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**Washing dirty laundry:
A corpus linguistic analysis of fashion firms' webpage sustainability discourse**

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Abstract

This study analysed and compared the sustainability discourse on websites of fashion firms judged as high-rated or low-rated in sustainability ratings by an independent verification body using corpus linguistic techniques. We found that while both types of firms showcase their environmental and social performances to represent a sustainable image, they differ significantly in various aspects. High-rated firms proactively disclose details on workers' wages and their environmental impacts and reveal hidden industry norms to drive a change from within the industry. Contrarily, low-rated firms are vague about disclosing details regarding workers' wages and advocate consumer-driven and market-based solutions for industry problems, highlighting a multi-stakeholder approach. We argue that what separates high and low-rated firms regarding their sustainability discourse is their level of transparency (the amount of information disclosed for tracing delivery of promised goals) and their attitude towards industry-wide problems. We summarise a list of potential greenwashing indicators based on these findings.

Keywords: greenwashing, sustainability discourse, transparency, fashion industry, wage, social sustainability, corpus linguistics

1. Introduction

The fashion industry, with its long and complex supply chains, is frequently criticized for its negative environmental and social impacts, being responsible for 2 to 8 per cent of total global carbon emissions (UNECE, 2018). Fast fashion in particular has been singled out for exacerbating environmental issues (Niinimäki et al., 2020). Governments and regulators have increasingly called upon fashion companies to reduce their impacts, and fashion brands appear to have responded by doing so, as seen through increased mentions of their environmental and social commitments in their marketing. Firms market their green credentials to consumers, aiming to profit from the perceived demand for environmentally conscious brands (Delmas & Burbano, 2011; Lee et al., 2020; Zhang et al., 2018). However, alongside the increase in genuine sustainability initiatives, there has also been an increase in misleading claims, known as greenwashing. Greenwashing is prevalent in the fashion industry (Lu et al., 2023) as it allows firms to benefit from having a green image without having to invest in making considerable environmental or social changes (Badhwar et al., 2024), thus worsening the already negative impacts of the fashion industry (Alizadeh et al., 2024).

Greenwashing has been shown to have negative effects on consumers' perceptions of brands (Akturan, 2018), which may extend to a scepticism of sustainability statements in general (Wang & Walker, 2023). However, this depends on accurate detection of greenwashing. Studies have shown that consumers have difficulties determining the credibility of organisations' green claims (Parguel et al., 2011, 2015). This also leads to the possibility of false greenwashing, in which an accusation of greenwashing is leveraged at a firm that is not distorting its green messages (Seele & Gatti, 2017), potentially leading to a general scepticism about the integrity of sustainability claims across the market (De Jong et al., 2018) and causing

harm to consumers and wider society (Z. Yang et al., 2020). This makes greenwashing a serious barrier standing in the way of achieving a more sustainable fashion industry.

The prevalence of greenwashing and its negative consequences necessitates a better understanding of the differences between genuine sustainability claims and misleading ones. This study attempts to address this issue by examining large scale of sustainability statements made by fashion firms through methods of corpus linguistics. The main questions which this paper addresses are:

Q 1: How do fashion firms with high sustainability ratings and fashion firms with low sustainability ratings present their sustainability image on their websites?

Q 2: What are the similarities and differences in the way they present their sustainability image?

Q3: What are the practical implications for the public in terms of identifying greenwashing statements on fashion firms' websites?

We found that more sustainable firms are more transparent and proactive in addressing own problems and the industry problems compared to less sustainable ones. Sustainable firms share detailed information on workers' wages and environmental impacts, and they emphasise accountability and introspection within the industry. In contrast, less sustainable firms avoid acknowledging these problems. Their solutions focus on consumer-facing strategies and multi-stakeholder approaches, often justifying unfair wages and status quo without offering clear, accountable details on changes.

One contribution of this study is the development of a list of greenwashing indicators which can serve as alerts for the public to identify potentially misleading corporate disclosures and

avoid falling victim to this deceptive strategy. By highlighting these indicators, it aims to combat sustainability illiteracy and empower consumers to make more informed decisions about the brands they support. Furthermore, these insights can guide regulators and policy makers in developing more effective guidelines to combat greenwashing, promoting a culture of genuine sustainability within the fashion industry.

The remainder of this article is organised as follows: Section 2 reviews the literature on sustainability in the fashion industry and greenwashing in general. Section 3 describes the process of collecting data from a third-party verification website, building a sustainability corpus, and the corpus methods used for further analysis. Section 4 highlights the keywords in each sub-corpus by comparing them with each other and against a reference corpus. Section 5 discusses two key markers of greenwashing claims by fashion firms as well as similarities between these firms, from which a list of greenwashing indicators is formulated.

2. Sustainability, CSR communication, and greenwashing

In 1987, the United Nations Brundtland Commission defined sustainability as ‘meeting the needs of the present without compromising the ability of future generations to meet their own needs’ (World Commission on Environment and Development, 1987). Sustainability consists of economic, social, environmental, and institutional dimensions that interact in complex ways, making it impossible to measure (Spangenberg, 2005). The concepts of sustainability and corporate social responsibility (CSR) are closely related and often used interchangeably (Reilly & Larya, 2018). Corporate social responsibility, defined as ‘a commitment to improve community well-being through discretionary business practices and contributions of corporate resources’ (Kotler & Lee, 2005, p. 3), serves an important vehicle

for firms to convey their commitment and actions towards sustainable development (Du et al., 2010; Reilly & Larya, 2018). CSR communication largely represents firms' specific involvement in social and environmental issues, discussing their commitment to and association with these issues (e.g., striving for access to clean water), the societal impact of their endeavours, and interior or ulterior motives. CSR communication can operate across different formal channels, such as CSR reports or press releases, dedicated corporate websites, TV commercials, magazines, and product packaging (Du et al., 2010) and informal channels using social media platforms (Cheng et al., 2021; Etter, 2014; Reilly & Larya, 2018). Additionally, participating in a third-party sustainability reporting system, such as Global Reporting Initiative (GRI), demonstrates companies' sustainability endeavours (Reilly & Larya, 2018).

Sustainable fashion applies the goals of sustainable development to the fashion industry (Aakko & Koskennurmi-Sivonen, 2013). This sustainability lens forces businesses to consider environmental and social concerns without abandoning the driving elements of fashion, making for a potentially challenging proposition. On the environmental side, fashion brands emphasise the use of materials with better environmental profiles, waste reduction, and circular economy initiatives like reducing, reusing, and recycling (de Aguiar Hugo et al., 2021). The fashion industry's supply chain pose major social challenges, including fair wages, ethical labour practices, and safe working environment (Beyer & Arnold, 2022; S. Yang et al., 2017). Fashion firms may highlight their efforts to address these issues through partnership with other stakeholders, participating in socially responsible programmes, seeking certifications, or actively working towards improving employee wages (Henninger et al., 2016).

However, as calls for sustainability remain high from a variety of stakeholders, firms may, intentionally or unintendedly, adopt practices that create the appearance of sustainability without fundamentally changing their profit model (Bocken et al., 2019). Such practices are often labelled as greenwashing. Greenwashing is a form of misinformation used by organisations to shape public image (Laufer, 2003) by misleading stakeholders (e.g., investors, government, consumers) about the green credentials of an organisation or its products or services (Delmas & Burbano, 2011). In other words, a firm's green talk does not match its green walk (Pizzetti et al., 2021; Walker & Wan, 2012). Some researchers see greenwashing exclusively as dealing with environmental issues, in juxtaposition with the concept of *bluwashing* dealing with social issues (Chen & Chang, 2013; Sailer et al., 2022a). In this study, we take the broader view of greenwashing as inclusive of economic, environmental, and social issues.

Greenwashing practices mainly involve two types of behaviours: disclosure and decoupling (Oppong-Tawiah & Webster, 2023). Disclosure suggests that firms selectively disclose positive information and hide negative information to generate a desirable public image (Lyon & Montgomery, 2015; Pizzetti et al., 2021; E. P. Yu et al., 2020). Decoupling sees firms taking symbolic actions to deflect stakeholders' attention from a lack of concrete sustainability performance (Oppong-Tawiah & Webster, 2023) or firms delivering positive communication about poor environmental performance (Guo et al., 2014; Netto et al., 2020). TerraChoice, a sustainable marketing agency, identified 'Seven Sins of Greenwashing': 1) the hidden trade-off, 2) no proof, 3) vagueness, 4) irrelevance, 5) lesser of two evils, 6) fibbing, and 7) false worship (TerraChoice, 2007, 2010). Similarly, Alizadeh et al. (2024) identified five symptoms of greenwashing in the context of the fashion industry: 1) misleading, 2) concealing, 3)

vagueness, 4) overselling, and 5) irrelevance. Sailer et al. (2022b) identified the types of greenwashing most used in Black Friday advertisements by fashion brands. While more sustainable firms and least sustainable firms have been distinguished in previous research (Delmas & Burbano, 2011), there is scant research about how exactly the sustainability disclosures of these two types of firms differs discursively and linguistically, which this research aims to answer.

In linguistic discourse analysis, research on greenwashing has yet to be developed on its own, and is instead mentioned in passing within the broader concept of sustainability or the related concept of climate change (Fuoli, 2012; Fuoli & Beelitz, 2023; Gillings & Dayrell, 2024; Jaworska, 2018; Jaworska & Nanda, 2018). The overwhelming majority of the discourse-analytic strand has focused the CSR reporting as their data source (e.g., Bondi, 2016; Ferguson et al., 2016; Jaworska, 2018; Jaworska & Nanda, 2018; D. Yu & Bondi, 2019). This line of research, combined with corpus linguistic techniques, has centred on two major themes revolving around corporate communication. One considers the discursive construction of corporate identity. For instance, companies tend to use commitment and references to the future to legitimise their conduct (Bondi, 2016; D. Yu & Bondi, 2019), use various stance expressions to present a caring, committed, and responsible image (Fuoli, 2012, 2018), and explore lexical choices to advocate sustainability-oriented values (Malavasi, 2012). Another strand of research is the identification of key themes or patterns related to sustainability in the discourse, usually through comparisons and changes over time (Ferguson et al., 2016; Fuoli & Beelitz, 2023; Jaworska, 2018; Jaworska & Nanda, 2018). For example, Jaworska and Nanda (2018) found the theme of 'human rights' gains increasing in popularity whereas the mentions of 'climate change' remained low in the CSR reports of 21 oil companies. In a

separate study, Jaworska (2018) found that *climate change* in these reports has undergone a drastic change, from something that can be dealt with to the portrait of something that is unpredictable. While acknowledging the pressing issue of climate change, firms may employ a range of legitimisation strategies to mitigate their responsibility: frequent mentions of future initiatives without detailing the action plan (Bondi, 2016; D. Yu & Bondi, 2019), distancing firms from the core issues (Jaworska, 2018), use of hedging devices (*believe, potentially*) to soften the link between greenhouse gas emissions and climate change (Jaworska, 2018), and inconsistency and disconnections between attitudes, proclaimed goals, and the actual representation of and steps to address the climate crisis (Fuoli & Beelitz, 2023; Lischinsky, 2015).

Most of these discourse-analytic studies to sustainability discourse have primarily focused on the environmental dimension (Golob et al., 2023), leaving out the social dimension, with some exceptions, for instance, Jaworska and Nanda (2018), which touches upon the collective concept of human rights alongside climate change. There is a need to understand how socially related sustainability is discursively represented in consumer-facing marketing to paint a fuller picture of corporate sustainability communication (Beyer & Arnold, 2022; Eizenberg & Jabareen, 2017). While this discourse-analytic strand of research has been invaluable in understanding corporate communication strategies, it does not offer systematic linguistic insights, and it is conceptual in nature, as raised by Jaworska and Nanda (2018). One way of tackling this is to elevate these findings and discuss them in the general framework of 'matching words with deeds', which is essentially what the studies of greenwashing in the field of business communication are trying to address. To the best of our knowledge, no

corpus-assisted discourse-analytic approach has been applied to understand firms' greenwashing discourse in the fashion industry (see Neureiter & Matthes, 2023).

Previous studies have primarily explored corporate social responsibility (CSR) reports as sustainability communication (e.g., Bondi, 2016; L. T. Christensen et al., 2013; Fuoli, 2018; Jaworska, 2018; Jaworska & Nanda, 2018; Schoeneborn et al., 2020), while limited attention has been given to exploring alternative channels. This study investigates a less commonly studied channel: sustainability statements appearing on firms' sales page situated as an internal, formal CSR communication. We compare these statements published by high-rated (more sustainable) and low-rated (less sustainable) fashion firms using corpus linguistic methods. The analysis targets words and expressions related to environmental and social aspects of sustainability. Based on our corpus analysis, we proposed seven practical recommendations for stakeholders advocating sustainable fashion.

3. Data and method

In this section, we will explain how we collected sustainability webpages, built the corpus, and analysed the data. Specifically, we first introduce the database Good on you and its five-point score system. Then we outline how we identified and selected the companies in the database. Move on, we explain how we built the corpus with a combination of automatic text-scraping and manual uploading. Lastly, we explicate the corpus methods used for the analysis, i.e., keyword analysis, collocation analysis, concordance analysis.

3.1. Data source: Good on You

We collected our data from the sustainability web pages of selected fashion companies, retrieved from the Good on You database, and then compiled a sustainability corpus for

further corpus analysis. Good on You is an independent third-party service that investigates fashion companies and audits their sustainability credentials. It audits publicly available sources and certifications and uses a proprietary methodology to rate firms based on three criteria: people, planet, and animals. Firms receive an individual score for each area and an overall score on a five-point scale from 1 to 5, with higher scores indicating higher levels of sustainability. It should be noted that this rating is not equally distributed; 85% of the brands Good on You rates are given 1 or 2 stars, and less than 1% are given 5 starsⁱⁱ. Good on You's methodology describes that it uses public data sources, including company websites, in its determination of ratings, but only as a small factor in its data set, minimising the risk of our findings merely replicating Good on You's rating criteria. Additionally, it must be noted that Good on You receives commission from affiliate links from some 4 and 5 star rated brands, thus leading to a potential conflict of interest; however, as less than 1% of surveyed brands meet these criteria, it is unlikely that they are inflating their ratings for profit. Altogether, this makes Good on You's methodology a reliable means of classifying the overall sustainability.

3.2. Data collection procedure

We chose one of Good on You's categories (shoes), the majority of which sold a wide range of fashion products in addition to shoes. We downloaded this data from the Good on You database as an Excel spreadsheet, which contained the names of all relevant companies, their ratings, and various other information, such as their geographic location and price range. From this spreadsheet we selected brands with an overall score of 1 or 2 stars or 4 or 5 stars for further corpus building. Firms receiving an average rating of 3 stars were excluded from our analysis, as they are unlikely to represent good examples of highly sustainable firms nor least sustainable firms.

To find companies' sustainability webpages, we followed the homepage links from Good on You (for 4- and 5-star brands) or searched on Google for the brand's homepage (for 1- and 2-star brands). From the companies' homepages, we searched menus and footers for links to pages on environmental or social sustainability (e.g., environment, ethics) or other pages that were likely to feature sustainability discussions (e.g., mission statements). We followed these links and included pages that were judged to feature environmental or social sustainability as their dominant theme. We also clicked through links on these pages and judged these links by the same inclusion criteria. We acknowledge that there is an element of subjectivity here; we tried to be more inclusive than exclusive in borderline cases. Additionally, there were certain categories of pages we did not include due to the scope of this research. We did not include pages or documents likely primarily aimed at a corporate audience, such as corporate reports or pages hosted on a firm's corporate website, as we wanted to focus on communications of sustainability for potential fashion consumers. Similarly, we excluded legal requirements, such as pages on Modern Slavery Act declarations, and links to third party websites, such as the United Nations' Sustainability Goals or partner websites, as we wanted to explore the companies' statements.

Figure 1 shows what we included and excluded from web pages. We aimed to capture firms' statements on sustainability, focusing on main texts, headings and subheadings of images, and excluding the header and the footer of the page, or pop-up promotional texts, cookie preferences, and mailing lists, etc.. The message content on these pages pertains to both environmental and social causes in which firms are involved. These statements may describe current initiatives or actions taken (*walk*), as well as feature aspirational *talk* (Christensen et al., 2013), such as disclosure of future plans, targets, and strategies. Given the proximity of

these texts to product information and sales content, we assume that they primarily target customers or prospective customers. However, we acknowledge that other audiences or *unanticipated public* (Wakefield & Knighton, 2019), such as the general public, investors or regulation bodies, may also access and interpret these sustainability messages.

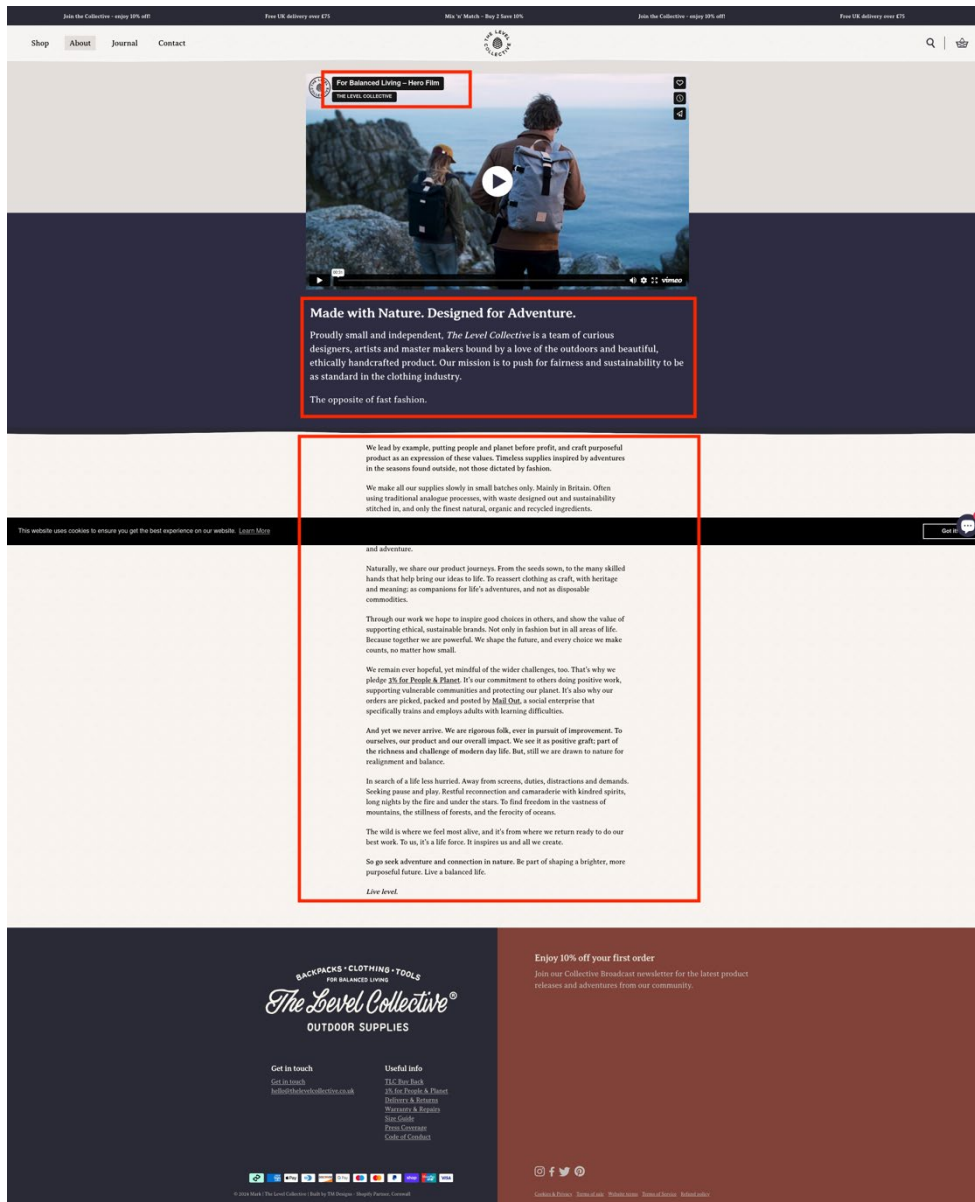


Figure 1: Example of sustainability webpage (<https://thelevelcollective.com/pages/about>) and texts extracted in the corpus (highlighted in red boxes)

3.3. Corpus building

To build the sustainability corpus we followed a four-step strategy to collect links from these websites. We submitted all URLs to Sketch Engine to automatically scrap and download texts (Kilgarriff et al., 2014). 20 URLs failed the automated scraping process. We went back to these failed URLs, manually copied the sustainability texts and pasted into the plain text format. We then uploaded these manually collected texts to Sketch Engine. The initial corpus therefore contains automatically scrapped texts and uploaded texts. Then we downloaded the initial corpus in the plain text format and manually cleaned the text files to remove unwanted texts and symbols. To do this, we compared the scraped data with the data on company websites and manually deleted unwanted texts related to cookie policies, registration and login panels, and promotional coupons and sales that were captured by the web scraping tool. At the same time, we identified a small number of texts that were not captured by automatic scraping, which we then manually added to the plain text file. After we went through all URLs in this manner, we looked to identify additional duplicates by searching for long strings of words (Brookes & Collins, 2024). It came to our attention that more cookies and promotion related texts appeared in the raw data of the sub-corpus of low-rated firms, about which we consciously took notes of the typical words and set phrases, for instance, *country*, *language*, *password*, *% off*, *marketing cookie policy*, and *valid only on*. The corpus of the high-rated firms had fewer texts on cookie policies, promotional discounts, and registration prompts.

High-rated firms (rated 4 or 5) generally do well in the sustainability indicators provided by Good on You; therefore, we concluded their sustainability claims to be more likely to be credible and genuine. Contrarily, low-rated firms (rated 1 or 2) generally failed most of the sustainability indicators, and therefore we considered their environmental claims to be less

credible. Overall, we regard the sustainability pledges to be on a continuum ranging from least sustainable to most sustainable. Companies with ratings of 4 or 5 lean towards the more sustainable end and companies with ratings of 1 or 2 lean towards the less sustainable end. Throughout the paper, we use ‘more sustainable firms’ and ‘high-rated firms’ interchangeably to refer to firms rated 4 or 5, and we use ‘less sustainable firms’ and ‘low-rated firms’ interchangeably to refer to firms rated 1 or 2.

Table 1: Corpus details

	Documents	Firms	Words
Sub-corpus of high-rated firms (HC)	181	73	139,577
Sub-corpus of low-rated firms (LC)	372	243	220,967
Total	553	316	360,544

We categorised and compiled the sustainability statements of the two types of firms into a corpus which consists of two sub-corpora: a sub-corpus of high-rated firms (HC for short) and a sub-corpus of low-rated firms (LC for short). The details of the self-built corpus are illustrated in Table 1. As stated previously, high-rated firms are outnumbered by low-rated ones in Good on You, which is reflected in our corpus too. LC accounted for around 61% of words in the entire corpus.

3.4. Analytical approach

The analysis was performed using Sketch Engine (Kilgarriff et al., 2014). The main corpus queries we employed are keyword analysis, collocation analysis and concordance analysis. Keywords are words that occur statistically more frequently in a focus corpus than a comparison corpus (Scott, 1997). The keyword analysis involves two comparisons. To identify distinctive features of sustainable and unsustainable firms, we compared the two sub-corpora with each other, i.e., comparing HC (focus corpus) with LC (reference corpus), and comparing LC (focus corpus) with HC (reference corpus), generating two sets of keywords. Comparing

sub-corpora with each other will uncover differences, however, this approach may over-focus on differences and ignore commonalities (Baker, 2023; Rayson & Potts, 2021). To also capture similarities and address the problem of over-focussing on differences, we compared each sub-corpus against a reference corpus, enTenTen21ⁱⁱⁱ (a general English web corpus), as ‘a useful way of determining key concepts across the corpus as a whole’ (Baker, 2023, p. 179).

Sketch Engine uses simple maths to identify keywords ranked by keyness score. Simple maths uses relative frequency so that it is possible to compare corpora of unequal size (Kilgarriff, 2009). We are aware that text dispersion – a word’s dispersion across texts in a corpus – as a new approach to the long-standing frequency-based keyword analysis is discussed centrally or marginally by some corpus linguistics researchers (e.g., Baker, 2004; Egbert & Biber, 2019). We did not take dispersion as a measure of keyness in this study because, while examining the resulted keywords, we realised that a reference to the same entity/concept varies across fashion firms. For example, the property of environmental materials could be referred to as different terms like *eco-friendly*, *eco-conscious*, *sustainable*, or *green*, etc. As also warned by Baker (2023), authors of text may simply avoid repetition by using alternative terms, and therefore, it is not necessarily the exact word that is particularly important, but the general meaning that the word and other similar words refer to. Eventually, we selected the top 100 words to facilitate further in-depth analysis using the simple math formula ($\text{add-N}=1$) without taking into consideration dispersion of keywords.

Keyword analysis is complemented by collocation and concordance analysis to “provide a more detailed perspective on specific lexical items, enhancing our understanding of their rhetorical and ideological function” (Fuoli & Beelitz, 2023, p. 9). In corpus linguistics research, collocation analysis studies how certain words appear together more often than would be

randomly associated. The collocates may appear immediately before or after the word under examination, or at a certain pre-defined distance, e.g., 3 words to the left. The concordance analysis allows users to examine the search word (or term) in more detailed context in concordance lines – rows displaying the search word in the centre of a line and other words displayed to the left and right (Brookes & Collins, 2024).

The keywords were further grouped into shared semantic categories to highlight the themes of the two sets of sustainability statements. While corpus methods provide quantitative insights and assist in identifying linguistic patterns at scale, the manual, theory-informed thematic analysis remains indispensable for producing meaningful interpretations. This step is particularly significant for uncovering nuanced meanings and patterns that may not be immediately apparent through automated corpus methods alone. The thematic categories were developed collaboratively. First, the two authors examined the sets of keywords independently by going through concordance lines to get an overall impression of the themes of keywords generated. Then, the two authors shared their understanding of differences between these keywords and key themes arising from each sub-corpus. Afterwards, the first author examined each keyword by going through their contexts and developed the thematic categories following an inductive approach. Then the second author checked the coding categories and noted down his disagreement. The two authors met to discuss and resolve inconsistencies, eventually, the final thematic categories of keywords were developed collaboratively.

4. Results

This section discusses the major findings regarding differences and commonalities of sustainability discourse of high-rated and low-rated firms. We discuss the differences through

the analyses of keywords obtained by comparing high-rated firms and low-rated firms with each other. Subsequently, we discuss the commonalities through the analyses of shared keywords by comparing high-rated firms and low-rated firms against a third reference corpus.

4.1. Comparing with each other: Differences of disclosure

We start by analysing keywords from more sustainable firms and move on to those in less sustainable firms.

4.1.1. High-rated firms: Worker and impact calculation

This section discusses the themes of sustainability proclamations by high-rated or more sustainable firms. We compared these firms with the low-rated or less sustainable firms and generated a list of key lemmas^{iv}. Table 2 shows the top 150 key lemmas by this comparison. We examined every individual keyword by going through their concordance lines to determine common themes. Overall, high-rated firms place a strong emphasis on transparency, accountability, and innovation, actively addressing critical issues such as workers' welfare, environmental impact calculations, materials and industry norms. The presence of detailed and specific keywords, such as *wage*, *fair-trade*, *petroleum-based*, and *appleskin*, demonstrates their engagement with complex sustainability challenges and their commitment to providing solutions.

Next, we will delve deeper into three conspicuous themes displayed by the high-rated firms: 1) The emphasis of workers' wages and social responsibility, 2) Impact calculations and 3) Disclosure of industry norms. Through the keyword analysis, high-rated firms have represented themselves as socially and environmentally responsible.

Table 2: Top 150 keywords in high-rated firms compared with low-rated firms (major themes/categories under discussion are in bold)

Category	Sub-Category	Keywords
Brand	Brand name	NA

	Founder	Mareen, Adam, David, Fernando, Marnie, Goding
	Place and firm location	Basgville, San, Ecuador, Ontario, Northeast, Francisco, Hamburg, Utah-based, Ethiopia, Southeast
Life-extension Strategies*	Care	NA
	Cleaning	NA
	Clothes swapping	NA
	Re-sell	Reamour
	Re-wax and repair	Darwin, happily
Worker, Wage, and Social Responsibility	Community	Asian, fishermen
	Donation	<i>soles4souls</i> , trees, democratize, seedling
	Employee	NA
	Environmental activist	Medes, Chio
	Wage	wage, wageindicator, MIT
	Worker	Seringueiro
	Worker benefit	bonus
Collaboration	Certification	fair-trade, <i>Chetna</i>
	Collaboration	FRBG, eden
	Firm initiative	soles4souls
	Foundation	fior, loto, doing, Malaria
	Reporting	tr2023
	Supply chain	operations
	Impact calculation	tCO2e, Peruvian, kwh, occupation, gate, eutrophication, clarity, calculator, estimator, doconomy
	Industry norms	petroleum-based, leach, dodge, convince, sadly, wise, devastating, tremendous, weren't
Material and Waste	Material	tyre, tread, agroecological, alga, b-mesh, atex, rajlakashmi, roica, juice, pi, chetna, dead-stock, appleskin, basket, v550, ethiopian, mills, pebax, rib, grantmaking, chrome-free, peru, apple, responsibly-sourced
	Waste	NA
	Sustainable packing	repack
Product and Sale	Product and sale	exploration, condor, l-foam, bundle, tweet, user-centric, quito, gift-with-purchase, rnew, surfing, curtain, explorer, crazy, <i>basket</i>
Solutions by Firms	Problem and solution	veganism, glacier, reimagined
Other	Other	EPA

*Life-extension strategies: A variety of approaches that consumers or businesses can use to extend the lifespan of a fashion item, such as, care, repair, re-sell.

The first theme is regarding worker and wage. The category Worker, Wage and Social Responsibility (Table 2) showcases sustainable firms' attitudes towards treating their garment workers. Workers' wages are an important part of showcasing the social performance of a corporation. The term *wage* is much more frequently mentioned by sustainable firms than unsustainable firms (1,826.07 vs 326.59 per million tokens). Table 3 shows word collocates of

WAGE in the sustainable corpus, ranked by Log Dice (a statistical measure for identifying co-occurrence of linguistic items). Collocates that appear in both corpora are marked in italics.

Table 3: Collocates of WAGE in high-rated firms

Collocate	Freq	Log Dice
<i>living</i>	125	13.1297
lowest	48	12.1462
<i>Living</i>	15	10.6123
<i>paid</i>	16	10.4962
<i>minimum</i>	13	10.3429
\$	15	10.3219
Lowest	11	10.202
their	24	10.0991
Challenge	10	10.0693
increased	10	9.96438
above	8	9.66461
average	8	9.64685
toward	8	9.62931
a	67	9.61746
<i>fair</i>	7	9.36027
share	7	9.33975
receives	6	9.30419
FAIR	5	9.07875
Coalition	5	9.074
covers	5	9.06926

The shared collocates centre on types of wages (*living wage, minimum wage, fair wage*) and actions related to wages (*paying wages*). While both types of firms refer to living wage, the differences lie in the frequency of use and the way the terms are used. The term *living wage* is eight times more pronounced in the HC (848.04 vs 106.24 per million tokens). Less sustainable firms are less likely to talk about paying workers' living wage. Living wages, capable of providing a decent or socially acceptable standard of living (Hirsch, 2018), are voluntary and usually higher than minimum wages. Most fashion firms refrain from talking about living wage. For the sustainable firms, living wage is used to discuss how firms pay workers a living wage or how firms (re)calculate living wage. Some sustainable firms show

clear evidence of paying living wages over the years, as seen in the dollar sign (\$) in Table 3. Due to limited space, we only present one instance from Nisolo in (1).

(1)

In 2020, we raised our lowest wage from \$12 an hour to \$12.40 an hour to meet MIT's updated living wage. ... in 2022, when the **living wage** increased to \$17.68 an hour, we increased our lowest wage to \$17.68 an hour, demonstrating the power of tracking and adjusting **wages** according to a 3rd party standard to ensure **living wages**. (Nisolo, HC)

Living wage calculation is mentioned to evidence firms' commitments to and actions taken towards paying workers a living wage, as seen in (2). The living wage calculation designed by MIT and Wageindicator were mentioned a few times by Able and other more sustainable firms, hence, the presence of keywords *MIT* and *Wageindicator* in Table 2. This is in stark contrast with less sustainable firms, which often attribute their inability to provide a living wage to a lack of resources for calculating it.

(2)

Living wage is calculated by taking into account multiple factors, including the leading resources available (MIT **Living Wage** Calculator, Wage Indicator, Trading Economics), survey data from the ACCOUNTABLE assessment in each country, and consultation with on-the-ground experts. (ABLE, HC)

In Table 3, *lowest* is the only Top 3 collocate to appear in HC but not in LC. It is associated with the Lowest Wage Challenge initiated by Nisolo and ABLE. This campaign encourages brands to publicly disclose their lowest wages and measure how far they fall short of a living wage, ensuring they are on a trajectory towards paying a living wage. The campaign also urges consumers to pressure their favourite brands to share the lowest wages within their supply

chains and to have their wage systems audited to hold fashion firms accountable. In contrast, there is not a single mention of *lowest wage(s)* among less sustainable firms, let alone any effort to share or publish this information with the public.

Paid is one of the top collocates of *wage* in both firms. Among the 16 collocates in HC, all instances are clear statements of wages being paid, with six instances being living wage, two instances about being higher than the living wage, and the rest about being higher than the local minimum wage, as seen in (3) and (4). Sustainable firms tend to disclose the number or percentage of workers who are paid certain type of wages.

(3)

At Thesus, 100% of our current staff and staff of our direct manufacturers, are ***paid*** a living wage. (Thesus, HC)

(4)

Not only are all wages ***paid*** considerably higher than the appropriate Living Wages, they are also significantly higher than the pan Asia Floor Wage. (Culthread, HC)

The second theme in the keywords of high-rated firms involves impact calculations, particularly for carbon and water emissions, as seen in the sub-category Impact calculation (Table 2). Such disclosures generally reflect sustainable firms' awareness of their environmental impact and a commitment to transparency. Highlighting the specific method used to calculate environmental impacts increases transparency, which is crucial to hold firms accountable for their claims. In examples (5) and (6), two sustainable firms explain their method of calculation.

(5)

CO2 emissions reference here are **calculated** cradle to gate on a per product basis with Doconomy's 2030 Calculator using information from Nisolo suppliers. (Nisolo, HC)

(6)

We **calculate** our impact through a globally accepted analysis methodology. We measure the impact metrics of each individual product through the entire manufacturing process. That means, we trace our clothing from the organic farm all the way to the moment it ships out to you and then we calculate all those impacts.

(Harvest and Mill, HC)

A third notable theme is the effort by sustainable firms to actively disclose the hidden realities of the fashion industry, as evidenced by some stance words (Biber, 2006; Fuoli, 2018) under the sub-category Industry Norms (Table 2). These norms, often known only within the industry, are being openly shared by sustainable brands to increase transparency about issues that consumers and outsiders may be unaware of. These firms openly discuss insider information, including the sector's environmental impact, the prevalence of poverty wages, harsh working conditions, and strategies used by some firms to dodge responsibility. Notably, several high-rated firms adopt an educational approach, exposing the environmental damage caused by common industry practices, such as long shipping distances, which lead to high greenhouse gas emissions, as seen in (7), and the relocation of the tanning industry to countries with less stringent regulations than the EU, as seen in (8). These revelations are expressed through attitudinal stance words such as *devastating*, *sadly*, and *tremendous*, which convey personal evaluation, judgement, and criticism (Biber, 2006). These stance words underscore the negative impact of the unsustainable practices and condemn firms that perpetuate them.

(7)

Most other brands ship their raw materials around the world to be grown, milled or sewn and those vast distances have **devastating** environmental consequences like higher levels of GHG emissions, increased pollution and higher energy use. (Harvest and Mill, HC)

(8)

EU regulations regarding leather production, effluent, and environmental damage are much stricter than those implemented in many countries outside of the EU. This is **sadly** a reason why the tanning industry is relocating to countries such as China and India, where environmental regulations are much less strict. (Nisolo, HC)

(9)

Today, the materials employed to manufacture running shoes are 99% plastic, especially polymers that are 99% **petroleum-based** (Veja, HC)

In (9), Veja exposes that 99% of plastics used in making running shoes are petroleum-based, highlighting its non-renewable nature. This critique of plastic usage is notably absent among less sustainable firms, which instead emphasise their efforts to use recycled plastic without addressing the broader environmental harm caused by plastic use. By spotlighting this issue, Veja challenges the industry's reliance on petroleum-based plastics, setting itself apart from less sustainable firms that focus on limited recycling efforts and neglect the full environmental impact of plastic use.

4.1.2. Low-rated firms: Consumer-facing, wage, and multi-stakeholder approaches

In this section, we will discuss themes emerged from the low-rated firms: consumer-facing initiatives, market-based solutions, lack of genuine concern about worker's wages, and multi-

stakeholder approaches. Comparing the keywords in unsustainable firms to sustainable firms reveals notable patterns. As shown in Table 4, unsustainable firms place a greater emphasis on consumer actions to market their sustainability initiatives.

Table 4: Top 150 keywords in low-rated firms compared with high-rated firms (major themes/categories under discussion are in bold)

Category	Sub-Category	Keywords
Brand and Founder	Brand name	
	Founder	NA
	Place and firm location	NA
Life-extension Strategies	Care	softener, towel, cream, fold, instruction, <i>mud</i>
	Cleaning	cloth, dirt, soap, brush, mild, damp, wipe, sponge, <i>mud</i> , refrain, assume, dampen
	Clothes swapping	swap
	Re-sell	re-loved
Worker, Wage and Social Responsibility	Re-wax and repair	re-wax, rewaxing
	Community	LGBTQIA
	Donation	hospital, survivor, CAMFED
	Employee	colleague
Collaboration	Environmental activist	NA
	Wage	NA
	Worker	herder
	Worker benefit	NA
	Certification	BCI, RWS
	Collaboration	cottonconnect, home-start
	Firm initiative	PSCP, Malawi
	Foundation	cancer, breast
	Reporting	CSR
	Supply chain	module
	Impact calculation	NA
Material and Waste	Industry norms	NA
	Material	hanger, sheep, alpaca, carrier, MRSL, arrival, zer, illegal, angora
Profit	Quality of material	Mongolia, territory, grain, donegal, geelong, comb
	waste	WEEE
	Sustainable packaging	NA
	Product and sale	kate, bra, sheepskin, offline, womenwear, kidswear, protector, relove, slipper, influencer, ultra, wax, balsam, undie, dubbin, pillowcase, christams, undies, registration, routine, object, doc, wrinkle, beagajean, earthwise, infectionm jumper, sericin, cosy, Ireland, BFF, autumn
Solutions by Firms	Problem and solution	multi-stakeholder, betterwash, proprietary, maximise, laser
Other	Other	molesing

4.1.2.1. *Consumer-facing efforts and market-based solutions*

The first theme that emerged from keywords of low-rated firms regards their effort in promoting consumer-facing life-extension strategies, which feature market-based solutions. The theme is most realised through keywords under the Categories Life-extension Strategies and Profit in Table 4. Strategies such as product care, cleaning, repair and re-wax are promoted as circular strategies to extend product lifespans. In (10), the sneaker brand P448 explains how customers may clean their shoes using a *towel* as routine care practice. Likewise, in (11) shoe brand Giuseppe Zanotti advises using a damp *cloth* with soap to wash dirt off shoes.

(10)

Spot clean the interior lining of your shoe by mixing one teaspoon of dishwashing liquid in two cups of warm water. Working small sections, dip a soft toothbrush or cotton ***towel*** into the solution and scrub the lining in small circular motions. (P448, LC)

(11)

To remove a small amount of dirt, we recommend using a soft ***cloth*** dampened with water and mild soap. (Giuseppe zanotti, LC)

However, these initiatives rely heavily on consumers to act sustainably to maintain the longevity of their products. While it is undoubtedly important for consumers to adopt sustainable habits, such as taking good care of their wardrobes, which may reduce future consumption, this approach shifts the responsibility for sustainability away from firms. In sustainability statements, as Jaworska (2018, p. 208) argued 'one would expect a stronger focus on company-specific strategies or achieved goals as opposed to generic reference to

other stakeholders'. A heavy reliance on other stakeholders, coupled with a reluctance to address the company's own responsibility, may be indicative of greenwashing.

Apart from these consumer-facing initiatives, some of the product life-extension strategies (e.g., product care and clean) are closely related to product sale. For example, among the 24 instances of *re-wax*, only two instances are instructions for consumers to take care of leather shoes; the remaining instances are related to brands' re-waxing services or products, for example (12). This shows how firms capitalise on win-win opportunities around sustainability to profit while benefiting the planet.

(12)

Once we have confirmed receipt of your jacket, we promise to have your re-wax completed within 10 days, a clean and *re-wax* within 21 days and your repair completed within 35 days to ensure your beloved jacket is returned to you in time for Christmas. (Barbour, LC)

The emphasis on product sales through life-extension strategies is intrinsically linked to another theme of these low-rated firms: the promotion of market-based solutions (Ferguson et al., 2016) in category Product and Sale under Profit (Table 4). Low-rated firms tend to link their products and services to sustainability initiatives, for example, through cause-related marketing (Koschate-Fischer et al., 2012), i.e., pledging to donate to charities from each purchase, thus painting a caring, ethical, and green image, encouraging consumers to purchase their products. For example, 13 and 14 illustrate how firms link donations to sales, constructing a socially responsible business identity.

(13)

In order to achieve this, we have proudly partnered with i=Change who enable customers through our online store to choose from one of three of our selected charities for us to automatically donate to on their behalf - each and every time an order is placed. (Studio Amelia, LC)

(14)

And from every teeny tiny jumper we sell, we'll donate \$5 to our charity partner Home-Start UK (via the White Stuff Foundation). (White Stuff, LC)

In (13), Studio Amelia takes pride in making donations through an online portal, however, further examination of the donation scheme through concordance lines and its original webpage does not reveal any specific information regarding amounts donated and whether these donations represent a significant portion of the company's profit. These strategies might encourage overconsumption and lead to 'moral licensing' where consumers feel their contribution justifies other less ethical behaviours (Brønn & Vrioni, 2001). Brands may be perceived as exploiting social causes for profit without properly realising their commitments. Apart from that, these strategies direct public attention away from pursuing more substantial sustainability solutions. Different from (13), the firm in (14) specifies the amount of donation per purchase which provide more traceable information for accountability. Compared with (13), (14) presents a more transparent image.

4.1.2.2. Lack of concern for workers

Low-rated firms demonstrate a conspicuous lack of concern for their garment workers. This lack of concern is reflected in 1) their approach to worker pay – examined through the noun collocates and verb collocates of the lemma WAGE – 2) their justification for maintaining the current wage system and 3) proposed solutions for improving workers' pay situation. The first

two are mainly derived from examining the keywords in **Worker**, **Wage** and **Social Responsibility** (See Table 4) and the third point is mainly derived from keywords in the sub-category **Solutions by Firms** (see Table 4). Notably, collocates in the sub-categories **Worker** and **Worker Benefits** are strikingly sparse. The lemma *WORKER* occurs less often in LC (198 hits, 779.1 per million) compared to HC (179 hits, 1,108.02 per million). Similarly, *WAGE* is mentioned far less frequently in LC (83 hits, 326.59 per million) than in HC (295 hits, 1826.07 per million). Table 5 shows the top 20 strongest collocates of *WAGE* in low-rated firms, ranked by Log Dice. Collocates that appear in both corpora are marked in italics.

Table 5: Top 20 strongest collocates of *WAGE* in low-rated firms

Collocate	Freq	Log Dice
<i>Living</i>	17	12.3061
<i>living</i>	10	11.33324
<i>paid</i>	8	11.23182
<i>minimum</i>	9	11.16993
<i>fair</i>	9	11.11464
conditions	6	9.91963
hours	4	9.82009
working	11	9.75207
pay	3	9.70232
labour	3	9.57374
workers	5	9.55374
real	3	9.55154
safety	3	9.33703
employees	3	8.81678
within	3	8.73947
including	3	8.6661
not	5	8.08591
so	3	7.92675
In	3	7.91963
a	22	7.53017

Similar to the keyword analysis in HC, low-rated firms' lack of commitment to workers' wages is revealed through collocates of the lemma *WAGE*, particularly the modifiers that describe wage types (e.g., *living wage*) and the verbs that indicate actions towards wage (e.g., *wage is*

paid). *Living* and *minimum* are the two strongest collocates, indicating the types of wages paid to workers. A detailed analysis of concordance lines of *Living* and *living* reveals that only 3 out of 27 instances refer to living wage being paid to workers. The majority (16 instances) describe firms' pursuit of and commitment to working towards paying living wage, with six instances concerning the calculation of living wage, and two explaining what living wages are. As seen in Examples (15) and (16), both brands claim that they are committed to living wage; however, these statements lack details about implementation, such as timelines, metrics, actionable plans, etc.

(15)

Our Commitment to a **Living Wage**. Princess Polly **believes** every person has the right to a standard of living that adequately supports them and their families. (Princess Polly, LC)

(16)

Making sure our whole value chain is progressing within **living wage** is an important part of our sustainability promise. (Lindex, LC)

In (16), rather than directly committing to paying a living wage, Lindex shifts the responsibility to suppliers, framing itself as assisting them in achieving the goal. A review of the wider context shows that terms like *progressing* remain undefined, with no clear explanation of how progress will be measured. This vagueness can be interpreted as greenwashing, as it obscures accountability (Carlson et al., 1993).

Paid is among the strongest verb collocates of *WAGE*. An analysis of concordance lines of *paid* reveals vague commitments to action and a stronger emphasis on legal compliance. Among the 8 collocates of *paid*, only two collocates describe instances of living wages being paid,

three refer to suppliers being required to pay a minimum or fair wage, two mention plans to investigate pay in their supply chains, and one discusses how its living wage approach exceeds the minimum wage. By emphasising suppliers (e.g., factories), less sustainable firms shift responsibility to other stakeholders, exemplifying a differentiation strategy as described by Ferguson et al. (2016).

Low-rated firms never fall short of justifying their pay status quo. Three types of justifications emerged from analyses of concordance lines of WAGE: emphasising the complexity of wage calculations, understating the importance of fair wages, and advocating for multi-stakeholder approaches.

Rather than focusing on paying living wage or increasing wages, low-rated firms highlight the complexities of the wage system and the challenges of paying fair wages. As claimed by Primark in (17), it is the factories who directly pay workers, not the brands themselves. Similarly, Lindex in (18) echoes this sentiment, asserting that wages need to be negotiated rather than directly determined by brands.

(17)

Wages Explained. Like most retailers, we don't own our own factories. We work directly with suppliers who in turn contract factories. It is the factories that directly employ and pay their workers ... So in practice Primark is only one customer of many and therefore only one contributor to what ultimately flows through to workers' pay packets. (Primark, LC)

(18)

Wages need to be **negotiated** among the parties of the labour market and the government has a key role in setting minimum wages and labour laws. (Lindex, LC)

While brands do not directly pay factory workers, they negotiate sewing prices per item and have the power to push factory owners to provide fair wages (Adegeest, 2023). Conversely, as revealed by Nisolo, some large brands use their purchasing power to demand lower prices from factories for the products they buy, forcing factories to underpay workers to minimise costs to retain orders^v from these brands. These firms are reluctant to take responsibility for ensuring fair payments for garment workers. They also attempt to downplay the importance of paying fair wages. As shown in (19), after introducing the living wage system used to monitor compliance, Primark emphasises the importance of workers managing their personal finances over increasing their wages, and highlights that Primark *wants* to offer training in this regard. The importance of financial management aside, by focusing on financial management, Primark shifts the narrative away from the firm's responsibility for paying fair wages and onto the workers' ability to manage their income. They seem to insinuate that the reason these workers end up in a difficult financial situation is because they lack skills in managing their income. Additionally, by saying they *want* to – not that they *will* – offer training in personal finance management, Primark frame their role as a company that cares about workers' personal development without having to invest resources to do so. This form of legitimisation discourse, combined with rationalisation attempts to deflect attention from serious issues around low wages in the fashion industry, qualifies as greenwashing.

(19)

It's important to say that it's not just **wages** that matter: while a higher income is key to achieving financial resilience, hand in hand with this, we want to offer training, education and support so that workers can better manage their personal finances.

(Primark, LC)

Moreover, by saying they *want* to – not *will* – offer training in personal finance management, Primark portrays itself as a company that cares about workers' personal development without making any concrete promises to do so. This form of legitimization discourse, combined with rationalisation, attempts to deflect attention from serious wage issues in the fashion industry, which qualifies as greenwashing.

The complexity of wage calculations and the importance of financial management are further used to set up for the necessity of multiple stakeholder approaches. This framing suggests that governments, suppliers, and other parties need to collaborate to address wage issues, thereby downplaying the brand's role in the process. For instance, in (20), Rivers highlights the need for collective action. While multi-stakeholder collaboration is undeniably important, brands could still act independently by voluntarily paying higher wages, even without government intervention.

(20)

Paying higher prices for product does not guarantee that workers receive a higher wage. We understand that this requires a **multi-stakeholder** approach, where vendors, brands, governments unions etc. must work together to find ways to increase minimum wages to be in line with living wages. (Rivers, LC)

4.1.2.3. Call for a multi-stakeholder approach

As elaborated above, calls for a multi-stakeholder approach are used to account for the lack of substantial improvement in workers' wage. This approach is also commonly used by less sustainable firms regarding sustainability in general, as seen keywords in the category **Solutions by Firms in Table 4**. These firms often take pride in participating in various kinds of initiatives and programmes, but at the same time they refer to these initiatives' multi-

stakeholder nature, as seen in Examples (21-2). On the one hand, it shows their willingness to engage in collaborative efforts to protect the environment; on the other, emphasising the collaborative nature seems to mitigate the effort and responsibility that falls on individual firms. As argued by Brooks in (21), to exert meaningful impact, fashion brands need to work with other stakeholders to become more sustainable.

(21)

We recognize that to impact meaningful change, we need to work with brand, industry, and **multi-stakeholder** partners. (Brooks, LC)

(22)

From our early days, we have been at the forefront of improving practices in the leather industry, taking an active role in a number of **multi-stakeholder** initiatives.

(Mulberry, LC)

Firms may avoid underscoring the blatant discourse of requesting a multi-stakeholder approach and instead embed this concept in depictions of the actions they have taken. For instance, in (22), the term *multi-stakeholder* is used as a modifier of the *initiatives* that Mulberry has been taking part in, insulating the necessary approach to sustainability in the fashion sector. As warned by Jaworska (2018), such preferences are not merely as innocent as a personal choice, but a reflection of a particular stance.

4.2. Comparing against a reference corpus: Similarities of disclosure

To explore potential similarities of sustainability discourse between high-rated firms and low-rated firms, we compared each sub-corpus with a third corpus, focusing on shared keywords among the Top 150 from each comparison. The results are shown in Table 6.

Table 6: Shared keywords by comparing sub-corpora with a third corpus (top 150 keywords)

Category	Shared Keywords
Certification	GOTS, OEKO-TEX, GRS, FSC, Bluedesign
Material	TENCEL, Lenzing, cotton, textile, Lyocell, viscose, leather, microfibre, Econyl
Property of material	breathable, biodegradable, compostable
Recycling and resell	recycled, recyclable, GRS, recycle, pre-loved
Sustainability	circularity, sustainably, regenerative, sustainability
Waste	post-consumer, landfill
Supplier and transparency	tannery, traceability

(GOTS: Global Organic Textile Standard, OEKO-TEX: certificate for non-hazardous textiles, GRS: Global Recycled Standard, FSC: Forest Stewardship Council, Bluedesign: A sustainable textile standard)

The shared keywords largely revolve around materials, certifications, and recycling. The prominence of certification-related keywords (e.g., GOTS, OEKO-TEX, GRS, FSC, Bluedesign) indicates a strong reliance on third-party certifications by both firm types to substantiate their sustainability claims, underscoring the importance of external verification in building consumer trust in sustainability discourse (Lee et al., 2020). Most of these certificates are material-related, for instance, GOTS (Global Organic Textile Standard), GRS (Global Recycled Standard), and FSC (Forest Stewardship Council), for instance (23). Additionally, material-specific keywords like TENCEL, viscose, and leather highlight that the choice of materials is a focal point in the fashion industry's sustainability narrative. All these materials are mentioned together with modifiers like *green*, *sustainable*, or *biodegradable*, emphasising the functional and environmental benefits of the materials they use.

(23)

Rajlakshmi orients its production around sustainability; it is certified under the Global Organic Textile Standard (**GOTS**) and reuses 50 percent of its wastewater. (Etiko, HC)

(24)

We're incorporating fabrics like **recycled** polyester and recycled nylon into our ever-growing REAL GOOD. (AEO, LC)

(25)

We're committed to **recycling** or diverting all our waste from landfill by 2025. (Fatface, LC)

The emphasis on materials is further evident in the prevalence of recycling-related keywords, such as *recycle*, *recycling*, and *recycled*, which appear 1,392 times in the entire corpus. We randomly shuffled the concordance lines and examined the first 20 instances: seven referred to the use of recycled materials like recycled polyester, cotton, and plastics; six mention recycled paper for packaging for shipping products; and four were about recycling pre-loved products to reduce apparel waste. The remaining instances focus on commitment and industry problems. In (24), American Eagle Outfitters (AEO) mentions using recycled polyester and nylon but does not mention the percentage of recycled content. Similarly, Fatface in (25) commits to recycling all their waste by 2025. The metrics regarding the proportion of recycled waste and time point would enhance consumer traceability, to a certain extent.

5. Discussion and conclusions

This study highlights similarities and significant differences in the sustainability discourse between more sustainable (high-rated) and less sustainable (low-rated) fashion firms using corpus linguistic methods. Both types of firms share similarities in their sustainability proclamations. They both consider the environmental and social dimensions of sustainability. Both demonstrate their concern for the environment by referring to recycling and using recycled materials, and environmental certification; however, it should be clear that recycling is the 'loop of last resort' and therefore may be less sustainable than other environmental strategies. Firms also pay attention to socially related responsibilities, as showcased by terms such as worker, wage and community. The discussion of wages is particularly relevant in this

context. The fashion industry is labour-intensive, involves complex supply chains, and often employs workers in developing countries where paying minimum wage is the norm (Kozlowski, 2019). In contrast, in more skill-based industries like the oil industry, workers earn a living wage due to the specialised skills required. Instead, non-wage related issues, such as health, safety, and community relations are more pertinent socially related topics in the oil industry. Even in the fashion industry, paying workers a fair wage is nonetheless far from doing enough; there are more concerning issues, especially around eliminating hazardous working environments and providing social welfare (Beyer & Arnold, 2022). Therefore, paying workers a fair wage may simply be the most pressing issue, and once this issue is resolved, issues of health and safety may become more central.

The corpus methods have also revealed significant differences in firms' sustainability disclosure. These differences inherently lie in transparency. Being a popular term in business management, the concept of transparency can be broadly seen as the degree to which an actor embraces openness and accountability (Ball, 2009) or 'the accessibility of information to stakeholders of institutions regarding matters that affect their interests' (Tapscott & Ticoll, 2003, p. 22). In the context of this study, which examines sustainability disclosures on firms' website, we see transparency as the extent of information revealed to the public, particularly in relation to firms' social and environmental responsibilities. In our data, transparency may stem from two sources: internal and industry-wide disclosures. Internally, individual firms may voluntarily share details about their commitments and practices. On the other hand, industry-wide transparency involves dissemination of the sector norms and practices that are often unknown to the public. Such disclosure enables stakeholders to monitor, assess, and hold firms accountable for their stated goals, as well as evaluate their broader aspirations to

drive industry-wide change. However, excessive and jargon-loaded disclosures may serve to obscure and conceal rather than clarify and reveal things (Fan & Christensen, 2024) and more information does not necessarily translate to better conduct (Albu & Flyverbom, 2019). In this study, the critical issue with low-rated firms is the failure to provide key information about plans and commitments that would allow stakeholders to hold them accountable. In other words, here the problem lies not in information overload but in information insufficiency, which harms transparency and accountability.

In line with the operationalised definition of transparency, in this study high-rated firms proactively share detailed wage data, their methods used to calculate environmental impacts, and hidden industry norms. These firms recognise the potential for other brands to exploit information gaps and, in response, advocate for industry-wide change through various campaigns and partnerships. By addressing sustainability illiteracy and sharing insider knowledge, high-rated firms aim to hold other firms accountable. In contrast, low-rated firms tend to withhold information that could cause them trouble. Instead of being transparent, they often adopt an explanatory and vague stance. They are less likely to pay living wages and frequently justify their status quo by citing the complexity of the wage calculation system. Low-rated firms often blame suppliers for not paying adequate wages, arguing that fashion brands do not pay workers directly. Additionally, these firms may shift responsibility to their workers, suggesting that employees' financial management is more critical than firms' paying a fair wage.

Furthermore, the two types of firms propose different solutions for achieving sustainability in the fashion industry. High-rated firms are self-reflexive and advocate for transformations from within, both at the individual brand level and across the entire industry. In other words,

they act out of a more genuine concern for sustainability issues in the industry, a feature of intrinsic CSR motives (Du et al., 2010). They lead by example, disclosing their own wage information and methodologies for calculating environmental impacts. They promote transparency and accountability, as evidenced by widespread minimum wage disclosures and consumer education on sustainability. As Marquis et al. (2016) argued, firms are less likely to engage in selective disclosure when organised social movements and public scrutiny are strong. As consumers become more knowledgeable about industry norms and sustainability, information asymmetry between firms and other stakeholders is reduced, which decreases the effectiveness of greenwashing for firms (Gregory, 2023).

On the other hand, low-rated firms typically refrain from mentioning prominent social or environmental issues associated with the fashion industry. This contrasts with the attitude of major carbon emitters in the oil industry, that firms seem to acknowledge the existence of climate change and its need to be addressed (e.g., Fuoli & Beelitz, 2023; Jaworska, 2018). Instead, the low-rated firms start right away by offering solutions which are mainly consumer-oriented (e.g., extending the lifespan of apparels) and requesting multi-stakeholder efforts. In other words, their sustainability solutions are outward-looking and profit-driven, featuring extrinsic CSR motives where sustainability awareness and practices mainly function as a means of profit making (Du et al., 2010; Schaltegger et al., 2019).

Through our comparative linguistic analysis, we argue that low-rated firms, compared with high-rated ones, may engage in greenwashing, where their green 'talk' does not match their green 'walk'. However, caution should be taken as even greenwashing discourse may not be completely useless from a CSR communication perspective. CSR communication can play dual roles: it is both *representational*, i.e., reflecting companies' actual practices and serving a

backward-looking function, and (*per*)*formative*, i.e., constituting and shaping future practices, thereby adopting a future-looking function (Schoeneborn et al., 2020). Commitments made by low-rated firms in our data, such as ‘We will work to pursue a Living Wage’, may initially appear as mere rhetoric, they could signify that firms are actively considering sustainability or working towards meaningful change. As Christensen et al (2013, 2021) and Schoeneborn et al., (2020) argue aspirational talk may be more than just ‘cheap talk’ but rather a potential enabler of corporate transformation. Ultimately, the critical lens on greenwashing underscores the complex relationship between CSR communication (*talk*) and CSR practices (*walk*) (Christensen et al., 2013, 2021; Falkheimer & Heide, 2022; Schoeneborn et al., 2020). Recognizing this complexity allows for a more balanced understanding of low-rated firms’ sustainability narratives and their potential to drive change.

Our study has contributed to the research on sustainability disclosure and CSR communication by introducing a robust research method: a comparative corpus linguistic research design. Our study highlights how corpus linguistic methods – a mixed method approach – can be utilised to explore the large volume of textual data in corporations’ sustainability communications, which mitigates the subjectivity potentially attached to interpretation of results. Specifically, these corpus queries (e.g., keyword analysis, concordance analysis, and collocation analysis) allow us to delve deeper into the linguistic representation of sustainability discourse, so that we were able to extract and compare interesting themes emerging from sustainability webpages of firms with different sustainability ratings. However, the findings of this study do not claim to represent the entire fashion industry, as our data sample is mostly Western-based brands. Further research could expand by including more apparel categories and brands from other regions, especially from

non-Western countries (see S. Yang et al., 2017). Due to space restrictions, other keywords/themes related to social sustainability, for instance, *collaboration* and *partnerships* with other businesses (United Nations Global Compact, 2019) were not examined. Exploration of these aspects would provide a more complete picture of social responsibilities performed by fashion companies.

Based on these findings, we have identified a few greenwashing indicators to warn the public of potentially misleading sustainability claims made by fashion firms. Each indicator is accompanied by an example and a brief explanation of why the practice qualifies as greenwashing. All examples provided are drawn from the sub-corpus of low-rated firms in this study.

1. Company sets vague, unspecific goals, often lacking timeline or concrete plans for implementation. For example, statements like “We are committed to build a better future for our next generation” or “We will work to pursue a Living Wage for everyone who makes our clothes” provide no clear steps or measurable benchmarks to track progress.
2. Company highlights the quality of materials without mentioning how environmentally sustainable these materials are. For instance, “Our Cashmere is made from Grade-A Mongolian materials, making it a luxurious, warm and soft fabric to withstand snow days”, shifting the discussion away from aspects of sustainability, perhaps hoping that customers equate quality and sustainability.
3. Company elaborates on the complexities of living wage calculations without committing to improving or ensuring wages or paying a living wage. For example, a focus on factors such as brands not paying workers directly or the lack of reliable wage

calculation metrics shifts attention away from the brand's responsibility for workers' wages. Refer to Example 17.

4. Company argues that the key to raising workers' wages lies in collective action from governments, suppliers, and other stakeholders. Companies are deflecting responsibilities by calling for a multi-stakeholder approach. Refer to Examples 18, 20 and 21.
5. Company claims that raising workers' wages is less important than whatever programmes they are proposing and remains vague on the proposed programmes. These alternative programmes often lack details and clarity, making it difficult to assess their impact. Refer to Example 19.
6. Company highlights consumer-facing life-extension initiatives, such as cleaning, repairing, recycling, without providing details about the firm's own sustainability initiatives. Companies deflect attention from their own responsibilities. Refer to Examples 10 and 11.
7. Company ties consumer-facing sustainability efforts directly to product sales. It leaves the impression that companies' sustainability efforts are only or mainly profit driven. For instance, *"We recommend that you re-wax your jacket annually depending on wear ... We offer the option for customers to have their smaller waxed items re-waxed"*.

Overall, the greenwashing discourse features blaming external factors for any wrongdoings without reflecting on self-conduct and improvement.

These seven indicators provide a useful list of criteria that can help consumers to identify greenwashing in the fashion industry and avoid purchasing garments from these companies if desired. These indicators should be read within the broader context of online corporate sustainability discourse (Rowbottom & Lymer, 2009). While some of these indicators may

hold true beyond this context, it is unknown whether they will act as predictors of greenwashing in other contexts, for example, in statements on product labels or packaging. Further studies can employ similar corpus linguistics methods to explore whether these indicators also apply to other contexts or industries, for instance, aviation. Lastly, we must acknowledge one potential downside of this research, that publishing a list of greenwashing indicators may help firms which do not have substantial sustainable initiatives avoid displaying markers of deception and thus better hide their greenwashing. However, we believe that the benefits of this research outweigh any potentially malicious use of these findings.

Appendix: Lists of firms included in the corpus

For space reason, please see appendix in Open Science Framework
https://osf.io/y9wtm/?view_only=0cfde8c7c24d43ae8de86607f71afd2d

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ⁱ <https://goodonyou.eco/wp-content/uploads/2023/10/GoodOnYou-RatingsMethodology-Oct23.pdf>

ⁱⁱ This was true at the time we collected the data. Since then, Good on You has adjusted its rating system to make it easier for firms to earn higher star ratings, and increased the ratings of many of the firms it had previously rated in line with its new rating criteria. See <https://how-we-rate.groovehq.com/help/rating-labels-redistribution-2024>

ⁱⁱⁱ We are aware that the reference corpus (enTenTen21) contains a few sub-corpora marked by themes of topics (e.g., Education, Health), within which an environment-related sub-corpus lagged as Nature & Environment is included. However, the sub-corpus Nature & Environment only accounts for 0.1% of the whole corpus, the lowest percentage among all other sub-corpora. Therefore, comparing against the web corpus will not eliminate any similarities between the two compared corpora. Additionally, using a web corpus by default should contain as many topics as possible, given the popularity of climate discussion worldwide; therefore, it makes sense to have a section on environmental discourse in the reference corpus.

^{iv} Lemma is the basic form of a word and is often written in small caps. For example, the lemma PAY has several forms: pay, pays, paying, and paid.

^v In *The True Cost*, a documentary on the sin of fast fashion, a factory in Bangladesh reveals how they have struggled to meet the prices demand by big brands over the years.

<https://www.youtube.com/watch?v=rwp0Bx0awoE>