

“REPRESENTATION OF NATURE AND ENVIRONMENTAL ETHICS IN SECONDARY SCHOOL TEXTBOOKS: AN ECO-CRITICAL STUDY OF GRADE 10 AND 11 LESSONS”

Muhammad Salman,

1779msalman@gmail.com

MS English Linguistic Scholar, Abasyn University, Islamabad Campus

Abdul Aziz Ismail,

Abdulazizismail1787@gmail.com

MS English Linguistic Scholar, Abasyn University, Islamabad Campus

Abstract

This study explores the issue of nature and environmental lessons in Grade 10 or Grade 11 secondary school textbooks in Pakistan, on the basis of an eco-critical and eco-linguistic. The study is based on the ecolinguistics model introduced by Stibbe and the Critical Discourse Analysis presented by Fairclough, according to which the linguistic options and discursive strategies are used to build human-nature relations and influence the establishment of environmental values in educational discourse. By using qualitative textual analysis, two lessons will be carefully chosen (purposely) and analyzed (earth and environment Grades 10) and Clean Water and Sanitation (Grades 11). The results show that textbook discourse is mostly anthropocentric and utilitarian, despite explicit addressing the issue of environmental concerns. Nature has been strongly positioned as an inactive resource to be used so that it benefits the humans, and the arguments to protect the environment have been primarily viewed as developmental and survival based. There is an insufficient amount of ethical action towards the environment, where sustainability is often expressed in technical and managerial language and seldom in the form of ecological interdependence, care, and justice stories. Although the Grade 11 lesson illustrates a further development of social awareness, as it connects environmental degradation with the health and inequality of people. It still marginalizes the non-human ecological systems and supports the anthropocentric hierarchies. Eco-linguistically, the textbooks replicate the dominant “stories we live by” that normalize human dominance over nature and structural offerings excuses of environmental destruction. The analysis shows that Pakistani textbooks at secondary level should be more eco-centric in nature to instill significant environmental ethics. Through combining an ecological concern, moral responsibility and critical approach to power relations, educational discourse can serve the end of sustainable development and ecological sustainability of education more effectively. Keywords: Ecolinguistics, Environmental Ethics, Textbook Discourse, Representation of Nature, Sustainability, Critical Discourse Analysis.

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1.1 Introduction

Pakistan is one of the most climate-affected countries around the world. The problems of the environment and climatic vulnerability have traditionally occupied a leading position in this ranking. Problems like deforestation, water shortage, air pollution and biodiversity loss have social, economic and educational consequences. In this regard, education is very instrumental in nurturing environmental consciousness and moral accountability in young learners. Secondary school education and especially is a formative education wherein students learn critical thinking skills and value systems that are instrumental in influencing their future civic and environmental behaviour. The textbook teaching at this level is not a neutral pedagogical practice, but an ideology tool that passes cultural values, worldviews, and ethical orientations, such as the approach to nature and the environment.

The Pakistani education system also follows textbooks which have been centrally prescribed and in use in all the public sector schools and have great impact on the perceptions and understanding of the learners regarding the societal problems. The National Curriculum of Pakistan focuses on the inclusion of environmental education and sustainable development in the subjects, particularly the secondary level (Government of Pakistan, 2017). Nevertheless,

little has been studied to determine their environmental ethics and environmental consciousness that are integrated into textbook materials. As a critical mode, eco-criticism presents useful methods to explore the representation of nature in texts. The relationships between human and nature are framed and ethical, exploitative or conservation-oriented environmental issues are addressed. The use of an eco-critical approach to textbooks in secondary schools enables scholars to identify implicit ideologies and determine whether an educational resource supports ecological accountability or supports the view of anthropocentrism.

Therefore, the current research aims to explore nature and environmental ethics that are taught in Grade 10 and Grade 11 lessons in the Pakistani secondary education curriculum. The study will strive to draw patterns, changes, and discrepancies on the environmental themes represented across these two grades by examining the similarities and differences in the lessons. This analysis becomes particularly important in the context of global demands to create Education for Sustainable Development (ESD), it emphasizes the necessity to create curricula that encourage environmental stewardship and ethical communication with ecological concerns (UNESCO, 2020). The research results are expected to be useful in curriculum assessment, textbook writing, and in policy-making in Pakistan by revealing the ways of secondary education become better address in current environmental issues with informed and ethically sound images of nature.

1.2 Significance of the Study

The research is particularly important with respect to the Pakistani educational system in which formal education is critical in developing the social, ethical, and environmental awareness of students. Through an eco-critical review of Grade 10 and Grade 11 textbook lessons, the study illuminates the manner in which nature and environmental ethics are engrained in secondary-level curricula. In Pakistan, where climate changes, lack of fresh water, deforestation, and pollution create significant issues and learning problems, textbooks are one of the most effective pedagogical devices that can be used to create environmental consciousness among young students. This research is relevant in curriculum studies as it critically looks at whether existing textbook material only provides descriptive issues of the environment or encourages ethical responsibility, sustainability and human-nature interdependence. The results can inform policymakers, curriculum developers, and textbook boards of the necessity to introduce eco-critical views into secondary education more systematically. Further, the research aids in the development of teachers and educators by providing information on ways through which teachers can employ textbook narratives to promote critical thinking, environmental stewardship, and values-based education in the Pakistani classrooms. By doing, the study complies with the more comprehensive national and international objectives of education towards sustainable development and highlights the opportunities of the Pakistani secondary education system to produce environmentally responsible citizens by meaningful textual representation (UNESCO, 2017).

1.3 Research Objectives

1. To identify eco-linguistic features shaping representations of nature in Grade 10 and 11 lessons.
2. To analyze how textbook discourse promotes or marginalizes environmental ethics.

1.4 Research Questions

1. How is nature represented in selected Grade 10 and Grade 11 textbook lessons through eco-linguistic patterns?
2. How do these representations construct environmental ethics and power relations within the textbook discourse?

2.1 Literature Review

Over the past few decades, there has been an increasing global concern with the issue of environmental degradation, climate change, and ecological injustice, which has led to an upsurge of academic interest in the role of education in developing environmental consciousness and environmental ethics. Textbooks in secondary schools, especially, are key tools in their framing of ideas about nature, sustainability and human-environment interactions in the students. Textbooks being the authoritative pedagogical artefact are not only that pass on knowledge but construct ideologies, values, and worldviews through the use of words (Apple, 2014). As a result, the nature and environmental ethics as they are presented in secondary texts on nature have become a topical issue in eco-criticism, eco-linguistics, and critical discourse analysis.

Originally, eco-criticism is founded on literary criticism and is a form of inquiry into the ways in which literature represents the natural world and the ecological implications of human behaviors (Glottfelty and Fromm, 1996). This field of study has over the years extended to include the literary genres to include educational resources, policies and media language. Researchers argue that textbooks are often anthropocentric and portray nature as a resource that can be exploited instead of a living system that should be provided care and protection (Garrard, 2012). These kinds of representations can instill in learners the attitude of unsustainability in a subtle way, especially where the environment issue is presented as a secondary concern to the development of the economy or the domination of man. A number of studies have explored the issues of environmental theme in school curricula and textbooks in various settings. As an example, Haapanen and Tapio (2016) found out that the content of secondary-level textbooks on the environment is often disorganized and not very ethical with less focus on moral responsibility and more on scientific facts. Similarly, Stevenson et al. (2017) found that although sustainability-related vocabulary is becoming a more common phenomenon, it tends to be expressed in the neutral or depolarized ways to avoid confronting the environmental injustice or power relations. These results show that the presence of environmental issues alone cannot ensure the rise of environmental awareness.

In the Pakistani and South Asian context, textbook education has been considerably biased in terms of its focus on ideology, nationalism and identity formation with a relatively less attention to environmental discourse. However, new research indicates that environmental coverage in textbooks is more descriptive than critical and highlights the beauty of nature more than ecological disasters like pollution, deforestation, and climatic weakness (Shah & Pathan, 2016). This gap increases the importance of eco-critical analysis of lessons in secondary schools, especially Grades 10 and 11, as students are taught to think and act in a more advanced level of cognitive and ethical reasoning.

Ecolinguistics has provided a powerful theory of the way language shapes ecological associations recently. Stibbe (2021) notes that language contains “stories we live by”, for instance, deeply fixed stories, which shapes that society perceives and relates itself to the natural world. Such stories may be destructive, through legitimization of exploitation or constructive, through fostering respect, care and sustainability. Research that utilizes the ecolinguistics approach to reading materials in education shows that linguistic options, including metaphors, transitivity and evaluative language, have a great impact on nature as framed (Poole, 2018). As an example, representation of nature as passive or voiceless enhances the superiority of man, but the active and interrelated nature covers ecological ethics.

Critical Discourse Analysis (CDA) especially the model of Fairclough (2010) supplements ecolinguistics by applying the discourse production of social power relations. The analysis of textbooks as ideological artefacts that tend to naturalize hegemonic worldviews is based on

the usage of CDA extensively (Fairclough, 2010; Wodak and Meyer, 2016). CDA can be used in the environmental discourse to reveal economic, political, and institutional interests that provides a representation of the environmental responsibility and sustainability. As an example, environmental issues can be presented in a way that they appear as personal issues instead of systematic issues and thus hiding structural factors and responsibility.

Past research involving the union of CDA and eco-critical insights shows that frequently textbooks overlook environmental ethics by focusing on human-based developmental discourses (Machin, 2013). These studies stress the need to look beyond that which is included in textbooks, but also focus on what is not there and what is silenced. Therefore, a critical analysis of Grade 10 and 11 classes through the lenses of environmental ethics can provide fruitful information on environmental ethics which are discursively created and pedagogically passed at a crucial point in education.

To conclude, available sources demonstrate the importance of textbook speech in the development of environmental awareness, but they also show the lack of ethical depth and criticality. However, there is little systematic use of ecolinguistics and CDA in relation to secondary school textbooks as eco-critical. This paper will fill this gap by examining how nature and environmental ethics are represented in the selected Grade 10 and 11 lessons using the ecolinguistics approach by Stibbe and CDA by Fairclough.

2.2 Theoretical Framework

This research study is based on two theoretical models: The models of ecolinguistics developed by Stibbe (2021) and Critical Discourse Analysis introduced by Fairclough (2010). These frameworks combined present a powerful analytical tool of examining the ways in which language in textbooks at secondary schools constitutes ecological inferences, ethical postures, and power dynamics.

2.2.1 The Ecolinguistics Framework of Stibbe

The ecolinguistics by Stibbe (2021) is concerned with the eco-activity of language, which is identified in terms of the “stories we live by”. The stories are cognitive and cultural narratives found in the discourse that determines human relations with the natural world. Stibbe categorizes the types of stories as different, including ideology, framing, metaphor, evaluation, identity, and erasure, which can bring devastating or productive ecological results.

Regarding school textbooks, the ecolinguistics analysis will determine whether the language promotes anthropocentrism, consumerism, and nature domination or promote interconnectedness, responsibility, and sustainability. An example is that metaphors of nature as a resource or commodity can tend to normalize exploitation, whilst metaphors of balance and interdependence can lead to ecological ethics. Using Stibbe framework, this paper explores how chosen Grade 10 and Grade 11 lessons linguistically encode their conception of nature and environmental responsibility and whether they correspond with the values of sustainability of the ecological context.

2.2.2 The Critical Discourse Analysis by Fairclough

The three-dimensional model of CDA developed by Fairclough (2010) offers a methodological approach to the analysis of discourse at three levels, namely text, discursive practice and social practices. On the textual level, the analysis is based on linguistic characteristics that include the vocabulary, grammar, modality, and transitivity. It looks at the production, distribution, and interpretation of the texts in institutions of learning at the level of discursive practice. On the social practice level, discourse is connected with larger ideological and power structures, including developmental, neoliberalism, or environmental governance.

The current analysis uses the critical discourse analysis (CDA) by Fairclough to explain the textbook discourse that has reflected the dominant ideologies in the aspects of development, nature, and the responsibility of humans. Such a methodological option allows conducting a strict analysis of whose interests are promoted by specific images of environmental issues and the environmental ethics are normalized or displaced into the framework of educational discourse.

2.2.3 Merging Ecolinguistics and CDA

A combination of the ecolinguistics approach by Stibbe and the CDA of Fairclough produces an eco-critical look at the whole. Whereas the ecolinguistics evaluates discourse based on how it affects the environment, CDA places the discourse in the wider framework of social and institutional forces. The integrated structures, therefore, allow the study to go beyond the ideality of superficial content analysis, but critically interrogates the manner in which the language in Grade 10 and Grade 11 textbooks shapes the ecological world patterns and moral orientations of students.

3.1 Research Methodology

The research is qualitative by its design, and the data collection is based on text, in which the authors set out to explore the portrayal of nature and environmental ethics as presented in the chosen secondary school textbooks. The approach is based on eco-criticism and provides a deep examination of how the environmental themes are constructed, valued and placed within the ideological spectrum in the educational texts.

3.2 Theoretical Framework and Research Design

Because the main focus of eco-criticism is the study of the interaction of literature, language, culture and natural environment (Glottfelty, 1996), the current study adopts the qualitative form of eco-critical design. The qualitative textual analysis is particularly suitable in the investigation of the meaning, representations, and implicit ideologies in pedagogical texts (Creswell, 2013). Eco-criticism, in its turn, is the leading theoretical conceptualization, which predicts such concepts as anthropocentrism, nature-culture dualities, environmental responsibility, sustainability, and human-nature ethical relations (Garrard, 2012). This framework enables the determination of whether textbooks create environmental consciousness and moral responsibility or portend indifference to the environment. The strategy is consistent with previous eco-critical work that interrogates the curricular writings in order to determine the occurrence of environmental values in education (Oppermann, 2010).

3.3 Corpus Description and Data Selection

The data are two purposely chosen lessons, one of them is a lesson in a Grade 10 textbook, and another lesson is in a Grade 11 textbook, which meet the requirements of secondary-level education. The use of purposive sampling was the consequence of the kind of the selected lesson being explicit in its interaction with the themes that relate to nature, the environment, or human contact with nature (Patton, 2015). The textbooks have the official sanction of the concerned education authorities thus making them representative and relevant in the national curriculum. The resulting corpus is deliberately small and narrow and can be read closely and qualitatively investigated in detail. The texts were considered as cultural and ideological objects of art, which can express institutional views of environmental ethics and sustainability (Apple, 1993). All the analysis was made on the primary textual material, and exercises and illustrations were not used to maintain the analytical consistency.

3.4 Data Analysis Procedure

The analysis of the data was performed using qualitative thematic analysis based on eco-critical principles. The process involved a systematic repeated reading in order to get common patterns, themes and discursive strategies in relation to nature and environmental

ethics (Braun and Clarke, 2006). Major eco-critical categories, including portrayal of nature, human domination versus coexistence, various moral responsibility by the environment and sustainability discourse were used as analytical prisms (Garrard, 2012). Textual passages were coded by hand, and grouped in these themes, and explained by the eco-critical theory. This was enhanced with credibility by providing direct textual evidence and appeal to the existing eco-critical scholarship (Fairclough, 2015). The approach produced a sensitive understanding of the way in which environmental ethics are instilled, strengthened or distressed in secondary-school textbooks.

4.1 Data Analysis

The role of National Book Foundation (NBF) textbooks is significant in as far as the development of environmental knowledge and ethical orientations among Pakistani secondary and higher-secondary students is concerned. Being the instructional materials approved by the state, these textbooks do not serve as the carriers of the scientific facts only but as the ideological books that provide the vision of nature, development, and human role in relation to the environment. In this analysis, two lessons were chosen, including “Earth and Environment” (Grade 10) and Clean Water and Sanitation (Grade 11) in order to consider the discursive construction of nature, environmental issues, and ecological ethics. Relying on the eco-critical and ecolinguistics approaches, the discussion examines how the textbooks facilitate sustainable and ethical human-nature relations or reproduce anthropocentric and utilitarian world perspectives.

4.2 Grade 10: Earth and Environment Representation of Nature

The lesson on Earth and Environment of Grade 10 displays the concept of nature mainly in scientific and descriptive terms. Earth is presented as the system that is made up of physical components including land, air, water, and living things. This systems approach, although well accorded with environmental science education, mainly presents nature as an object of research as opposed to a living being with value to it. Nature may be placed in a passive position language, which can be seen in the form of constructions where the environmental processes are not referred to as agents, such as natural resources are used or forests are cut down. In this way, the passive structures conceal the human responsibility and make environmental degradation a common process, as opposed to an effect of particular human activity.

In an eco-critical perspective, such a depiction is anthropocentric since nature is inherently appreciated on its usefulness to people. The natural objects like soil, forests and minerals are often talked about in terms of their economic or developmental significance. Even when environmental issues are brought up, such as deforestation, pollution, and climatic change are discussed, they are usually presented as technical or managerial issues that need to be controlled, managed, or used correctly and not as an ethical problem that deals with justice, care, or moral responsibility. This framing strengthens a perception of the world where human beings are framed as possessing the authority to manage or control nature as opposed to being part of an interlocked ecological system.

4.3 Environmental Ethics and Responsibility Grade 10

The Grade 10 lesson has environmental ethics that are implicit and immature. The writings promote conservation and protection of the environment, but these appeals are more oriented at being practical requirements to human existence than moral duties to nature. The phrases that highlight the importance of saving resources to leave to the future generations facilitate a utilitarian discourse of sustainability where the environment is preserved, so that future generations will be able to enjoy the benefits. Although this futuristic issue is useful, it restricts involvement in ethics by marginalizing non-human life and ecosystems as entities that merit care.

Besides, the task of taking care of the environment is often subject to individualization, and students are taught to avoid wastes or use resources wisely. This individualistic conception is based on a minimization of the role of the systemic factors of industrial pollution, failure of policy, or unfair distribution of resources. Critically speaking, these representations move the blame further down the line and out of the reach of strong institutions and structural factors, making environmental problems much easier to say.

4.4 Grade 11: Clean Water and Sanitation: Representation of Water and Nature

The Grade 11 lesson Clean Water and Sanitation, in its turn, incorporates a more problem-based and social-oriented discussion. Water is not just given as a natural resource, but also as a fundamental human need which is associated with health, dignity and social development. Among the issues, which the lesson anticipates in the foreground, are water scarcity, water contamination and lack of sanitation infrastructure and waterborne diseases especially in developing-country settings such as Pakistan. This framing brings in a more powerful association between environmental degradation and human well-being.

Nonetheless, in spite of its social topicality, the depiction of water is rather instrumental. It is mainly the use of water that is held in high esteem in regard to the sustenance of human life, agriculture and economy. There is a relative lack of focus on ecosystems that rely on water like rivers, wetlands and aquatic biodiversity. Such a biased interest strengthens an anthropocentric value system where human interests take precedence over environmental interest, and non-human ecological systems are marginalized or eliminated.

4.5 Grade 11 Ethics Framing and Power

The Grade 11 lesson reveals a clearer involvement of environmental ethics, specifically in the forms of discourse of public health, equity, and sustainable development. The text brings an issue of unequal access to clean water and sanitation, which implicitly accepts environmental injustice. This will be a transition of the Grade 10 lesson since it will be connected to environmental concerns and civic response. Allusions to government efforts, international targets and community awareness campaigns points out that environmental issues need an institutional response in terms of coordinated actions instead of mere individual behavioural transformation.

However, ethical involvement is more of a policy based and not value based. The language focuses on solutions like; enhancing infrastructure and the use of sanitation systems and efficient utilization of water resources. Although such are compulsory actions, they construct environmental ethics in technocratic ways that give priority to efficiency and control over care, coexistence or ecological harmony. Ecolinguistically, this type of framing can pose a threat of strengthening a discourse of human dominance over natural systems, where technological intervention is the main solution to environmental crises.

4.6 Comparison between Grade 10 and Grade 11 Lessons

The analysis of the two lessons conducted as a comparison show both continuity and development of the environmental discourse. Environmental problems at the Grade 10 level are taught in a generalized and abstract manner with little ethical nuances. In Grade 11, discourse is more contextualised and socially conscious especially when it comes to issues of water and sanitation. This trend is a sign of a growing awareness of the interrelatedness of environmental issues with human health and human development.

Nevertheless, the common weakness of both of the textbooks is that they lack a sense of an ecocentric point of view. Nature is almost never represented as something active and as a community of life with an inherent value. Rather, issues of environmental protection are defended mainly by humanistic reasons. The language patterns in the two lessons, e.g., passive structures, nominalisations, technical terminology, etc., were prone to depoliticizing the issues of environmental degradation and diminishing the ethical involvement.

4.7 Environmental Education Implications

According to the eco-critical point of view, the NBF textbooks reveal an understanding of environmental issues but do not help to develop profound ecological morality. Although sustainability is underlined, it is under the concept of resource management and not ethical coexistence. The minimal application of evaluative speech of caring, responsibility, or moral urgency dilutes the possibility of these texts to produce environmentally responsible citizens. In the case of secondary education in Pakistan, especially in the issue of climate vulnerability and water shortage, there is a high demand of textbooks beyond the descriptive and technical modes of approach. The introduction of eco-focused stories, the focus on human-nature interdependence, and the critical stance at the authority structures underlying environmental degradation would greatly improve the level of environmental literacy and moral consciousness among learners.

4.8 Conclusion of Data Analysis

To sum up, the comparison of the Earth and Environment (Grade 10) and Clean Water and Sanitation (Grade 11) in the National Book Foundation textbooks show that nature is represented mostly in the anthropocentric and utilitarian way. Despite the fact that the environmental issues are obviously recognized, the ethical involvement is still very scanty and human-oriented. Grade 11 lesson is more socially aware than Grade 10, but both texts are dependent on managerial and technocratic discourses. A more eco-critical revision of the textbook material, such as focusing on the ecological interdependence, moral responsibility and environmental justice would be more in line with the objectives of sustainable development and environmental sustainability in Pakistan.

5.1 Conclusion of the Study

This study aimed to investigate the nature and environmental ethics coverage in the chosen Grade 10 and Grade 11 school textbooks in Pakistan using an eco-critical and ecolinguistics approach. Using Stibbe ecolinguistics framework and Critical Discourse Analysis by Fairclough, the study examined the linguistic and discursive practices according to which the environmental meanings, values, and responsibilities are built in the context of officially-prescription educational texts. As shown in the findings, it is evident that although environmental concerns are evidently evident in the curriculum, they are largely confined in the anthropocentric, utilitarian, and technocratic discourses.

The eco-critical analysis of the Grade 10 lesson Earth and Environment shows that the concept of nature is mostly presented as a passive object of human use, control, and management. Passive constructions, nominalizations, and resource-based vocabulary obscure the human agency in environmental degradation and become a matter of course when it comes to the relationships between humans and nature by introducing the elements of linguistic patterns. Protection of the environment is also perceived as a main concern as a practical need to maintain human life and economic growth instead of an ethical need based on the ecological interconnection or inherent worth. Consequently, the environmental ethics are still implicit and not well articulated, preventing the students to become more involved in the ecological responsibility. Equally, the Grade 11 lesson Clean Water and Sanitation presupposes urgent ecological issues like water shortage, contamination, and social health, especially when it comes to the developing societies. As compared to Grade 10, this lesson proves more socially aware and recognizes the problem of inequality, access, and shared responsibility. Nevertheless, a significant part of water remains to be instrumentalized and appreciated only on its usefulness to human health, agriculture, and development. The ecological systems and non-human life that are dependent on the water resources become relegated, which strengthens a human-centred hierarchy in the environmental discussion.

In both grades, sustainability has been largely presented in a management and technical discourse which prioritizes efficiency, infrastructure, and a managing regulating discourse over ethical coexistence, care, and environmental justice. By ecolinguistics standards, the textbooks reproduce by reproducing the stories we live by, which justify the dominance of humans over nature and introduce the technological intervention as the major solution to ecological crisis. These stories are dangerous to reduce the ability of students to challenge structural reasons of environmental degradation, such as political, economic, and institutional power relations. The combination of ecolinguistics with Critical Discourse Analysis helped this research to realize that the superficial analysis of the content was insufficient, and the ideological background of textbook discourse has to be revealed. The results indicate that secondary level environmental education in Pakistan is mostly anthropocentric and descriptive as it focuses less on ecocentric values, moral responsibility, and human-nature interdependence. This has major implication on education to sustainable development especially in a highly vulnerable country to any climate change and environmental degradation.

Finally, this study makes a case supporting a shift in the textbooks used in secondary schools to the more environmentally friendly discourse. The use of eco-centric stories, the proactive incorporation of moral relationships with nature, and a focused approach towards environmental justice and power dynamics would empower the textbook in creating critical ecological awareness. It is this eco-critical reconfiguration of educational language that is needed in the production of environmentally responsible citizens who will be able to react to the modern ecological problems in Pakistan (as well as elsewhere in the world).

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