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The Layout of Environmental Discourse and Scientific Authority in Nature's Cover "Down to Earth": A Social Semiotic Analysis

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Abstract:
This study examines the multimodal construction of environmental discourse and scientific authority in *Nature's* cover "Down to Earth." Drawing on Kress and van Leeuwen's (2006) Grammar of Visual Design and van Leeuwen's (2022) concept of provenance, the study analyzes layout as a semiotic resource that organizes visual meaning through the spatial arrangement of compositional elements. The findings reveal that the cover constructs environmental crisis as a consequence of human industrial intervention through the representation of pesticide-spraying tractor tracks and fragile biodiversity. Simultaneously, the composition positions *Nature* as an authoritative scientific institution through the strategic placement of the logo, minimalist visual design, and references to scientific investigation. The study concludes that Nature's cover functions as multimodal space where ecological discourse and institutional authority are visually legitimized.

Keywords: *biodiversity; environmental discourse; multimodality; provenance; scientific authority; visual semiotics*

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I. INTRODUCTION

Contemporary visual communication marks a shift from traditional monomodal forms of academic discourse which focused primarily on linguistic modes, while neglecting the visual ones, to a multimodal form of meaning-making where layout functions as a semiotic resource in its own right (Kress & Van Leeuwen, 1995, 2006), through which the spatial arrangement of semiotic modes produces hierarchy and coherence to visually construct and legitimize scientific identity and authority. Therefore, most recent scientific journal covers convey meaning through a multimodal process as editors have to combine multiple semiotic modes such as images, color, typography, and layout to create a coherent identity. As a result, covers have become vital to the academic success of scientific journals in terms of visibility and influence.

The process of generating meaning through scientific journal covers relies heavily on the invisible semiotic choices of the sign maker. To understand the reasons behind the sign maker's compositional choices, analyzing the cover's layout through Kress and van Leeuwen's (2006) Grammar of Visual Design and its compositional metafunction is the most suitable approach to decode how information value, salience, and framing are used to construct meaning. In addition, the ideological dimension of the cover is examined through van Leeuwen's (2022) concept of provenance, which explains how semiotic resources import meanings and values from one social context into another in order to construct particular ideological interpretations.

Finally, the present study investigates the multimodal construction of meaning through layout in Nature's "Down to Earth" cover (Vol. 593, Issue 7857, 2021) within a social semiotic perspective. More specifically, the study attempts to answer the following questions:

1- What are the semiotic resources used in the cover "Down to Earth" to construct meaning?
2- How is layout organized through the compositional principles of the Grammar of Visual Design, particularly framing, salience, and information value, in the selected cover?
3- What ideological meanings are constructed through the multimodal layout of the selected cover?

1. Literature review

The multimodal approach to meaning is grounded in social semiotics, a field that views meaning as a social practice. According to Van Leeuwen (2005), semiotic resources such as language, image, color, or layout are socially shaped and culturally situated. Therefore, they offer specific potentials and constraints for meaning-making, which users select and configure based on their communicative needs and social context. In addition, As Jewitt et al. (2025) argue, multimodality approaches communication by investigating the diverse ways people communicate beyond language, challenging the traditional dominance of the linguistic mode in academic research. Furthermore, visual communication is treated as a fully articulated semiotic system with its own "grammar," capable of realizing complex ideational and interpersonal meanings (Kress and Van Leeuwen, 2006). The "visual" is therefore constitutive of knowledge itself.

To conduct the analysis of visual texts, Kress and Van Leeuwen (2006) developed a grammar of visual design that centers on composition. Composition relates the representational and interactive meanings of an image to each other through three interrelated systems: information value, salience, and framing. Information value refers to the placement of elements within a specific zone of the image, endowing them with specific semantic values. Kress and Van Leeuwen (2006) posit that elements placed on the left are presented as "Given" (familiar, established information), while those on the right are presented as "New" (the issue at hand, or the call to action). Similarly, the vertical axis distinguishes between the "Ideal" (placed at the top; representing the generalized essence or promise) and the "Real" (placed at the bottom;

representing factual detail or practical reality). A third polarization involves the "Center" and "Margin," where the central element is presented as the nucleus of information, holding the marginal elements together. The second principle, salience, concerns the degree to which an element draws the viewer's attention. As Muhassin et al. (2022) note in their analysis of textbook covers, salience is determined by a complex interaction of visual cues. These include size, sharpness of focus, tonal contrast, color intensity, and placement in the foreground or background. Salience creates a hierarchy of importance, guiding the viewer's eye and establishing what is most significant within the composition .The third principle, framing, connects or disconnects elements of the visual field. Kress and Van Leeuwen (2006) explain that framing devices such as dividing lines, white space, or color discontinuities, signify whether elements belong together or should be read as separate units of information. Strong framing implies distinctness and individuality, while weak framing suggests continuity and group identity .

Overall, these three systems, information value, salience, and framing, provide the necessary toolkit for deconstructing how a journal cover organizes visual information to construct a coherent and authoritative argument. Building on these principles, layout can be understood as a broader semiotic resource that organizes multiple elements on the page, guiding readers' engagement beyond individual images. Layout functions as a technology of the page that regulates the spatial distribution of other semiotic modes (text, image, graphics). Djonov and Van Leeuwen (2014) emphasize that layout templates such as those used in PowerPoint or standard journal designs act as "paradigm-creating technologies" that normalize specific ways of organizing knowledge. By fixing the position of headers, titles, and images, layout assigns hierarchical value to information .Furthermore, layout plays a critical role in the construction of institutional identity. The consistent spatial organization of elements across different issues of a journal serves to brand the publication, creating a visual "signature" that conveys stability and authority. As Djonov and Van Leeuwen (2014) suggest, the grid systems used in professional design mediate between the freedom of composition and the constraints of standardization. This tension is productive since it allows the institution to assert control over the presentation of scientific knowledge while permitting specific variations for individual covers .

The application of multimodal layout analysis has produced significant findings across visual communication genres, particularly in relation to meaning construction and ideological positioning. Damaskinidis et al. (2019), through an eye-tracking study of print advertisements, demonstrated that viewers' reading paths are directly shaped by layout organization, especially through salience, positioning, and visual hierarchy. The study found that centrally positioned and highly contrasted elements attracted the greatest visual attention, while compositional sequencing guided viewers systematically across the advertisement. These findings confirm that layout functions as a mechanism controlling interpretation and audience engagement. Similarly, Modu and Bwala (2023), in their semiotic analysis of *TELL* magazine covers, found that typography, imagery, and compositional placement collectively construct ideological messages and institutional identity. Their analysis revealed that dominant headlines and centrally positioned images were strategically used to foreground political and social issues, while the magazine logo functioned as a marker of authority and credibility. The study therefore concluded that magazine covers operate as multimodal spaces where visual composition actively shapes ideological interpretation.

In the field of environmental discourse, Benjaminsen (2021) demonstrated that environmental imagery frequently constructs narratives of ecological decline through symbolic visual representations. The study found that environmental visuals often portray human activity as the principal cause of ecological degradation, thereby directing public interpretation toward human responsibility for environmental crisis. Benjaminsen further argued that such imagery

transforms environmental issues into emotionally and ideologically charged narratives rather than neutral representations of nature. These findings are particularly relevant to the present study because the *Nature* cover similarly employs agricultural and ecological imagery to construct biodiversity loss as a consequence of human industrial intervention. More specifically, Krause (2019) explained that *Nature*'s visual redesign was intentionally engineered to reinforce scientific readability, institutional clarity, and digital accessibility. The study revealed that the custom "Harding" typeface was specifically designed for scientific communication through enlarged mathematical symbols, clearer Greek characters, optimized readability on small screens, and stronger typographic distinction. Krause also explained that the minimalist color redesign aimed to reduce cognitive load and allow scientific content to stand out more clearly. Furthermore, the redesigned logo, with its controlled weight contrast and simplified lower-case form, was intended to create an impression of "calm, rational intelligence."

Despite these contributions, limited research has specifically examined how elite scientific journal covers combine compositional layout and provenance to construct environmental discourse and scientific authority simultaneously. Therefore, this study addresses this gap by applying Kress and van Leeuwen's (2006) compositional metafunction together with van Leeuwen's concept of provenance (2022) to analyze how the *Nature* cover visually constructs environmental crisis, human responsibility, and institutional scientific authority.

II. Methodology:

1. Research Approach and Method:

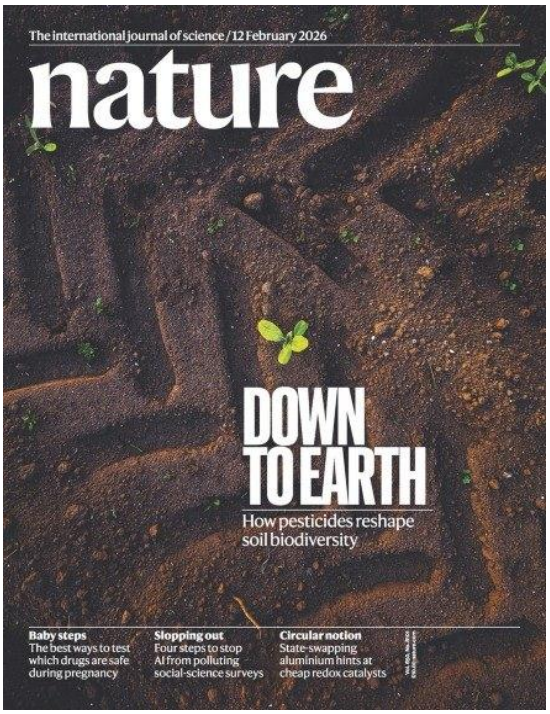
This study adopts a qualitative, interpretive methodology grounded in the social semiotic approach to Multimodal Discourse Analysis (MDA) and specifically informed by Kress and van Leeuwen's model of Grammar of Visual Design (2006) to examine how meaning is constructed through the interaction of both visual and verbal semiotic resources. The foundational premise of this research is that all texts are multimodal (Kress & van Leeuwen, 2001) meaning that language operates alongside other semiotic modes in the production of meaning. According to Jewitt, Bezemer, & O'Halloran (2025), the traditional academic and scientific authority has given much priority to the linguistic mode as a verbal cohesive device at the expense of other existing modes such as color, typography, and especially layout. However, within contemporary multimodal studies, layout contributes to the production of meaning as much as the other semiotic modes which makes it a mode in its own right (Kress & van Leeuwen, 1996). In addition, the study draws on van Leeuwen's (2022) concept of provenance to examine how semiotic resources import meanings, values, and associations from one social context into another in order to construct ideological interpretation. Consequently, to understand how institutional legitimacy and environmental urgency are constructed on scientific journal covers through layout and provenance, it is necessary to examine the text as a multimodally designed artifact.

2. The Sample

The research sample consists of one recent journal cover from the scientific journal *Nature* entitled "*Down to Earth"*. The cover was selected through purposive sampling for two principal reasons. First, the cover represents highly multimodal environmental text in which linguistic and visual resources are carefully integrated to communicate scientific concerns through sophisticated visual layouts. This characteristic makes it particularly suitable for investigating how multimodal organization contributes to the construction of legitimacy and authority. Second, it addresses contemporary ecological issues of global significance. *Down to Earth* focuses on pesticide contamination and soil biodiversity across Europe which allows the study to examine how environmental discourse is visually framed and ideologically articulated

within scientific media. In addition to the cover itself, the official editorial description published by *Nature* is incorporated as supporting verbal text. This description provides contextual grounding for the interpretation of the visual representations and reinforce the reliability of the ideological analysis.

Figure 1. Cover of "Down to Earth" published in Nature, Volume 650



Editorial Description: The use of synthetic pesticides is widespread, and their potentially harmful effects on wildlife -from bees to fish- and human health are well documented. Somewhat less clear are their effects on soil biodiversity. In this week's issue, Marcel van der Heijden and colleagues address this issue with a report on how pesticide residues affect soils across Europe. The researchers assessed 63 pesticides across 373 sites in 26 European countries. Pesticide residues were present at 70% of the sites and showed the second biggest effect on soil biodiversity patterns after soil properties. The team also saw specific patterns, with pesticides altering microbial functions and suppressing beneficial organisms, suggesting that functional and taxonomic characteristics need to be part of risk assessments for preserving soil biodiversity.

3. Data Collection and Analysis Procedure

The objective of this study is to investigate the semiotic resources employed in the selected covers and to examine how multimodal layout contributes to the meaning construction in scientific journals. To achieve this objective, the study conducts a systematic analysis and interpretation of the visual and verbal elements appearing on the covers through three interconnected phases: semiotic decoding, compositional analysis, and ideological interpretation.

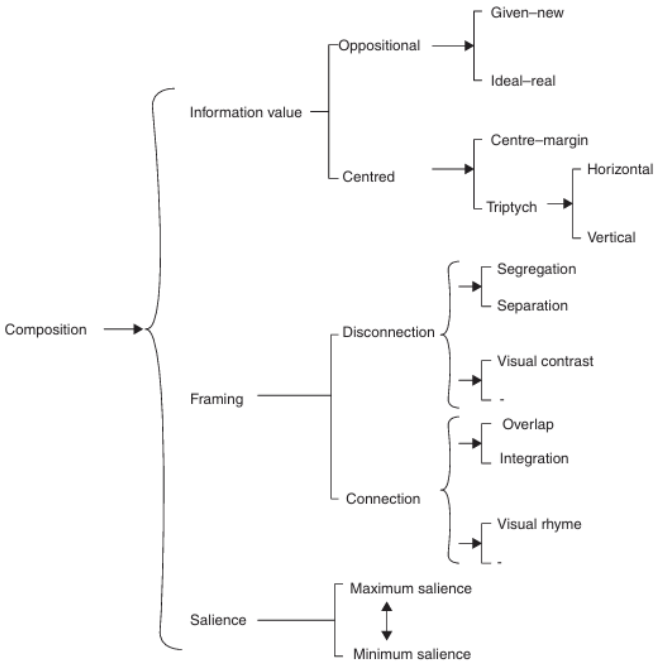
3.1. Semiotic Decoding

The first phase focuses on identifying and decoding the principal semiotic signs used in the selected "Nature" covers.

3.2. Compositional Analysis of the Cover

The second phase applies Kress and van Leeuwen's (2006) Grammar of Visual Design in order to examine how layout organizes meaning within the covers. More specifically, the analysis focuses on the compositional metafunction through the categories of framing, salience, and information value. Framing is analyzed in terms of the degree of visual connection or separation between compositional elements and how these relations contribute to textual coherence. Salience is examined through visual prominence created by size, color contrast, typography, foregrounding, and backgrounding. Information value is investigated according to the spatial arrangement of elements within the layout, particularly through center/margin and top/bottom relations. The analysis also examines reading paths and the interaction between verbal and visual modes in order to determine how viewer attention is directed throughout the multimodal composition.

Figure 02. The meaning of composition (adapted from Kress & van Leeuwen, 2020).



3.3 Ideological Interpretation

The final phase moves beyond structural analysis toward critical interpretation. Whereas the previous phases focus on identifying signs and analyzing compositional organization, this phase examines the ideological meanings constructed through the multimodal layout of the covers.

The interpretation is grounded in three complementary sources: the visual composition of the covers, the editorial descriptions published by Nature, and Krause's (2019) discussion of the journal's visual redesign as Nature's creative director. Through van Leeuwen's (2022) concepts of provenance and contextualization, the study investigates how scientific visual discourse naturalizes particular environmental perspectives and legitimizes institutional authority. The selected cover is therefore interpreted as an ideological artifact that organizes environmental meaning visually through multimodal design.

4. Data analysis and discussion:

4.1. Data analysis

4.1.1 Semiotic Decoding

Identification of resources in "Down to cover.

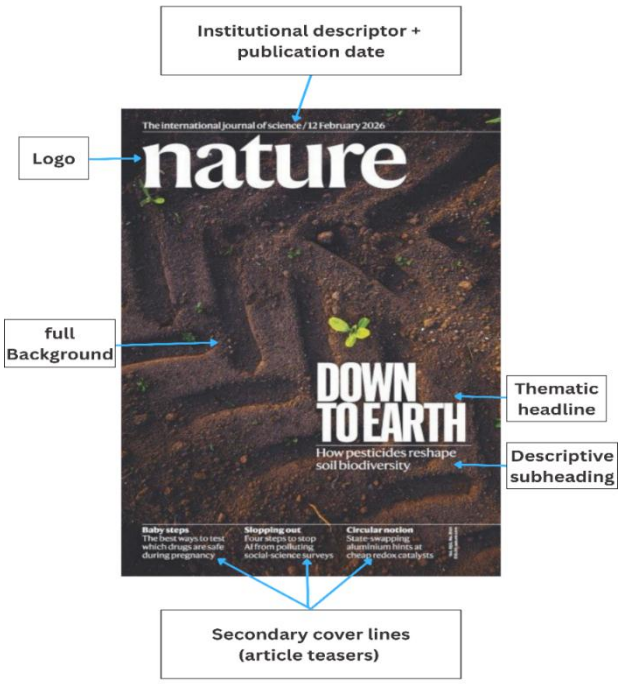


Figure 03. semiotic Earth"

The figure presents the principal semiotic resources identified in the Nature cover "Down to Earth," which will be decoded and analyzed in terms of their compositional and ideological meanings.

Figure 04. compositional organization in "Down to Earth" cover.



The figure illustrates the compositional structure of the Nature cover "Down to Earth" according to Kress and van Leeuwen's (2006) information value system. The spatial arrangement of the semiotic resources will be decoded to examine how layout organizes meaning through top/bottom, center/margin, and full-background relations.

Table 1: Layout Distribution of Semiotic Resources in "Down to Earth" Cover.

Semiotic Resources	Layout
Institutional descriptor + publication date +logo	Top-left
Thematic headline +Descriptive subheading	Low-Center
Secondary cover lines	Bottom horizontal section
Earth/soil background + Green seedlings +Tire tracks	Full-background composition

4.1.2. Compositional Analysis of "Down to Earth" Cover

Figure 04 illustrates the compositional organization of the "Nature" cover through the interaction of framing, salience, and information value, as proposed by Kress and van Leeuwen's (2006) Grammar of Visual Design. The layout combines both centric and eccentric compositional structures in order to organize meaning and direct viewer attention across the multimodal composition.

a. Information Value:

Table (2): Information Value in "Down to Earth" cover.

Information Value	Demonstration
Ideal–Real	The upper section presents institutional identity markers, while the lower section presents the concrete environmental issue and thematic message.
Centre–Margin	The ecological imagery and thematic focus occupy the visual center of the composition.
Horizontal Triptych	The cover is horizontally segmented into top, center, lower-center, and bottom compositional zones.

According to Kress and van Leeuwen (2020), information value is produced through the spatial positioning of elements within a composition. Meaning is therefore conveyed through the placement of semiotic resources in relation to structures such as Ideal/Real, Given/New, and Centre/Margin.

As illustrated in Figure 03, the Nature cover combines both vertical and centric compositional structures. The upper section of the composition contains the institutional descriptor, publication date, and logo, while the lower and central areas contain the thematic headline, descriptive subheading, and supporting textual elements. This organization reflects what Kress and van Leeuwen describe as the Ideal/Real structure, in which upper elements tend to communicate generalized, symbolic, or ideological meanings, whereas lower elements communicate more concrete, practical, and "down-to-earth" information.

The top section of the cover functions as the Ideal zone. The institutional descriptor "The international journal of science," together with the publication date and the *nature* logo, establishes the scientific authority and institutional identity of "Nature" before the viewer engages with the environmental issue itself. Their elevated placement gives them symbolic prestige and reinforces the credibility of the publication. The logo especially occupies a privileged compositional position because it acts as the primary institutional marker through which the journal becomes immediately recognizable to the viewer.

The lower-central section functions as the Real zone because it introduces the concrete environmental topic addressed by the issue. The thematic headline "DOWN TO EARTH" and the descriptive subheading "How pesticides reshape soil biodiversity" provide direct and specific information concerning ecological degradation and agricultural intervention. Their placement closer to the lower half of the composition reflects Kress and van Leeuwen's argument that elements positioned toward the bottom tend to communicate factual, or grounded information. The phrase "down to earth" itself reinforces this spatial relation semantically, since the headline refers to groundedness, and the literal earth represents it visually in the background.

The cover also demonstrates a strong Centre/Margin organization. Kress and van Leeuwen explain that in center-margin compositions, the central element functions as the core of information, while surrounding elements operate as margins that derive meaning and coherence from the center. Moreover, the thematic headline occupies the visual center of the composition and therefore functions as the principal semantic nucleus around which all other elements are organized. The surrounding elements such as the institutional marker above, the

secondary cover lines below, and the ecological background gain coherence through their relation to the central environmental message introduced by the headline.

Figure 04 further demonstrates how the cover combines Centre/Margin organization with vertical compositional structuring. The central placement of the headline creates a stable compositional anchor that organizes the viewer's reading path. Around this center, the secondary cover lines (the article teasers) positioned in the bottom horizontal section function as supporting informational modules. Although these elements remain important, they are visually subordinate to the central headline because they occupy marginal positions within the layout hierarchy.

The visual background itself also participates in the information-value structure of the composition. The tire tracks extend diagonally across the cover and visually connect the upper and lower zones, while the green seedlings emerge from the soil around the central headline area to create a compositional interaction between environmental destruction and ecological regeneration.

The composition does not strongly emphasize a Given/New opposition because the layout is predominantly centralized. As Kress and van Leeuwen note, centered compositions often reduce oppositional structures and instead create unity around a central element. The Nature cover follows this principle by organizing both verbal and visual resources around the thematic headline, thereby constructing a unified environmental narrative while neglecting the contrastive left/right informational structure.

b. Framing

Table (3): Framing in "Down to Earth" cover.

Framing	Demonstration
Integration	Visual and verbal resources are unified within a coherent ecological composition.
Overlap	The thematic headline overlaps with the environmental background imagery.
Visual Contrast	White typography contrasts sharply with the dark soil background.
Visual Rhyme	Repeated earthy textures, green seedlings, and track patterns create thematic cohesion.

Kress and van Leeuwen (2020) define framing as the degree of connection or separation between compositional elements within a visual layout. Elements may be strongly framed through clear divisions such as frame lines or empty spaces, or weakly framed through visual continuity and integration.

The *Nature* cover is separated into three sections. The upper section including the institutional descriptor, the publication date, and the logo establishes the scientific identity of the journal. The second including the headline and the descriptive subheading presents the new theme of the issue. Finally, the third section includes the cover lines and the volume number to promote other articles published in the journal itself. Nevertheless, the cover demonstrates weak framing through light grid lines because most verbal and visual elements are integrated within a continuous full-background composition. As shown in Figure 2, the soil texture extends across

the entire cover and visually connects the logo, headline, subheading, seedlings, tire tracks, and secondary cover lines. The absence of strong frame lines or clearly isolated sections reduces separation between elements and presents the composition as a unified environmental message.

The verbal elements are also visually connected through a consistent, custom typeface and color contrast. The white textual components maintain cohesion against the dark earth-toned background, creating what Kress and van Leeuwen (2006) describe as compositional connectedness through shared visual qualities. This visual continuity reinforces the relationship between the institutional identity of "Nature" and the ecological issue represented in the cover.

Figure 1 further illustrates how framing contributes to compositional organization by grouping elements into identifiable spatial zones while maintaining overall visual cohesion. The weak framing of the composition encourages viewers to interpret the verbal and visual resources as interconnected components of a single environmental narrative rather than as independent informational units.

c. Salience

Table (4): Salience in "Down to Earth" cover.

Level of Salience	Demonstration
Maximum Salience	The thematic headline and central ecological imagery dominate viewer attention through size, contrast, and placement.
Minimum Salience	The publication date, institutional descriptor, and secondary cover lines receive less visual emphasis due to smaller scale and peripheral positioning.

Kress and van Leeuwen (2020) define salience as the degree to which compositional elements attract viewer attention through visual weight and prominence. Salience is produced through factors such as size, tonal contrast, color contrast, placement, foregrounding, and sharpness of focus.

As shown in Figure 2, the most salient element in the *Nature* cover is the thematic headline "DOWN TO EARTH." Its salience is created primarily through large uppercase typography, central placement, and strong tonal contrast between the white text and the dark soil background. According to Kress and van Leeuwen (2006), elements positioned centrally and with high visual contrast acquire greater visual weight within the composition. The headline therefore functions as the primary entry point of the reading path. Also, the green seedlings possess high salience because of their color contrast against the brown and black earth tones of the background. Kress and van Leeuwen identify color contrast as an important factor in visual prominence, particularly when saturated colors appear within darker or less saturated environments. The seedlings visually foreground ecological growth and regeneration, making them symbolically significant within the environmental narrative of the cover. In addition, the tire tracks constitute another salient visual element due to their scale, diagonal orientation, and foreground positioning. Their dark linear forms cut across the composition and overlap the soil surface, directing viewer attention across different zones of the layout. Their visual prominence contributes to the thematic opposition between industrial intervention and natural biodiversity. Moreover, the institutional descriptor and publication date possess relatively low salience

because of their small typography and thin visual weight. By contrast, the *nature* logo achieves stronger salience through its large scale, bold weight contrast, and thick–thin typographic variation, which visually separates it from the smaller descriptor above.

As clarified in Figure 02, salience organizes the reading path of the cover. Viewer attention is first attracted to the central headline, then moves toward the seedlings and tire tracks, before shifting upward to the institutional marker and downward toward the secondary cover lines. This hierarchy of salience structures the progression of information throughout the composition and guides interpretation of the multimodal message.

To conclude, the cover constructs salience through the interaction of large white uppercase typography, strong contrast between the white textual elements and the dark soil background, the central placement of the thematic headline, the foregrounding of the tire tracks across the composition, and the visual prominence of the green seedlings against the brown earth tones.

4.1.3. Ideological Interpretation of "Down to Earth" cover.

Van Leeuwen (2005/2021) defines ideology as a semiotic process that operates through the interaction of provenance and contextualization. Provenance is the "importing" of signifiers from one social or cultural context to another in order to transform the loaded ideas and values from the original context to the target one. These imported meanings frequently perform through culturally familiar associations that are, in the words of van Leeuwen, "recognized unreflectively rather than made explicit." Thus, ideology is naturalized via visual and multimodal choices that may appear self-evident as well as culturally legitimate.

a. The Ideological Construction of Environmental Crisis and Human Responsibility

The cover of Nature "DOWN TO EARTH" employs layout as the primary semiotic resource to construct the ideology of environmental discourse concerning the ecological crisis, as well as the scientific authority. Through the spatial arrangement of elements, a specific worldview of human-nature relations is established to guide the viewer naturally from the journal's authority at the top, to the environmental problem at the center, and finally to the journal's broader scientific content at the bottom.

At the center of the layout, the cover visually foregrounds the environmental issue through the large image of dark soil marked by tire tracks and interrupted by small green seedlings. The positioning of these elements makes the ecological problem the immediate focus of the viewer's attention. That is to say, on the one hand, the tire tracks originate from the tools used by humans to spray pesticides on crops, and are recontextualized within nature's cover to function as an indexical sign of human intervention and the widespread use of pesticides through pesticide-spraying tractors. On the other hand, the small plants symbolize fragile biodiversity struggling to survive within the environmental damage caused by humans. By placing these contrasting elements at the center of the composition, the cover's layout promotes the idea that because humans are responsible for disrupting soil biodiversity through industrial agricultural practices, they also bear responsibility for recognizing and addressing these ecological consequences. In addition, the linguistic mode presented by the thematic headline "DOWN TO EARTH" may further suggest that humanity itself risks ecological decline if these environmental threats continue to be ignored. Furthermore, the headline could be interpreted as a call to humble human perspectives by drawing attention to invisible ecological risks occurring beneath the surface of the earth. Also, the descriptive subheading "How pesticides reshape soil biodiversity" strengthens this interpretation by explicitly connecting agricultural chemicals to ecological transformation and biodiversity disruption.

b. The Ideological Construction of Scientific Authority

The ideological significance of the composition is emphasized through information value and salience. As discussed previously, the logo of nature occupies the privileged upper section of the layout and functions as the principal institutional marker of the composition. Its placement within the Ideal zone, combined with the minimalist white typography and strong contrast against the dark background, establishes scientific authority and institutional legitimacy.

According to Krause (2019), the custom typeface used is called "Harding," named after Anita Harding, a member of Nature's team who died from a terminal illness in 1995, in honor of her contributions to the journal and her sense of humor. Furthermoe, the Harding typeface was specifically designed to meet the demands of technical scientific material because scientific articles use a distinctive classic typography through features such as enlarged mathematical symbols, clearer Greek letters, more distinct italics, and optimized readability on small digital screens. Krause further explains that the typeface aimed to create an impression of "calm, rational intelligence with perhaps a dash of British formality and wit. "Thus, the typeface connotes the cultural belonging while improving comprehension for researchers and policymakers which in turn establishes Nature's institutional identity as an accessible and authoritative scientific journal.

Through the compositional structure of the cover, the journal positions itself as the authoritative voice to communicate the ecological crisis and scientific warning. This ideological positioning is strongly supported by the editorial description of the issue of Nature (2026) which is placed under the cover. The editorial repeatedly foregrounds scientific action and research intervention through expressions such as "The researchers assessed 63 pesticides across 373 sites in 26 European countries" and "The team also saw specific patterns. "These formulations import the discourse of empirical scientific investigation into the context of environmental communication and scientific journalism. The numerical precision of "63 pesticides," "373 sites," and "26 European countries" further contributes to an ideology of scientific rigor, and institutional responsibility toward preserving the environment. In addition, the phrase "well documented" also carries ideological significance because it positions nature as an essential scientific institution for identifying, and investigating environmental risks. The use of exact quantitative data imports the provenance of scientific measurement and large-scale empirical research to reinforce the journal's authority and reliability in addressing ecological crises. Therefore, the journal implicitly constructs scientific documentation itself as a form of ecological responsibility and intervention which, in turn, promotes an ideology where scientific research and publication are presented as necessary tools for protecting biodiversity and solving environmental crisis. Finally, the secondary cover lines positioned in the bottom horizontal section also contribute to the institutional ideology of nature since they function as supporting promotional modules to direct readers toward additional scientific content and research topics tackled by the journal.

4.2. Discussion:

The study's findings are consistent with Damaskinidis et al.'s (2019) eye-tracking study on the impact of multimodal layout on visual attention, in which participants acknowledged that the semiotic elements that captured their attention at the beginning of their viewing were non-verbal and they regularly visited them during the reading of the verbal elements. Damaskinidis et al.'s study demonstrated how visual elements guide viewers' attention before verbal processing occurs which aligns with the analysis and interpretation of the Nature cover, where the large central image of dark soil and tire tracks immediately foregrounds the environmental

issue and directs the viewer's attention toward the visual representation before the verbal elements are processed. Also, the findings of this study are reinforced by Modu and Bwala's (2023) multimodal analysis of *The TELL Magazine* covers which applied Kress and van Leeuwen's (2006) compositional framework and has shown that the central placement of the president Buhari at the center of the cover page presents him as the core figure being favored or criticized on the magazine covers which is the case with the centered headline and subheading in the current study that proves Kress and van Leeuwen's (2006) primary focus on the center to highlight the most important information in the composition. Moreover, Benjaminsen (2019) emphasizes that environmental visuals often communicate danger better than most written argumentation could, and explains that they frequently construct "crisis narratives" through symbolic imagery that guides public interpretation of ecological problems as human caused. Thus, the main ideology of the cover "DOWN TO EARTH" is the representation of environmental crisis caused by humans and their responsibility toward ecological preservation because it is constructed through placing the headline and subheading in the center of the cover's layout.

In addition, the cover constructs a secondary ideology of scientific authority through the placement of the nature logo in the upper zone of the composition. According to Kress and van Leeuwen (2006), the upper section corresponds to the Ideal, which typically presents dominant, generalized, or already accepted information. The positioning of the logo in this privileged area therefore naturalizes Nature's authority and dominance within the field of scientific publishing. This ideological construction is further reinforced through the logo's typography and minimalist design, which, according to Krause (2019), were specifically engineered to create an impression of "calm, rational intelligence," scientific readability, and digital accessibility. The editorial description of Nature (2026) accompanying the cover also supports this authority through its emphasis on large-scale scientific investigation, numerical precision, and research intervention, thereby positioning the journal as an active and credible institution addressing environmental crisis through scientific documentation and communication.

5. Conclusion:

This study examined how the Nature cover "Down to Earth" constructs environmental discourse and scientific authority through multimodal semiotic resources. Drawing on Kress and van Leeuwen's compositional metafunction together with van Leeuwen's concept of provenance, the analysis demonstrated that layout, typography, imagery, color, and linguistic elements operate collectively to produce ideological meaning. The findings revealed that the compositional organization of the cover foregrounds environmental crisis as a consequence of human industrial intervention, particularly through the representation of pesticide-spraying tractor tracks and fragile biodiversity. At the same time, the strategic placement of the nature logo, minimalist visual design, and references to scientific investigation construct the journal as an authoritative scientific institution responsible for documenting and communicating ecological risks. Furthermore, the study showed that provenance plays a significant role in transferring meanings associated with industrial agriculture, scientific rigor, and environmental responsibility into the context of scientific journalism. The cover therefore functions as a multimodal ideological space where environmental urgency and institutional legitimacy are simultaneously constructed. Ultimately, the study contributes to multimodal social semiotic research by highlighting the importance of compositional layout and provenance in understanding how scientific journal covers visually shape ecological discourse and scientific authority.

- **Referrals and references:**

Van Leeuwen, Theo & Gunther Kress. 1995. Critical layout analysis. Internationale Schulbuchforschung 17. 25–43.

Kress, Gunther & Theo Van Leeuwen. 2006 [1996]. Reading images: The grammar of visual design, 2nd edn. London: Routledge.

van Leeuwen, T. (2022). Multimodality and identity. Routledge, United Kingdom.

van Leeuwen, T. (2005). Introducing social semiotics. Routledge, United Kingdom.

Jewitt, C., Bezemer, J., & O'Halloran, K. (2025). Introducing multimodality. Routledge, United Kingdom.

Muhassin, M., Putri, N., Hidayati, D. A., & Pradana, S. A. (2022). A multimodal discourse analysis of the English textbooks' covers. English Education: Jurnal Tadris Bahasa Inggris, 15(1), 1–21. https://doi.org/10.24042/ee-jtbi.v15i1.12107

Damaskinidis, G., Kourdis, E., Zantides, E., & Sykioti, E. (2019), "The effect of layout on reading behaviour: An eye-tracking study of print advertisements", Public Journal of Semiotics, Vol. 8, No. 1, pp. 46–66.

Modu, M. M., & Bwala, A. D. (2023), "A Semiotic Study of Selected Cover Pages of The TELL Magazine", GANGA: Journal of Language and Literary Studies, Vol. 6, No. 3, pp. 30–44.

Tor A. Benjaminsen (2021) Depicting decline: images and myths in environmental discourse analysis, Landscape Research, 46:2, 211-225, DOI:10.1080/01426397.2020.1737663
Krause, K. (2019). Science by design: Nature renewed. Nature, 574(7779), 476–477.

Nature (2026). Volume 650 Issue 8101: Down to earth. Nature, 650(8101). Volume 650 Issue 8101, 12 February 2026 (Consulted on 26/05/2026).
Nature Cover Image (2026). Down to Earth. Nature, 650(8101). (Consulted on 26/05/2026).