

CRITICAL DISCOURSE ANALYSIS AND SYSTEMIC FUNCTIONAL GRAMMAR IN CLIMATE CHANGE SPEECHES: A LITERATURE REVIEW

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Abstract: *This article provides a comprehensive literature review of Critical Discourse Analysis (CDA) as conceptualized by Norman Fairclough and Systemic Functional Grammar (SFG) by Michael Halliday, positioning them as complementary frameworks for analyzing speeches on climate change delivered by nations at COPs (Conferences of the Parties) of United Nations conventions. Drawing on mixed-methods approaches, the review explores key concepts, tenets, and applications of CDA and SFG, including transitivity analysis, intertextuality, and metafunctions. It critiques existing studies on climate change discourse and identifies gaps in assessing power relations and ideologies in national speeches. The synthesis highlights how these methodologies can reveal hidden ideologies, power dynamics, and representational strategies in discursive practices related to global environmental issues. Implications for future research in discourse studies and environmental linguistics are also discussed in the article.*

Keywords: *climate change speeches, Critical Discourse Analysis, ideology, power relations, systemic functional grammar, transitivity*

I. Introduction

In an era marked by escalating climate crises, national speeches at United Nations (UN) conventions serve as pivotal discursive sites where ideologies, power relations, and responsibilities are negotiated and constructed. These speeches are not mere rhetorical exercises; they embody social practices that shape global perceptions and policies on climate change (Fairclough, 1995). This article reviews two influential linguistic frameworks

- Critical Discourse Analysis (CDA) by Norman Fairclough and Systemic Functional Grammar (SFG) by Michael Halliday - as foundational tools for a mixed-methods analysis of such speeches. By integrating CDA's focus on power and ideology with SFG's grammatical insights into meaning-making, the researcher can dissect how nations represent climate issues, positioning themselves and others within broader socio-political contexts (Fairclough, 2003; Halliday, 1994).

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The literature review is structured as follows: First, it delineates the basic notions of CDA, emphasizing its role in unveiling opaque relationships between discourse and society. Second, it introduces Halliday's SFG, with a spotlight on transitivity analysis as a means to represent experiential realities. Third, it outlines major terms and tenets in CDA, including discourse, context, power, and ideology. Fourth, it positions CDA as a conceptual and methodological framework, reviewing prominent approaches like Fairclough's Dialectical-Relational model. Fifth, it surveys previous research on climate change discourse, highlighting methodological gaps. Finally, it synthesizes the frameworks' synergies and calls for their application in analyzing national climate speeches.

This synthesis is timely, as climate discourse increasingly intersects with geopolitical tensions, such as those between developed and developing nations. By transforming a literature review chapter into this standalone article, we aim to contribute to international discourse studies, offering a blueprint for empirical investigations.

II. Literature review

2.1. Basic notions of Critical Discourse Analysis

Critical Discourse Analysis (CDA) emerges as a multidisciplinary methodology for interrogating how language constructs and perpetuates social realities, particularly in contexts of power imbalance. As Fairclough (1995) articulates, CDA systematically explores the causal links between discursive

practices and broader socio-cultural structures, revealing how texts are ideologically shaped by power struggles.

At its core, discourse in CDA transcends mere language use; it is an "active relation to reality" (Fairclough, 1992, p. 41). Fairclough (2003) identifies three operational characteristics: genres (ways of acting, e.g., political speeches), discourses (ways of representing), and styles (ways of being). In climate change speeches, genres like UN addresses frame audience comprehension, often serving as sites of domination or resistance. Representations allow divergent perspectives on environmental issues, while styles construct identities, such as nations portraying themselves as victims or leaders (Fairclough, 2003).

CDA also emphasizes intertextuality, drawing from Bakhtin (1986), Fairclough (1992), Fairclough (2003), where discourses dialogically reference others, situating them within webs of social concerns. This "dialogism" implies that climate speeches implicitly invoke historical precedents or future policies, competing for dominance amid heteroglossia - the multiplicity of voices vying for power (Bakhtin, 1984). For instance, van Dijk (1991) demonstrates how pronouns like "we" and "them" in media discourse propagate exclusionary ideologies, a tactic observable in national speeches that delineate "developed" versus "developing" worlds.

Moreover, CDA scrutinizes production, form, and reception of discourse, analyzing grammar, vocabulary, and tone to reveal social effects. In climate contexts, this might involve examining

verb choices that obscure agency (e.g., passive constructions evading responsibility for emissions).

2.2. Halliday's Systemic Functional Grammar and Transitivity Analysis

Systemic Functional Grammar (SFG) views language as a social semiotic system in which meaning is realized through interconnected choices (Halliday, 1994). It proposes three metafunctions - ideational, interpersonal, and textual - that explain how language represents experience, enacts relationships, and organizes information (Halliday & Matthiessen, 2004). The ideational metafunction, particularly transitivity, is central to analyzing experiential meaning by examining processes, participants, and circumstances (Halliday, 2001). Halliday identifies six process types, which reveal how actions and responsibilities are constructed in discourse. In climate speeches, transitivity can expose ideological positions, such as emphasizing agency or obscuring responsibility. This analytical tool is widely used for its systematic and relatively objective insights into how language encodes power and ideology (Thompson, 2004; Fowler, 1991).

2.3. Major terms and tenets in CDA

Major terms in CDA

Text

In CDA, publicly delivered climate change speeches are treated as media texts, requiring clarification of the concept of "text" within the study. Following Fairclough (2005), text is understood as the linguistic or semiotic dimension of social events. CDA research also views media as

a discursive institution that shapes social life and constructs knowledge, values, and beliefs (van Dijk, 1993; Fairclough, 1995). Accordingly, climate speeches function both as media products and as influential texts that contribute to the social construction of global climate discourse.

Discourse

A widely recognized definition of discourse within Critical Discourse Analysis, adopted in this study, conceptualizes discourse as language use in both speech and writing understood as a form of social practice. According to Fairclough and Wodak (1997), this perspective implies a dialectical relationship between discursive events and the broader social contexts, such as situations, institutions, and social structures in which they are embedded. While discourse is shaped by these contextual factors, it simultaneously plays an active role in shaping them. In this sense, discourse is both socially conditioned and socially constitutive: it contributes to the construction of social realities, including systems of knowledge, as well as the identities and relationships of individuals and groups. Moreover, discourse functions not only to sustain and reproduce existing social arrangements but also to transform them. Given its socially consequential nature, discourse is inherently linked to issues of power, as discursive practices can produce and reproduce ideological effects by representing reality in particular ways and positioning social actors within unequal power relations.

Context

Within the framework of Critical Discourse Analysis, context is understood

in a broad and multidimensional sense. It encompasses not only the immediate linguistic environment in which a particular linguistic item occurs within a text, but also a wide range of extra-linguistic factors that shape and constrain meaning (van Dijk, 2004).

Social power

Social power refers to the control exercised by one group over others' actions, knowledge, and ideologies, thereby shaping their behavior and limiting their autonomy (van Dijk, 2004). Discourse plays a crucial role in reproducing such power, not only through coercion but also via persuasion and manipulation. In media contexts, power often stems from access to information and authority, enabling influence over public opinion (Schiffrin et al., 2008). In this study, climate change discourse is viewed as a form of social power, as it can shape perceptions, influence attitudes, and contribute to the construction and negotiation of power relations among countries, particularly regarding their responsibilities for climate change.

Power relation

According to Fairclough (2015), power relations are inherently embedded in interactions between social groups, particularly those with differing interests and positions. These relations are not static but are continuously negotiated, as social actors engage in discursive struggles to assert, defend, and legitimize their viewpoints. From this perspective, the exercise of power through language involves ongoing contestation, where competing groups seek to maintain or

challenge existing social arrangements. Fairclough further emphasizes that a comprehensive critical analysis requires examining power relations across multiple levels in order to reveal how discourse contributes to the maintenance or transformation of social reality.

Ideology

Van Dijk (1998) conceptualizes ideology as systems of socially shared ideas, values, and beliefs that characterize particular groups and function to organize and legitimize their actions. These shared cognitive frameworks provide group members with general principles that shape their interpretations of events and guide their social practices. Within the perspective of Critical Discourse Analysis, ideology is closely linked to discourse, as it both influences and is realized through linguistic structures. Ideological meanings are not always explicit; rather, they are often embedded in underlying patterns of language use. As noted by Jeffries and Walker (2012), ideology can frequently be identified through careful textual analysis, while Fairclough (2015) emphasizes that ideology typically operates by masking its own nature and presenting itself as natural or self-evident.

Major tenets in CDA

There are the eight tenets in CDA, according to Fairclough and Wodak (1997, p. 280), including addressing social problems, discursive power relations, constitutive effects on society, ideological functions, historical intertextuality, mediated text-society links, interpretative/explanatory nature, and social action orientation. These guide analyses of climate imbalances

between developed/developing nations. These tenets collectively emphasize the interconnectedness of discourse, power, and ideology, as well as the role of language in shaping and reproducing social inequalities, which are central to the focus of this study. Together, they provide a comprehensive framework for analyzing how discourse functions as a form of social practice, thereby informing the present study's examination of ideology and power relations in climate change speeches.

III. Research methods

CDA and SFG, as conceptual frameworks and research methodologies for climate change discourse, share the aim of exposing discourse-power links through micro-macro shuttling (Luke, 2002; Fairclough, 1995). Some reviewed approaches included the following:

Socio-Cognitive (van Dijk): Triangulates society, cognition, discourse; ideological square polarizes in/out-groups, relevant for classifying nations.

Discourse-Historical (Wodak): Integrates topics, strategies, linguistics with history; resource-intensive.

Socio-Semantic (van Leeuwen): Inventory of actor representations; activation/passivization reveals roles.

Dialectical-Relational (Fairclough): Three-dimensional (textual, discursive, social); draws on SFG for lexico-grammar. Textual level analyzes vocabulary/grammar; discursive examines production/consumption; social explains asymmetries.

Specifically, Fairclough's model suits mixed-methods, enabling dialectical views of climate discourse. Figure 1 illustrates discourse as text-interaction-context.

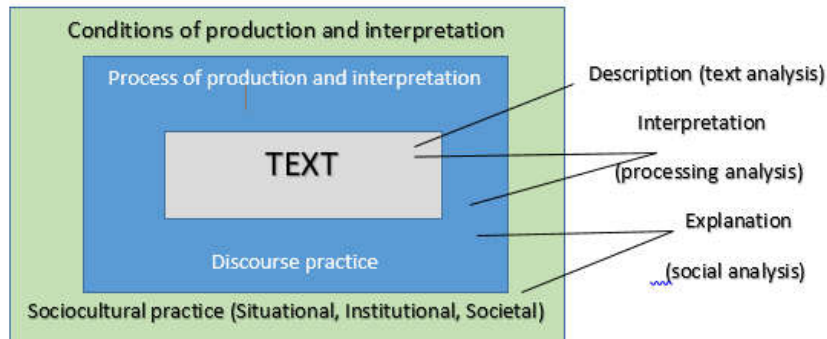


Figure 1. Discourse as text, interaction and context (Fairclough, 1989)

Meanwhile, criticisms of CDA include subjectivity, however, corpus techniques mitigate this by handling large data objectively. The critical review of CDA approaches in the Literature Review clarifies that this study employed the Dialectical-Relational Approach to CDA

by Norman Fairclough (1989, 1995, 2000) with the support of corpus tools in analyzing the data from the collected corpora.

Therefore, the study framework will combine these two theoretical frameworks into a unique method, as shown in the following figure

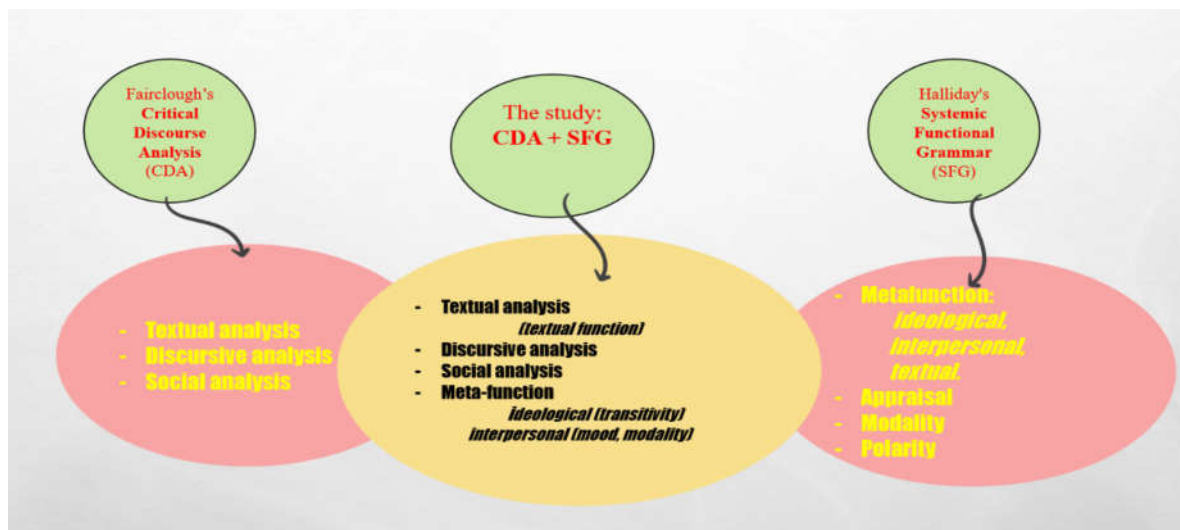


Figure 2. CDA and SFG - the multi-dimensional combination

Figure 2 illustrates the integrated analytical framework combining Critical Discourse Analysis (CDA) and Systemic Functional Grammar (SFG) as a multi-dimensional approach to examining climate change discourse. Specifically, CDA provides the macro-level perspective by focusing on the relationships between discourse, power, and ideology across three dimensions: textual, discursive practice, and social practice (Fairclough, 1995).

The integration shown in Figure 2 highlights the dynamic interaction between these two frameworks: while SFG supports the systematic analysis of linguistic features at the textual level, CDA extends the interpretation to broader socio-political contexts, allowing the researcher to explain how such linguistic patterns reflect and reproduce power relations and ideologies between developed and developing countries.

Thus, the combined framework not only enables a comprehensive analysis of discourse at multiple levels but also strengthens methodological rigor by

linking quantitative linguistic patterns with qualitative critical interpretation.

IV. Research discussion

Recent studies have increasingly expanded the application of Critical Discourse Analysis (CDA) and Systemic Functional Grammar (SFG) in examining environmental and climate change discourse. For instance, research in the past decade has applied corpus-assisted CDA to large-scale climate datasets, enhancing the objectivity and reproducibility of discourse analysis (e.g., Baker et al., 2013; Partington et al., 2013). More recent work also integrates SFG-based transitivity and appraisal analysis to explore how stance, evaluation, and responsibility are constructed in climate narratives (Martin & White, 2005; Bednarek & Caple, 2017). Additionally, interdisciplinary approaches combining discourse analysis with environmental communication and political studies have gained prominence, highlighting how climate discourse is shaped by media, policy agendas, and global inequalities

(Carvalho, 2007; Fløttum, 2017). These developments suggest a growing trend toward methodological integration and empirical expansion, reinforcing the relevance of combining CDA and SFG in analyzing contemporary climate change speeches.

In terms of the theoretical foundations of Critical Discourse Analysis and Systemic Functional Grammar in climate change speeches, the literature review provides a comprehensive synthesis of Critical Discourse Analysis (CDA) and Systemic Functional Grammar (SFG) as complementary frameworks for analyzing climate change speeches. However, several limitations must be acknowledged. First, as a theoretical and methodological overview rather than an empirical study, the review relies heavily on existing literature and does not include original data analysis of actual COP speeches.

Second, the review primarily draws from English-language sources and Western-centric scholarship (e.g., Fairclough, Halliday, van Dijk), which may not fully capture diverse global perspectives on climate discourse, particularly from non-English-speaking or developing countries. This could perpetuate the very power imbalances critiqued in CDA, such as the dominance of “developed” versus “developing” world narratives.

Finally, the review’s emphasis on spoken texts like national speeches identifies a gap in transitivity applications to oral discourses, but it does not address practical challenges, such as transcription inaccuracies or the

influence of non-verbal elements (e.g., tone, delivery) in UN addresses, which SFG’s metafunctions could extend to but are not explored here.

Building on the identified gaps and synergies between the SFG, several avenues for future research are proposed to advance discourse studies in environmental linguistics.

First, empirical applications of the integrated framework outlined in Figure 2 should be prioritized, particularly through mixed-methods analyses of diachronic corpora of COP speeches. This could involve collecting and examining transcripts from multiple conferences (e.g., COP21 to COP30) to track evolving ideologies, power relations, and representational strategies, such as transitivity patterns in material and relational processes that obscure or assign responsibility for emissions.

Second, extending SFG’s metafunctions beyond transitivity—such as interpersonal analysis of modality (e.g., hedges like “might” in commitments) or textual examination of coherence via logico-semantic relations—could deepen insights into how speeches enact relationships and organize arguments.

Finally, interdisciplinary collaborations with fields like political science or environmental policy are recommended to evaluate the real-world impacts of discursive ideologies, such as their influence on policy outcomes or public behavior. Longitudinal research tracking post-speech actions (e.g., emission reductions) could test CDA’s claims on discourse as social action, ultimately contributing to transformative

strategies for climate justice and challenging hegemonic narratives in international forums.

The integration of Critical Discourse Analysis (CDA) and Systemic Functional Grammar (SFG) operates through a complementary analytical process. SFG is used at the micro level to examine linguistic features, particularly transitivity, by identifying processes, participants, and structures within clauses. CDA then interprets these patterns at the macro level, linking them to ideology and power relations. For example, active constructions may highlight agency, while passive forms can obscure responsibility. Thus, SFG explains how meaning is constructed, and CDA explains why it is constructed that way, enabling a deeper understanding of how climate discourse reflects and reinforces global power dynamics.

V. Conclusion and recommendation

The literature review has introduced CDA, its principal concepts and tenets as used in this study. It has also discussed the important approaches to CDA, highlighting the relevant ones to the current study. Then, some major criticisms of CDA have been presented, leading to a brief discussion of corpus techniques and their possible contribution to CDA. Finally, an account of previous studies relevant to the present research has been provided, which displays that the biggest gap in the previous studies on climate change is the lack of analysis of how the power relations between the developed and developing countries as well as how the ideologies about these countries 'responsibilities for climate change are

constructed in the media coverage of the climate conferences. Integrating Fairclough's CDA and Halliday's SFG offers a robust mixed-methods lens for national climate speeches, revealing how discourse enacts power and ideology. Future studies should apply this to research corpora, contesting outdated findings and advancing emancipatory goals. This framework not only critiques but empowers transformative action on climate justice.

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PHÂN TÍCH DIỄN NGÔN PHÊ PHÁN VÀ NGỮ PHÁP CHỨC NĂNG HỆ THỐNG TRONG BÀI PHÁT BIỂU VỀ BIẾN ĐỔI KHÍ HẬU: TỔNG QUAN NGHIÊN CỨU

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Tóm tắt: Bài viết này cung cấp một đánh giá tổng quan toàn diện về Phân tích diễn ngôn phê phán (CDA) theo quan niệm của Norman Fairclough và Ngữ pháp chức năng hệ thống (SFG) của Michael Halliday, định vị chúng như các khung nghiên cứu bổ sung để phân tích các bài phát biểu về biến đổi khí hậu do các quốc gia đưa ra tại COP (Hội nghị các bên) của các công ước của Liên hợp quốc. Dựa trên các phương pháp tiếp cận hỗn hợp, bài đánh giá khám phá các khái niệm, nguyên lý và ứng dụng chính của CDA và SFG, bao gồm phân tích tính chuyển tiếp, tính liên văn bản và siêu chức năng. Bài viết phê bình các nghiên cứu hiện có về diễn ngôn về biến đổi khí hậu và xác định những lỗ hổng trong việc đánh giá các mối quan hệ quyền lực và hệ tư tưởng trong các bài phát biểu quốc gia. Tổng hợp làm nổi bật cách các phương pháp luận này có thể tiết lộ các hệ tư tưởng tiềm ẩn, động lực quyền lực và chiến lược đại diện trong các thực tiễn diễn ngôn liên quan đến các vấn đề môi trường toàn cầu. Ý nghĩa đối với nghiên cứu trong tương lai trong nghiên cứu diễn ngôn và ngôn ngữ học môi trường cũng được thảo luận trong bài báo.

Từ khóa: bài phát biểu về biến đổi khí hậu, phân tích diễn ngôn phê phán, hệ tư tưởng, quan hệ quyền lực, ngữ pháp chức năng hệ thống, tính chuyển tiếp

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