 20 countries. By looking at a larger database of language, it is possible to analyze and obtain more material faster. It also makes it possible to calculate statistical significance (Lindquist & Levin, 2018: 36–40).

3.2 Method

First and foremost, this essay combines qualitative and quantitative methods, making the method a mixed-method. Secondly, in attempting to find the most frequent verbs, the method consisted of corpus searches of collocates in the NOW corpus. A collocate is a word that occurs after another word. When, for example, +1 is chosen, the written collocate occurs directly after the word written in the main search field, on the other hand if -1 is chosen it occurs directly before. In this paper +4 was chosen as sentence structures could look different with different tenses, allowing for a more broader acquisition of, for example, present participles in a progressive form, which is also crucial if an entire lemma should be investigated (Lindquist & Levin, 2018: 74).

Thirdly, a lemma is the base form of a word, also known as the root, meaning that the suffixes are removed when a lemma is presented. As such, all the occurrences of a verb, for example, say, says, saying and said are included in the lemma say (Lindquist & Levin, 2018: 53). The most frequent verb lemmas were counted separately and added into tables under either oil companies or green organizations. Therefore, the verbs included in this study are
based on two factors; on the one hand, how frequent they were and, on the other hand, to get a variation of meaning in the statements since words can have different semantic meanings.

Another feature in the method was the utilization of pos-tags. A pos-tagged corpus makes it possible to choose specific word classes, and inserting the pos-tag verb.ALL into the POS field displays the most frequent verbs (Lindquist & Levin, 2018: 44–47). Suffice to say that this was employed in this essay. As for statistical significance tests, log likelihood-tests were made on this website: http://corpora.lancs.ac.uk/sigtest/. Some percentages were counted from the whole sum of all lemmas which, at first peaked at 29003 occurrences, but after removing instances of mistagging the number landed at 22 266 (see section 4.3). The percentages were calculated by taking the number of findings of one category, e.g. discourse acts verbs. Dividing it with 22 266 displays the percentages in decimal form. Then, once multiplied with 100 the actual percentages appear.

This essay uses a framework from Hyland (2002: 118, see Figure 1 in this paper) to categorize occurring RVs in the present study:

- **Research / real world acts**: These verbs represent experimental activities or actions carried out in the real world.
- **Cognition acts**: These verbs relate to mental processes and how they are described in a positive, neutral or negative way.
- **Discourse acts**: These verbs relate to verbal expressions.

First of all, only some of the sub-categories were found. As such, there is no need to explain all of them. What is crucial are the three main categories shown above. However, for clarification some of them will be briefly explained below.

*Factive verbs* are used to acknowledge a referent’s conclusions. *Non-factive verbs*, however, relate to verbs that are more neutral in their attitudinal stance. *Procedural verbs* are related to a kind of scientific process such as the verb *analyze*. *Positive cognition verbs* are verbs that portray mental processes with a positive attitude. *Tentative verbs* are used when an author is less certain (*believe, doubt, speculate* etc.). *Neutral cognition verbs*, however, are verbs that communicate a neutral attitude. The *assurance verbs* in *discourse acts*, on the contrary, introduce citations in a more positive way, whereas *counter verbs* are “taken to be the cited author’s own reservations or objections to the correctness of the reported message” (Hyland, 2002: 121). Some subcategories were excluded because they do not appear in my material, namely: *critical verbs in cognition acts, counter-factive in research / real world acts* and *tentative verbs in discourse acts*. It should be noted that *non-factive verbs* are the same in both *research / real world acts* and *discourse acts*, which is why it was included.
4 Results and discussion

The following sections contain all the findings for WWF, Greenpeace, BP and Exxon respectively. All of the tables in the following sections are statistically significant with a p-value <0.0001 for each table. It should be noted that several verbs were removed as they did not fit into the description that constitutes a RV. As a result, the following verbs were removed: spill, fall, pay, cut, make, release and work. These occurred in the context of either environmental, revenue or industrial processes. All of the instances in the qualitative analysis section were taken from the NOW corpus, and the parentheses display the country and the year of its publication. The conclusions concerning the qualitative analyses of stance that the reporters took in this research were made possible by Liardét & Black (2019), Malmström (2007) and Iedema, Feez & White (1994). My own interpretation in juxtaposition with their research also made it possible to analyze specific stances of reporting verbs. Hyland (2002) mostly contributed to the categorization process.

4.1 Green organizations

The pilot study phase of this essay included searching for the most common verbs with the WWF and Greenpeace as metonymic subjects. For WWF, the top three verbs were say, find and call, whereas the top three verbs for Greenpeace were say, welcome and call. The verb say is neutral in stance which is common in media discourse (Li, Zhao & Lou, 2023: 2). The same is true for the verb tell. Liardét & Black (2019:44–46) suggest that find is not neutral in stance as it suggests an agreement with the referent, making it a factive verb, and that say and report are attitude free. Hyland (2002: 119), however, describes it as a non-factive verb which suggests that it does not agree with the referent, but rather that it is a neutral verb. The verbs welcome and call are also different as welcome has a more positive stance and is, as a result, less neutral whereas call (for) is a non-factive discourse act verb as it conveys that the referent attempts to appeal for some urgent action. Below is a table that displays the total number of the RVs from both organizations.
Table 2. The frequency of the RVs that occurred with WWF and the Greenpeace in the NOW corpus.

<table>
<thead>
<tr>
<th>Verb lemmas</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAY</td>
<td>7754</td>
</tr>
<tr>
<td>CALL</td>
<td>1415</td>
</tr>
<tr>
<td>WELCOME</td>
<td>767</td>
</tr>
<tr>
<td>FIND</td>
<td>619</td>
</tr>
<tr>
<td>TELL</td>
<td>593</td>
</tr>
<tr>
<td>WARN</td>
<td>434</td>
</tr>
<tr>
<td>ESTIMATE</td>
<td>180</td>
</tr>
</tbody>
</table>

The verbs that appeared after Greenpeace peaked at 8348 occurrences, and the verbs that appeared after WWF peaked at only 3414 occurrences. One difference between WWF and Greenpeace was that estimate only occurred after WWF, whereas welcome only occurred after Greenpeace. Another aspect is that the findings for Greenpeace were generally much higher in frequency. This indicates that Greenpeace seems to be occurring much more frequently in the NOW corpus.

The lemma SAY was the most common one with 2272 instances with WWF and 5482 with Greenpeace. Since there was no other lemma that came close to this one, it means that a colloquial neutral stance was the most common stance that reporters took as they reported about the green organizations. These findings correlate with findings made by Mair (1998: 153–154) regarding the uprise of colloquial reporting. It also correlates with Lindquist & Levin’s (2018) study as they also find that SAY is one of the more common verbs in the COCA and GloWbE corpora after the two metonymic subjects White House and Downing Street.

As for the qualitative analyses, five different lemmas were chosen, namely, say, call, warn, tell and find. As previously mentioned, the verbs in the qualitative analysis were chosen to get a variation of meaning in the statements, and based on high frequency. Take the contrasts between say, call and warn, for example. These verbs increase or decrease the level
of urgency and change the stance of both the reporter as well as the metonymic subject in the text.

(10) The WWF says unsustainable groundwater extraction is a critical risk to water resources (South Africa, 2021)

(11) Greenpeace says Gazprom - the world's largest gas company - risks causing a catastrophic oil spill (Australia, 2013)

(12) Greenpeace calls for EU ban on fossil fuel ads and sponsorships (India, 2021)

(13) WWF calls on nations to adopt a legally binding global treaty against plastic pollution (Great Britain, 2022)

(14) Environmental group WWF warns that oil spill response capabilities in the Arctic remain very limited (Canada, 2018)

(15) Greenpeace warns of increased bleaching of corals at Great Barrier Reef (India, 2021)

Regressing warns with says in (14) and (15) would profoundly affect the reporting clause and the stance of both the organization and the reporter. According to Liardet & Black (2019: 41) say is a neutral verb, and arguably, both say and call are neutral. However, in (12) and (13) call for/on communicates a more urgent message than say in (10) and (11); even if they are about urgent climate issues. The urgency in example (11), however, is enhanced by the adjective catastrophic. Furthermore, the verb call could be interpreted as a shout as in call for help, or a desire for some urgent action to be taken whereas saying something is less exclaiming. With this comparison in mind, the neutrality in say is conspicuous when compared to both call and warn. Even if call also displays a great deal of urgency, it is still slightly less biased and imminent than warn. With that said, if (11), (13) and (15) are compared, the stance and urgency is profoundly affected by the choice RVs. Thus, the metonymic subject is affected by the writer’s choice of describing the statements from the organizations with different RVs.

But what about the verbs tell and find? As suggested by Li, Zhao & Lou (2023: 2), tell is a neutral RV. However, Liardet & Black (2019: 44–46) suggest that find is not neutral. In fact, it displays agreement, in contrast Hyland (2002: 119) disagrees.

(16) Greenpeace Tells Big Oil To Stay Clear Of Congo’s Carbon Bomb (New Zealand, 2022).

(17) WWF told CNN that it did not believe the marketing of fake or synthetic horn would reduce levels of rhino poaching (Canada, 2019).
(18) The WWF *estimates* 97 million sharks are now accidentally caught annually due to non-selective fishing techniques (Ireland, 2022).

(19) Greenpeace *estimates* there are 12.7 million tonnes of plastic in our oceans (Ireland, 2023).

(20) WWF, however, *finds* addressing the social inequality and environment degradation as best remedy (India, 2016).

(21) Last year, Greenpeace *found* hazardous chemical pollutants in fish areas in southern Turkey (Great Britain, 2022).

The two RVs *tell* and *find* are more neutral verbs than *warn* and *call*; the usage of these RVs do not only portray the stance of the metonymic subject differently but also the reporter. The verb *find*, however, is categorized as *non-factive* by Hyland (2002: 119), and as *factive* by Liardét & Black (2019: 44–46). In this study it is deemed as a *factive verb*. As a result, *find* in (20) and (21) refers to the authors’ agreements on the findings that Greenpeace made in their research process. If a reporter would not agree, *find* would arguably be replaced with something like *claims to have found*. In contrast, *estimate* in (18) and (19) is less certain than the verb *find*. As such, the RVs provide different stances, which becomes rather prominent once these verbs are juxtaposed. In (16) and (17), for example, *tell* is similar to the vague attitudinal verbs *say* and *report*, not only expressing a neutral stance but also having a colloquial effect. It is also less urgent than the urgency RVs *warn* and *call*.

In conclusion, this analysis displays a colloquialization trend indicated by the verbs *say* and *tell*, as Mair (1998: 153–154) previously has shown. The verb *say* also appeared in Lindquist & Levin’s (2018: 111–136) study in two out of three of their metonymic subjects. However, the increase of *say* in this study means that it is frequent on a global scale as well, not only in British or American English as shown by Lindquist & Levin. Another interesting aspect is the occurrence of the urgency verbs *call* and *warn*.

### 4.2 Oil companies

The table below was created by analyzing the top ten occurring verbs with BP and Exxon as metonymic subjects, and then adding the two lists together. However, the list shrunk to eight RVs as some of the verbs were classified as not being RVs. The top three RVs were *say*, *report* and *announce*. 

---

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Table 3. The frequency of the lemmatized RVs that occurred with BP and Exxon in the NOW corpus.

<table>
<thead>
<tr>
<th>Verb lemmas</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAY</td>
<td>6054</td>
</tr>
<tr>
<td>REPORT</td>
<td>1272</td>
</tr>
<tr>
<td>ANNOUNCE</td>
<td>1236</td>
</tr>
<tr>
<td>USE</td>
<td>728</td>
</tr>
<tr>
<td>AGREE</td>
<td>418</td>
</tr>
<tr>
<td>TAKE</td>
<td>337</td>
</tr>
<tr>
<td>KNOW</td>
<td>287</td>
</tr>
<tr>
<td>DECLINE</td>
<td>182</td>
</tr>
</tbody>
</table>

In total, Exxon covered 3341 of all instances, whereas BP covered 7163. The lemma SAY is by far the most common lemma with 4247 occurrences with BP and 1807 with Exxon. In total SAY occurred 6054 times, meaning 1700 times less in comparison to the 7754 times for the green organizations. Since there were no other lemmas that came close to this one, it means that a colloquial and neutral stance is by far the most common stance that reporters took as they referred to these companies. This indicates once again that Mair (1998: 153–154) was right about an ongoing colloquialization. The second lemma with the highest frequency is REPORT at 1272 occurrences followed by ANNOUNCE with 1232. Apart from say, there were no other recurring RVs in comparison to the green organizations. The RVs chosen for a qualitative analysis are agree, know, report and announce exemplified below:

(22) LONDON BP agreed on Wednesday to buy Clean Energy Fuels Corp’s biomethane business (Singapore, 2017)

(23) Exxon knew of the possible catastrophic impacts of global heating and the greenhouse effect. (Canada, 2020)

(24) BP reported a 6% decline in global carbon dioxide from 2019 to 2021 (United States, 2022)
(25) The CPChem and Exxon facilities reported an average of roughly one illegally large pollution incident per month (United States, 2023)

(26) In 2021, Exxon announced that it intended to reduce greenhouse gas emissions from its upstream operations (Canada, 2022)

(27) British giant BP announced it was scaling back its climate goals after reporting record annual profits (United States, 2023)

Both agree in (22) and know in (23) are cognition act verbs. Nonetheless, they are slightly different as (22) communicates a more positive mental process compared to knew in (23), at least in this particular context. The verb know in (23) is itself somewhat neutral as it only conveys the information that Exxon had at a given point in time. The negative meaning of the statement is enhanced by the adjective phrase catastrophic (impacts). Thus, the boosting word catastrophic gives the reporting clause a negative effect since catastrophes usually relate to horrible events, unless it is used ironically. If the verb know stands on its own its neutrality becomes more prominent. If the same is done for the positive cognition verb, i.e. agree, it somewhat shows a positivity or acknowledgement of what the verb refers to in the following or preceding clauses. Interestingly, both of these examples are mostly profoundly different due to the explanations that appear after the verbs. However, Iedema, Feez and White (1994: 28) argue that cognition verbs create a subjective stance, as they indicate a speculative knowledge statement of a cited source’s mental process, a point which I agree with. Perhaps, that is why they are used so sparsely as RVs.

As for the statements in (24) and (25), the verb report is used to objectively convey some kind of data. In contrast to (26) and (27), there is a change of stance as announce is non-factive whereas report is factive, and utilizing factive verbs gives the statement a completely different communicative engagement with the readers as it is more objective (Hyland, 2002: 121). Generally speaking, report was almost solely used for the purpose of conveying data, which relates it to occurrences that are more factive in nature. An announcement is, however, more formal than say, but announcements referred to a variation of metonymic subjects whereas report did not.

In order to highlight some variation of meaning, the next set of verbs to be exemplified and contrasted are agree, know, report, announce, decline and say.

(28) BP agreed to pay a $40 million penalty and spend almost $200 million on environmental controls (United States, 2023).
(29) Exxon knew that carbon based fuel was causing global warming. (Australia, 2023)

(30) Exxon declined to comment on its climate lobbying disclosures (United States, 2021).

(31) On Thursday, Exxon reported a 46% decline in earnings in the first quarter (United States, 2016).

(32) On Tuesday morning, BP announced plans to cut oil-and-gas production by 2030 (United States, 2020).

(33) BP said it would strive to reduce the carbon intensity of its oil and gas production (United States, 2020).

(34) Exxon said it would abandon its efforts to make biofuels from algae (United States, 2023).

In both (28) and (29), the verbs are cognition act verbs where (28) is about a legal dispute and (29) displays that Exxon had some kind of collective knowledge about carbon based fuels’ effect on the climate. Iedema, Feez and White (1994: 28) argue that cognition verbs such as know show that a journalist presumes what the reported source is thinking. Notably, without real evidence to back up such a statement, the knowledge statement in the reporting clause becomes speculative and severely affects a reporter’s objective stance. The framing of knowledge in this way could thus display some kind of bias unless background knowledge is provided in the preceding or exceeding sentences of the news report. Therefore, using the verb know in a reporting clause should be done with caution, otherwise the statement becomes biased and less objective.

In contrast, decline in (30) is used to objectively describe that Exxon is avoiding acknowledging something. But take (31), for instance, where report and decline occur in the same sentence. Notably, decline was rather about decline in revenue but when the verb is in past-tense, it is also a refusal to comment on something. Thus, it displays that decline was also a noun which made the categorization of the RV decline problematic. Even if (31) is a slight digression from the sustainability topic, it nonetheless displays an interesting phenomenon in discursive stance-taking in statements with data reports. Statements such as (31) and (32) are common impartial statements in journalism. Iedema, Feez and White (1994: 27) suggest that such statements are traditional journalism stances as they are viewed as impartial and objective. It should be noted that they are both reporting about data, revenue and some kind of reduction. I argue that it is hard to take a discursive stance when speaking
of numbers if modal verbs, hedges and boosting adjectives are missing, which Malmström (2007: passim) also pointed out when discussing discursive stances in academic writing.

iedema, Feez and White (1994: 6) suggest that modal verbs display subjectivity, and Malmström (2007: 83–84) suggests that they show the author’s voice rather than the cited source. If (33) and (34) are contrasted with one another, the verb say followed by would somewhat highlights a belief towards the statement. For instance, if say is replaced by the verb claim and would is replaced by may – it would change the meaning entirely and the stance towards the statement.

As observable by the verb say, a colloquialization trend is also prominent here. Another interesting point is the difference in usage of the urgency verbs such as call and warn, which got replaced by verbs such as announce, report, procedural verbs and by the cognition act verbs know and agree. As such, there is a slight difference in stance-taking as cognition verbs show a subjective stance. However, there are also somewhat less colloquial verbs such as report and announce in the corpus material. In the next section, an analysis of the different categories will be carried out where the two sides of the chosen organizations are contrasted.

4.3 Comparative clarifications of the categorizations and frequency

In this part, a total of 10 instances of the lemma DECLINE were removed from Exxon because they were mistagged. Also, several verbs were removed as they were not classified as RVs. After the removal of these verbs, the total number of verbs peaked at 22 266 which the presented percentages below are based on. As such, it was a measure to ensure accurate categorizations, and serves as a reminder for the polysemous aspect of language and the difficulties it poses in studies like this. A few instances of decline were removed from Exxon, make was removed from BP and spill was removed from both; the total number of verbs landed at 22 266. All presented percentages are based on the total number of 22 266 verbs.

Each verb was inserted into the different categories with Hyland’s (2002: 118–119) method. However, he argued that the method has some flaws because some verbs may belong to more than one category depending on the researcher (Ibid). In table 4 below all the instances of each verb and their respective categorization are displayed. The table compares how the green organizations and the oil companies utilized verbs, so the presented verbs are a fusion of all the lemmatized findings for each side of the dichotomy. So, if a lemma was present in both green organizations, it was still included and counted in the same category on the left side of the table. The same applies for oil companies on the right side of the table.
Table 4. Comparison of the categories of RVs and their identification

<table>
<thead>
<tr>
<th>WWF &amp; Greenpeace</th>
<th>BP &amp; Exxon</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Research / real world acts</strong></td>
<td></td>
</tr>
<tr>
<td>2. <em>factive</em>: Find (619)</td>
<td>Research / real world acts</td>
</tr>
<tr>
<td><strong>Total</strong>: 619 (2.78%)</td>
<td>1. <em>Procedural</em>: Take (337), Use (728)</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong>: 1065 (4.78%)</td>
</tr>
<tr>
<td><strong>Factive total</strong>: 619 (2.78%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Procedural total</strong>: 1065 (4.78%)</td>
</tr>
<tr>
<td><strong>Cognition acts</strong></td>
<td></td>
</tr>
<tr>
<td><em>Tentative</em>: Estimate (180)</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong>: 180 (0.81%)</td>
<td><strong>Positive total</strong>: 418 (1.88%)</td>
</tr>
<tr>
<td></td>
<td><strong>Neutral total</strong>: 287 (1.29%)</td>
</tr>
<tr>
<td><strong>Tentative total</strong>: 180 (0.81%)</td>
<td></td>
</tr>
<tr>
<td><strong>Cognition acts</strong></td>
<td></td>
</tr>
<tr>
<td><em>Positive</em>: Agree (418)</td>
<td></td>
</tr>
<tr>
<td><strong>Neutral</strong>: Know (287)</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong>: 705 (3.17%)</td>
<td></td>
</tr>
<tr>
<td><strong>Positive total</strong>: 418 (1.88%)</td>
<td></td>
</tr>
<tr>
<td><strong>Neutral total</strong>: 287 (1.29%)</td>
<td></td>
</tr>
<tr>
<td><strong>Discourse acts</strong></td>
<td></td>
</tr>
<tr>
<td><em>Assurance</em>: Welcome (767)</td>
<td></td>
</tr>
<tr>
<td><em>Non-factive</em>: Say (7754), Tell (593), Call (1415)</td>
<td></td>
</tr>
<tr>
<td><em>Counters</em>: Warn (434)</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong>: 10963 (49.23%)</td>
<td></td>
</tr>
<tr>
<td><strong>Assurance total</strong>: 767 (3.44%)</td>
<td></td>
</tr>
<tr>
<td><strong>Non-factive total</strong>: 9762 (43.84%)</td>
<td></td>
</tr>
<tr>
<td><strong>Counter total</strong>: 434 (1.95%)</td>
<td></td>
</tr>
<tr>
<td><strong>Discourse acts</strong></td>
<td></td>
</tr>
<tr>
<td><em>Factive</em>: Report (1272)</td>
<td></td>
</tr>
<tr>
<td><em>Non-factive</em>: Announce (1236), Say (6054)</td>
<td></td>
</tr>
<tr>
<td><em>Counters</em>: Decline (172)</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong>: 8734 (39.23%)</td>
<td></td>
</tr>
<tr>
<td><strong>Factive total</strong>: 1272 (5.71%)</td>
<td></td>
</tr>
<tr>
<td><strong>Non-factive total</strong>: 7290 (32.74%)</td>
<td></td>
</tr>
<tr>
<td><strong>Counter total</strong>: 172 (0.77%)</td>
<td></td>
</tr>
<tr>
<td><strong>Total verbs</strong>: 11 762 (52.82% out of 22 266)</td>
<td><strong>Total verbs</strong>: 10 504 (47.18% out of 22 266)</td>
</tr>
</tbody>
</table>

As Table 4 indicates, the oil companies landed at 10 504 instances, the green organizations amounting to 11 762. Thus, the oil companies represented 47.18 percent of all the instances, whereas the green organizations reached 52.82 percent. The green organizations had a higher number of percentages in discourse act verbs with 49.23 percent in comparison to 39.23 percent. However, the oil companies stood out with 4.78 percent procedural verbs compared to 2.78 percent, unsurprisingly since oil companies have different production procedures in
comparison to green organizations. It should be noted that several of the verbs found in the pilot study phase were removed. Almost all of those were procedural verbs, which indicates that the companies are more prone to variations of industrial or revenue related processes. The category with the lowest frequency was cognition act verbs at 3.98 percent, where the oil companies covered 3.17 percent in contrast to 0.81 percent. The most common category was thus discourse act verbs followed by research / real world act verbs and cognition act verbs.

These findings are somewhat similar to Hyland’s study on reporting verbs in academic papers. He found that 57 percent were discourse act verbs, and 45 percent were research / real world act verbs. The last category was cognition act verbs at 8 percent (Hyland, 2002: 121). The absence of cognition act verbs might be because of the lack of objective stance that cognition verbs have as Iedema, Feez & White (1994: 28) explain, and too subjective reporting seems to be unwanted in media (Li, Zhao & Lou, 2023: 02). In comparison, those who reported about the green organizations mostly used verbs such as find, call and warn that usually related to some kind of data report or critical analysis of environmental hazards. Reporting about the oil companies instead mostly related to revenue or industrial procedures, as indicated by the verb report. Apart from those, the more colloquial verbs say and tell were used to report as well.

The usage of verbs in the discourse act verbs category between the two sides of the dichotomy is conspicuous as verbs such as say, warn, call, welcome and tell occurred with the green organizations. Notably, the verbs used in juxtaposition with the oil companies were say, report, announce and use. This indicates that the verbs used after the oil companies are less urgent and more neutral than the urgency verbs such as warn and call.

5 Conclusions

By following the aim of this essay, some trends of reporting were found. For example, when journalists wrote about the oil companies, as apposed to the green organizations, the RVs changed. The most frequent RV was say which peaked at 13 808 instances. The following verbs with the highest frequency were call at 1415 occurrences, report at 1272 occurrences and announce with 1236. These were also statistically significant with a <0.0001 p-value. Notably, these findings correlate with what Mair (1998: 153–154) notes regarding an ongoing colloquialization with the verb say as an uprising trend. However, in the present study the colloquialization is also indicated by the informal verb tell. The verb say also appeared as a high frequency verb in Lindquist & Levin’s (2018: 111–136) and Li, Zhao & Lou’s (2023: 5)
research, which suggests that *say* is a recurring reporting verb even in geographically specific corpora, not only in a global setting.

Secondly, the aim was to analyze the different categories of verbs and their corresponding frequency. To that end, it should be noted that verbs from all three categories were found (*research act verbs*, *cognition act verbs* and *discourse act verbs*). The most common category was *discourse act verbs* that covered 88.46 percent with 19697 out of 22,266 instances. In second place came *research / real world act verbs* at 7.56 percent with 1684 instances, where the oil companies were more recurrent. This was indicated with difference in the usage of *procedural verbs*, a category where the green organizations only covered 2.78 percent in comparison to 4.78 percent. It should be borne in mind that there were more *procedural verbs* occurring with the oil companies that did not count as RVs. The last category was *cognition act verbs* at 3.98 percent with 885 instances with oil companies covering 3.17 percent of the instances.

The difference in usage is partly because of the context in which the organizations / companies exist. The procedural verbs indicate different types of ongoing processes in the working industry such as cutting down on employees, and successful or failing investments. In contrast, the urgent calls for environmental aid appeared with the green organizations, indicated by verbs such as *warn* and *call*. Interestingly, the green organizations rarely occurred with *cognition act verbs*, but they were slightly more common with the oil companies as subjects. On the one hand, the usage of different verbs seemed to appear because the organizations made urgent calls or warnings regarding pressing climate issues. On the other hand, the usage of *factive* and *procedural verbs* could be causally linked to the industrial procedures and reports about revenues that occurs within oil companies due to the production of goods and fluctuations in stocks.

Furthermore, as was shown with the help of Liardét & Black (2019) and Hyland (2002) in Section 4, the stance is altered with different verbs and they either create a neutral / objective or subjective stance towards the message. This was also shown when the verbs *say*, *report*, *call*, *warn* and *find* were compared with different examples. Also, it could be the case that journalists are aware of how verbs may affect stance – notably so, since *cognition act verbs* rarely occurred. The low frequency of *cognition verbs* could indicate that reporters are aware of its subjective stance. It should be problematized that even if the low number of *procedural verbs* is present in the tables, they were not included due to classification issues. In total, they covered around 6326 removed instances and are thus frequently occurring in the
corpus, on the other hand cognition act verbs were not occurring to the same extent with these four metonymic subjects.

A future study could focus on reporting trends by analyzing specific verbs since using the most frequent verbs came with some issues, such as mistagging and caused some issues with classifying some verbs as RVs. Also, future studies could focus on different metonymic subjects outside of climate change and sustainability discourse to see if the results will change or remain. Perhaps, the colloquial aspect could change in different areas.
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