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Analyzing personal pronouns and modality in TED talks on food system sustainability

Abstract. This study investigates how TED speakers linguistically frame humans' role in fostering sustainable food systems and environmental stewardship. This research explores Positive Discourse Analysis (PDA) based on a self-built corpus of ten TED Talk transcripts (19,151 tokens) selected through keyword filtering ("food," "sustainability," "climate change") and temporal constraints (2019 to 2023). The analysis focuses on the strategic use of the pronoun "we" and modality to interpret collective responsibility and optimism in relation to humans and the environment in the topic of foods. Results reveal that TED speakers adopt inclusive and future-oriented language that reflects PDA principles of optimism and solidarity, using "we" and modality to promote shared commitment and constructive engagement. Further explorations in employing TED Talks as spoken corpora and PDA in ecological discourse research are encouraged.

Keywords: TED, food system, Positive Discourse Analysis (PDA), pronoun, modality, human, environment, spoken corpus

1. Introduction

In recent decades, growing global awareness of environmental issues has brought food security, agricultural practices, public health, nutrition, and various food-related crises to the forefront of public concerns (Alcorta et al., 2021; Clapp et al., 2022; Clark et al., 2019; Conrad et al., 2018; Yoshikawa et al., 2021). A key focus has been the exploitation of land and animals, as well as the escalating climate crisis, exemplified by activities such as mining and the extensive use of chemicals in modern agriculture. These issues are frequently examined from an anthropocentric and predominantly negative standpoint, particularly in relation to food consumption and broader societal transformations. Since the onset of agricultural industrialization, there has been a growing perception that the balance between humans and the environment in the food sector has been progressively deteriorating.

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However, as Peter Jackson (2023) aptly notes, meaningful change can only be achieved through the collaboration of researchers from both the natural and social sciences, alongside key stakeholders from government, business, and civil society (p. 227). The media plays a crucial role in shaping public perceptions of humans actions in the pursuit of sustainability and environmental protection, yet its portrayal often remains biased towards negativity. Addressing the worsening state of the environment in the food sector requires coordinated efforts at both individual and societal levels. In this context, Positive Discourse Analysis provides a contributing and constructive lens through which to reconsider the relationship between humans and the environment in the food sector. By advocating for the intrinsic value of all living beings, rejecting anthropocentric views, and emphasizing collective action for ecological preservation, Positive Discourse Analysis serves as the methodological foundation of this paper to offer a novel analytical perspective to see this social issue.

2. Background

After the Second World War, industrialization and globalization accelerated the integration of agriculture and industry. To increase the efficiency of food production and to reduce costs, numerous chemicals have been introduced into food manufacturing, resulting in severe ecological damage to land, soil, water, and the environment that many animals live on. Early critics of industrial farming raised concerns about the over-exploitation of the land and forests. In 1962, Rachel Carson published her book “Silent Spring” (1962), illuminating the complexity of food webs and biotic relationships. She highlighted how chemicals used by humans concentrate as they move up food chains, ultimately accumulating in our tissues and harming our health. This book represents one of the earliest works in the literature underscoring the impact of humans farming practices on food, agriculture, and the environment.

In human communities every person counts; so too in natural communities, all beings contribute and participate...Carson suggested that honoring this responsibility requires a basic shift in the way we see, feel, and value the world (Drengson, 2009, p. 50).

Since then, with social movements on spreading environmental concerns arising during the late 1960s and 1970s, food-related debates and humans’ interactions with the environment gradually became part of environmental discourse. The growing awareness of the agricultural impact on ecosystems has increasingly permeated society.

However, because scholarly focus on agriculture and food rests primarily on disciplines such as Biology, Geography, and Sociology, there remained a dearth of linguistic research exploring discourse around humans, food and the environment. Although limited literature on food studies intersecting with language could be traced in such illustrations as rhetorics of food (Frye & Bruner, 2012), power dynamics of food language in politics (Khajeh et al., 2013; Lin & Depner, 2016; Mancuso, 2021), and culture-specific features of food languages (Counihan et al., 2018),

food discourse has generally garnered less interest and has become one of the relatively marginal areas in mainstream linguistic research, overshadowed by social and cultural embeddings and power dynamics in the language about food (Cesiri, 2020). Disseminating the environmental implications through languages of food production, consumption and farming practices is substantial, yet it has so far been largely neglected in current studies.

On the other hand, the previous linguistic studies on environmental topics primarily adopt a critical and negative stance speaking of humans' interventions within the ecosystem. For example, the rise of Ecolinguistics has led to extensive critiques of humans' role in environmental destructions, focusing on anthropocentrism (Plumwood, 2001; Stibbe, 2020), hegemony (Dryzek, 2013; Fairclough, 2013) and social inequality (Adams, 2009; Roberts & Parks, 2006). However, dialectical thinking in this overwhelmingly negative case raised the motivation and intension of this article. Few studies have so far examined or recognized the positiveness in the relationship between humans and the environment in promoting food sustainability and environmental conservation.

As a globally influential platform advocating "ideas worth spreading", TED Talks aim to connect curious minds with the world's most inspiring voices. Founded in 1984, TED initially focused on technology, entertainment, and design, but has since evolved to encompass a wide range of topics including education, sustainability, and global development. Its international impact expanded significantly after 2006, when selected talks began to be recorded and made freely available online via TED's official website, accompanied by subtitles and translations in multiple languages. This shift not only broadened its global audience but also positioned TED as a key medium for the dissemination of expert knowledge and public engagement in contemporary issues.

TED Talks are designed to disseminate and popularize specialized knowledge while also entertaining audiences through the strategic use of rhetorical devices (D'Avanzo, 2015). As Mattiello (2019, p. 8) notes, TED Talks have a significant impact on both semi-expert and non-expert audiences. TED speakers employ accessible and effective language to enhance comprehensibility, offering educational value and even emotional support, particularly in the communication of scientific knowledge. Notably, TED speakers often express positive evaluations such as aesthetic appreciation and emotive reactions that foster emotional connection with audiences. Such strategies are "crucial in knowledge dissemination and emphasize the beauty of positive aspects that are connected to the world of science, technology, and arts" (2015, p. 214–215). Choosing TED Talks that focus on food and environmental issues as the corpus for this paper facilitates an exploration of the linguistic and discursive constructions involved in the dissemination of knowledge, particularly how speakers construct a hopeful vision of the future in the food ecosystem for their audiences.

3. Theoretical framework: Positive Discourse Analysis

Positive Discourse Analysis (PDA) emerged as an auxiliary framework and a call for balance in response to the prevailing trend of Critical Discourse Analysis. Until now, PDA remained less used

until the dawn of the 21st century, primarily due to the contributions of key scholars such as Peter White, James Martin, Arran Stibbe, and Douglas Mark Ponton, who have significantly advanced the development of this theoretical approach. While Critical Discourse Analysis emphasizes “contexts where inequalities of generation, gender, ethnicity and class disrupt humanity” (Martin, 2004, p. 182), focusing on issues of power disparity and hegemony, PDA transits from criticism to a constructive and motivational examination of the role of language, suggesting that language can facilitate positive social transformations through empowering narratives. PDA aims to inspire and highlight “discourses which can inspire people to find well-being in ways that do not require over-consumption and treat the natural world with respect and care,” thereby presenting “a useful potential source of beneficial discourses” (Stibbe, 2017, p. 176). In PDA, issues and problems in the society still admittedly exist but are viewed in a more solvable perspective in the language.

Since its introduction, PDA has been integrated into various research endeavours concerning environmental discourse, humans’ rights, and social movements, including feminist activism, which embodies a profound sense of hope, solidarity, and community. PDA posits three fundamental features: first, it seeks innovative linguistic methodologies that articulate narratives distinctly divergent from the prevalent destructive discourses in contemporary industrialized societies; second, it enhances awareness of linguistic attributes within discourse that may foster more active and beneficial relationships between humans and their environment; third, it promotes the conservation of ecosystems vital for sustaining all forms of life and encourages the establishment of a more equitable social framework. These characteristics demonstrate that PDA supports advantageous, constructive, and optimistic societal initiatives.

What distinguishes PDA is the balance it introduces, complementing traditional critiques of the role of humans in social transformation and the influence of discourse in nurturing a hopeful dynamism. In this thesis, PDA’s emphasis on optimism in linguistic choice and discursive strategy would contribute mainly to the way TED speakers encourage humans’ intervention. Besides, the vision of PDA to build a sustainable world and the initiative to empower different social actors are also key aspects to decode the ideology of discourse from collected TED Talks in this paper.

To conduct this approach, this study focuses on two major linguistic strategies: the personal pronoun “we” and modality. The strategic use of “we” plays a crucial role in constructing collective identity and shared accountability, positioning both TED speakers and their audiences as active participants and changemakers in shaping a more sustainable food system. It also strengthens the emotive appeal by uniting speakers and listeners into a collective voice, fostering a sense of solidarity and resonance in motivating action. Meanwhile, modality reveals how TED speakers express necessity, possibility, and obligation, thereby highlighting how they convey urgency or hopefulness in encouraging environmental engagement. It further reflects varying degrees of certainty across different narrative goals, contributing to fostering optimism and stimulating proactive responses. Together, these features serve as central entry points for examining how TED speakers linguistically realize the visions of PDA in this paper, namely, to inspire and envision sustainable futures through discourse.

4. Data and method

This study adopts a corpus-assisted discourse analysis by interpreting textual data from TED talks in linguistic and discursive features and through offering a thorough understanding of power imbalance and ideologies. The corpus approach helps generate substantial and powerful evidence of linguistic patterns in public discourse across mediums such as newspapers (Dayrell, 2019; Gillings & Dayrell, 2024), media (Jaworska, 2016), political discourses like presidential speeches (Atzeni, 2024; Cunningham et al., 2022), and others. In this paper, the statistical decoding of corpus data and interpretative discussions of linguistic tools will be uncovered to help understand how speakers engage with audiences and enhance their arguments on food and the environment as for humans. Data selection and collection, corpus building and software, and discourse-analytical procedure outlook are discussed in detail in the upcoming sections.

This research designs a micro-level corpus to analyze how TED speakers from different backgrounds address food-related issues regarding sustainability, climate change, health, hunger and so on. The choice of TED speech transcripts is two-fold, rooted in their strong implications. Public discourse like TED Talks is more than a communicative medium, but they impose significant impacts on forming and reinforcing one's ideologies broadly, where speakers intentionally use some linguistic instruments to bring the audience a different worldview. As Hu has emphasized in his research about environmental speeches, it is of great importance to spread the beneficial message of language (Hu, 2023). Besides, TED Talks are delivered by intellectual experts from various fields, sharing valuable knowledge with the world. The transcripts on the website are considered high-quality and are even used as educational resources. TED Talks provide intellectually stimulating presentations that have been widely utilized as pedagogical materials to enhance learning and teaching resources (Chang & Huang, 2015; Ulfah & Jakarta, 2020, pp. 50–54). According to data from CorpusMate, TED ranks third among nine different genres of textual collections, covering 23 document domains (Crosthwaite & Baisa, 2024). TED Talks are therefore an insightful resource to investigate the messages speakers aim to convey and their approach within this specific topic.

The transcripts, which are publicly available on TED's official website (<https://www.ted.com/>), were selected through a systematic three-stage filtering process. First, "food" was used as the primary search keyword. Second, results were refined by restricting topics to "climate change," "sustainability," and "ecology" because this paper is inclined to observe discourse in relation to the environment. Third, only English-language talks delivered within the past four years, with durations ranging from twelve to eighteen minutes, were included, which ensures that the textual data collected are the most up-to-date and at a manageable level for the manual transcript collection process. Based on these criteria, the ten most relevant talks were selected for transcript collection. As TED Talks are freely accessible and curated under TED's oversight, both the videos and transcripts are considered reliable sources with no associated costs. The final dataset comprises transcripts from ten talks delivered by professionals across various disciplines. While the filtering process was designed to enhance thematic relevance, it

is acknowledged that complete objectivity could not be achieved, as the selection inherently involved researcher discretion in determining relevance.

The finalized corpus comprises 19,151 tokens and 16,594 words. A compilation of the ten speeches that form the corpus is listed (see Appendix). It is important to note that the corpus does not encompass all possible filtered outcomes. Instead, the ten speeches have been carefully curated and reviewed to ensure they are intricately related and representatively aligned with the food-environment discourse. Since the website is routinely updated with new video content, there is a possibility that the filtering outcomes may show slight variations and discrepancies after the establishment of the current dataset. In general, the corpus used for this investigation is relatively limited, functioning as a micro-level textual analysis that scrutinizes lexicogrammatical and communicative patterns inherent in linguistic devices. Additionally, this investigation employs the analytical tool Sketch Engine, a multifunctional web-based platform building self-directed corpora. In this paper, frequency, concordance, word sketches and collocation will be the main functions to be utilized in further textural analysis.

This paper conducts a detailed assessment of corpus data to support a qualitative analysis. The technical analysis of datasets using Sketch Engine reveals distinct characteristics through functionalities such as frequency, concordance, and collocation. This quantitative aspect is designed to be highly objective, providing a foundation for subsequent interpretative discourse analysis. Following this, salient features are identified, and strategies and rationales are categorized in line with Positive Discourse Analysis (PDA). PDA supports the discursive examinations by advocating a constructive perspective on our understanding of the world and the language used. Accordingly, this micro-level discourse analysis seeks to demonstrate how TED speakers produce favourable contexts that encourage humans' engagements in any process of the food industry linked to the environment through the purposeful use of language.

Overall, this research attempts to provide a novel perspective for a comprehensive understanding of the functions of rhetoric in both generating societal challenges and envisioning future possibilities, offering insights for policymakers and individuals to recognise potential to make a difference in the food ecosystem. It aims to re-interpret the relationship between humans and the environment in food practices from a more optimistic perspective standpoint and to demonstrate the hopefulness of this interplay under PDA discourse analysis through the examinations of "we" and modality use in the TED talk discourse. In this vein, it focuses mainly on the following research questions:

1. How do TED speakers represent relationships between humans and the environment in the context of food systems?
2. To what extent do the PDA principles of optimism and solidarity appear in this TED corpus?

5. Analysis

With PDA serving as the approach, the analysis will pay attention to linguistic features including lexical choices and discursive strategies that express optimism and construct hope and

solidarity, as well as explore narratives that counteract negativity in the discourse. Through PDA, the research investigates how TED Talks frame humans' agency in reestablishing an ecologically sustainable relationship with the environment through food systems. This section describes detailed observations from the pronoun "we" and modal verbs of different intensity levels, and then delves deeper into the contextual discourse around them.

5.1 The personal pronoun "we"

Deictic expressions are words that refer to specific details or people in the context of a conversation, with person-focused pronouns forming crucial parts of it in indexing social relationships. Personal pronouns vary according to person (first, second, third), number (singular/plural), and case (subject/object). This study focuses on the pronoun "we" as a key relational marker between speakers and audiences to investigate how humans' agency is constructed in discourse about the environment.

Discourse analysis posits that personal pronouns enhance speaker-recipient interaction by foregrounding the discourse's central focus and contextual referents. Specifically, Fairclough's (2003) concept of "interplay" highlights how meaning is produced through the interaction between text production, the text itself, and text reception. Each of these processes involves different social actors whose agency is shaped by the discourse. In this framework, power dynamics and agency are negotiated through linguistic choices, particularly the use of we as an inclusive marker that aligns speakers and audiences within a shared ideological stance.

The occurrence of first-person pronouns is often suggested as a strong way of acknowledging positions and relationships and persuading others, as these pronouns help create a sense of community and identity within a group. They also play a big role in representing the actors in the discourse and indicate their ideologies by engaging themselves in the discourse and building reliability and the sense of emotional resonance. This strategy is particularly prevalent in spoken genres such as political speeches (Kranert, 2017; Sotillo & Wang-Gempp, 2004; Urban, 1988), where speakers seek to construct solidarity and emotional resonance with their audience. Beyond speech contexts, corpus-based research has demonstrated that first-person plural pronouns are highly multifunctional across different discourse types. For example, Kuo (1999) analyzed personal pronouns in scientific writing and found that "we" serves various semantic functions, particularly in academic abstracts and conclusions, where it signals authorial involvement and positioning (Wang et al., 2021).

To examine the discursive role of "we", this study employs concordance analysis to identify instances of "we" in a corpus, manually analyzing its contextual signals and collocational patterns to uncover its discourse-level functions. As shown in Figure 1, "we" appears significantly more frequently than other personal pronouns, followed by the singular first-person pronoun "I". This high frequency suggests that "we" plays a salient role in structuring discourse. In the context of TED Talks on food and the environment, the pronoun "we" serves as an index of shared responsibility between speakers and audiences. Unlike pronouns such as "you" or "they", which

refer to specific groups, “we” constructs a collective identity among the immediate audience. The selection of “we” in this study, therefore, reflects both its linguistic prominence and its discursive significance in shaping environmental narratives.

| Pronoun Frequency ² ↓ | | | Pronoun Frequency ² ↓ | | |
|----------------------------------|------|---------|----------------------------------|-----|--------|
| 1 | we | 342 ... | 11 | her | 10 ... |
| 2 | I | 203 ... | 12 | him | 8 ... |
| 3 | it | 183 ... | | | |
| 4 | they | 120 ... | | | |
| 5 | you | 109 ... | | | |
| 6 | them | 68 ... | | | |
| 7 | he | 40 ... | | | |
| 8 | me | 38 ... | | | |
| 9 | us | 35 ... | | | |
| 10 | she | 11 ... | | | |

Figure 1. The corpus pronoun frequency statistics

| Details | Left context | KWIC | Right context |
|---------|--------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| 1 | puts this on the table. | Not only could we alleviate land for restoration, we can also create the products | know and love at a fraction of the emissions. |
| 2 | Now the emphasis here is on "can." | None of this is inevitable. | It's not even inevitable that |
| 3 | We have the knowledge, but we're not using it. | There are exciting examples from my ecosystem where | we're seeing dramatic impact. |
| 4 | g to look a bit like the global financial system in the approach to 2008. | Now for a long time, we thought | we were beating hunger. |
| 5 | wedge of economics. | So instead of trying to force them to settle down and set up commercial feedlots, | we need to help them bridge the old and the new by helping companies work more directly with pastoralists, by er |
| 6 | es. | He could not help us get started. | Farming is very capital-intensive business. |
| 7 | to finish their dinner because it's good for the environment, and healthy food is good for them. | Second, | we must ensure that healthy food is affordable and accessible for the most vulnerable. |
| 8 | make the world a better place. | They have brought us here, and we need to take that forward. | We need to do it bigger, and we need to do it much, much faster. |
| 9 | son. | And you'll see, father to daughter, here in a minute. | It's passed down generationally, and |
| 10 | is rewriting the rules of farming as we speak. | We need another way. | Lastly, our planet. |
| 11 | ted and then inserted into the DNA of an organism called trichoderma. | Now, just like in brewing, where | we feed sugar to yeast to brew alcohol in a big stainless steel fermenter, we feed sugar to this modified trichodem |
| 12 | Gardening is a long game. | With patience, we can return balance to these systems. | When |
| 13 | to achieve climate resilience. | Cellular agriculture actually puts this on the table. | Not only could |
| 14 | has some pioneering research on the true cost of food in the United States, which indicates that even though | system itself could collapse. | Might there be a solution, a solution to both these problems? |
| 15 | age today, they're why I got involved in this in the first place. | But there's a limit. | When that's all |
| 16 | ades. | He was inspired as much by that as he was by a 1931 quote from Winston Churchill that says, | We shall escape the absurdity of growing the whole chicken in order to eat the breast or the wing, by growing them |
| 17 | This starts to pique their interest. | Risk mitigation is how we're going to get farmers involved. | We are a for-profit industry, so they're not going to do anything that they think hurts their yields. |
| 18 | contour of the Earth to cascade the water down and let the water flow downhill. | And there are always, | we call it continuous flood. |
| 19 | Now, just like in brewing, where we feed sugar to yeast to brew alcohol in a big stainless steel fermenter, | | we feed sugar to this modified trichoderma and out comes whey proteins that we can put in yogurt, cream cheese |

Figure 2. The concordance of “we”

With a significant frequency in the corpus, the contexts of “we” are further observed. The concordance function (Figure 2) in the Sketch Engine aids in identifying the specific referent relations of how “we” is applied. “We” refers to individuals involved in the conversations, creating an interpersonal connection through the spoken context. In this corpus, it’s essential to examine closely how speakers establish bonds between humans and the environment in conversations about food and agriculture, and between speakers and the audience. Since the use of “we” is

highly context-dependent, it is important to differentiate the previously mentioned concordance findings in terms of the definiteness or ambiguity of referents. This corpus contains two types of relations using “we,” in which speakers perceive themselves in distinct positions. In one instance, “we” refers to the context where speakers consider themselves as individuals, or as one side of the communication; in the other, “we” broadly represents a collective community of humans as part of the ecosystem, where both speakers and the audience share the same stakes. The strategic “we” use, with notable frequency and repetitions, serves as the primary contributor to the discursive construction of “bonding” (Taylor, 2013, p. 46).

Pronouns are regarded as a crucial linguistic tool in discourse, functioning as “a byproduct of cognitive mechanisms” that construct cohesion and direct attention (Halliday & Hasan, 2013; Wolf et al., 2004). In this corpus, the strategic use of “we” plays a pivotal role in establishing a unified, persuasive voice, fostering a sense of collective identity and belonging among listeners. Referent-definite usage, where speakers draw on personal experiences to connect with the audience, builds trust and strengthens subsequent arguments, while referent-indefinite usage indicates that the focus shifts to emphasizing key points. For example, consider the following passage:

*A defining moment for me was in 2007, during the first world food crisis in my adult life. I recognized how connected **we (1)** were. Oil price shocks led to cereal price hikes, which affected bread prices all over the world. And the most vulnerable were hurt. Fourteen years later, my impatience has grown. **We're (2)** even more connected, and our food ecosystem is even more broken. Thankfully, the Rockefeller Foundation has some pioneering research on the true cost of food in the United States, which indicates that even though **we (3)** spend 1.1 trillion on our annual food expenditure, **we (4)** actually spend 2.1 trillion on costs linked to health and climate, all because of our broken food ecosystem.... our food system is value-destroying. There's a need for urgent action. ...Starting with the climate lens, **we (5)** must modify how **we (6)** grow food and reduce food waste... **We (7)** keep cutting down trees to grow more food, and **we (8)** keep wasting food which ends up in landfills and rots, generates methane. The good news is that **we (9)** have the technology and the science today to grow enough food to feed the world and to address our food waste problems. NON2021DEC²*

This is a paragraph from *NON2021DEC*. The use of the pronoun “we” here serves as a crucial linguistic mechanism for constructing collective identity, shared responsibility, and hope-driven action in the context of the global food system. From the perspective of PDA (Bartlett, 2012), which considers discourse as a means of fostering solidarity, empowerment, and social transformation, the speaker’s deployment of “we” not only builds cohesion but also discursively reframes the food crisis as a challenge that can be collectively addressed.

² Reference label for TED Talks in the corpus. See Appendix.

In the first four instances of “we”, the referent remains definite, linking the speaker to her personal experiences and framing the food crisis within a systemic and interconnected context. The use of “we” (1 and 2) ties the speaker and audience into a historical trajectory, emphasizing the deepening interconnection of global economic and food systems. By foregrounding interconnectedness, the speaker moves beyond an individualistic perspective and positions the audience within a broader historical and economic framework, reinforcing the relationality between humans’ actions and environmental consequences. Similarly, “we” (3 and 4) establishes national-scale economic responsibility, specifically attributing systemic costs to the United States’ food expenditures. From the PDA standpoint, this usage of “we” fosters a critical yet constructive awareness, rather than merely identifying systemic failures, and it encourages recognition of shared responsibility and paves the way for solution-oriented discourse. Distinctive engagement from different “we” as social actors leads to the common recognition of global and national crises in food and the environment.

A discursive shift occurs in the fifth instance of “we”, where the pronoun moves from referent-definite to referent-indefinite, signalling a broader and more inclusive relationship between humans and the environment. The speaker strategically redefines agency. Instead of framing humans as passive recipients of systemic failures, she positioned them as active agents of transformation. This transition accords with PDA’s concentrations on empowerment and actionability, reinforcing the potential for collective action in addressing the climate-food nexus. The following uses of “we” (7 and 8) further strengthen this action-oriented discourse. This repetition of “we” in a parallel structure function as an inclusive self-reflection, encouraging acknowledgment of collective behaviours while maintaining constructive engagement. This rhetorical pattern corresponds with PDA’s emphasis on mobilizing discourse toward positive social change.

A hallmark of PDA is its highlights on hope, transformation, and future-oriented narratives (Martin, 2004). The speaker achieves this by framing the final instances of “we” (9) in a distinctly optimistic and solution-oriented manner. This shift toward affirmative discourse is central to PDA’s methodological approach by positioning humans as capable of addressing environmental challenges. The speaker constructs a promising and hopeful vision of the future. “The good news” together with “we” (9) signal a move from diagnosing problems to offering tangible solutions, reinforcing a sense of collective empowerment and possibility.

*In urban communities, **we (11)** also have exciting social enterprises like mDoc that’s using digital technology, ..., and they’re seeing measurable outcomes. **We (12)** must scale these types of interventions, but **we** must also hold our private sector companies responsible for the amount of sugar and salt contained in food. **We (13)** must set standards for what healthy food is and define healthy food according to plant-based diet, low salt, low sugar, and keep all of us accountable. **We (14)** must also encourage our governments and ensure that at the local, state and federal level, our school feeding programs prioritize healthy food, our public procurement programs prioritize healthy food, and collectively, **we (15)** ensure that we keep the standards high for everybody, every child. NON2021DEC*

*The reality **we (16)** face, one that was exposed by those mountains of potatoes and the cars lined up during the pandemic, is that our supply chains are antiquated. ... Addressing this challenge as much as any other is going to define our progress in the coming century. But there's good news. And the good news is that farmers and entrepreneurs and academics are radically rethinking national and global food systems. They are marrying principles of old-world agroecology and state-of-the-art technologies to create what I call a third way to our food future. **We're (17)** going to see radical changes in what **we (18)** grow... AL2020OCT*

In the first paragraph from *NON2021DEC*, “we” (from 11 to 15) is employed to unify the speaker and audience in addressing food-related issues, particularly in the context of nutrition, corporate accountability, and government intervention. Here, “we” functions as a directive and action-oriented pronoun, positioning both the speaker and the audience as active agents of change. Rather than portraying food reform as an institutional challenge, the speaker democratizes responsibility by involving multiple social actors including citizens, corporations, and policymakers within the collective presentations of “we”. As PDA advocates and encourages that to shape a better world we need to “reconsider power communally, re-align around values, and renovate discourses” (Martin, 2004, p.197), the choice of “we” discursively integrates various actors (urban communities, businesses, and governments), ensuring that all of them are mutually accountable for food system transformation. It did not criticize but highlight shared agency in setting higher standards as well as calling for a hopeful vision of reform instead of merely condemning corporate food production. By observing the usage of “we” (16, 17 and 18) in a problem-oriented context, the speaker builds solidarity before admitting the existence of challenges, and then reinforces the potential for systemic innovation, aligning with PDA’s focus on highlighting solutions and positive social action. In particular, the phrasing of “see *radical changes in what we (18) grow*” expresses its important feasibility and achievable pathways for social progress, which is in line with PDA’s principle. The following table (Table 1) summarises the typology of “we” and relevant instances above.

Table 1. The typology of “we”

| Type of „we” | Description | Example |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Referent-definite „we” | Refers to a specific group (speaker + audience or speaker + defined actors). Constructs shared historical/systemic responsibility. | Instances 1-4 |
| Referent-indefinite „we” | Broad, inclusive “we” represent humanity/ecosystem. Emphasizes collective agency and universal stakes. | Instance 5 |
| Directive/action-oriented “we” | Urges collective action. Accords with PDA’s focus on empowerment and solutions. | Instances 7-9, 16-18 |

| Type of „we” | Description | Example |
|-----------------------------------------|-------------------------------------------------------------------------------|-----------------|
| Solidarity-building “we” | Creates emotional resonance and shared identity before addressing challenges. | Instances 11-15 |
| Optimistic/solution-focused “we” | Framed with hopeful language to inspire transformative narratives. | Instance 9 |

5.2. High and low modality – sharing commitments and vision

The examination of modality in discourse yields significant insights into the use of language for conveying attitudes, beliefs, and intentions across diverse communicative contexts, particularly in public speeches. Fairclough emphasised that the interpersonal function of texts involves multiple layers of analysis, including modality, which helps to reveal the intricate relationships formed within the text (Fairclough, 2013, p. 94).

Based on Halliday and Hasan’s work on “modal operators³” (Halliday & Hasan, 2013, p. 180) in the discussions about finiteness and modality, I identify a series of lexical items that are frequently applied to express speakers’ predictions and shared commitments regarding humans’ practices in the food system and environment. After analysing frequency figures, the eight most common modal operators in the corpus are “must, should, have to, will, would, may, could, and might”, “must, should, have to” are featured as high modality, “will, would,” are medium modality and “may, could, and might” belong to low modality. Figure 3 demonstrates the distribution of modal verbs across high, medium, and low levels of modality in the collected talks.

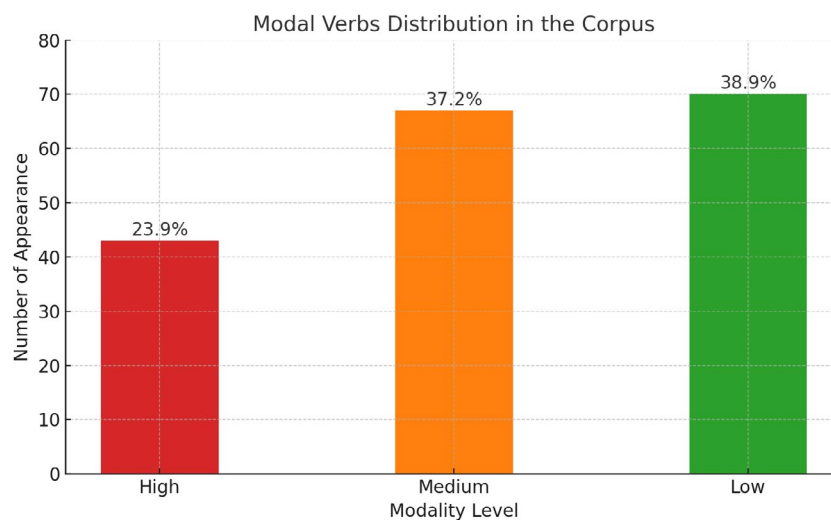


Figure 3. Modal verbs distribution in the corpus

³ Modal operators refer to words including “shall, will, should, would, can, could, may, might, must, ought (to); am to, is to, are to; was to, were to; need, dare”.

Sulkunen and Törrönen suggest that categorizing modal terms based on intensity such as “willingness” and “obligation” can offer clearer groupings for modal relationships (Sulkunen & Törrönen, 1997, p. 12). Accordingly, six modal verbs were chosen for this study, categorized by high and low modality levels. As shown in Figure 3, low modality dominates with 38.9%, while high modality accounts for 23.9%. This suggests that speakers tend to favour a suggestive tone rather than one of certainty or obligation. Despite this, both high and low modalities function differently based on their respective contexts. The next sections observe high modality contexts and low-modality contexts through concordance analysis as shown in Figure 4, summarizing their key collocates and categorizing the outcomes. Given the manageable size of the corpus, the key collocates were manually collected for further discussion, which may introduce an element of subjectivity, which also becomes a limitation of this study.

| | | | | | |
|----|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|------------------------------------|------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|
| 1 | doc#0 three lenses. | A health lens, an equity lens and a climate lens. | Starting with the climate lens, we | modify how we grow food and reduce food waste. | Our food ecosystem is one of the largest contributor |
| 2 | doc#0 nish their dinner because it's good for the environment, and healthy food is good for them. | Second, we | must | ensure that healthy food is affordable and accessible for the most vulnerable. | This is a huge challenge. |
| 3 | doc#0 diets because they are cheaper. | This has caused more damage to lives all over the world. | We | must | take a stand on this, and we can learn a lot from Africa. |
| 4 | doc#0 ng ultra-processed food to shift to more traditional diets, and they're seeing measurable outcomes. | We | must | scale these type of interventions, but we must also hold our private sector companies responsible for the amou | |
| 5 | doc#0 nal diets, and they're seeing measurable outcomes. | We | must | also hold our private sector companies responsible for the amount of sugar and salt contained in food. | |
| 6 | doc#0 hold our private sector companies responsible for the amount of sugar and salt contained in food. | We | must | set standards for what healthy food is and define healthy food according to plant-based diet, low salt, low suga | |
| 7 | doc#0 fine healthy food according to plant-based diet, low salt, low sugar, and keep all of us accountable. | We | must | also encourage our governments and ensure that at the local, state and federal level, our school feeding progr | |
| 8 | doc#0 ensure that we keep the standards high for everybody, every child. | If you are as impatient as me, you | must | also set standards and hold those in your spheres of influence accountable for delivering unhealthy food for th | |
| 9 | doc#0 your spheres of influence accountable for delivering unhealthy food for the most vulnerable. | Third, we | must | support small- and medium-sized enterprises. | In the food ecosystem, small- and medium-sized enterpr |
| 10 | doc#0 I'm impatient about the current pace of change in the food ecosystem. | And I think we all | must | be courageous and bold to transform this landscape. | The next time you eat a meal, ask yourself a few |

Figure 4. The concordance of “must”

Modality plays a crucial role across various discourse genres – media, politics, and more, where ideological positions are foregrounded differently. Modality reflects “the speaker’s assessment of the probabilities inherent in the situation” (Halliday & Hasan, 2013, p. 135). In TED speeches, where speakers are often passionate about their topics, the use of modalities is particularly significant in conveying three key discursive features. First, high modalities in the corpus demonstrate affirmation and certainty, reflecting the speakers’ conviction and urgency regarding societal issues. For instance,

- 1) We **must** set standards for what healthy food is and define healthy food according to plant-based diet, low salt, low sugar, and keep all of us accountable. NON2021DEC
- 2) Indeed, we **must** incorporate habitat everywhere immediately, especially in our cities. RW2024FEB

Under the guidance of PDA, positive discourse stresses the significance and accountability of realizing societal issues and taking actions in front of challenges. Discourses ideologically lead people to the way people think of issues, which as PDA believes, navigates how people behave and react, too. In phrases like “*incorporate habitat immediately*” and “*set standard for healthy food*”, the speakers assert firm responsibilities and collective goals involving various entities, such as “*business*” “*government*” “*enterprises*” and “*private sector*”. These terms, along with objectives like “*sustainability*” “*climate resilience*” and “*cellular agriculture*”, respectively mirror PDA’s proposal of empowering multiple social actors into social reforms and outlook on

achieving a utopian society in the discourses instead of criticism and oppression. Additionally, collocates such as “*people and planet*,” “*ecosystem*,” and “*biodiversity*” contextually reinforce that idea that humans and nature are closely bound together through mutual dependence for long-term survival and well-being, which also aligns with the principles of PDA.

Since “modality as the stance lexical bundle conveys speaker action in front of some actions” (Flowerdew, 2013, p. 177), modality functions as a crucial linguistic resource for expressing a speaker’s attitude, commitment, or evaluation towards potential actions or states of affairs. In discourse, particularly here within ecological debates, modality is strategically employed to convey varying degrees of necessity, obligation, or possibility, thereby guiding readers’ or listeners’ interpretations and expected responses. As such, a high-modal context fosters decision-making and authoritative discourse, emphasizing active engagement and responsibility in addressing the complex ecological relationship between humans, the food system, and nature. This type of discourse positions the speaker, audience, and stakeholders as responsible supporting actors, where a balanced and mutualistic system is achievable through collective efforts and respect for nature.

The low-modality context demonstrates a preferably solution- and impact-oriented approach, where the speaker’s role becomes less directive and more reflective of broader systemic challenges. In these contexts, flexibility and possibilities are highlighted rather than imperatives. For instance,

- 1) *12,000 people per day **could** die of hunger AL2020OCT*
- 2) *By engineering biology, we could theoretically grow anything that **might** come from plants or animals from cells instead ID2021AUG*
- 3) *we **might** harvest the cells and the tissues and then turn them into a nugget ID2021AUG*

challenges such as “*hunger*” and potential solutions like “*cells*” indicate a speculative yet forward-thinking perspective. Collocates such as “*engineering biology*” and “*resilient agroforests*” represent technological innovations like “*with protein from single-celled organisms*” and alternative practices to mitigate environmental and food-related issues. The use of low modality provides room for exploration and potential modifications to the current food and environmental systems. Future projections, such as reducing environmental damage, adopting healthier diets, and incorporating new agricultural technologies, illustrate the speakers’ desire for positive change. This speculative discourse reflects optimism about future solutions, emphasizing collective efforts to address food waste, deforestation, and other critical challenges. In this context, low modality contexts show less certainty but more specific measures in solving different social problems. Ultimately, this is what PDA ambitiously attempts to facilitate.

Table 2. High modality, verbs and agents

| Modal | Lexical Verb | Agent | Example context |
|---------------|--------------------|---------------------|-----------------------------------------------------------------------|
| <i>must</i> | modify | we | “We <i>must</i> modify how we grow food.” |
| <i>must</i> | hold (responsible) | we → private sector | “We <i>must</i> hold companies responsible for sugar content.” |
| <i>must</i> | set (standards) | we → governments | “We <i>must</i> set standards for healthy food.” |
| <i>should</i> | stop (mowing) | we (gardeners) | “We <i>should</i> stop mowing lawns.” |
| <i>Should</i> | leave (leaves) | we (gardeners) | “Leaves <i>should</i> be left for wildlife.” |

Table 3. Low modality, verbs and agents

| Modal | Lexical verb | Agent | Example context |
|--------------|-------------------|--------------------------|------------------------------------------------------------------|
| <i>could</i> | die (of hunger) | 12,000 people | “12,000 <i>could</i> die daily from COVID-linked hunger.” |
| <i>could</i> | collapse | Global food system | “The system <i>could</i> collapse .” |
| <i>could</i> | save | Rewilding efforts | “Rewilding <i>could</i> save ecosystems.” |
| <i>may</i> | reach (threshold) | Global warming | “The world <i>may</i> reach a climate threshold.” |
| <i>may</i> | fail | Speaker („I”) | “I <i>may</i> fail , but I’ll keep trying.” |
| <i>might</i> | snap | Food supply chains | “Chains <i>might</i> snap due to war.” |
| <i>might</i> | happen | Lab-grown meat expansion | “What <i>might</i> happen if we scale cultured meat?” |

In conclusion, modality in discourse highlights contrasting perspectives on responsibility and action. High modality reinforces firm attitudes and commitments towards sustainability, while low modality explores flexible solutions and potential advancements. Tables 2 and 3 provide a more straightforward and general review of modality, verbs and their agents in the contexts.

Lexicogrammatical linguistic devices or strategies cannot function independently of semantic features, and vice versa, so is the case with modality usage. Through the lens of modal verbs, the differentiation between high-modality, action-oriented language and low-modality, speculative or solution-focused language illustrates diverse perspectives on the issues. Despite the fact that the level of modality, either high or low, is to some extent featured as relative and subjective without exact measurement, high modality contexts in this study emphasize humans’ responsibility in the ecological web and interconnectedness, firm attitudes and strong commitments, whereas low modality highlights the existence of concurrent hazards and the importance of symbiosis within the entire ecosystem for sustainability. Additionally, as indicated by the corpus statistics

(see Table 1), the higher tendency to use low modality mirrors the speakers' overt attempt and awareness in encouraging positive human involvement in preserving the ecological network and committing to adaptive steps toward sustainability and biodiversity.

6. Conclusion

This research presents an evaluation of the beneficial relationship between humans and the environment in the food sector, methodologically using a corpus-assisted approach together with Positive Discourse Analysis. It explores how TED speakers, by using linguistic tools, particularly the pronoun “we” and modal verbs of varied intensity, persuasively shape the image of the role of humans in food systems in an optimistic way under the guidance of PDA. The corpus creatively provides a new insight from spoken discourse from TED Talks, with an educational nature and persuasive tenets.

In response to the first research question, TED speakers strategically construct discourse to conform to PDA principles, emphasizing optimism and solidarity in discussions of food systems and environmental sustainability. The inclusive pronoun “we” fosters a shared sense of responsibility, bridging individuals, corporations, and policymakers. Low-modality expressions enable flexible, solution-oriented discourse, while high-modality instances reinforce urgency and collective action. Rather than framing environmental challenges as external crises, TED talks situate them within a relational framework, highlighting both human action and influence. This approach shifts the focus from simple problem identification to picturing transformative change in the food systems via technological innovation, policy reform, and community engagement. By presenting sustainability as achievable, TED speakers employ language as a tool for empowerment, mobilizing audiences toward action. Their discourse reflects PDA's emphasis on positive social change, demonstrating how language can shape public attitudes and inspire collective efforts toward environmental sustainability.

As to the second question, the TED corpus reflects PDA principles of optimism and solidarity through strategic linguistic choices that foster collective agency and positive transition and future. The inclusive pronoun “we” unites diverse stakeholders, reinforcing shared accountability in addressing environmental challenges. Low-modality expressions promote flexible, solution-oriented discourse, while high-modality structures emphasize urgency and commitment. By framing sustainability as both necessary and achievable, TED speakers construct an empowering narrative that meets with PDA's goal of mobilizing audiences toward constructive actions in the future. This discourse strategy positions language as a catalyst for social and environmental change, emphasizing engagement over critique.

Overall, this paper is devoted to cultivating positive perspectives on humans' intervention in the food system and calls on future researchers and policymakers to explore the relationship between language and food issues in the media to better comprehend food problems worldwide. However, as the scale of the corpus in this study is limited, future research would be expected to look further on larger datasets and to explore more discourse in relation to humans, food and the environment.

Appendix

This layout lists the structure of the Talks that form the corpus and highlights the labels for each talk. The labels are also used for referencing examples in this article.

| LABEL | NAME OF THE TALK | TIME OF THE TALK | NAME OF THE SPEAKER | SPEAKER BACKGROUND |
|------------|-----------------------------------------------------------------|------------------|-----------------------------------------|-------------------------------------------------------------------------------------------|
| AL2020OCT | Climate change is becoming a problem you can taste | October 2020 | Amanda Little | Former Bloomberg Opinion columnist; a professor at Vanderbilt University |
| NON2021DEC | The future of the food ecosystem -- and the power of your plate | December 2021 | Ndidi Okonkwo Nwuneli | Nigerian social entrepreneur, writer, and activist |
| ID2021AUG | How we could eat real meat without harming animals | August 2021 | Isha Datar | Executive director of New Harvest |
| GM2022OCT | Can we feed ourselves without devouring the planet? | October 2022 | George Monbiot | British journalist, author, and environmental and political activist |
| HR2023APR | Are we the last generation — or the first sustainable one? | April 2023 | Hannah Ritchie | Scottish data scientist, senior researcher at the University of Oxford |
| JW2023JUL | A cleaner world could start in a rice field | July 2023 | Jim Whitaker and Jessica Whitaker Allen | Farmer, sustainability advocate. |
| LM2023JUL | A climate solution? The wisdom passed down through generations | July 2023 | Louise Mabulo | environmentalist, social entrepreneur, and chef |
| RM2023OCT | Let your garden grow wild | October 2023 | Rebecca McMackin | Horticulturist and botanist |
| SBM2023NOV | The unsung heroes fighting malnutrition | November 2023 | Shruthi Baskaran-Makanju | Consultant in Boston Consulting Group; expert in food systems, agriculture, and nutrition |
| RW2024FEB | When ancient wisdom beats modern industry | February 2024 | Rebecca Webster | Educator |

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