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РАЗДЕЛ I. ТЕОРИЯ ЯЗЫКА
SECTION I. THEORY OF LANGUAGE

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A Comparative Reading of Pāṇinian Grammatical
Tradition and Modern Science of Speech

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Abstract: The modern history of Western linguistics began with comparative philology and coincided with the colonisation of the East for a long time. The colonisation as a process not only involved an interplay of power, dominance and state, it was also a conquest of knowledge. Colonies such as India had a vast rubric of ancient knowledge and especially excelled in linguistics and philology. This paper is an attempt to showcase how the roots of various phonetic and phonological theories that defined and dominated modern linguistics were linked to the ancient Indian grammatical tradition. Scholars from Pāṇinian School of Grammar, such as Pāṇini, Kātyāyana, Patañjali, and Bhartṛhari, have explained a range of speech phenomena to which modern phonetics and phonology correspond significantly. This paper analyses the common grounds between prominent schools of Western phonology and their Indian counterparts and thus highlights a significant theoretical overlap between the knowledge offered by the Western linguistic schools and what was explained several centuries back by prominent Indian grammarians. From the linking of sounds to the psychological reality of a phoneme, the vast canvas of the Indian linguistic tradition could be verifiably seen as a precursor to the most of the structural turn in the twentieth century. Finally, the paper attempts to show the precedence of various recent concepts and theories, such as ‘distinctive feature theory’ or ‘generative grammar’ in the texts like *Aṣṭādhyāyī* and *Vākyapadīya*.

Keywords: Phonetics; Pāṇinian grammar; modern linguistics; speech; *Aṣṭādhyāyī*; *Śikṣā*

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Сравнительный анализ грамматической традиции
Панини и современной науки о речи

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Аннотация: Современная западная лингвистика берёт своё начало в сравнительной филологии, развивавшейся параллельно с колонизацией Востока. Колонизация была не только формой политического и культурного доминирования, но и процессом освоения и присвоения знаний. Индия, обладая богатейшим наследием древней науки, особенно выделялась в области лингвистики и филологии. Данная статья демонстрирует связь между основами современных фонетических и фонологических теорий и древнеиндийской грамматической традицией. Учёные Панинийской школы — Панини, Катъяяна, Патанджали и Бхартрихари — описали многие речевые явления, соответствующие современным представлениям о звуке, артикуляции и фонеме. Сопоставление индийских грамматических учений с западными школами фонологии выявляет значительное теоретическое пересечение. Таким образом, индийская лингвистическая традиция может рассматриваться как предтеча структурной лингвистики XX века. В частности, концепции «отличительных признаков» и «порождающей грамматики» находят ранние параллели в таких трудах, как «Аштадхьяи» и «Вакьяпадайя».

Ключевые слова: Фонетика; грамматика Панини; современная лингвистика; речь; Аштадхьяйи; Шикша

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Introduction

The root of science and philosophy of sound in the Indian tradition of knowledge is as deep as the grammatical theories and philosophy of language. The categorization of an incorrect utterance of Sanskrit hymns as a

sin in Hindu tradition shows the emphasis on precision in the sound production. There have been various schools and theories in Indian tradition that deal with the production and transmission of speech sounds. While the comparative study of the grammatical theories

and philosophy of meaning has always preoccupied the attention of scholars, the analytical discussion on the evolution of phonetics in modern linguistics has always evaded such discussions. This paper intends to discuss this largely unattended subject by highlighting the evolutionary patterns of Indian and Western phonetics by juxtaposing the two, making their mutual interaction and impact on the other self-evident.

Though the term ‘phonetics’ seems to have been first used by Georg Zoega in 1797 (as Konrad Koerner (1993: 1) mentions citing Zwirner, (1966: 18), *Śikṣā* (articulatory phonetics) in Sanskrit language study has been studied since the Vedic era as one of the *Vedāngas*¹. There are foundational problems in phonetics that have become enigmatic for the modern science of language. Yet, these problems and concepts have been theorized and resolved by ancient Indian grammarians thousands of years ago. So, as we discuss the subjects of phonetics and phonology, we would comparatively assess the theorisation of these in both Western linguistics and ancient Indian grammatical tradition to see how closely the two resemble.

A few of the biggest names in linguistics, Ferdinand de Saussure, Bloomfield, Sapir, Jakobson, and even

Chomsky, have found significant inspirations in the Indian classical studies on human language and speech (Gillon 2007). But even much before that, a thorough impact of Indian grammatical tradition can be seen on the study of language by the West. During the nineteenth century, linguists, grammarians, and phoneticians paved the path for comparing Western understanding of the science of language with India’s rich grammatical tradition. The road to the modern linguistics in the west started from Comparative Philology. William Jones, who was a key figure in the field of comparative philology, spent much of his life in India trying to find the link between the ancient European and Indian languages, and found ancient Indian texts on languages of exceptional value and linked many linguistic formulations to these Indian texts that were very advanced in their scope and vision (Stewart, 2023; Patterson, 2023). Jones’s admiration for Sanskrit and Sanskrit texts was phenomenal. A famous account is a passage from his third ‘anniversary discourse’ delivered before Asiatick Society, where he says, “The Sanskrit language, whatever be its antiquity, is of a wonderful structure; more perfect than the *Greek*, more copious than the *Latin*, and more exquisitely refined than either...” (Jones, 1788: 442).

W. S. Allen in his book, *Phonetics in India*, discusses the Jones’s contribution to the evolution of phonetics citing J. R. Firth, where he states, “Without the Indian grammarians and phoneticians whom he introduced and recommended to us, it is difficult to imagine our nineteenth century school of phonetics” (Allen, 1953: 3). Here, Firth’s statement serves as a testimony to the influence of ancient Indian grammarians on the origin of phonetics. In this context, we see Pāṇini’s *Aṣṭādhyāyī*, where he introduced us to fourteen *Śivasūtra*² with a novel technique

¹ (Veda + angas.) ‘Members of the Veda.’ The Shad-angas or six subjects necessary to be studied for the reading, understanding, and proper sacrificial employment of the Vedas:

- i. Sikṣhā. Phonetics or pronunciation, embracing accents, quantity, and euphony in general.
- ii. Chhandas. Metre.
- iii. Vyakarana. Grammar. Said to be represented by Pāṇini, but rather by older grammars culminating in his great work.
- iv. Nirukta. Etymology or glossary, represented by the glossary of Yāska.
- v. Jyotiṣa. Astronomy. Such knowledge of the heavenly bodies as was necessary for compiling a calendar fixing the days and hours suitable for the performance of Vedic sacrifices and ceremonies.
- vi. Kalpa. Ceremonial. Rules for applying the Vedas to the performance of sacrifices. These rules are generally written in the form of Sūtras or short aphorisms, and so they are known as the Kalpa-sutras or Sruta-sutras. (Dowson 1888: 352)

² “Pāṇini’s corpus of rules (the *Aṣṭādhyāyī*) is preceded by a list of sounds divided into fourteen parts commonly called the *śivasūtras* or *māheśvarasūtras* after the tradition according to which these *sūtras* were revealed to Pāṇini by the lord Śiva. Each of the

of condensed notations called *pratyāhāras*³. This aphoristic technique serves to form the structural base of the *Aṣṭādhyāyī*. One can always see modern theories as indebted to Pāṇini's grammar for the economical expression due upon his aphorisms. For instance, Pāṇini uses 'ac' for denoting the whole set of vowels or we can say all the phonemes that fall between 'a' and *anubandha*⁴ 'c' of *Śivasūtra*. The *Śivasūtra* are in the core of the Pāṇinian scheme of grammar granting it one of the most features – namely, conciseness that adds further to the formulation of *sūtras* in the *Aṣṭādhyāyī*. J. F. Staal, talking about the close relationship of *Śivasūtra* with the *Aṣṭādhyāyī* states that it is "best illustrated by Pāṇini's special use of the indicatory sounds ... called *anubandha*... Each *anubandha* enables Pāṇini to refer in his grammar to groups of sounds by means of a special technique referred to as *pratyāhāra* 'condensation'" (Staal, 1962: 2). Further,

fourteen sections ends with a consonantal *it* (halantyaṃ). These *sūtras* are:

(1) *a i u ṇ* (2) *r ḷ k* (3) *e o ṅ* (4) *ai au c* (5) *h y v r ṭ* (6) *l ṇ* (7) *ñ m ṇ n m* (8) *jh bh ṇ* (9) *gh ḍh dh ṣ* (10) *j b g ḍ d ṣ* (11) *kh ph ch ṭh th c ṭ t v* (12) *k p y* (13) *ś ṣ s r* (14) *h ḷ*" (Cardona, 1969: 6)

³ "The Kāśikā, immediately before citing and commenting on the first *śivasūtras*, says: *atha kimarthaḥ varṇānāmupadeśaḥ/ pratyāhārārthaḥ/ pratyāhāro lāghavena śāstrapravṛttyarthah* "Now what is the purpose of teaching the sounds? They are taught in order to form *pratyāhāras*. A *pratyāhāra* is intended for manipulating rules of the grammar with brevity." (Cardona, 1969: 12)

⁴ The term *it* is formed from the root $\sqrt{\text{in}}$ - which means 'to go or to disappear'. It is etymologically significant term. This term is an important device. Use of it is confined to the formation of *samāhāra* or *pratyāhāra*, i.e., collection of letters to make abbreviatory designation. It is also attached to roots for indicating some purpose. This term itself states its temporary status. This term is also called as *anubandha* in traditional grammar, literary meaning 'tagged afterwards'. The word *anubandha* or it indicates the same meaning, however neither Pāṇini nor Vopadeva used the word *anubandha*. Both of them preferred to use the monosyllabic term *it*. *It*- letters are not treated as active element in the grammatical operations. When *it*-letter serves as the last one for any initial element, they form *samāhāra*, i.e. abbreviatory term. (Deshpande, 2010-2011: 411).

throwing light on this technique, he says that it "consists in referring to a sequence of sounds, the last of which is followed by an *anubandha*, by means of an abbreviation consisting of the first sound of the group and the *anubandha* following the last sound. <Pāṇini 1.1.71: *ādir antyena sahetā* 'an initial sound joined to a final (indicatory) sound (denotes the intervening sounds as well)'. This applies not only to the grouping of simple sounds, but also to verbal and nominal terminations, etc.>" (Staal, 1962: 2). Delineating it further, he cites an example "the first three sounds *a i u* are followed by the *anubandha* *ṇ*. Therefore, *aṇ* denotes the sounds *a i u*; *iṇ* denotes the sounds *i* and *u*" (1962: 3). This conciseness of grammar has been a central attraction for modern Western scholars and an essential guideline for most modern theories. In line with this argument, John Earl Joseph says, "The most important figures in the development of linguistics in the last century, including Leonard Bloomfield and Noam Chomsky, have readily acknowledged their methodological and intellectual debt to Pāṇini. That his work had an impact on how Saussure too conceived of linguistic analysis is indisputable, though exactly how much will never be known with certainty" (Joseph, 2012: 84). Pāṇini's influence transcends even the disciplinary boundary as scholars have argued about the impact of Pāṇini's works in other domains, such as in the development of Modern Periodic Table by Mendeleev (Ghosh and Kiparsky, 2019: 350-352). The study on Pāṇini involves the other grammarians of India, who were purely the commentator of his treatise, viz. Kātyāyana, Patañjali, and Bhartṛhari. Looking at the grammar of Pāṇini and his associates, in further sections, this paper analyses the evolution of the science of speech sound in India beginning from the Vedas and then evaluate its impact on contemporary phonetics.

Modern Western speech science in the Pāṇinian grammatical system

What Stawarska states with regard to the science of speech in structuralism, shows

the significance of this branch of study in modern linguistics and structuralist understanding of the science of language. He begins with talking about Merleau-Ponty's claim about Saussure's association with phenomenology and sees it as unusual on the ground of his established connection with structuralism. Stawarska says that Saussure's linguistic science mainly dealt with the language system (*la langue*) and not so much with the performance of speech (*la parole*). Speech on its part was mostly considered a psychophysiological process sharing its object with phonology and phonetics in Saussureian linguistics (Stawarska, 2020: 188). Stawarska's observation shows the crucial place acquired by phonetic or phonological studies in the structuralist enquiry in its foundational years. However, it is also a fact that later, the Structuralists' study of linguistics is diverted to morphophonemics or morphology. It developed in the first half of the twentieth century, in both the movements of structuralism – American and European, from identifying the phoneme as the fundamental unit of the organization of a sound system. The contribution of Sapir is also noticeable in this regard. He represents phoneme as a psychological entity or speaker's mental representation of native language; he did not believe in any analytical construction of language. The later development of structuralism with a morphophonemic approach also finds its roots in Pāṇini's work as *Aṣṭādhyāyī* clearly expresses a clear understanding of a related artefact lying between phonemic and corresponding morphological structures. Stephen Anderson emphasizes this dependence and borrowing, as he writes,

“While Bloomfield was certainly one of the most noteworthy early practitioners of the morphophonemic method of description (which he had learned from Pāṇini's grammar), we should not therefore make the anachronistic assumption that he understood such description in the same way later linguists do. In particular, he seems clear to have considered them in the same light as he

did Pāṇini's description: an elegant artifact, providing a uniform and concise account of a complex set of facts, but not to be confused with the actual language capacity of speakers. Only the phonemic forms, and the morphological fact of relations between them, could be considered to have that status. For Bloomfield, the beginning and the end of a theory of phonological structure in natural language was a theory of phonemic representation” (Anderson, 2021: 360). Bloomfield, in his celebrated book *Language*, sees phonetics as a branch of study that focuses on the speech event in alienation from its meaning, it studies the movements made by the speaker for the production of speech sounds, sound waves, and how the hearer's ear-drum responds (Bloomfield, 1957: 74), and he considers phonology as the study of significant speech-sounds, he sees it as practical phonetics too (1957: 78). Contemporary phonetics is studied under three heads – namely, articulatory, acoustic and auditory phonetics. Articulatory phonetics, which stands out as the primary enquiry in the production of sound, deals with the study of sound production and the usability of speech mechanism of vocal organs, such as throat, lungs, mouth, nose, teeth etc. Knowledge of phonetics paved the way to study the science of language, which is the foundational study of any language and prepares to solve the basic concepts and methods of related language. The description and transcription of the articulation of English speech sounds was predominantly done during nineteenth and twentieth century by Henry Sweet followed by Daniel Jones who largely extended Sweet's work and evolved a much simpler understanding of phonetics. According to modern western phoneticians, sounds are divided into two classes – segmental and suprasegmental⁵

⁵ Spoken language consists of successions of sounds emitted by the organs of speech, together with certain 'attributes. (Where Footnotes for: 1. Sounds- also called 'phones' or 'linear' or 'segmental' features of speech., 2. Attributes- also called 'prosodies or

(Folgado et al., 2020). Again, segmental maintains two types of components; the first one is the vowel, and the second is the consonant. Similarly, suprasegmental combines sound aspects other than consonants and vowels such as pitch, accent and junctures, stress, and length of a language. Modern Western studies of articulatory phonetics were firstly done by a German physiologist C.F. Hellwag in the eighteenth century, while in India it started way back by the Ancient Indian seers or śiṣṭās, two and half millennia ago for systematic pronunciation or recitation of Vedic hymns. According to Siddheshwar Varma, the Vedic literature on phonetics is divided into two types- *Prātiśākhya* ⁶ and *Śikṣā*; *Prātiśākhya* deals with “Applied Phonetics” and *Śikṣā* signifies “General Phonetics” (Varma, 1961: 5). Some *Śikṣā* treatises belong to Vedic recitation, but most of them consist of pure

phonetic studies – viz., sound division, place of articulation, quantity (*mātrā*), accent, juncture (*saṇḍhi*) etc. Thus, the suprasegmental in modern linguistics seems to have grown from the understanding of these linguistic features described in Indian texts as both subscribe to very similar features in human language, and the key exponents of modern phonetics were well aware of the Sanskrit grammatical tradition. Mark Atherton in his D. Phil. dissertation notes that Sweet may have studied Sanskrit under Adolf Holtzmann (1994: 9), who was a professor of Sanskrit at the University of Heidelberg. While Sweet’s comparative analysis of Sanskrit words with other European languages in his book *The History of Language* affirms his thorough understanding of Sanskrit. He talks about Sanskrit and Sanskrit words in varied contexts in his book for comparative analysis not once or twice but 70 times. While analyzing and understanding the history of English vowels, Sweet states that short English vowels are as old as Sanskrit vowels while long vowels and diphthongs are the products of later developments of just a few centuries ago. (Sweet, 1900: 33). C. L. Wrenn emphasises the similar point while giving a life sketch of Sweet in Seibok’s edited volume the *Portrait of Linguists*. What Wrenn stated substantiates the claim that Sweet had thorough knowledge of Sanskrit Phonetics, and therefore, he could assert in a passing statement in one of his presidential addresses delivered in 1878. His statement that “the Germanic accent is ‘substantially identical with that of Vedic Sanskrit’ suggests for the first time an especially valuable direction in the search for the phonetic explanation of ‘Verner’s Law’” (Wrenn, 2002: 531).

It was with the influence of Darwin’s ‘living organism’, the German linguists got involved in studying the evolution of language (Barbieri et al., 2022; Blancke and Denis 2018) and proposed the theory of family tree of languages in Indo-European languages. This was the time when the focus of linguists was largely on the physiological

‘suprasegmental’ features of speech.) (Jones, D., 1969: 1).

⁶ Madhava M. Deshpande states that *Prātiśākhya*s are conceded to be more authoritative than the *Śikṣās* (2001: 10). Manmohan Ghosh, talking about *Prātiśākhya*, cites Max Muller’s view (1859), ‘*Prātiśākhya* ...does not mean, as has been supposed, a treatise on phonetic peculiarities of each Veda, but a collection of phonetic rules peculiar to one of the different branches of the four Vedas, i.e., to one of those different texts in which each of the Vedas had been handed down for ages in different families and different parts of India.’ <Op. cit., p. 119> . . . Since then, almost all the scholars have followed this view. <See Siddheshwar Varma, Critical Studies, p. 12; Winternitz, Hist. of Ind. Lit., Vol. I, Calcutta, 1924, p. 284.>. But such an opinion seems to have been expressed on very inadequate grounds. For, Madhava, quoted by Jñānendra Sarasvatī in his gloss on the Siddh. Kau. (P. IV. 3. 59), explains *Prātiśākhya* as *prātiśākhaṃ bhavam*. <Siddhānta-Kaumudī, ed. Gadgil, Bombay, 1904, p.249.> . . . For in his commentary to the Nirukta I. 17) he says . . . “Those Pārśada books by which in a Pāṇinīya of one’s own Carāṇa, the peculiarities of accent, saṃhitā, krama-reading, pragrahya vowels and separation of words are laid as enjoined for, and restricted to each śākhā are called Prātiśākhya.” <Max muller, Op. cit., p. 131; Varma translates Mādhava’s words as belonging to each individual (prati) śākhā (op.cit., p. 12). (Ghosh, xxxiii-xxxiv).

study of speech sounds. Both phonology and phonetics were concerned with the production and physical study of speech sounds. In the beginning of the twentieth century, Saussure approached this branch of language study and proposed a modified orientation. He did not agree only with physiological study of speech sounds, but paved the way for the psychological study of speech sounds. It is worth citing E. John Joseph here in this context,

“Saussure’s fundamental dissatisfaction with phonology dated back more than a quarter century, and came up in one form or another in every course he gave. The section on ‘Principles of phonology’ in the first course on general linguistics raises deep philosophical issues about the nature of the phoneme as a unit and its connection with time. No sooner does he open the section than he starts detailing why ‘The method followed in general in phonology manuals is not good’. They focus exclusively on articulation, neglecting the acoustic side – how a hearer perceives and understands the sounds. Yet, Saussure insists, what comes first is not the muscular movements but ‘the <acoustic>, mental impression” (Joseph, 2012: 495).

Saussure’s extension of understanding sound from articulatory position to combining the perceptive side of sound finds its precedence in Pāṇinian thoughts to which he was well exposed due to his learning and teaching of Sanskrit for several years.

There are fundamental similarities between the modern linguistics and Pāṇinian tradition of grammar as exemplified by the equivalence between what Saussure calls as arbitrary relation of signs and Bhartṛhari’s idea of mutual relation between linguistic units (example, *vācaka-vācya* (expresser-expressed), *prakāśaka-prakāśya* (illuminator – illuminated), etc.). Bhartṛhari believed that general philosophy and metaphysical methods of language both are important in the philosophy of grammar. In line with this, Houben says,

“It is clear that the *Vākyapadīya* is designed and worked out as an organic whole

. . . Bhartṛhari himself makes a distinction between philosophical, metaphysical, psycholinguistic reality on the one hand and notions that are useful or necessary in the grammatical description on the other hand. Thus, it is very well possible to discuss details of the linguistic ideas as such, without tearing them completely out of context. The basis on which dialogue with modern linguistics can take place is the fact that the subject discussed is to a considerable extent similar, and that several premises are similar. Both these facts are reflected in similar terminology” (Houben, 1989: 120).

All these concepts where Saussure and his predecessors believe that a phoneme is a unit of speech can be linked to Bhartṛhari’s theory of *sphoṭa*. *Vākyapadīya* emphasises that there is no difference between *varṇa* (phoneme) and speech sounds, as it is just an entity of the speech. Also, Bhartṛhari does not see much difference between *śabda* and *varṇa*⁷. He differentiates a *śabda* from other sounds on the basis of whether they represent physical or psychological entities, as he considers *sphoṭa* more psychological than physical, and all other sounds that include phoneme or speech sounds, as having more of a physical structure. A *śabda* is used variously by Bhartṛhari in varied contexts denoting phoneme (*varṇa*), morpheme (*prakṛti/pratyaya*), word (*pada*), *sphoṭa*, *vaikhary*, ordinary sound, *śabdapramāṇa* and sometimes even sentence (*vākya*)⁸, and

⁷ *Deśādibhiṣca sambandho dr̥ṣṭaḥ kāyavatāmiha/ deśabhedevikalpe’pi na bhedo dhvanisabdayoḥ* || (VP.1.96.)

“In life (only) concrete objects are found to have relation to place and the like (for instance, time) And even accepting the alternative (that difference in place, etc applies also to those that are not concrete objects), there is no (such) difference between the speech-sound and the Word (it reveals)” (Pillai, 1971: 21).

⁸ *Akhyātaśabda sanghato jāti sanghātvartinī/ Eko’navayava śabda kramo buddhyanusahr̥ti* || (VP.2.1)

Padamāḍya pr̥thaksarvapaḍam sākāṅksamityapi/vākyaṁ prati matirbhinnā bahudhā nyāyavādinām || (VP.2.2)

“Theorists hold different views as to what a sentence is thus a sentence is defined as (1) the verb (2) a close

discourse (*mahāvākya*)⁹. However, Bhartṛhari being *akhaṇḍavādi* believes that dividing the language units/sentences into various constitutive categories contradicts the fundamental nature of speech¹⁰. So, it is clear that modern linguists and Bhartṛhari share the notion that sign/*śabda* are constitutive units of a system and can be used to describe this linguistic structure without dividing them any further. Saussure emphasises that the reality of language was not of the muscular movements employed in the production of sound or their vibratory acoustics; it was rather the mental patterns and the socially shared cerebral traces that allowed the production and recognition of human speech as expressive language (Joseph, 2012: 237). Saussure's claim of the speech system as a mental pattern (Saussure, 1959: 11) also prefigures in Bhartṛhari's postulations in his first book of the *Vākyapadīya* where he mentions it clearly that before a word is uttered it is distinguished mentally and gets invested with certain meaning due upon the context of its usage. Bhartṛhari aptly cites an analogy of match-stick where light is inherently present similarly a *śabda* is present in mind like a mental entity but gets revealed when it is heard¹¹. Bhartṛhari's *Vākyapadīya* covers

combination of words (3) the universal which resides in a close combination of words (4) an utterance which is one and devoid of parts (5) a sequence (of words) (6) the transformation of consciousness (7) the first word (8) all the component words severally and possessing expectancy for one another" (Pillai, 1971: 36).

⁹ In his preface to the translation of the Brahma Kanda, Korada Subrahmanyam also states about it (1992: ix).

¹⁰ *Pratyekam vyañjakā bhinnā varṇavākyapadeṣu ye/ Teṣāmatyantabhede'pi saṃkirṇa iva saktaya ||* (VP.1.88)

"When in reality revealing units in the syllable, word and sentence function independently of each other, they appear to function in combination, although they are entirely different" (Pillai, 1971: 19).

¹¹ *Vitarkitaḥ purā buddhyā kvacidarthe niveśitaḥ/ Karaṇebhyo vivṛttena dhvaninā so 'nugrhyate ||* (VP.1.47)

"The Word is examined in the mind, is then fixed to a specific meaning and then through the instrumentality of the speech-sounds produced through (their) causes" (Pillai, 1971: 10)

various dimensions of language study and each dimension is so richly explored that it succeeds in influencing the key exponents of modern science of language. For instance, Saussure's dictum on the production of sound which states that breath touches the appropriate speech-organs, it produces sounds or phonemes which, then form the other linguistic entities such as word, sentence, phrases etc. (Saussure, 1959: 41-43) seems to have its precedence in the concept cited by Bhartṛhari on speech production¹². Bhartṛhari's idea on language change where he talks the change taking place in language over a long period of time in several generations¹³ that works in consonance with Patañjali's comment in the *Mahābhāṣya* where he says that words are truly characterised when they are shared in society¹⁴, reappears in the Saussurean formulations where he sees language as socially shared and generationally transformed.

(A) Speech sounds: phoneme and syllable vis-à-vis *Varṇa* and *Akṣar*

araṇistham yathā jyotiḥ prakāśāntarakāraṇam/ tadvacchabdo 'pi buddhisthaḥ śrutinām kāraṇam prthaka || (VP.1.46)

"Just as the light which is in the fire-stick acts as the cause for further lights, similarly the Word which is in the mind is the cause of speech-sounds" (Pillai, 1971: 10)

¹² *Ajastravṛttiḥ yaḥ śabdaḥ sūkṣmatvānnopalabhyate/ Ūyañjanādvāyuriva sa svanimittātpṛatīyate ||* (VP. 1.116)

"(Yet another view about sound both of speech and of other kinds is given) — Sound though it is ever-existing is not experienced because it is too subtle. It is realised through the appropriate causal factors just as air is through fanning" (Pillai, 1971: 10)

¹³ *Pāramparyādapabhraṃśā viguṇeṣvabhīdātṛṣu/ Prasiddhimāgata yeṣu teṣāṃ sadhurvācakaḥ ||* (VP.1.154)

"And where there are in current use, forms which have become current among corrupt speakers from generation to generation, in such cases, the correct form is not the one which conveys the meaning" (Pillai, 1971: 10).

¹⁴ *"lokato'rthaprayukte śabda prayoge śāstreṇa",* (when people drawn by objects use words, restriction is made by *śāstra* (grammar) for the sake of merit) (*Mahābhāṣya* / Dasgupta, 1991: 38)

Patañjali, in his *Mahābhāṣya*, unequivocally defines the job of a *Śikṣākār* (phonetician) stating that “he should be able to use the (Vedic) speech with (properly inflected) words (*pada*), with (proper) accent (*svara*) and with the (properly articulated) speech-sounds (*varṇas*)¹⁵” (Ghosh, 1938: xxvi). Here, Pāṇini’s emphasis in terms of *varṇa* is on the proper articulation of it, and further we can see that Manmohan Ghosh who translated the *Pāṇiniya Śikṣā*, refrains from using any other English equivalent already in use for *varṇa* but gives a neutral equivalent like ‘speech-sound’ to it. Madhav M. Deshpande also does not consider the term ‘phoneme’ as a suitable translation, instead he calls it misleading while reviewing Sumitra M. Katre’s translation of the *Aṣṭādhyāyī* published as *Aṣṭādhyāyī of Pāṇini*, where he says, “One may also point out the term ‘phoneme’ used to render the Sanskrit term *varṇa* is somewhat misleading, since sounds like *n*, *ñ*, *ṇ* are traditionally considered to be distinct *varṇas*, though in modern phonemic analysis these would qualify only as allophones” (Deshpande, 1989: 646). W. S. Allen too does not concede to many of the English terms that are considered to be equal to *varṇa*. Talking about the translation of the term as phoneme, he states, “Whilst it there has much in common with the modern term ‘phoneme’, no phonemic theory is implied by it, and it would be reading at once too much and too little into the term thus to translate it” (Allen, 1953: 15). Rejecting the term ‘sound-unit’ as a translation of *varṇa*, he says, “The non-committal ‘sound unit’, by which we have thus far represented it, suffers from the disadvantage that, unlike *varṇa*, it is restricted to technical usage” (Allen, 1953: 15). Citing David Abercrombie, and A. F. Twaddell, Allen presents the term ‘letter’ as a happier rendering and states that it fits the Latin terminological tradition. Explaining the term

‘letter’ further, he states that “letters after all come very near to being unselfconscious phonemes” (Allen, 1953: 16). But finally, he too comes closer to the widely accepted translation of the term *varṇa* considering it closer to letter that itself he calls as an unselfconscious phoneme. The term ‘speech-sound’ is also quite close to the term ‘phoneme’. However, the explanation given by Deshpande clarifies Allen’s difficulty too in accepting this term to be an equivalent to *varṇa*. Though phoneme does not convey the same meaning as *varṇa* in entirety yet functionally it is the most suitable term in English to represent *varṇa* effectively, and therefore it is commonly used by the scholars (Lucyszyna, 2016: 304; Pataskar, 2016: 146; Colas-Chauhan, 2008: 428) to represent *varṇa*. K. A. Subramania Iyer too advocates the use of the term ‘phoneme’ for ‘*varṇa*’ where he equates phoneme with *varṇa* as a unit of speech-sound and equates sound with *dhvani* or *nāda*. Further, Iyer cites Patañjali to add to the value of *varṇa*, and states, “Patañjali declares his real view by saying that the real phoneme or *varṇa* is the *sphoṭa* and that *dhvani* is a quality or attribute of it. To say that ‘*dhvani*’ is a quality of *sphoṭa* means, according to the commentators, that it manifests the *sphoṭa*. The *sphoṭa* remains the same in all the speeds of utterance. It is the *dhvanis* or the manifesting sounds which differ in the different speeds of utterance” (Iyer, 1965: 49).

Deshpande dates standardised ordering of Sanskrit alphabet known as *akṣara-samāmnāya* to 700 BC. It was necessitated by the apparent loss of innate ability to articulate and recite Vedic hymns correctly (Deshpande, 2001: 9). If *akṣara-samāmnāya* presents distinction between vowels and consonants, the *varṇa-samāmnāya* adds descriptive techniques to the same. Pāṇini’s grammar begins with the “*Varṇa-samāmnāya*”¹⁶ in the form of the fourteen *sūtrās* known as *Śivasūtrā*. Many scholars opine differently,

¹⁵ *yo vā imāṃ, padaśāḥ svaraṭśokṣaraśo vācam vadaḥhāti sa ārtvijāḥ* (*Mahābhāṣya*, Vol. I: 3).

¹⁶ Sumitra M. Katre translates *Varṇasamāmnāya* as “Repertory of Phonemes” (Deshpande, 1989: 646).

stating that Pāṇini did it to develop his grammar with brevity or it already was formed in this sequence. Patañjali, in his *Mahābhāṣya's pratham āhnik* (first chapter), talks about “*Varṇa-samāmnāya*”, asking its purpose emphasises on the fact that it is for introducing *śāstras*/grammatical science¹⁷.

Saussure sees phoneme as a “corresponding number of written symbols” (Saussure, 1959: 15) which is quite similar to the theory of “*Varṇa-samāmnāy*” of Pāṇini, with which Indian grammarians/ phoneticians created a set of *varṇas* (alphabets), according to their division on the basis of places of speech-sounds. It is also mentioned in *Aṣṭādhyāyī (tulyāśya prayatnam savarṇam, I.I.9.)*¹⁸, where “*savarṇam*” (homogenous) means a set of sound-system (*savarṇa*, literal meaning “of same colour or class”). It also underlines the understanding of Jones, where he considers phoneme as a family of sounds. Bloomfield and Sapir have opposite views in this regard. Bloomfield supports phonemes as a minimum unit of “distinctive features” (Bloomfield, 1957: 79), which apparently corresponds with fourteen *Śivasūtrās*. Sapir on the other hand did not accept the theory of distinctive feature. He argues that “the phonemic attitude is more basic, psychologically speaking, than the more strictly phonetic one” (qtd. in Dresher, 2011: 246). Sapir’s theory prefigures in the *Pāṇiniya Śikṣā’s* sixth verse, where it is mentioned that *ātmā* with buddhi (psychological entities) “perceives things and sets the mind to an intention of speaking; the

mind (then) gives impetus to the fire within the body, and the latter drives the breath out”.¹⁹ The terms used Sanskrit Grammar are wider in scope and cover far beyond what the so-called equivalent terms project. Madhav Deshpande, further problematising this issue of the translation of the term states, “Often, the term *varṇa* is translated by the term ‘phoneme’ in modern expositions of Sanskrit phonetics. The Sanskrit grammarians do indeed discuss minimal pairs like *kūpa/sūpa/yūpa*. However, the term *varṇa* does not strictly refer to a phoneme in modern linguistics. For Sanskrit phoneticians, the sounds *n* and *ñ* are distinct *varṇas*, while they would be only allophones for a modern linguist. On the contrary, the sounds *a* and *ā* would be separate phonemes for a modern linguist, but they belong to the same *varṇa* for Sanskrit phoneticians and grammarians” (Deshpande, 2001: 15). He believes in the unique identity of the term to be true due upon the acts that the term performs.

Similarly, the term ‘*akṣara*’ that is seen to be synonymous with Brahma who is beyond beginning and end, and from who all transactions of the world proceed, is not translated unanimously by the scholars. There are varied views on the word used in English for ‘*akṣara*’. Deshpande uses ‘letter, sound, syllable’ as the equivalents to *akṣara* (Deshpande, 2001: 08). But J. A. B. van Buitenen who wrote an article solely on *akṣara*, defends it to be similar to a ‘syllable’. He, in this regard, states, “In the *R̥gveda Samhita akṣaraa* claims the position of a supreme principle, without how- even for a moment ceasing to mean “syllable”... Since the syllable is the smallest bit of speech that can be spoken and the first that must be spoken, it is conceived at once as the matrix and as the embryo of speech and all that can be affected by it. (Buitenen, 1959: 177-178). Further, he analyses the root of the word, and comments, “The etymology of the word *na*

¹⁷ *Atha kimartha varṇānām updeśaḥ? Vṛtti-samavāyārtha varṇānām updeśaḥ* (Patañjali, 1991:56, 59)

¹⁸ *tulyāśyaprayatnam savarṇam || I.I.9. ||* ‘(a pair of speech-sounds) which has the same articulatory effort in the mouth is (called) *savarṇa* “class-related” (with regard to each other).’... *Āśyaprayatna* taken in the sense of (articulatory) effort in the mouth involves both an articulatory (*kāraṇa*) and a place of articulation (*sthāna*). (Joshi & Roodbergen, 199: 13); “the word *āśya* ‘mouth’ is further explained as denoting the area beginning with the lips (*oṣṭha*) and extending up to but not including the *kākala* ‘adam’s apple’” (Sharma, 2000:14).

¹⁹ *Ātmā buddhyā samartyārthān mano yunkte vivakṣayā | manaḥ kāyāgnim āhanti sa prerayati mārutam || 6 ||* (Ghosh 1938: 54)

kṣaratīti has never been seriously questioned. An alternative etymology mentioned by Patañjali, from *Aś* with a suffixed *sara-*, has not found acceptance” (Buitenen, 1955: 204). Charles Li also uses ‘syllable’ as an equivalent to ‘akṣara’ stating that *śabdatattva* and *akṣara* are seen as Brahma by Bhartṛhari which accords ‘akṣara’ two meanings— the first is the adjective meaning ‘imparishable’ and the second is a ‘syllable’ or ‘sound’ (Li, 2018: 449). Further, Buitenen speaks in this line and states, “The word started its career as an adjective, meaning “not flowing away, unperishing”, seems obvious. But already in the most ancient source, the ṛgveda, the word is used in a specialized sense exclusively associated with Vāc, and Bergaigne for one would render the word everywhere with “syllable” <A. Bergaigne, Etudes sur le Lexique du Rigveda, J. As. 1883, pp. 480 ff., s. v. *akṣara*; a more qualified but substantially the same opinion gives H. Oldenberg, Vedische Untersuchungen 30, *akṣara*, *akṣara* in Rigveda (ZDMG, 63; 1909), pp. 293 ff.> (Buitenen, 1955: 204). Buitenen evidences his argument by citing the occurrences of *akṣara* with a meaning as ‘syllable’ in the Upanisads. He says, “Let us consider the other occurrences, BĀUp. 5,2,1; 3,1; 5,1; 5,3; 14,1-3; ChUp. 1,1,1; 5; 6; 7; 9; 10; 3,6-7; 4,1; 4-5; 2,10,3-4; 23,3; 8,3,5. In all these passages *akṣara* occurs in the sense of “syllable”(Buitenen, 1955: 205).

A syllable or *akṣara* is quite close to speech-sound has two components, “*svara*” and “*Vyañjana*” translated as “vowel” and “consonants” respectively. The Sanskrit grammar sees a vowel as self-ruling and consonant as a dependent on the vowel for its expression. Modern linguists also see a vowel as a syllable nucleus. Gleason, in this context argues, “We will call it a syllable nucleus, since it serves as the center of a syllable. A syllable nucleus will be defined as a vowel, or a vowel and a following semivowel” (Gleason, 1961: 28). In modern linguistics, syllables are classified as segmental, which are vowels and consonants; suprasegmental combines sound aspects other than consonants

and vowels, such as pitch, accent and junctures, stress, and length of a language. Laver defines the phonological syllable as “a complex unit made up of nuclear (vowel) and marginal (consonant) elements” (Laver, 1994: 114). A grouping of segments forms a syllable, which has an onset, coda and nucleus, first two of which are formed by more constricted consonantal articulations, while the nucleus is formed by a vowel like more open articulation. However, Sanskrit ‘*akṣara*’ and English ‘syllable’ like ‘*varṇa*’ and ‘phoneme’ are not exactly similar to each other. Siddheshwar Varma in this context states “the Indian terms *Svara* and *Vyañjana* did not exactly correspond to the “vowel” and the “consonant” of modern phonetics. The Indian terms may have denoted “a syllabic sound” and a “non-syllabic sound” respectively. For the essential difference between *Svara* and *Vyañjana* lay in their relative dependence the *svara* was said to be “self-dependent,” while the *Vyañjana* (literal meaning ‘manifested by another’ ‘accessory’)” (Varma, 1961: 57). Several western modern languages believe in the concept that a consonant can become an independent syllable occasionally (Varma, 1961: 56) for example, in the English language, *l* in *tunnel*, and ending *r* in *rubber* function as independent syllables. Varma, further states, “the general principle that a consonant could also form an independent syllable may have been recognized by Indian grammarians if they actually meant by *svara* “a syllabic sound”, and not necessarily “a voiced sound accompanied by a free passage of air through the mouth, and not producing audible friction,” which the modern term “vowel” signifies” (Varma, 1961: 57). To find the difference between consonants and vowels was quite tricky for modern linguists. Even Saussure, in one of his lectures, having provided a review of common sounds in European languages, admits that the difference between the vowels and the consonants is hard to determine (Joseph, 2012: 497).

However, Indian *śikṣākāras* (phoneticians) classified them in a better manner a long time ago. Pāṇini never mentioned the name of any particular language in his treatise on the grammatical rules stating that his rules are specifically meant for this language, instead he used the term “*Bhāṣā*” (the literal translation of this is speech or language, but Pāṇini meant here “standard speech”)²⁰, which also indicates that his grammar is not confined only to one language. Bronkhorst also concedes to this, and states, “His grammar is not an analysis of Sanskrit but a synthesis: it produces the words and sentences of the language, starting from their ultimate meaning-bearing constituents, essentially stems and affixes. To be precise, Pāṇini’s grammar first furnishes stems and affixes on the basis of a semantic input, and these stems and affixes are subsequently joined together, and modified where necessary, so as to yield words and sentences” (Bronkhorst 1998: 138). In the *Pāṇiniya Śikṣā*, the classification of speech-sounds or *varṇa* is shown to have been based on five factors – namely, (a) according to the *svarataḥ* or pitch variation which the western knowledge system categorises under suprasegmental, the vowels are classified into three types, *udātta* (high pitch), *anudātta* (low pitch) and *svarita* (medium pitch) (b) *kālāḥ*, the literal translation of this term is time; but here it stands for quantity (*mātrā*) that maintains the time of articulation of a speech sound; on the basis of this factor, the vowels are again divided into three varieties, *hrasva* (short vowel), *dīrgha* (long vowel), and *pluta* (overlong vowel) (c) *sthānāt*, here means place of articulation which are eight in number – chest, throat, the roof of the mouth, root of the tongue, teeth, nostril, lips and palate (d) *prayatna* (primary effort), and (e) *anupradānataḥ* (secondary effort).²¹ *Prayatna*

refers to primary efforts, efforts in adjusting the different parts of our mouth for articulation. The state before articulation is called *Prayatna* or primary effort, while after articulation, it becomes the secondary effort or *Anupradānataḥ*. Efforts are also divided into many types; primary efforts are five – *sprṣṭa*, *iṣatsprṣṭa*, *iṣatvivṛta*, *vivṛta* and *samvṛta* while secondary efforts are differentiated on the basis of sounds (*ghoṣa* and *aghoṣa*), breath system (*alpa prāṇa* and *mahā prāṇa*) and pitch accents (*udātta*, *anudātta*, and *svarita*) (Ghosh, 1938: 55-57).

(B) Production and classification of speech sounds: Indian and Western approaches

Modern Western linguists classified speech sounds into consonants and vowels. The consonant sounds are further divided into pulmonary and non-pulmonary sounds depending on whether they are produced through lungs or without. The pulmonic consonants are further classified into voiceless and voiced sounds depending on whether there is vibration between vocal folds while producing the sound. These voiceless and voiced sounds are further categorised based on how they are produced and what organs are involved in their production, i.e.,

Iti varṇa-vidāḥ prāhur nipuṇaṃ taṃ nibodhata || (10) PS.

...Which have fivefolded classification- according to their pitch, quantity, place of articulation, the primary effort and the secondary effort. So said those who wereversed in (pronouncing) speech-sounds. Learn this carefully (Ghosh, 1938: 54).

Udāttaś cānudāttaś ca svaritaś ca svarās trayāḥ | (11) PS.

“There are three kinds of (pitch) accent: *udātta*, *anudātta*, and *svarita*” (Ghosh, 1938: 58).

Hrasvo dīrghaḥ pluta iti kālato niyamā aci || (11) PS.

“Among vowels short, long and *pluta* (super long) varieties are distinguished by their time (of articulation).” (Ghosh 1938: 58)

“Aṣṭau sthānāni varṇānām uraḥ kaṇṭhaḥ śiras tathā / jihvā-mūlaṃ ca dantās ca nāsikōṣṭhau ca tālu ca || (13) PS.

The speech- sounds have eight places (of articulation): chest, throat, roof of the mouth (lit. head), root of the tongue, teeth, nostril, lips and palate” (Ghosh, 1938: 59).

²⁰ Pāṇini himself does not use the name *saṃskṛta* for the language analysed and codified by him. He calls it simply *bhāṣā* ‘speech’, by which he means standard speech (Joshi and Roodbergen, 1995: 10).

²¹ *Svarataḥ kālataḥ sthānāt prayatnānupradānataḥ* |

manner of articulation and place of articulation.

When we compare the Indian and Western classification systems, we find that the Indian system is not only more robust and extensive, but also encompasses the Western system. The reason for saying this is that the majority of sounds in languages around the world are pulmonic consonants. And the system that engages with those sounds comprises mainly of ‘place of articulation’ and ‘manner of articulation’ along with whether they are voiced or voiceless sounds. As we discussed above, the Pāṇinian classification system already engaged with sounds and placed them in the sound chart according to their places and manners of articulation. However, there are other determinants to assess and place a pulmonic consonant sound in the traditional Indian system, such as the primary effort and the secondary effort. Since the Indian consonantal chart contains a number of aspirated sounds, they are placed right after their non-aspirated counterpart (k is followed by k^h, t is followed by t^h) in it. The voicing aspect is also taken care of by the Indian system as each voiceless sound is followed by its voiced counterpart, after the aspiration has been taken care of (k, k^h, g; t, t^h, d). Thus, the Western classification system of sounds has little to offer to the traditional Indian classification of sounds and even the early introduction of sounds in Indian context is done through a chart that is very precisely classified and categorised considering several of the phonetic parameters involved in the production of sounds. While Indian system of classification considers a range of factors to account for a sound’s place in the phonetic chart, ‘place of articulation’ remains the key factor in its classification of consonants.

Aspiration is a very distinctive feature of Indian speech sounds, and the Indian consonantal chart places aspirated sounds right after their non-aspirated counterparts, as the two types of sound are produced in similar ways. The approaches of Pāṇinian grammar and the Western linguistics, when it comes to

the analysis of aspirated sounds, appear slightly distinct. As in Pāṇinian system, voiced aspirated stops such as gh, jh, dh, and bh have a ‘h’ sound at the end which is a type of emission known as ‘*hakara*’. Also known as “breathy voice”, it occurs when due to the position of vocal cords between open and close, the voice or resonance combine with aspiration. While the Western system just uses the category of voicing to mark all voiced sounds. Indian ancient tradition characterised the voicing feature distinctly and uses two terms, instead of one, viz. *nāda* and *ghoṣa*. Vowels and *ghoṣavat* consonants i.e., voiced consonants, possess the *nada* feature. Many modern scholars agree that Sanskrit aspiration doesn’t represent a unified phonetic phenomenon which stands valid for the statements of native Indian grammarians in the ancient phonetic treatises known as the *Pratīśākhya*, stating that the phonetic realization of the “voiceless aspirates” and the “voiced aspirates” have differences. Allen (1953: 38) explains, “the voiced aspirates are considered more fully voiced than the non-aspirates, and the voiceless aspirates more fully breathed than the non-aspirates”, and if one uses only single cover feature “aspiration for both Th and Dh, then there will be a mismatch between the phonetics and the phonology of aspiration for the two sounds”.

Thus, there are limitations to the structuralist analyses of sounds when it comes to explaining certain predominant features in Indian languages. What can be said very convincingly about the Western schools of linguistics is that even with the limitations in their analysis, a major portion of their concepts and theories find similarities and equivalence with that of the Indian traditional grammar. Manjali, in this regard, writes, “It has been noted by scholars that the Pāṇinian grammar was reborn in the last 150 years in three distinct and somewhat contrary interpretations. First, with William Dwight Whitney, it was understood as a grammar based on historical principles, then Bloomfield (who described Pāṇini’s grammar as ‘one of the greatest monuments of human

intelligence') viewed it as a structural-descriptive grammar, and finally with Chomsky and his followers, it was reinterpreted as a generative grammar" (Manjali, 2012: 1). Since the foundational structure and idea of all the generative theories is structuralism and structuralist paradigm, as seen above, has been parallel with Pāṇinian views. These later theories also show a tendency to be influenced by Pāṇinian grammatical tradition. Before the 1950s, linguistics was more about the surface representation of language before the generative and cognitive movement stroke, i.e., what the speaker utters or produced. However, most of the current theories, such as Chomsky's generativism, deal with the intellect of the human brain, where the influence of the Pāṇinian school of grammar is very significant. Let us look at one of the modern theories of sound, which was developed in the 1960s, to understand the impact of Pāṇinian theories on this course of linguistics.

Distinctive features theory and the postulations of Pāṇinian grammatical system

The distinctive features theory came into light with *Sound Pattern of English* by Noam Chomsky and Morris Halle, published in 1968. It opposes the conception that phoneme is the minimal distinctive unit of a speech-sound system. This theory of distinctive features primarily developed in a collaborative work of Jakobson and Trubetzkoy in the 1930s during his stay in Czechoslovakia (Anderson 2021: 97, 137). It was Saussure's views on the role of segmental where he observes a contrast in visual signifiers and auditory signifiers as their elements are presented in succession forming a chain (Saussure, 1959: 70) offered a stronger ground for the succeeding linguists to accord features a more subtle place than a phoneme. In his *Course in General Linguistics*, Saussure addresses a phoneme as a linguistic feature, when he writes, "Take a linguistic feature *a* that can be replaced by *b*, *c*, *d*, etc." (Saussure, 1959: 197). However,

there were many differences between Saussure's propositions and the conceptions of the linguists who succeeded him. Roman Jakobson criticises Saussure severely (Jakobson, 1978: 97-107). Holdcroft, talking about Jakobson's criticism of Saussure, states, "These arguments turn on the fact that phonemes can be analyzed into bundles of features; /m/ and /n/, for instance, have the same features except for the fact that the latter is nasal and the former is not" (Holdcroft, 1991: 58). Further, to evidence his argument on Saussure's criticism by Jakobson, he cites Jakobson's words, "Bally, faithful to his master's doctrine, arrived at the thesis that it is impossible to pronounce two sounds at the same time! This argument is a *petitio principii*... Two phonemes cannot be emitted simultaneously. But it is perfectly possible to emit several distinctive features at the same time. Not only is this possible, it is what is normally done, since *phonemes are complex entities* <1978, 99>" (Holdcroft, 1991: 58). The term "distinctive" in distinctive feature theory is used to distinguish phonemes from features. This theory proposes that the most basic or minimal units of speech sounds are features, not phonemes, as the former cannot be broken into smaller units. One of the central propositions of this theory is that the linguistic features are stored in the brain as a "bundle of features". The distinctive feature theory talks about a binary feature that indicates the distinction by changing its values in plus (+) or (-) (Nelson, 2022). This (+) or (-) primarily replaces the existing system of classification on the basis of voicing of a sound. Here (+) represents the addition of voicing (+voice) to a sound which means a voiced sound, while (-) value indicates the subtraction (-voice) and it means a voiceless sound. These plus and minus values should not be mistaken as presence or absence of voicing rather addition or subtraction of these features. Similarly, this binary feature is used to represent the same situation in terms of nasality, syllabicity, level/type of constriction and sonority. The exponents of the theory claim that both plus

and minus groups of segments form natural classes. (+voice)/(-voice) represent such groups of segments.

The features, according to Halle and Clements (1983), and Sagey (1986), are divided into following four groups – (a) major-class features, where ‘vowel’ and ‘obstruent’ are the segment types that this feature classifies into. These features primarily serve to differentiate among consonants, vowels, and glides, explaining primarily about obstruction in the oral tract, syllabicity, and sonority. (b) The second called laryngeal features stipulate the glottal properties of the segments. These features are used for representing the glottal positions where it details whether the glottis is spread or constricted. (c) The manner of articulation or type of constriction is specified by the manner features. (d) The place features talk about the place of articulation (67). It goes unsaid that one of the primary concerns of the distinctive features theory is to present the speech-sounds in a more precise manner.

Now, if we turn to the Indian classical grammatical tradition and compare the theory and its purpose, Pāṇini’s aphoristic style glimpsed through the *Śivasūtra* and his method of condensation called *pratyahara* take his *Aṣṭādhyāyī* to a unique pedestal, and reflects the motto precision from the beginning itself. His definition of ‘*savarṇa*’ (homogenous) as “*Tulyasyaprayatnam savarṇam* | (1.1.9)” where it is explained that a sound which is produced with the same articulation effort (*prayatna*) from the same place of articulation (*sthana*) in the oral cavity as the other sound is stated to be ‘*savarṇa*’ (homogenous) with the sound (Sharma, 2000: 13), offers a clear affinity with the natural class of the distinctive features theory²².

²² Madhav Deshpande too talks on this and states, “The second kind of natural class results from Pāṇini’s definition of the term ‘homogeneous’ (*savarṇa*), through which sounds having a common point-of-articulation feature and a common internal-effort feature are grouped together as homogeneous sounds. By this means short and long vowels are grouped together as a class (e.g., *a* and *ā*, *i* and *ī*, etc.); likewise

Further, Madhav Deshpande in his article titled ‘Pāṇini and the Distinctive Features’ (1994-95), talks in detail about the whole set of features present in Pāṇini’s grammar. What Patañjali states about substance is very much similar to the distinctive features proposed by Jacobson. Bimal Krishna Matilal talking about substance, cites Patañjali’s view noted in Pāṇini-Sūtra. He writes, “What Patañjali meant by substance here is what is called *svabhāva* ‘own nature’ or inherent nature of objects— something which is unique to each object and consequently accounts for its peculiarities” (1990: 384). Patañjali further calls it “a bundle of qualities, an integration of qualities” (Matilal, 1990: 385).²³ Further, the distinctive features theory seems to have its precedence even in Bharṭṛhari’s postulations. Bharṭṛhari also proposes in his *Vākyapadīya* that the difference in *hrasva* (short), *dīrgha* (long), and *pluta* (prolate) vowels are due upon the features that are associated with the manner of articulation as the difference in *spṛṇaśabda* is due upon the difference caused by time as *ekmātrā*, *dvimātrā*, and *trimātrā*²⁴.

Thus, there is a range of undeniable similarities and precedence when one juxtaposes distinctive feature theory with the theories of Pāṇinian grammarians. While Bharṭṛhari’s distinctive feature theory may seem slightly metaphysical and hence tricky

stops sharing a particular point- of-articulation feature (e.g., *k*, *kh*, *g*, *gh*, and */ṇ/*). Classes of this type are usually represented in rules not directly by featural terms, but by specified tokens to represent the types or classes” (90).

²³ “*anvarthaṃ khalvapi nirvacanaṃ—guṇasaṃdrāvo dravyam iti*”— Patañjali under Pāṇini-Sūtra 5.1.119. Also: “*guṇa-samudāyo dravyam*” - Patañjali under Pāṇini-Sūtra 4.1.3.

²⁴ *Svabhāvbhedānnityatve hrasvadīrghaphlutadiṣu / prākṛtasya dhvaneḥ kālaḥ śabdsyethupacaryate* || (VP. 1.76.)

(With regard to the short, long and prolated vowels, since a speech-unit (here, a vowel) is (essentially) timeless, and (therefore) fundamentally different (from the speech-sound which reveals it), it is the time of the primary- sound which is metaphorically considered as belonging to the speech-unit) (Pillai, 1971:16).

to fit in the modern schema of linguistics, Pāṇini's *Śivasūtras* are technical and completely compatible with the modern phonetic theory. This is despite the fact that Pāṇini grouped all these phonemes, and so the distinctive features seem secondary here. The code of language that the *Aṣṭādhyāyī* focused on was precision and economy of language. Thus, even the most modern theories of sounds based in the generative principle, such as that of Distinctive features, are not entirely free from the influence of Indian grammatical tradition, what we also see that the ancient theories from India still surpass their modern predecessors in a more comprehensive and precise analysis of linguistic units and their traits, such as a phoneme and its segmental and suprasegmental features.

Conclusion

In light of the above discussion, it is safe to state that modern linguistic theory owes a significant extent to Pāṇinian grammatical tradition. Oriental school of linguistics led by Sir William Jones when encountered the Indian grammatical tradition enriched a lot from it, which Jones admitted on several occasion, and that started a series of influences of Pāṇinian grammar on the European linguistic tradition. The structural philosophy of language in the West, which proved to be a benchmark for modern linguistics, finds its parallel with several theories of Pāṇini and other Indian scholars of Pāṇinian tradition. Saussure's great exposure with the texts of Sanskrit and the linguistic analysis presented in those texts shaped most of his discourse on the structural philosophy of language. Even in the theories that followed the structural theory of Saussure, the contributions of Pāṇinian postulations can be seen to a significant extent. Whether it was the generative theory that was put forward by Chomsky or the distinctive feature theory popularised by Chomsky and Halle, those find evident semblance with the ancient Indian linguistic theories of Pāṇinian tradition. The above discussion also neatly summarises the advancement of the Indian phonetic and phonological knowledge system over its

twentieth-century European counterpart. Indian theories took into cognizance the value of systematizing speech sounds in consideration with their articulation and speech-time, which the western system has often ignored or has been a lot more revisionist in its approach. Thus, Sanskrit scholars and Sanskrit sound system represent a much deeper and nuanced understanding of *dhvani* which has only later been studied by the Western scholars and has influenced their own analysis and categorization of sounds in the European languages. Distinctive Feature Theory, which has been a significant revelation in the study of sounds, is deep-rooted in the Maheshwar Sutras of Pāṇini and class features have been very clearly described in the *Aṣṭādhyāyī*. Adding to that, the premise of Distinctive Features is built on considering phonemes as a bundle of features that has been attested by several linguists and has again been at the very heart of Pāṇinian grammar. Generative theory by Chomsky, which was considered to be a paradigm shift away from structuralism, is again covered by the Pāṇinian grammar, which also proves that while Western linguistic theories have been limited in their scope, Indian theories have more profound sophistication and complexity that makes them a precursor to several of the western theories which are considered fundamentally different in their scope and vision. Thus, there is no denying that starting from neogrammarian study to structuralism, and from the structuralism to the generativism, almost every significant development in phonetic and phonological theory that happened in the West goes through the road laid out by Pāṇini and his successors. And so, this fact cannot be overstated that in the absence of Pāṇinian grammar, the Western schools of linguistics would have remained devoid of a theoretical richness and practical refinedness. Lastly, it is also evident that the Western linguistics while owing to the rich Pāṇini a tradition lacks on several front when compared to the latter and thus just like the past, the future road of the Western linguistics might also be intertwined with the rich

theoretical understanding that is encompassed in these ancient Indian texts.

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РАЗДЕЛ II. СОПОСТАВИТЕЛЬНОЕ ЯЗЫКОЗНАНИЕ SECTION II. COMPARATIVE LINGUISTICS

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**Постредактирование машинного перевода
в работах российских ученых и международный стандарт
ISO 18587:2017 — внутренние и внешние противоречия
в аспекте оценки качества: литературный обзор**

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Аннотация. В статье рассматриваются взгляды российских ученых на постредактирование как новый вид профессиональной деятельности в аспекте требований, предъявляемых к качеству отредактированного машинного перевода. В условиях отсутствия на сегодняшний день соответствующего профессионального стандарта на русском языке, а также ограниченности доступа к полнотекстовой версии международного стандарта ISO 18587:2017 – Post-editing of machine translation output и недостаточной известности англоязычных отраслевых брошюр по постредактированию (выпущенных, в частности, организацией TAUS и компанией RWS), подходы к оценке качества перевода, отредактированного постредактором, обнаруживают в себе фундаментальные различия, с преобладанием в российской научно-академической среде точки зрения, противоречащей международному стандарту. Непонимание специфики данного вида профессиональной деятельности может приводить к тому, что к работе, выполненной постредактором, зачастую предъявляются завышенные требования, не соответствующие параметрам ситуации.

Для оценки существующих в научно-академической среде подходов в целях уточнения актуальной ситуации (1) выполнен литературный обзор публикаций, доступных на русском языке для всех заинтересованных лиц, (2) проанализированы взгляды ученых на задачи, стоящие перед постредактором в аспекте коррекции различных типов ошибок машинного перевода, а также (3) взгляды, изложенные в отобранных публикациях, сопоставлены с требованиями международного стандарта ISO 18587:2017 и рекомендациями двух упомянутых выше отраслевых брошюр. С применением

метода сопоставительного анализа выведена сводная таблица, в которой показаны сходства и отличия во взглядах на сущность постредактирования в аспекте требований, предъявляемых к качеству отредактированного машинного перевода, в русскоязычном пространстве по сравнению с устоявшейся международной практикой.

Ключевые слова: Постредактирование; Машинный перевод; Постредактор; PEMT; Оценка качества; ISO 18587:2017; TAUS

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Post-editing of machine translation in Russian scientists' articles VS the International Standard ISO 18587:2017 – inner and outer divergences in the aspect of quality estimation criteria: literature review

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Abstract: This article focuses on the views of Russian scientists on post-editing as a new type of professional activity in terms of the requirements to the quality of post-edited machine translation output. As there is currently no Russian version of the PEMT professional standard, and free access to the full text of ISO 18587:2017 'Post-editing of machine translation output' is not available, nor are industry brochures in English such as those of the TAUS association and RWS company sufficiently popular, up-to-date approaches to evaluating the final quality of translations edited by post-editors reveal fundamental differences in the very essence of post-editing. Our study shows that the most popular approach to PEMT in the Russian academic environment contradicts the relevant International Standard. This lack of understanding what kind of professional activity PEMT is often leads to exaggerated requirements applied to post-editor's output that do not correspond to the situation context. In order to assess the existing approaches and make the current situation clear, we set ourselves the following goals: (1) to perform a literature review of Russian-language publications available free of charge, (2) to analyze the

views of scientists on the tasks a post-editor faces correcting various types of machine translation errors, as well as (3) to compare them with corresponding requirements of ISO 18587:2017 and recommendations of the above-mentioned industry brochures. Using comparative analysis as the main method, we will make a summary table based on the results of our study to demonstrate similarities and differences in the views on the nature of PE in terms of quality criteria within the Russian academic environment compared to the established international practice.

Key words: Post-editing; Machine translation; Post-editor; PEMT; Quality estimation; ISO 18587:2017; TAUS

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Введение

На сегодняшний день в русскоязычном научно-академическом пространстве, по-видимому, нет единого понимания критериев оценки качества отредактированного машинного перевода (далее — МП) как результата постредактирования (далее — ПР); более того, имеются принципиальные расхождения в понимании задач постредактора при работе с переведенным текстом. Причина, на наш взгляд, заключается, прежде всего, в отсутствии соответствующего отечественного стандарта¹ — авторитетного документа на русском языке, в котором достаточно полно была бы раскрыта сущность постредактирования как самостоятельного вида деятельности.

Следует отметить, что несмотря на существование международного стандарта ISO 18587:2017 — Post-editing of machine translation output² (далее — ISO),

размещенного в сети Интернет, бесплатный доступ к полной версии этого документа, представленного на французском и английском языках, отсутствует. В качестве альтернативы все чаще используют брошюру общества TAUS³ (на которую, судя по библиографии, и опирается ISO). Текст рекомендаций данного отраслевого документа также написан на английском языке, что, по-видимому, не способствует его популяризации в русскоязычном пространстве: из 74 публикаций, посвященных ПР, брошюра TAUS упоминается в 18 работах, причем 8 из них написаны представителями питерской школы, остальные 10 имеют существенный географический разброс: Воронеж, Ростов, Пермь, Нижний Новгород, Курск, Новосибирск и Пловдив (Болгария).

Кроме того, на английском языке существует и другая брошюра — «Постредактирование машинного перевода компании RWS»⁴, где ПР рассматривается

¹ Меморандум Ассоциации переводческих компаний по вопросам институционализации, стандартизации и создания нормативно-правовой базы для применения машинного перевода и прочих технологий автоматической генерации текста в качестве профессиональных инструментов в области перевода и локализации. URL: https://atcru.org/upload/iblock/ff5/fp58d29psjlsr3mintt_u0nuqqntlay50.pdf (дата обращения: 12.02.2025).

² ISO 18587: 2017 (en) Translation Services – Post-Editing of machine translation output – Requirements

(2017). URL: <https://www.iso.org/standard/62970.html> (дата обращения: 30.01.2025).

³ TAUS Guidelines - Machine Translation Postediting Guidelines (2010). URL: <https://taus-website-media.s3.amazonaws.com/images/stories/guidelines/taus-cnsl-machine-translation-postediting-guidelines.pdf> (дата обращения: 30.01.2025).

⁴ The RWS Post-Editing Certification brochure — Machine translation post-editing (2021). URL: <https://clck.ru/3G5EaY> (дата обращения: 30.01.2025).

более подробно и, на наш взгляд, логично и непротиворечиво. Однако доступ к ней возможен лишь после записи на бесплатный интерактивный курс, посвященный ПР, в рамках образовательного проекта компании RWS⁵. Вероятно, по этой причине о данном тексте информация практически отсутствует. (Заметим, что ни в одной из 74 публикаций, посвященных ПР, эта брошюра не упоминается.)

Важно учесть, что русскоязычные брошюры, аналогичные рекомендациям TAUS и RWS, в Интернете отсутствуют. Таким образом, на данный момент в переводческой отрасли в принципе нет основополагающего программного текста на русском языке, в котором для исполнителей и заказчиков — носителей русского языка — были бы четко обозначены нормы ПР. Понятно, что в отдельных переводческих бюро наряду с руководством по стилю и правописанию имеется свое собственное руководство по ПР. Но важно подчеркнуть, что эти сугубо корпоративные документы, как правило, предназначены для внутреннего пользования и, как отмечает Л. Н. Беляева, «часто меняются от компании к компании» (Беляева, 2022: 29).

В научно-академической среде проблемы ПР все чаще становятся объектом исследования, при том что многие авторы проявляют к данному виду деятельности не только научный, но также и сугубо методический интерес, поскольку в своей педагогической практике то и дело сталкиваются с ПР, особенно на занятиях по иностранному языку и письменному переводу (Добрынина, 2021; Мирошникова, Черновец, 2023; Ласкова, Полоян, 2021; Королькова, Новожилова, 2020; Мирошникова, Черновец, 2024; Смирных, Колычева, Казаченкова, 2024; Левина, Левин, 2018; Левина, Левин, 2022;

Баранов, 2020; Зубкова, 2023; Беляева, Камшилова, 2023; Бужинский, Бадулин, 2022; Бадулин, 2024; Коротких, Носенко, 2022; Московская, 2022; Попова, Пятницкий, 2018; Панасенков, 2019; Шумейко, 2023; Дорожкина, Ивлева, 2020; Нечаева, Светова, 2018; Морозова, 2023; Нечаева, Светова, Подольский, 2019; Коротких, Коротких, 2009; Саунина, 2024; Жилев, Попова, 2024; Харченко, Дятлова, 2024; Бадулин, 2023; Бадулин, Тарасюк, 2022; Бадулин, Тарасюк, 2023).

Анализ подборки из 74 публикаций, отобранных нами для данного исследования, показал, что во взглядах представителей российского научно-академического сообщества на сущность ПР имеются фундаментальные расхождения: большая часть авторов (60 %) рассматривает ПР в категориях традиционного редактирования, то есть как деятельность по нахождению и исправлению любого рода ошибок, тогда как меньшая часть — в категориях международного стандарта ISO, то есть как деятельность по улучшению результата МП за минимальное количество времени и с минимальными усилиями, причем в этом случае качество отредактированного текста варьируется в зависимости от технического задания.

Цель работы

Авторы исследования видят своей целью проверить гипотезу, согласно которой во взглядах отечественных ученых на сущность ПР в аспекте требований, предъявляемых к качеству отредактированного МП, имеются фундаментальные расхождения.

Для достижения указанной цели поставлены следующие задачи: во-первых, проанализировать позиции, обозначенные коллегами в своих научных публикациях в отношении данных требований, и описать их взгляды на задачи, стоящие перед постредактором в аспекте коррекции различных типов ошибок МП; во-вторых, полученную типологию взглядов

⁵ The RWS Post-Editing Certification program — Machine translation post-editing (2021). URL: <https://clck.ru/3EoyNE> (дата обращения: 17.02.2025).

сопоставить с соответствующими международными требованиями и рекомендациями, в результате чего составить сводную таблицу, где наглядно представлены сходства и отличия, с одной стороны, в еще только формирующемся отечественном подходе к ПР и, с другой — в уже сформировавшейся международной практике данного вида профессиональной деятельности.

Материалы и методы исследования

Поиск необходимых для нашего исследования публикаций осуществлялся в научной базе eLibrary (РИНЦ) по следующей форме: [Что искать:] *постредактирование*; [Где искать:] *в названии публикаций, в аннотации, в ключевых словах*; [Тип публикации:] *статьи в журналах, материалы конференций, депонированные рукописи, диссертации*; [Параметры:] *искать с учетом морфологии, искать в публикациях, имеющих полный текст на eLibrary.Ru, искать в публикациях, доступных для вас*; [Поступившие:] *за все время*.

Среди прочих фильтров, как видно из обозначенной формы запроса, применена опция «искать в публикациях, доступных для Вас», которая значительно сокращает количественный результат. Потребность в данном фильтре обусловлена стремлением авторов выстроить исследование исключительно на материале работ, размещенных в открытый доступ. Материалы, находящиеся в платном доступе (либо доступные, например, только при очном посещении библиотек), не имеют, к сожалению, практической ценности для широкой аудитории не-исследователей: практикующих переводчиков и редакторов, заказчиков и переводческих бюро, в принципе всех заинтересованных лиц, довольствующихся только той информацией, что легко находится в сети Интернет. По этой же причине из формы запроса нами исключены англоязычные публикации, в том числе отечественных ученых.

По итогам поиска среди 65 млн публикаций идентифицировано 99⁶. Из их числа исключено 25 публикаций, на основании двух следующих критериев: (1) авторы, упоминая ПР, никоим образом этот вид деятельности не рассматривают (20 работ); (2) язык публикации — английский (5 работ). Таким образом, объем исследовательской базы составил 74 статьи (45,44 авт. л.). В таблице 1 мы приводим 6 самых цитируемых работ, где авторы высказывают свою точку зрения на сущность ПР.

Методическая база нашего исследования представлена общенаучными методами сопоставительного анализа, синтеза и обобщения. Такой выбор обусловлен исследовательской задачей — оценить существующие в научно-академической среде подходы к оценке качества ПР в аспекте требований, предъявляемых к отредактированному МП, по следующим критериям: (1) насколько полно в анализируемой публикации освещена сущность ПР; (2) сводятся ли задачи постредактора в аспекте повышения качества МП к традиционной правке (коррекции подлежат ошибки любого рода, независимо от ситуации) либо зависят от заданного режима (качество ПР варьируется сообразно целям перевода); (3) сообщается ли и в какой мере о существовании режимов «легкое — полное» ПР; (4) какие типы ошибок, по мнению авторов, подлежат коррекции в обязательном либо факультативном порядке — как в режиме легкого ПР, так и в режиме полного ПР; (5) затронута ли установка на соблюдение стилистической нормы и узуса. Отметим, что поиск необходимых данных в контексте обозначенных выше критериев осуществлялся нами вручную, путем внимательного прочтения всего массива публикаций с целью осуществить анализ

⁶ eLibrary. URL: <https://www.elibrary.ru/> (дата обращения: 25.12.2024).

взглядов, которых придерживаются авторы по актуальным для нашего исследования вопросам. Собрав таким образом все необходимые данные, мы сопоставили взгляды представителей научно-академического сообщества на сущность ПР с требованиями соответствующего международного стандарта и рекомендациями двух авторитетных отраслевых брошюр.

В результате финального сопоставительного анализа была сформирована сводная таблица, демонстрирующая сходства и отличия во взглядах на сущность ПР в аспекте требований, предъявляемых к качеству отредактированного МП, в русскоязычном научно-академическом пространстве по сравнению с устоявшейся международной практикой.

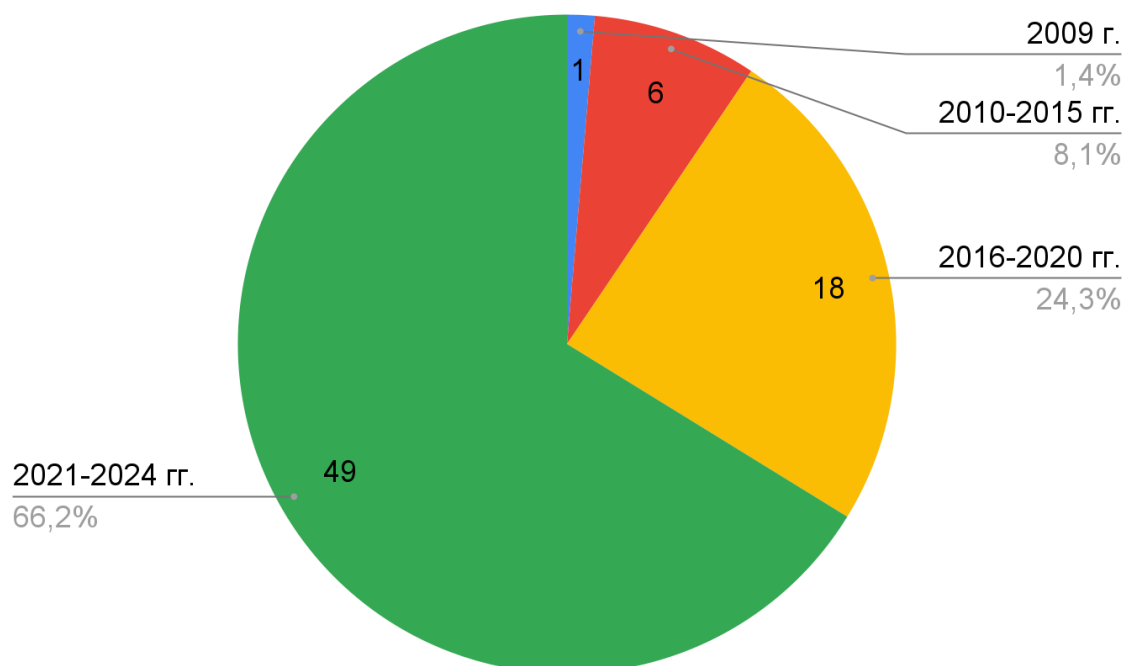
Таблица 1. Наиболее цитируемые публикации eLibrary, посвященные ПР
Table 1. The most cited eLibrary publications on PE

Название публикации	Цит.
Постредактирование машинного перевода как актуальное направление подготовки переводчиков в вузах / Н. В. Нечаева, С. Ю. Светова // Вопросы методики преподавания в вузе. – 2018. – Т. 7, № 25. – С. 64-73. https://doi.org/10.18720/HUM/ISSN2227-8591.25.07	85
Машинный перевод в работе переводчика: практический аспект / Л. Н. Беляева // Вестник Пермского национального исследовательского политехнического университета. Проблемы языкознания и педагогики. – 2019. – № 2. – С. 8-20. https://doi.org/10.15593/2224-9389/2019.2.1	21
Машинный перевод в современной технологии процесса перевода / Л. Н. Беляева // Известия Российского государственного педагогического университета им. А.И. Герцена. – 2022. – № 203. – С. 22-30. https://doi.org/10.33910/1992-6464-2022-203-22-30	18
Постредактирование в транслатологической парадигме / Ю. И. Чакырова // Вестник Пермского национального исследовательского политехнического университета. Проблемы языкознания и педагогики. – 2013. – № 8. – С. 137-144.	15
Постредактирование машинного перевода в обучении студентов лингвистических специальностей / В. А. Дорожкина, М. А. Ивлева // Вопросы методики преподавания в вузе. – 2020. – Т. 9, № 33. – С. 38-45. https://doi.org/10.18720/HUM/ISSN2227-8591.33.03	14
Постредактирование и типичные ошибки в автоматизированном переводе научно-публицистических текстов / Е. В. Шевчук, Ж. А. Никифорова // Вопросы методики преподавания в вузе. – 2021. – Т. 10, № 39. – С. 46-54. https://doi.org/10.18720/HUM/ISSN2227-8591.39.04	13
Опыт обучения студентов-лингвистов постредактированию машинного перевода (на материале англо-русского перевода с помощью систем «Google translate», «Яндекс переводчик» и «Promt») / Н. А. Панасенков // Педагогическое образование в России. – 2019. – № 1. – С. 55-60. https://doi.org/10.26170/po19-01-08	13

Результаты исследования

Рисунок 1. Распределение публикаций по годам

Figure 1. Distribution of papers by year



Из рисунка 1 видно, что самая первая (и, заметим, единственная за весь календарный год) публикация по интересующей нас тематике зарегистрирована в eLibrary в 2009 году. Ее авторы Г. И. Коротких и Гал. И. Коротких, сравнивая результаты двух программ автоматического перевода XTR и «Сократ Персональный», приходят на тот момент к неутешительным выводам: «Существующие на рынке электронных носителей программы автоматического перевода с английского на русский **весьма несовершенны**⁷, их собственно «переводческий потенциал» **весьма низок**, практическое использование электронных редакторов-переводчиков может иметь **весьма ограниченный характер** (e-mail сообщения, деловые письма, узкопрофессиональные тексты), если электронный перевод не подвергается процедуре в той или иной степени

обязательному постредактированию» (Коротких, Коротких, 2009: 65).

Интересно отметить, что в данной работе авторы применительно к ПР указывают на «допустимость снижения требований», а именно: отредактированный МП может характеризоваться дословностью и «некоторым нарушением норм языка перевода и грамматического согласования компонентов». Мерилом допустимости, по мнению авторов, служит принципиальная возможность понимания содержания, особенно ключевых понятий и терминов, но никак не отсутствие ошибок и недочетов в финальной версии текста (там же).

В последующие пять лет в eLibrary добавилось 6 публикаций, еще через пять лет — 18, за последние четыре года на момент проведения исследования — 49. Выводы исследователей относительно качества МП и ПР в целом становятся все более оптимистичны, положительная динамика налицо: МП все чаще рассматривается как эффективный

⁷ Здесь и далее полужирный шрифт наш. — А. К., С. С.

инструмент в арсенале переводчика, обсуждается уже не столько целесообразность его применения, сколько способы достижения максимальной производительности постредактора и необходимость обучения этому относительно молодому виду деятельности в вузах и на производстве. Кроме того, в публикациях все чаще указывают на возможность сознательно выбрать уровень качества редактируемого текста (рисунок 2) – в зависимости от того, какой режим ПР (легкое или полное) оптимален по мнению заказчика в конкретной коммуникативной ситуации. Однако, как будет показано далее, на момент проведения нашего исследования такие публикации, не имеющие фундаментальных расхождений с соответствующим международным стандартом и западными отраслевыми брошюрами, остаются пока в меньшинстве.

Как было уже отмечено выше, при отборе материала для данного исследования мы выявили группу работ, в которых авторы, упоминая ПР, никоим образом этот вид деятельности не рассматривают; по данному критерию было исключено 20 публикаций. Среди оставшихся 74 работ подавляющее большинство (69/5) в той или иной мере посвящено ПР и раскрывает сущность этого вида деятельности, тогда как меньшая часть (5/69) содержит фрагментарные сведения, которые все же позволяют делать выводы об имеющихся представлениях, пусть и зачастую обозначенных поверхностно, касательно ПР у данной части научно-академического сообщества.

Для того чтобы обобщить представления русскоязычных коллег о критериях оценки качества текста как результата ПР, прежде всего необходимо выяснить, насколько отличаются их взгляды на редактирование перевода, выполненного машиной, от перевода, выполненного человеком, в аспекте

требований, предъявляемых к финальной версии. За исключением одной публикации (где авторы, цитируя взгляды тех, кто пишет о вариативности качества в зависимости от заданного режима, сами этих взглядов по всем признакам не разделяют (Чиликина, Махрова, 2023: 50)), в зависимости от понимания редакторской задачи при ПР отчетливо просматриваются два подхода (рисунок 2):

1) постредактор во всех случаях осуществляет традиционную правку — сопоставляя МП и оригинал, находит и исправляет все ошибки, в том числе те, которые нарушают стилевые нормы и узус⁸ текста перевода — 44 публ., или 60 % работ, рассмотренных в рамках нашего исследования (Добрынина, 2021; Мирошникова, Черновец, 2023; Добрынина, 2022; Гоппен, Убоженко, 2023; Королькова, Новожилова, 2020; Дятлова, 2024; Визгина, 2024; Мирошникова, Черновец, 2024; Смирных, Колычева, Казаченкова, 2024; Никишова, Потапова, 2023; Левина, Левин, 2022; Ошанова, Дектерев, 2022; Левина, Левин, 2018; Ся М., 2021; Баранов, 2020; Демидкина, Марзоева, 2024; Котельникова, 2010; Чистова Е. В., Броднева, 2015; Переходько, Мячин, 2018; Зубкова, 2023; Беляева, 2019; Нарбут, Шерстнева, 2022; Бойко, 2020; Бездорожев, 2013; Ален, 2021; Бадулин, 2024; Коротких, Носенко, 2022; Московская, 2022; Панасенков, 2019; Шумейко, 2023; Иванченко, 2021; Евграфова, 2021; Мухамбеткалиева, 2022; Кушнина, Кавардакова, 2014; Ситдикова, Хисамова, Усманов, 2019; Ошанова, 2023; Коротких, Коротких, 2009; Саунина, 2024; Мячин, 2019; Жилиев, Попова, 2024; Харченко, Дятлова, 2024; Гуров, 2021; Бабина, 2011; Гейхман, Кавардакова, 2018);

2) действия постредактора напрямую зависят от цели, с которой осуществляется перевод, что и определяет планку качества

⁸ Под «узусом» в данной работе мы будем понимать «наиболее привычное, максимально естественное для носителя языка употребление языковых единиц» (Павлова, 2015: 17).

с возможностью выбрать оптимальный режим — 29 публ., или 40 % работ, рассмотренных в рамках нашего исследования (Елизарова, Кустова, 2021; Миньяр-Белоручева, Сергиенко, 2022; Гаврилова, 2019; Ласкова, Полоян, 2021; Евграфова, Хвостов, 2020; Беляева, Камшилова, 2023; Беляева, 2022; Камшилова, Беляева, 2023; Бужинский, Бадулин, 2022; Попова, Пятницкий, 2018; Мухамбеткалиева, 2022; Чакурова,

2013[a]; Чакурова, 2013[6]; Хромова, Лукманова, 2024; Шевчук, Никифорова, 2021; Нарбут, Шерстнева, 2023; Дорожкина, Ивлева, 2020; Нечаева, Светова, 2018; Нестерова, Злых, 2022; Морозова, 2023; Ушакова, 2022; Абросимова, Щелокова, 2022; Нечаева, Светова, Подольский, 2019; Бакиева, 2022; Петрова, 2019; Бадулин, 2023; Бадулин, Тарасюк, 2022; Бадулин, Тарасюк, 2023; Липина, 2021).

Рисунок 2. Расхождения во взглядах российских ученых на задачи постредактора: динамика изменений за период 2009–2024 гг.

Figure 2. Divergence of Russian scientists' views on the post-editor's tasks: The dynamics of change between 2009 and 2024



Основная причина фундаментальных расхождений нам представляется следующей: многие исследователи, рассуждая о сущности ПР, упускают из виду соответствующий международный стандарт ISO и отраслевые рекомендации. Возможно, в тех публикациях, где авторы лишь затрагивают сущность ПР, действительно нет необходимости в упоминании зарубежных официальных документов. Однако научная статья,

призванная раскрыть сущность ПР как объекта исследования, думается, в обязательном порядке должна хотя бы вскользь упомянуть о существовании ISO, тем более что на сегодняшний день это фактически единственный правомочный документ, регламентирующий такой относительно новый вид деятельности, требующий более глубокого осмысления.

Обращает на себя внимание тенденция 2023–2024 годов,

свидетельствующая о росте числа публикаций, где ПР в аспекте требований к качеству подменяется традиционным редактированием, что в свою очередь говорит об увеличении количественного разрыва между, с одной стороны, академическими (теоретическими) представлениями, а, с другой — практической деятельностью и положениями ISO. Возможно, данная закономерность, обусловлена, во-первых, вовлечением в проблемы ПР все большего количества исследователей, не имеющих собственного практического опыта по редактированию именно машинного перевода, для нужд именно переводческих бюро (то есть опыта работы постредактором в условиях жестких сроков, больших объемов и низких ставок). Во-вторых, многие авторы научных публикаций, будучи представителями

прежде всего академического сообщества, в своих взглядах ориентированы как правило на «золотой стандарт» качества (в данном случае — на языковую норму) и, помимо решения научно-исследовательских задач, имеют аудиторную нагрузку — ведут работу по обучению студентов; следовательно, они в целом руководствуются установкой на создание качественных, образцовых текстов, тогда как на практике, в том виде в каком она имеет место в системе переводческих бюро, зачастую требуется не образцовость, а приемлемость. Задача по выявлению подлинных факторов, объясняющих растущий количественный разрыв между теорией и практикой в отношении взглядов на качество ПР, безусловно представляет отдельный исследовательский интерес.

Рисунок 3. Имеется ли в публикации отсылка к стандарту ISO 18587:2017

Figure 3. Does the paper contain a reference to ISO 18587:2017?



Как видно из рисунка 3, в текстах 74 публикаций стандарт ISO упоминается лишь в 8 работах (10,8 %). Ситуация усугубляется тем, что доступ к полной версии этого документа платный, стоимость составляет 98 швейцарских франков⁹ (причем сам документ, заметим, существует лишь на английском и французском языках). Однако интернет-пользователям, не имеющим возможности

приобрести платную полнотекстовую версию, все же доступен для ознакомления небольшой фрагмент этого стандарта, в котором в числе прочего кратко определены такие понятия, как full post-editing и light post-editing соответственно:

process of post-editing to obtain a **product comparable to a product obtained by human translation**;

process of post-editing to obtain a **merely comprehensible text** without any

⁹ Дата обращения: 10.02.2025.

attempt to produce a product comparable to a product obtained by human translation¹⁰.

С учетом этих дефиниций, которые, будучи общедоступными, прямо указывают на существование как минимум двух режимов работы постредактора и, как следствие, на вариативность качества отредактированного текста, казалось бы невозможно без оговорок и аргументации рассматривать ПР как деятельность по исправлению абсолютно всех ошибок и недочетов в тексте перевода. Тем не менее на деле — в научно-академической среде — именно это зачастую и происходит. Изучив все 74 публикации, мы получили неожиданный, парадоксальный результат: большая часть исследователей (44 публ.) не допускает даже мысли о том, что при редактировании МП возможен какой-либо иной подход, помимо традиционного, при котором в итоговом варианте текста могли бы сознательно быть оставлены нарушения норм переводящего языка, то есть не допускают ту самую вариативность качества в результате ПР, о которой говорится в отраслевом стандарте. Кроме того, помимо ISO и отраслевых брошюр доступно множество иноязычных публикаций, где зарубежные ученые пишут о вариативности качества отредактированного МП в зависимости от поставленной цели (Koby, 2001; Mossop, 2001; Lefevre, 2003; Bowker, 2005; O'Brien, 2010; Guerberof, 2014; Castilho, Resende, Mitkov, 2019; Andres, 2024; Perez, 2024).

Принципиальная разница между двумя подходами к пониманию редакторской задачи (ПР как традиционная правка и ПР как выбор режима исходя из цели) заключается в том, что во втором случае, сообразном положениям ISO, к отредактированному МП в аспектах соблюдения норм переводящего языка могут предъявляться заведомо сниженные требования (как цитировалось выше, а *merely comprehensible text*). В

проанализированных нами работах, где авторы придерживаются второго подхода (29 публ.), созвучного положениям ISO, исследователи как правило пишут о двух режимах ПР — легкое и полное (20 публ.), реже — только об одном из них (по 2 публ. о каждом). В 5 публикациях режимы как таковые не выделяются, не получают названий, однако у авторов есть понимание намеренной вариативности в качестве текста, полученного в результате ПР.

Примечательно, что понятия «легкое» и «полное» в рассмотренных нами публикациях, во-первых, далеко не всегда содержательно определены (в 9 публ. они лишь упоминаются, однако нет или практически нет информации о том, какие конкретно требования в том или ином случае предъявляются к качеству текста), во-вторых, оба эти понятия, там где они поясняются дефиницией или за счет контекста, зачастую получают различное концептуальное наполнение в отношении того, что именно подлежит правке.

Ознакомившись с несколькими авторитетными, проверенными временем классификациями ошибок (Комиссаров, 1999: 136; Сдобников, 2007: 29–36; Гарбовский, 2007: 514–536; Шевнин, 2008: 209–214; Латышев, 2008: 317; Бузаджи, Гусев, Ланчиков, Псурцев, 2009; Nord, 1997: 73–78; Рум, 2003: 481–497), мы сочли целесообразным максимально упростить существующие системы и предложить в рамках собственных изысканий следующую 6-ступенчатую градацию: ошибки смысла, грамматики, стиля, орфографии, пунктуации, формата. Такой предельно обобщенный взгляд на типологию ошибок целесообразен для нашего исследования, поскольку имеется прямая необходимость подвести под общий знаменатель разные классификации представителей разных школ, зачастую цитируемые лишь фрагментарно и даже, быть может, несколько непоследовательно. Иными словами, мы сознательно и вынужденно снизили детализацию

¹⁰ ISO 18587: 2017.... P. 2.

типологии ошибок, упростили ее в целях недопущения логических противоречий, которые были бы неизбежны из-за приравнивания понятий, являющихся элементами разных классификаций.

Градацию ошибок, предложенную нами в рамках данного исследования, далее мы применим к взглядам российских исследователей на задачи постредактора, а затем, в разделе «Обсуждение результатов исследования» — к взглядам составителей стандарта ISO и рекомендаций TAUS и RWS, а также менеджеров по качеству нескольких крупных переводческих компаний.

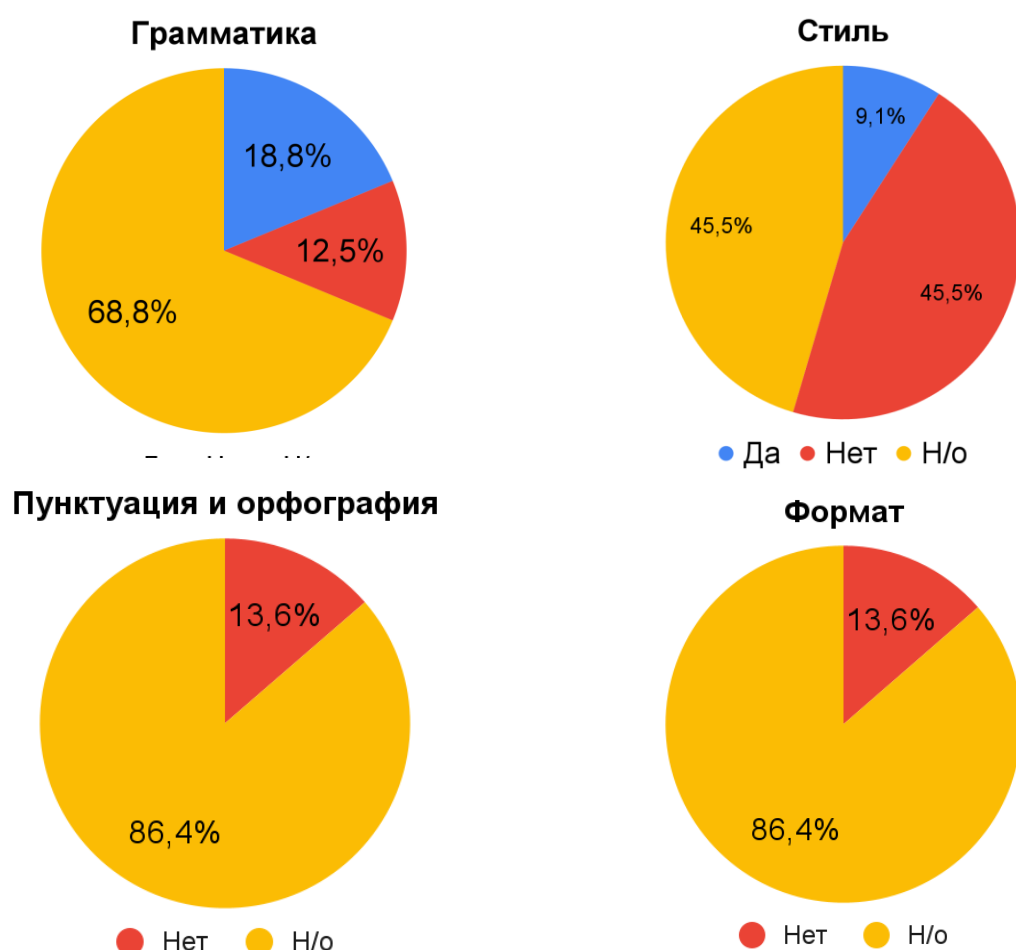
В материалах нашего исследования, отвечающих критериям включения, не встретилось ни одной публикации, где авторы, каких бы взглядов они ни

придерживались (ПР как традиционная правка или ПР как выбор режима исходя из цели), высказывали бы сомнения в необходимости исправлять в МП ошибки, искажающие предметно-логическую действительность, то есть ошибки смысла.

Что касается ошибок, не связанных со смыслом, взгляды исследователей из первой группы сводятся к необходимости получить в итоге образцовый текст, в котором сознательно не могут быть оставлены проблемы стиля, грамматики, пунктуации, орфографии и формата. Во второй группе мнения исследователей в этом отношении расходятся весьма существенно, прежде всего в условиях легкого ПР (данный режим рассматривается в 13 публикациях).

Рисунок 4. При легком ПР есть установка на коррекцию следующих ошибок:

Figure 4. The light post-editing level shall ensure the following requirements:



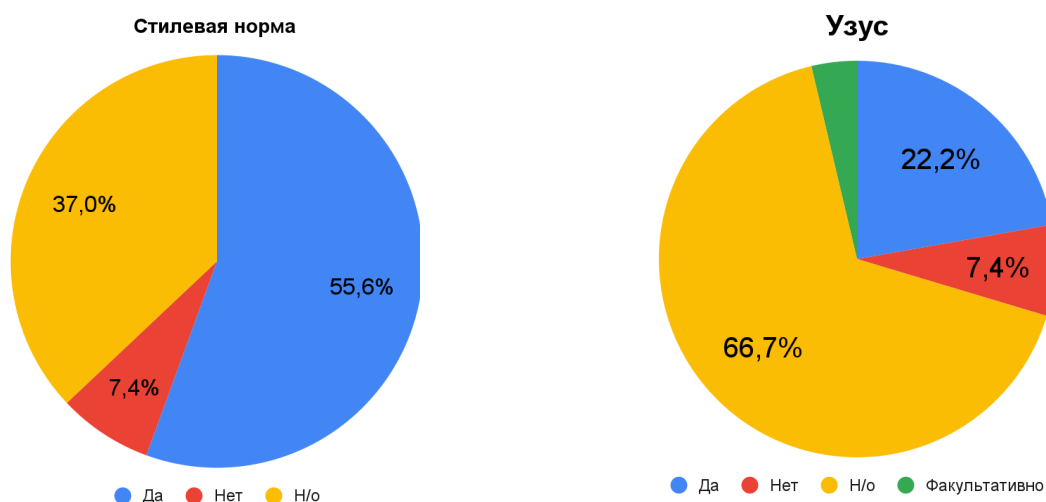
Из рисунка 4 следует, что в режиме легкого ПР на необходимость исправлять **ошибки грамматики** при редактировании МП указано в 6 (19 %) публикациях (Евграфова, Хвостов, 2020; Беляева, 2022; Хромова, Лукманова, 2024; Нестерова, Злых, 2022; Бадулин, Тарасюк, 2023; Липина, 2021), тогда как авторы 4 (12 %) публикаций утверждают обратное (Елизарова, Кустова, 2021; Гаврилова, 2019; Попова, Пятницкий, 2018; Чакрырова, 2013), а в 12 (69 %) публикациях, где авторы пишут о легком ПР, рекомендации по данному вопросу отсутствуют. О необходимости исправлять **ошибки стиля** пишут авторы 2 (9 %) публикаций (Бадулин, Тарасюк, 2023; Липина, 2021), с чем не согласны авторы 10 (45 %) публикаций (Елизарова, Кустова, 2021; Гаврилова, 2019; Евграфова, Хвостов, 2020; Беляева, 2022; Попова, Пятницкий, 2018; Мухамбеткалиева, 2022; Хромова, Лукманова, 2024; Чакрырова, 2013; Нестерова, Злых, 2022; Ушакова, 2022), тогда как в 10 (45 %) публикациях задачи постредактора по этому типу ошибок никак не обозначены. По вопросам **орфографии, пунктуации и формата** нами получена следующая статистика: данные типы ошибок подлежат корректировке – 0 публикаций, не требуют исправления — 3 (14 %) публикации

(Гаврилова, 2019; Евграфова, Хвостов, 2020; Беляева, 2022), позиция авторов не обозначена — 19 (86 %) публикаций.

Принципиально иной взгляд на ошибки мы видим относительно требований к тексту, отредактированному в режиме полного ПР. Ни в одной из 14 публикаций, где авторы пишут об этом режиме, не подвергается сомнению необходимость исправлять ошибки грамматики, пунктуации, орфографии и формата. Разногласия возникают лишь в отношении стиля, а именно — стилиевой нормы и узуса. О важности дифференциации и учета этих двух явлений В. Н. Комиссаров пишет следующее: «В каждом языке имеются общеупотребительные формы и структуры и малоупотребительные, хотя и соответствующие норме языка. Если **нарушение нормы языка делает речь неправильной, неграмматичной, то нарушение узуса делает ее неестественной, неидеоматичной.** <...> Одно из важных требований к переводчику заключается в соблюдении правильности языка, на который делается перевод. Если нарушение нормы языка в переводе — явление сравнительно редкое, то **соблюдение узуса требует от переводчика особой бдительности**» (Комиссаров, 2001: 33).

Рисунок 5. При полном ПР есть установка на коррекцию ошибок:

Figure 5. The full post-editing level shall ensure the following requirements:



Из рисунка 5 следует, что в режиме полного ПР на необходимость исправлять ошибки **стилевой нормы** при редактировании МП указано в 15 (57 %) публикациях (Елизарова, Кустова, 2021; Миньяр-Белоручева, Сергиенко, 2022; Евграфова, Хвостов, 2020; Беляева, Камшилова, 2023; Беляева, 2022; Мухамбеткалиева, 2022; Хромова, Лукманова, 2024; Чакырова, 2013; Нарбут, Шерстнева, 2023; Нестерова, Злых, 2022; Ушакова, 2022; Бакиева, 2022; Петрова, 2019; Бадулин, Тарасюк, 2023; Липина, 2021), тогда как авторы 2 (7 %) работ утверждают обратное (Камшилова, Беляева, 2023; Попова, Пятницкий, 2018), а в 10 (37 %) публикациях какие-либо рекомендации по данному вопросу отсутствуют. Соблюдать **узуальность** следует по мнению авторов 6 (22 %) публикаций (Мухамбеткалиева, 2022; Чакырова, 2013; Нарбут, Шерстнева, 2023; Бакиева, 2022; Бадулин, Тарасюк, 2023; Липина, 2021), с чем не согласны авторы 2 (7 %) публикаций (Камшилова, Беляева, 2023; Попова, Пятницкий, 2018), тогда как в 18 (67 %) публикациях задачи постредактора по этому типу ошибок никак не обозначены, а в 1 (4 %) публикации подчеркивается возможность, но необязательность внесения правки (Хромова, Лукманова, 2024).

Обсуждение результатов исследования

Результаты, полученные в данном исследовании, указывают на два подхода к ПР: в 44 публикациях (60 % работ) функции постредактора сводятся к осуществлению традиционной правки, без каких-либо оговорок в отношении качества, тогда как в 29 публикациях (40 % работ) действия постредактора определяются целью перевода, обусловленной установками заказчика, что в свою очередь позволяет ему выбрать оптимальный режим: легкое, полное или иное ПР.

Международный стандарт ISO, где узаконена вариативность качества при ПР, упоминается лишь в 8 работах (10,8 %). На специфический характер требований, предъявляемых к редактированию МП в отличие от перевода человеческого, прямо указывается во вступительной части указанного международного стандарта: «[Настоящий документ]¹¹ применим только к текстам, представляющим собой результат машинного перевода» (It is only applicable to content processed by MT systems)^{12, 13}. Далее по тексту мы видим, что вариативность в качестве результата ПР обусловлена существованием как минимум двух режимов: легкого и полного, — названных «основными» (two **main** levels of post-editing)¹⁴. Примечательно то, что данная характеристика допускает принципиальную возможность иных режимов ПР, помимо легкого и полного, «в зависимости от целей результирующего перевода и требований заказчика» (the purpose of the translation output and the client's requirements)¹⁵.

Международный стандарт ISO посвящен главным образом полному ПР (This document deals with **full post-editing**. Light post-editing is described in Annex B)¹⁶. Существенно то, что в демонстрационной версии этого документа понятие full post-editing возможно толковать лишь через призму его определения, в котором цель данного режим ПР обозначена следующим образом: «получить текст, **сопоставимый** с человеческим переводом» (to obtain a product **comparable** to a product obtained by human translation)¹⁷. Ключевым для понимания сущности ПР в данном случае оказывается прилагательное **comparable**,

¹¹ Здесь и далее вставки в квадратных скобках наши. — А. К., С. С.

¹² Здесь и далее перевод с английского языка на русский наш. — А. К., С. С.

¹³ ISO 18587: 2017.... Р. 1.

¹⁴ Ibid. Р. 5.

¹⁵ Ibid.

¹⁶ Ibid.

¹⁷ Ibid. Р. 2.

выражающее идею «принципиальной соотносимости», «соразмерности», «возможности сравнивать». Неполнота информации, обусловленная отсутствием свободного доступа к полной версии ISO, приводит к тому, что все те заинтересованные лица (исследователи, преподаватели, переводчики, заказчики и другие), кто не считает целесообразным либо не имеет возможности приобрести полнотекстовую версию этого документа, вынуждены при толковании сущности full post-editing с опорой на ISO отталкиваться именно от данной характеристики, указывающей на то, что качество отредактированного МП должно быть достаточно хорошим, чтобы иметь возможность сравнивать результат постредакции с эталонным переводом, выполненным человеком. Однако в полной версии документа, доступной лишь узкому кругу лиц, в разделе Requirements of full post-editing¹⁸ отредактированный МП в режиме полного ПР не «сопоставляется» с эталонным человеческим, а «приравнивается» к нему: «Цель данного режима постредактирования [полного ПР] – получить результирующий текст, неотличимый от человеческого перевода» (The aim of this level of post-editing [full post-editing] is to produce an output which is **indistinguishable** from human translation output)¹⁹. Из данной формулировки прямо следует, что отредактированный МП в режиме полного ПР ни в чем не должен уступать тексту перевода, выполненного человеком. Таким образом, при обращении к ISO представление о сущности полного ПР значимо зависит от того, к какой из двух версий данного стандарта обратиться: демонстрационной или полнотекстовой.

В отношении легкого ПР в полной версии ISO указано следующее: «Результирующий текст должен быть понятным и точным, однако не обязательно стилистически адекватным»

(The output shall be comprehensible and accurate but need not be stylistically adequate)²⁰. О необходимости в этом режиме исправлять ошибки грамматики, орфографии, пунктуации и формата напрямую ничего не сказано; однако, во-первых, при полном ПР, как обозначено в тексте стандарта, указанные типы ошибок подлежат коррекции в обязательном порядке, во-вторых, при легком ПР обязательной коррекции подлежат только ошибки смысла — на основании чего можно заключить: в режиме легкого ПР корректировать грамматику, орфографию, пунктуацию и формат не требуется.

В основу международного стандарта, который мы цитировали выше, положена брошюра сообщества TAUS. Ее полное оригинальное название — Machine Translation Postediting Guidelines, текст опубликован в 2010 году. Так же как в тексте ISO, в данной брошюре авторы-составители рассматривают два режима качества, указывая при этом (но в отличие от ISO более отчетливо), что возможны и иные режимы ПР — с иным набором требований к качеству отредактированного перевода: «Возможны иные режимы [ожидаемого качества], однако из соображений простоты здесь рассматриваются только два [легкое и полное ПР]» (Other levels could be defined, but we will stick to two here to keep things simple)²¹. Важно отметить, что применительно к полному ПР общая планка качества установлена следующим образом: «качество **близкое или равное** человеческому переводу» (quality similar or equal to human translation)²². То есть в тексте TAUS прямо и недвусмысленно указано на вариативность качества внутри режима «полное ПР», тогда как в производном от него документе ISO (в его полнотекстовой версии) аналогичная вариативность считается как сбой в

¹⁸ Ibid. P. 8.

¹⁹ Ibid.

²⁰ Ibid. P. 10.

²¹ TAUS Guidelines... P. 3.

²² Ibid. P. 3.

унификации: на странице 2 в дефиниции термина *full post-editing* используется прилагательное *comparable*, на странице 8 в аналогичном смысловом контексте — *indistinguishable*.

Что касается режимов «легкое — полное ПР», то исходя из рекомендаций TAUS также необходимо иметь на выходе текст понятный, содержательно точный. По результатам легкого ПР допустим неестественный синтаксис, ошибки грамматики, ошибки стиля (кроме тех, что приводят к ошибкам предметно-логического содержания), ошибки пунктуации (кроме грубых ошибок), общая «машинообразность» перевода (*the text may sound like it was generated by a computer*)²³. По результатам полного ПР предписана установка на соблюдение стилиевой нормы, однако прямо указано, что «в нюансах стиля отредактированный МП может уступать человеческому переводу, выполненному носителем [переводящего] языка» (*stylistically fine, though the style may not be as good as that achieved by a native-speaker human translator*)²⁴. Иными словами, соблюдение стилиевой нормы является обязательным, тогда как соблюдение узуса — вариативным. Ошибок синтаксиса, грамматики и пунктуации, равно как и ошибок формата, в этом режиме быть не должно.

Отдельного внимания заслуживает брошюра компании RWS, «ведущего мирового поставщика услуг в области технологического перевода, контента и интеллектуальной собственности»²⁵, разработчика решений TM Trados и систем МП. Представленный в ней материал тщательно структурирован, изложен простым, но академически грамотным языком. По сравнению с брошюрой TAUS она скорее напоминает учебное пособие,

нежели отраслевое руководство. ПР как результат определяется ее авторами следующим образом: «Переведенный машиной текст, отредактированный человеком с целью получить на выходе желаемый уровень качества, который зависит от параметров ситуации и требуемого режима постредактирования» (*A machine-translated text is edited by a human to reach a predefined quality goal. The final quality depends on the use case and the required post-editing level.*)²⁶.

С опорой на собственный опыт в области оказания услуг по переводу авторы брошюры RWS выделяют четыре уровня качества предоставляемых услуг: «сырой» МП, легкое ПР, полное ПР (без второй редакции), полное ПР (с второй редакцией)²⁷. Разница между двумя последними режимами заключается в наличии/отсутствии повторного редактирования. Оно обусловлено прежде всего тем, что над одним текстом могут работать сразу несколько исполнителей — каждый постредактор выполняет только свою часть проекта, то есть действует независимо от остальных участников. В данном режиме первостепенной задачей человека, осуществляющего вторую редакцию, становится унификация в самом широком смысле: от приведения лексики, особенно терминов, под общий знаменатель до устранения стилистических швов на всем протяжении текста²⁸. Подчеркивается необходимость в этом режиме сохранять исходное форматирование. Следовательно, в полном режиме с второй редакцией рекомендации по качеству отредактированного МП в соответствии с брошюрой RWS совпадают с требованиями стандарта ISO в его полнотекстовой версии, обозначенными в разделе *Requirements of full post-editing*²⁹.

При отсутствии повторной редакции бесшовность и унификация, по

²³ Ibid.

²⁴ Ibid. P. 4.

²⁵ Информация размещена на сайте компании. Режим доступа: <https://www.trados.com/about/>. Дата обращения: 28.01.2025.

²⁶ RWS... P. 42.

²⁷ Ibid.

²⁸ Ibid. P. 43, 44.

²⁹ ISO 18587: 2017.... P. 8.

рекомендациям RWS, не являются обязательными параметрами качества, равно как и стилистическая естественность, то есть узус³⁰.

Оба режима полного ПР (со второй редакцией и без нее) совпадают в следующем: отредактированный МП в аспекте смысловой точности не уступает человеческому переводу; также постредактор исправляет ошибки грамматики, орфографии и пунктуации.

Режим легкого ПР по своей сущности не предполагает второй редакции и ориентирован на то, чтобы сделать текст МП «понятным и приемлемым» (understandable and usable)³¹. Критерии качества, предъявляемые к отредактированному тексту, в данном режиме следующие: исправлению подлежат только грубые ошибки смысла (correction of critical and major errors only); проверка предпочтительных терминов осуществляется только в случае предоставления клиентом соответствующего глоссария; немотивированные добавления и опущения релевантной информации не подлежат коррекции, если не приводят к грубым ошибкам смысла; ошибки грамматики и орфографии также не подлежат коррекции, если не искажают смысл; ошибки пунктуации игнорируются, равно как и проблемы унификации и стилистическая неадекватность³². Примечательно, что исходя из критериев RWS, где указано на необходимость в режиме легкого ПР исправлять только грубые ошибки смысла, напрашивается вывод: смысловые неточности в режиме легкого ПР оказываются допустимы. Отметим, что во всех прочих источниках, рассмотренных нами в рамках данного исследования, утверждается недопустимость любого рода смысловых ошибок, без оговорок и исключений.

Следует также принять в расчет актуальное положение дел в российских переводческих компаниях — оценить взгляды на сущность ПР хотя бы некоторых представителей отрасли. Ввиду того, что информация такого рода по определению является корпоративной, доступ к ней затруднен: внутренние документы как правило не публикуются, не выходят за пределы организации. Следовательно, оценка требований к постредакторам при исправлении конкретных типов ошибок в зависимости от режима ПР будет либо слишком фрагментарной, либо вовсе невозможной. Однако благодаря сведениям, размещенным на официальных корпоративных сайтах, где ПР значится в перечне услуг, предоставляемых переводческой организацией, возможно проследить общие установки. Так, бюро переводов Janus Worldwide, «один из ведущих поставщиков услуг в области перевода и локализации»³³, доводит до всеобщего сведения следующее: «Менеджеры проектов сначала оценивают контент, чтобы **определить оптимальный подход**, который зачастую может предусматривать машинный перевод и постредактирование <...> При переводе текстов, не имеющих критически важного значения, машина, безусловно, обеспечивает **достаточно хорошее качество** по наиболее конкурентоспособной цене <...> Ручное постредактирование машинного перевода проводится, чтобы **проверить и откорректировать** результаты работы автоматизированных механизмов и **повысить ее качество**»³⁴.

Из приведенной выше цитаты с высокой долей вероятности следует, что в компании Janus Worldwide предлагается, помимо традиционного (человеческого) перевода, не только чистый МП, но также

³⁰ RWS... P. 45.

³¹ Ibid. P. 46.

³² Ibid. P. 47.

³³ Официальный сайт компании Janus Worldwide. URL: <https://janus.ru/> (дата обращения: 14.02.2025).

³⁴ Ibid. URL: <https://janus.ru/technology/mtmtp/> (дата обращения: 14.02.2025).

ПР разной глубины — в зависимости от поставленных задач, в соответствии с доминантной установкой: «индивидуальная адаптация решений под нужды клиента»³⁵.

Как отмечают представители компании Neotech, «одной из крупнейших переводческих компаний на территории России и СНГ»³⁶, при обращении к МП с последующим ПР «качество не играет критической роли, но требуется **на удовлетворительном уровне**»³⁷. В отличие от Janus Worldwide, в данном переводческом бюро подходы к работе с текстом, где задействуется МП, обозначены более отчетливо и в целом совпадают с положениями ISO: «машинный перевод / частичное постредактирование / полное постредактирование <...> [в зависимости от цели соответственно:] для ознакомления с общей концепцией / для использования внутри компании / для клиентов и пользователей»³⁸.

Еще одна переводческая компания — «Эго Транслейтинг», разработчик платформы программных решений Egotech, также выделяет три основных подхода: «машинный перевод без постредакции / первичная редакция машинного перевода / вторичная (полная) редакция машинного перевода <...> [в зависимости от цели соответственно:] если необходимо лишь первичное ознакомление с содержанием текста / для быстрого ознакомления с текстом и персонального использования / [для получения] текста,

соответствующего всем нормам перевода»³⁹.

В завершении данного раздела обозначим ограничения проведенного нами исследования и его дальнейшие перспективы. Методология поискового запроса в eLibrary намеренно выстроена таким образом, чтобы на выходе получить только русскоязычные публикации, размещенные в открытом доступе. Таким образом не учтены взгляды отечественных ученых, изложенные на иностранных языках в международных журналах, в частности — на английском.

Авторы данного исследования надеются, что результаты окажутся полезны при создании русскоязычных документов и рекомендаций, посвященных ПР как виду профессиональной деятельности, а также при подготовке постредакторов, прежде всего в системе высшего образования. Определенный научный интерес представляет обозначенная выше, в разделе «Результаты исследования», проблема увеличения разрыва между академическими взглядами на ПР и положениями международного стандарта ISO.

Перспективным нам видится также анализ современного положения дел в иностранной академической среде: как часто авторы зарубежных публикаций, упоминая ISO, TAUS и RWS в контексте ПР, рекомендуют следовать изложенным в них рекомендациям и, главное, в какой мере? Подобные вопросы требуют дополнительных научных изысканий. Отметим, что беглый поиск по базе зарубежных публикаций Google Scholar⁴⁰ по шаблону — [Что искать:] “post-editing”; [Где искать и Тип публикации:] any type; [Поступившие:] any time — дает 25 400 вхождений, при добавлении к

³⁵ Ibid. URL<https://janus.ru/technology/edge/> (дата обращения: 14.02.2025).

³⁶ Официальный сайт компании Neotech. URL: <https://neotech.ru/about/> (дата обращения: 14.02.2025).

³⁷ Ibid. URL: https://neotech.ru/services/machine_translation/ (дата обращения: 14.02.2025).

³⁸ Ibid. URL: https://neotech.ru/services/machine_translation/ (дата обращения: 14.02.2025).

³⁹ Официальный сайт компании «Эго Транслейтинг». URL: <https://egotech.tech/content/autotranslate> (дата обращения: 14.02.2025).

⁴⁰ Google Scholar. URL<https://scholar.google.com/> (дата обращения: 29.05.2025).

указанному запросу “ISO 18587:2017” — 369 вхождений. Следовательно, среди публикаций, где рассматривается или хотя бы упоминается ПР, ссылка на ISO встречается лишь в 1,5 % случаев (для сравнения: поиск, выстроенный аналогичным образом для русского ключевого слова «постредактирование», дает 1120 и 28 вхождений соответственно — ссылка на ISO в отечественных статьях встречается в 2,3 % случаев⁴¹). Чем обусловлена столь низкая частотность обращения зарубежного академического сообщества к международному стандарту — его неактуальностью, малоизвестностью, труднодоступностью или, напротив, бесспорностью и очевидностью основных положений, которые в нем изложены? Данный вопрос оставляем открытым.

Примечательно, что в отношении сообщества TAUS (по сравнению с ISO) наблюдается обратная картина: в иностранных публикациях об этой организации в контексте ПР упоминают чаще, чем в отечественных (по ключевым словам *post-editing* / *post-editing* TAUS и *постредактирование* / *постредактирование* TAUS при том же шаблоне поиска — 25400/1570/6,2% и 1220/59/4,8%⁴²).

Наибольший разрыв, как и следовало ожидать (напомним, что ни в одной из проанализированных нами 74 публикаций, посвященных ПР, брошюра RWS не упоминается), выявляется в отношении компании RWS: по ключевым словам *post-editing* / *post-editing* RWS и *постредактирование* / *постредактирование* RWS при том же шаблоне поиска — 25400/940/3,7% и 1220/4/0,3%⁴³.

Важно подчеркнуть, что приведенные выше показатели наукометрической базы Google Scholar —

результаты беглого количественного поиска. О действительном отношении зарубежного академического сообщества к документам, регламентирующим ПР как профессиональную деятельность, возможно делать выводы только после тщательного ознакомления с содержанием иностранных публикаций и их качественного анализа, что выходит за рамки темы проведенного нами исследования.

Заключение

По результатам анализа отечественных публикаций, доступных в сети Интернет на сегодняшний день всем заинтересованным лицам (исследователям, преподавателям, переводчикам, заказчикам и другим), с опорой на текст международного стандарта ISO, отраслевые брошюры сообщества TAUS и компании RWS, работы зарубежных исследователей, а также с учетом взглядов на ПР менеджеров по качеству нескольких крупных переводческих компаний, мы пришли к следующим выводам:

1. В российской научно-академической среде налицо значимое расхождение во взглядах на сущность постредактирования в аспекте задач, стоящих перед постредактором при работе с машинным переводом: не допускают мысли о вариативности качества 60 % исследователей, рассматривая ПР исключительно как деятельность по исправлению всех ошибок, допущенных при переводе. Иными словами, налицо фундаментальное расхождение во взглядах у большей части отечественных исследователей с положениями соответствующего международного стандарта, а также ведущей отраслевой брошюры, составленной обществом TAUS. На практике это может приводить к тому, что от редактора машинного перевода будут ожидать за меньший срок и по более низкой ставке безоговорочно образцовый текст, ни в чем не уступающий по качеству переводу, выполненному человеком, хотя

⁴¹ Ibid. URL: <https://scholar.google.com/> (дата обращения: 29.05.2025).

⁴² Ibid. URL: <https://scholar.google.com/> (дата обращения: 29.05.2025).

⁴³ Ibid. URL: <https://scholar.google.com/> (дата обращения: 29.05.2025).

полное ПР зачастую требует значительной переработки текста МП, особенно при установке на достижение стилистической естественности (узуса).

2. Меньшая часть исследователей (40 %) сходится во взглядах в отношении того, что задачи постредактора определяются целью перевода, которая и задает планку качества с возможностью выбрать оптимальный режим ПР. Однако даже внутри этой группы, в своих установках ориентированной (осознанно или нет) на международный стандарт ПР, существуют значимые расхождения в понимании того, что именно и в каком объеме подлежит коррекции со стороны постредактора в том или ином режиме. Справедливости ради отметим, что в некотором количестве расхождения просматриваются и между авторитетными западными руководствами (их мы собрали и в обобщенном виде представили ниже, в таблице 2, сопоставив со взглядами российских ученых), хотя, разумеется, имеющиеся между ними противоречия не носят столь значимый характер, как было обнаружено нами в доступных на сегодняшний день русскоязычных публикациях.

3. Актуальное положение дел в российской отрасли указывает на необходимость разработать и утвердить отечественный стандарт по ПР либо иной сопоставимый по значимости текст, например, отраслевую брошюру, одобренную российским переводческим сообществом, на которую можно было бы ориентироваться всем, кому необходимо уточнить основополагающие параметры ПР, обозначить требования по этому виду деятельности.

Мы надеемся, что обобщенные результаты, полученные в нашем исследовании (таблица 2), принесут существенную пользу составителям отечественного стандарта ПР и отраслевой брошюры, поскольку, с одной стороны, демонстрируют спектр взглядов российских исследователей (весьма, как видим, противоречивых) на сущность ПР, в частности, на критерии оценки качества отредактированного машинного перевода, с другой — высвечивают некоторые слабые места западных руководств в аспекте задач, требуемых от постредактора в зависимости от заданного режима.

Таблица 2. Сопоставление взглядов на сущность ПР в аспекте критериев, предъявляемых к качеству отредактированного машинного перевода в научно-академической и отраслевой среде

Table 2. The nature of post-editing machine translation in terms of quality criteria: View comparison

Источник информации	Задачи постредактора в аспекте повышения качества ТП...																	
	...сводятся к традиционн ой правке (поиск и исправление всех ошибок), при этом нет информации о возможности варьировать качество.	...сводятся к традиционной правке, при этом в аспекте качества результат ПР неотличим от человеческого перевода.	...сводятся к традиционной правке, при этом в аспекте качества результат ПР сопоставим с человеческим переводом.	...зависят от заданного режима (качество варьирует ся)	и определены для режимов «легкое — полное».	При легком ПР есть установка на коррекцию ошибок:						При полном ПР есть установка на коррекцию ошибок:						
						с	г	с	о	п	ф	с	г	с	у	о	п	ф
						м	р	т	р	н	о	м	р	т	з	р	н	о
						ы	а	и	ф	и	р	ы	а	и	у	ф	и	р
с	м	л	о	к	м	с	м	л	с	м	л	с	м	л	с	о	к	м
л	м	я	г	т	а	л	м	е	а	л	м	е	а	л	м	е	а	л
а	а		р	у	т	а	а	в		а	а	в		а	а	в		а
	т		а	а	т		т	о		и	и	й		и	и	и	и	и
	и		ф	и			и	н						н		и		
	и		и											о				
														р				
														м				
														ы				
Русскоязычные публикации	Да - 60% Нет - 40%	Н/о ¹	Н/о	Нет - 40% Да - 60%	Да - 16% Только легкое - 1% Только полное - 3% Нет - 80%	Да	Да - 19% Нет - 12% Н/о - 69%	Да - 9% Нет - 45% Н/о - 45%	Да - 0% Нет - 21% Н/о - 79%	Да - 0% Нет - 14% Н/о - 86%	Да - 0% Нет - 14% Н/о - 86%	Да	Да	Да - 57% Нет - 7% Н/о - 37%	Да - 22% Нет - 7% Н/о - 67% Факульт. - 4%	Да	Да	Н/о
Стандарт ISO (демоверсия)	Нет	Нет	Только в режиме полного ПР	Да	Нет	Н/о	Н/о	Н/о	Н/о	Н/о	Н/о	Н/о	Н/о	Н/о	Н/о	Н/о	Н/о	Н/о

Стандарт ISO (полная версия)	Нет	Только в режиме полного ПР	Только в режиме полного ПР	Да	Да ²	Да	Нет	Нет	Нет	Нет	Нет	Да	Да	Да	Н/о	Да	Да	Да
Брошюра TAUS	Нет	Только в режиме полного ПР	Только в режиме полного ПР	Да	Да ²	Да	Нет	Нет (если не приводят к ошибкам смысла)	Нет (кроме грубых)	Нет (кроме грубых)	Нет	Да	Да	Да	Нет	Да	Да	Да
Брошюра RWS	Нет	Только в режиме полного ПР (с второй редакцией)	Только в режиме полного ПР (без второй редакции)	Да	Да	Да (только грубые ошибки)	Нет (если не приводят к грубым ошибкам смысла)	Нет	Нет (если не приводят к грубым ошибкам смысла)	Нет	Нет	Да	Да	Да	Да (в режиме с второй редакцией) Нет (в режиме без второй редакции)	Да	Да	Да (в режиме с второй редакцией) Нет (в режиме без второй редакции)
Отрасль (на примере б/п Janus Worldwide, Neotech, «Эго Транслейтинг»)	Нет	Только в режиме полного ПР		Да	Janus - н/о Neotech - да «Эго Т.» - да	Н/о	Н/о	Н/о	Н/о	Н/о	Н/о	Н/о	Н/о	Н/о	Н/о	Н/о	Н/о	Н/о

¹ Не определено.

² Причем в тексте документа напрямую указывается возможность существования любых иных режимов (соответственно ISO 18587: 2017.... P. 5 и TAUS Guidelines... P. 3.)

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РАЗДЕЛ III. ПРИКЛАДНАЯ ЛИНГВИСТИКА SECTION III. APPLIED LINGUISTICS

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Elizaveta G. Grishechko¹  Cognitive engagement in scientific writing:
Barry Tomalin²  Empirical evidence on research data processing variation

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Abstract: The study investigates the impact of active and passive voice on the comprehension of research articles among readers with varying language proficiency levels, addressing the gap in understanding how language style can influence the interpretation of research findings. The methodological approach incorporated a pre-test survey, a reading comprehension task consisting of multiple-choice questions, open-ended questions, and short-answer recall questions, as well as a post-test survey. A total of 50 participants were recruited and assigned to either the active voice (AV) group or the passive voice (PV) group, with 25 participants in each group. The study analyzed their comprehension, perceived understanding, satisfaction with the reading experience, perceived credibility of the article content, and preference for language style using descriptive statistics. The findings revealed that the AV group demonstrated better overall comprehension, particularly in the short-answer recall questions, where they scored significantly higher than the PV group. Additionally, the AV group reported higher perceived understanding and a more satisfying reading experience, while the PV group perceived the article content as more credible. Based on the findings, the authors propose recommendations to focus on three key points: using active voice for enhanced comprehension in complex narratives; utilizing active voice for improved recall of specific data-driven information; and implementing passive voice to enhance perceived credibility. The study is limited by its small sample size and the use of a single article per respondent group, which may influence the extent to which the findings apply to other texts. Study findings have implications for researchers, editors, and the broader scientific community, attesting to the importance of striking a balance between the use of voices in research articles to optimize comprehension and accessibility.



Keywords: Active voice; Passive voice; Research article; Scientific text; Scientific writing; Cognitive engagement

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**Когнитивное вовлечение в научной письменной речи:
эмпирические данные о вариативности восприятия
научных данных**

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Статья поступила 27 мая 2025 г.; принята 15 июня 2025 г.;
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Аннотация: В исследовании рассматривается влияние активного и пассивного залога на понимание научных статей читателями с различным уровнем владения языком. Работа устраняет существующий пробел в знаниях о том, как языковой стиль может влиять на интерпретацию научных данных. Методология включала предварительный опрос, задание на понимание прочитанного (вопросы с множественным выбором, открытые и краткие вопросы на воспроизведение информации), а также итоговый опрос. В исследовании приняли участие 50 человек, которые были равномерно распределены между двумя группами: респонденты первой группы читали тексты в активном залоге (AV), второй – в пассивном залоге (PV). Анализ проводился с использованием описательных статистических данных и охватывал такие параметры, как фактическое понимание текста, субъективное восприятие понятности, удовлетворённость чтением, восприятие достоверности представленного материала и предпочтения в отношении стиля изложения. Согласно результатам исследования, участники группы AV продемонстрировали более высокое общее понимание прочитанного, особенно в части вопросов, требующих краткого воспроизведения информации, где их баллы были значительно выше. Также они отметили более высокое субъективное понимание текста и большее удовлетворение от чтения. В то же время участники группы PV сочли содержание статьи более достоверным. На основе полученных данных авторы формулируют три ключевые рекомендации: использовать активный залог для повышения понимания сложных описаний;

применять активный залог для лучшего запоминания конкретной информации, основанной на фактических данных; использовать пассивный залог для повышения субъективной достоверности. Исследование ограничено небольшим объемом выборки и использованием только одной статьи для каждой группы участников, что может повлиять на степень применимости полученных результатов к другим текстам. Результаты исследования представляют интерес для исследователей, редакторов и научного сообщества в целом, подчёркивая важность баланса между использованием активного и пассивного залога в научных текстах для обеспечения их понятности и доступности.

Ключевые слова: Активный залог; Пассивный залог; Научная статья; Научный текст; Научное письмо; Когнитивное вовлечение

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1. INTRODUCTION

Scientific communication is an essential aspect of advancing knowledge in various fields, enabling researchers to share their findings with peers, policymakers, and the general public. The effective communication of research results is therefore indispensable for the advancement of knowledge and the formulation of evidence-based decisions and policies.

One of the primary components of scientific writing, and a subject of ongoing debate, is the use of voice – whether active or passive. As discussed in Wanner's (2009) study, the use of voice in scientific writing is far more than just a grammatical choice. It directly influences the clarity and overall comprehensibility of the text, which has led the academia to ponder over the use of active versus passive voice in scientific texts, with proponents on both sides.

Ferreira (2021) asserts that passive voice has been widely criticized for resulting in dense, indirect, and evasive writing, but contends that this voice is actually a valuable and grammatically correct tool that writers should use, debunking several of the misconceptions associated with it. On the

other hand, Leong (2020) and Inzunza (2020) support the use of the active voice, claiming it offers clarity and conciseness in scientific writing. They point out the preference towards it on the part of major scientific journals and claim that the active voice trend is now pervasive in scientific literature. Notwithstanding, they also reflect on its weaknesses, such as its potential to sound colloquial and unsophisticated. Meanwhile, Minton (2015) and Hudson (2013) call for a more balanced use of both voices. Minton (2015) argues that while the passive voice may be less clear, less direct, and less concise, it has its own utility and appropriateness in certain contexts. Hudson (2013) similarly suggests that both voices have their place in scientific writing, underlining the ongoing dispute in the scientific community regarding the role of voice in technical writing.

Previous studies have also predominantly focused on scrutinizing the use of voices in different academic disciplines (e.g., Solomon et al., 2022), as part of readability formulas (e.g., Plavén-Sigray et al., 2017; Bailin and Grafstein, 2001), or in terms of the diachronic assessment of their application in scientific writing (e.g., Leong,

2020). The specific effects of active versus passive voice on research article comprehension among readers with varying language proficiency levels will be assessed in this study in an effort to add to this conversation. To accomplish this, the study includes a participant pool with a range of linguistic skills in an effort to provide a new viewpoint on the voice debate. Additionally, the study advances the systemization of findings pertaining to understanding, recall, and retention of both general concepts and specific information.

In order to achieve these goals, the current study also takes into account how various grammatical decisions may affect cognitive engagement, which is a term used to describe the mental effort a person puts into processing, interpreting, and integrating information. We interpret engagement as distinct forms of involvement with the text, such as attention, elaboration, and recall, rather than regarding it as a single, observable outcome. These aspects are pertinent to the study's investigation since they are incorporated into the comprehension tasks' design.

To ensure that the results could be applied more broadly, the study concentrated exclusively on English-language research. Since English is widely used in scientific research worldwide, the study's conclusions are more likely to be relevant to a wide range of researchers, academic institutions, and publishers. Examining how active and passive voice affect comprehension and memory in English-language research articles is especially important for non-native speakers, who might have more difficulty understanding unfamiliar or complex language.

2. THEORETICAL BACKGROUND

The discourse surrounding the active versus passive voice in scientific writing requires a close examination of arguments that drive preferences for one or the other.

The utility of active voice in scientific writing is widely supported by numerous

studies with the active voice trend attributed partially to an emerging interdisciplinary field known as "plain language studies" that focuses on making written and spoken communication accessible and understandable to the general public. The field is characterized by a collaborative approach, where individuals from diverse fields such as linguistics, psychology, law, education, and communication come together to promote plain language. The goal of plain language studies is to eliminate language barriers that prevent people from accessing information they need to make informed decisions. This includes documents such as legal contracts, government forms, medical instructions, and financial disclosures, which, if made easier to comprehend, can help reduce confusion, misunderstandings, and errors. Plain language studies involve the development of plain language guidelines, professional standards, and accreditation programs providing a framework for writers and editors to create clear and understandable documents that meet the needs of their readership.

Research on the issue of plain language in scientific communication typically zones in on four key areas of focus.

1. The favorable impact of plain language on public engagement with science, with studies indicating people's increased willingness to read and share a science-related news article written in plain language than when it was written in technical language (see Kerwer et al., 2021).

2. The favorable impact of plain language on health literacy in that it makes health information more accessible and understandable to patients. To support this idea, a study by Zarcadoolas (2011) has proved that using plain language in patient education materials improves patients' understanding of their health conditions and treatment options.

3. The important role of plain language in science communication during crisis events, such as natural disasters or disease outbreaks, that call for a quick and accurate communication of information to the public.

Looking into this, studies have credibly established that using plain language in crisis communication was associated with increased trust and understanding among the public (see Temnikova et al., 2015).

4. The impact of cultural and linguistic differences on plain language communication, with considerations suggesting that the effectiveness of plain language communication may vary across different cultural and linguistic contexts (Tamimy et al., 2022). For example, a study by Yousef et al. (2014) was able to show that cultural background was a factor in reading comprehension, with some groups benefiting more than others.

In the context of scientific communication, the trend towards the use of active voice as a criterion of plain language in scientific writing has gained momentum over the years, with various studies advocating for its use owing to its directness, clarity, brevity, and evidenced propensity to increase comprehension of research findings. For example, a study by Stoll et al. (2022) found that plain language summaries, that are predicated upon using active rather than passive voice among other things, were more effective in promoting comprehension than abstracts written in even a slightly more technical language. The same was found to be true for the retention and recall of information. For example, Kaphingst et al. (2012) singled out the use of active voice as a key element of plain language summaries of cancer-related research articles and showed that these were more effective in promoting retention among cancer patients.

Tarone et al. (1998) explored the logical argument papers that have unique rhetorical structures where the active voice plays a central role. The authors proposed that within this structure, the use of “we” indicates the author’s procedural choice, distinguishing it from the established or standard procedures usually conveyed through the passive voice. “We” plus an active verb is also used to describe the author’s own work, providing a contrast to the work of others which is

typically described in the passive voice. However, when the work of others is not being contrasted with the author’s work, the active voice is used. The study suggests that these uses of active voice extend to papers in the majority of fields, particularly those where that subject matter doesn’t lend itself to experimentation. The authors propose that the rhetorical style used in fields that frame their papers as logical arguments can find the active voice to be just as applicable and beneficial. Additionally, they review evidence that suggests the use of active voice in scientific papers is not limited to English, acknowledging that papers written in Russian appear to use the equivalent of active and passive voice in a similar way. This indicates a potential universality in the application of active voice in scientific writing across languages.

Cheung and Lau (2020) examine the use of active voice in scientific writing across various disciplines and focus on the deployment of first-person pronouns, a prominent feature of the active voice, in establishing an authorial voice and bolstering arguments. Examining expert writers from the fields of Literature and Computer Science, Cheung and Lau (2020) hypothesize a varying degree of first-person pronoun use. They posit that Literature writers, in the absence of objective facts, frequently use first-person pronouns and assume stronger authorial roles to build credibility and persuade readers. Meanwhile, they suggest that Computer Science writers conventionally shun the use of first-person pronouns, aligning with traditional norms in the hard sciences. The researchers’ findings challenge this general dichotomy in pronoun usage between hard and soft sciences and suggest that the conventional wisdom of avoiding first-person pronouns in hard sciences like Computer Science may not apply universally. In essence, the use of active voice, characterized by first-person pronouns, is not strictly confined to a specific scientific genre or discipline. These findings testify to the importance of the active voice in scientific

writing, not as a matter of stylistic preference, but as a vital tool for building credibility and persuading readers.

In the study titled “How passive voice weakens your scholarly argument”, Sigel (2009) provides compelling arguments on how the use of active voice strengthens scholarly argumentation and contributes to clarity in scientific writing. Drawing on his 12 years of experience in academic publishing, Sigel (2009) suggests that by avoiding passive constructions in scientific writing, scholars can demonstrate a more comprehensive understanding of the material, with the underlined focus on precision. The author emphasizes the need for scholars to use active voice in their scientific writing while acknowledging that there can be appropriate contexts for using its counterpart.

Thus, a host of research works lean in favor of the active voice in scientific writing. They provide evidence-based arguments that active voice enhances clarity, increases comprehension, promotes better retention of information, and even fosters a sense of engagement between authors and readers. While it is not a one-size-fits-all solution, these studies point to the potential benefits of using active voice strategically in research writing to improve the accessibility and impact of scientific findings.

Yet, despite the potential benefits of giving preference to active voice to support plainer language in scientific communication, there are barriers to its overwhelming adoption, including the perceived need for technical language to establish credibility and expertise, as well as a perception that simpler scientific narratives may oversimplify research findings, leading to misinterpretations. The role and place of complex language structures in scientific communication – such as complex syntax, use of passive voice, nominalization, and jargon – have been extensively studied to identify their contribution to varying degrees of complexity, as well as their implications (see Leskelä et al., 2022; Turfler, 2015; Bonsall et al., 2017; Schriver, 2014; Akopova, 2023;

Balashov et al., 2021). Other topics of inquiry include lexical bundles and vocabulary, genre analysis, rhetorical moves, etc.

In this vein, scholars are coming up with arguments supporting the use of passive voice despite the increasing push for active voice. For example, Ferreira (2021) makes a strong defense for the passive voice, arguing that it provides a means to maintain topic continuity, accommodate accessible concepts, and avoid distorting the author’s message that might occur with active sentence paraphrases. The author also asserts that the guidelines discouraging passive sentences might lead to confusion, as many individuals struggle to correctly identify them.

The study by Leong (2020) indicates a historical prevalence of the passive voice, as it notes an increase in its use from the 17th to the 20th century. While this study found a decline in passive voice use in the modern era, the stability of its use from 1880 to 1980 demonstrates its long-standing relevance in scientific communication.

Inzunza (2020), though advocating for the active voice, acknowledges that the passive voice can contribute to a sense of objectivity in scientific writing, centering on the actions rather than the individuals. This demonstrates the role of passive voice in depersonalizing scientific discourse, putting an emphasis on the process or results over the actors.

Minton’s (2015) study refutes the common arguments against the passive voice, contending that in certain contexts passive voice usage is more appropriate than active voice. According to Minton (2015), decisions regarding voice selection often come down to the order of words in a sentence, with the “old” information typically taking the subject position and “new” information following, a pattern that often aligns with passive constructions.

Wanner’s (2009) book exposes the significant role of the passive voice in shaping scientific discourse. The work further explores how changes in scientific rhetoric have led to the emergence of active voice

constructions that compete with the passive without having a more visible agent, which indicates the fluid nature of voice use in scientific writing.

Ding (2002) presents a compelling perspective that the use of the passive voice in scientific writing reflects the social values of the scientific community. As passive constructions focus on objects, methods, or results rather than individuals, they can de-emphasize the discrete nature of experiments and lay the ground for a cooperative enterprise among scientists. The author posits that the use of the passive voice is more than a personal stylistic choice, but rather a reflection of the professional practices of the scientific community.

The ongoing debate on the use of active and passive voice also logically encompasses arguments for a balanced approach. The evolution towards a balanced approach to active and passive voice usage in scientific writing is the focus of a study by Staples et al. (2016). In their extensive corpus-based analysis of scientific writing in different disciplines, the researchers contend that the traditional dichotomy between active and passive voice is oversimplified. They argue that the effective use of voice in scientific writing is not merely about choosing between active or passive, but rather about deploying a combination of active and passive voice purposefully depending on the rhetorical context and intent.

Hudson's (2013) analysis provides an exploration of the "technical voice" in scientific writing, which appears to be a contentious term that embodies the persisting discord over the role of voice in technical writing, both grammatically and idiosyncratically. He states that many literary critics and English usage experts favor active voice due to its directness, vigor, and conciseness. This is also concurred upon by many proponents of concise writing in the scientific community. However, the consensus usually accompanies a caveat, suggesting authors should use passive voice in experimental sections to portray

objectivity. In Hudson's (2013) perspective, the "technical voice" seems to be an amalgamation of the active and passive voices, an "impossible combination" where the author strives for conciseness without employing the first-person pronouns. This hints at the complexities surrounding voice in scientific writing, where authors often juggle between the need for clarity (active voice) and the desire for objectivity (passive voice).

Erdemir (2013) provides a practical viewpoint on the use of voice in the materials and methods section of scientific articles, asserting that it can be written in either active or passive voice in the past tense, bringing to the fore the need for "reproducible results". The need to balance active voice with passive voice, particularly in certain sections of scientific articles such as the materials and methods, attests to the contextual nature of voice in scientific writing.

Some of the works cited above address rhetorical structure and academic writing conventions. These serve primarily to contextualize the role of voice in scientific discourse. The present study, however, focuses on the cognitive perspective to show how grammatical voice influences reader comprehension and recall.

To summarize, the use of active voice in scientific writing is widely supported for its contribution to clarity and directness. However, the discussion surrounding "technical voice" and the balancing act between active and passive voice suggests that the use of voice in scientific writing is far from being monolithic. It instead entails a strategic use of both voices depending on the context, the section of the research article, and the aim of communication. As our study will further suggest, it is also imperative to consider the audience, their language proficiency, and probable reader perceptions when using simplified vs complex language in scientific communication, which we intend to address in detail.

In addition, the present study also touches upon the cognitive plane of reading scientific prose. Specifically, it draws

attention to the notion of cognitive engagement, which is understood here as a mode of processing evidenced through performance in comprehension, recall, and summarization tasks. Hence, cognitive engagement is viewed as part as the task structure. Our approach is informed by the ICAP framework (Chi & Wylie, 2014), which distinguishes between passive, active, constructive, and interactive forms of engagement depending on the reader's behavioral and cognitive involvement with the material. In this typology, multiple-choice questions typically correspond to passive or minimally active processing, and open-ended summaries and short-answer recall tasks engage higher-order operations such as synthesis, reorganization, and targeted retrieval. We aim to indirectly observe how voice construction may affect the level of engagement with scientific texts by distributing task types, particularly among readers with varying linguistic backgrounds.

3. MATERIALS AND METHODS

3.1. Participants

The methodology for this study centered around respondent survey. Participants within the 18-30 age range were recruited among students of a large higher educational institution and included respondents with a range of English language proficiency levels, including both native and non-native English speakers, to improve the applicability of the results to a broader audience. Group composition was balanced with respect to age range, gender, and academic specialization. This research design aimed to represent a diverse population and a variety of language backgrounds, which is reflective of the readership of research articles.

Fifty respondents were randomly assigned to either the active voice (AV) or passive voice (PV) group and provided with access to their assigned version of a research article. To be eligible for the study, participants had to have a knowledge of English, have no history of language or

cognitive impairments, and be at least 18 years old.

3.2. Materials

The study employed two versions (AV vs PV) of a research article, each focusing on the effects of caffeine on cognitive performance, a topic of frequent investigation in the fields of cognitive and nutritional science. The articles were approximately 500-words long, with similar content and structure¹.

The article used as stimulus material in this study was adapted from existing literature and rewritten to control for length, structure, and comparability between the active and passive voice versions. The resulting texts were standardized in terms of topic, vocabulary, and syntactic complexity, and were not taken verbatim from any single published source.

The passive voice version of the article was initially drafted, after which an active voice version was produced by systematically converting passive constructions into active ones, while preserving semantic content, clause structure, and information sequence.

The complexity of the articles, both in terms of vocabulary and sentence structure, was intentional. Since scientific literature routinely demands a certain level of technical language and complex structures to precisely convey experimental methodology, data interpretation, and subsequent conclusions, these articles were designed to reflect the kind of texts that individuals often encounter in real-world scientific literature. This approach aimed to provide a more accurate measurement of the effects of active and passive voice on understanding in an applied context.

Moreover, the complexity level of the articles was carefully managed. Both articles were designed to be of similar difficulty, utilizing scientific terminology and complex structures common in such texts, without

¹ Study material is available at <https://github.com/hobbit-elanor/supplementary>

becoming excessively convoluted or inaccessible. This was confirmed through pre-tests with a small group of individuals, to ensure equivalent difficulty and readability between the two versions. The assessment of complexity during the pre-test phase relied on participant feedback regarding perceived difficulty as well as checks for equivalent comprehension scores across both versions.

3.3. Procedure

Pre-test survey. Participants completed a pre-test survey that measured their level of language proficiency and general reading ability. Participants were asked to self-report their English proficiency using standard categories (beginner, intermediate, advanced, native), and these self-assessments were verified against institutional academic records, specifically participants' most recent English language course grades.

Reading. Participants were given access to their assigned version of the article and were instructed to read the article carefully. To ensure a fair protocol, where all participants are given equal opportunities as well as placed under equal constraints, a time limit was set for this part of the procedure. Since the optimal reading speed for comprehension is about 200-300 words per minute (Brysbaert, 2019), a time limit of 2 to 3 minutes could be appropriate for participants to read and comprehend a 500-word article fully. However, individual reading speeds may vary, and some participants may require more or less time to complete the task, especially considering the different levels of language proficiency among the participants. To account for this and to provide the participants with the opportunity to re-read the article for clarity, the time limit was set at 8 minutes. The participants were offered the option to stop reading once they felt they had fully comprehended the article. This helped ensure that they were not rushed and could take their time to fully understand the content.

Comprehension tasks. After reading the article, participants were asked to complete a

series of tasks related to the content of the article. These tasks included multiple-choice comprehension questions, open-ended questions requiring them to summarize the main points of the article, and short-answer recall questions.

The purpose of multiple-choice questions in this study is to provide a standardized and structured way to assess participants' general comprehension of article content. The benefit of multiple-choice questions is that they provide a more objective way of evaluating comprehension and can be scored more easily and efficiently than open-ended or short-answer recall questions. Additionally, multiple-choice questions served as a warm-up for participants, allowing them to engage with the article's content and assess their level of comprehension before moving on to more complex tasks such as open-ended or short-answer recall questions.

Open-ended questions were designed to test participants' ability to summarize the main points of the article in their own words. These questions were broader and didn't have a specific answer. The purpose of these questions was to measure participants' ability to understand and retain the key concepts presented in the article.

Short-answer recall questions, on the other hand, were designed to test participants' memory of specific details from the article. These questions were more focused and required a specific answer, such as a name, a date, a figure, or a fact. The purpose of these questions was to measure participants' ability to recall specific information from the article.

Post-test survey. Participants completed a post-test survey that measured their perceived level of understanding of the article, their overall satisfaction with the reading experience, the perceived credibility of article content, and their preference for the language style in scientific writing in general. This type of data was gathered to complement the objective measures of comprehension and retention. The questions in the post-test survey can illuminate relevant perceptions,

which can help contextualize the results of the comprehension tasks.

3.4. Data analysis

Following from the established study procedure, three sets of data were eligible for the analysis: (1) pre-test survey data – language proficiency level and general reading ability; (2) comprehension task data – scores on multiple-choice comprehension questions, open-ended questions, and short-answer recall questions; (3) post-test survey data – responses to questions on perceived level of understanding, overall satisfaction with the reading experience, perceived credibility of article content, and preference for language style.

Pre-test survey data on language proficiency level were analyzed using descriptive statistics to describe the pool of participants in terms of average language proficiency level of each group using discrete variables (beginner N, intermediate N, advanced N, native N). Pre-test survey data on general reading ability was assessed using the Nelson-Denny Reading Test that measures vocabulary and comprehension skills and has established norms for different age groups.

To analyze the answers to the ten multiple-choice comprehension questions, we calculated the percentages, means and standard deviations of correct responses for each group followed by a t-test analysis to determine if there was a statistically significant difference.

For the six open-ended questions, we used a coding system to categorize the responses into different categories. Two independent coders were assigned to each response and coded the responses based on pre-identified categories. Any disagreements were resolved through discussion and consensus. Once the coding was completed, the data was analyzed using descriptive statistics, including a t-test analysis, to identify the most frequently occurring themes or categories in the responses. The following codes were used: (1) accurate understanding – the response accurately reflects the main

points and ideas presented in the article; (2) partial understanding – the response reflects some but not all of the main points and ideas presented in the article; (3) misunderstanding – the response misinterprets or misrepresents the main points and ideas presented in the article; (4) personal reflection – the response shares a personal opinion or reaction to the content of the article, but does not necessarily demonstrate comprehension of the article itself; (5) off-topic – the response does not address the content of the article at all; (6) other – any other category that may emerge from the data and reflects a distinct type of response.

For the ten short-answer recall questions, we analyzed the responses by scoring each answer as either correct or incorrect. The percentages, means and standard deviations of correct answers for each group were then calculated, followed by a t-test analysis to reveal statistically significant difference, if any.

To analyze the post-test survey data, we summarized the responses to the Likert scale questions. Each question was analyzed separately, and the results were reported in terms of the frequency of responses for each scale point.

To measure the perceived level of understanding, we asked participants to rate their level of understanding of the article on a 5-point Likert scale (1 = very poor, 2 = poor, 3 = fair, 4 = good, 5 = very good).

To measure overall satisfaction with the reading experience, we asked participants to rate their level of satisfaction with the article on a 5-point Likert scale (1 = very dissatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = very satisfied).

To measure perceived credibility of article content, we asked participants to rate the level of its credibility on a 5-point Likert scale (1 = highly lacking in credibility, 2 = lacking in credibility, 3 = fairly credible, 4 = credible, 5 = very credible).

To measure preference for language style, we asked participants to rate their preference for either the active voice or

passive voice on a 5-point Likert scale (1 = strongly prefer active voice, 2 = prefer active voice, 3 = no preference, 4 = prefer passive voice, 5 = strongly prefer passive voice). This question was not necessarily linked to the respondents' experience participating in the present study, but rather to their general personal experience of reading scientific research.

4. Results

4.1. Pre-test survey data results

The pre-test survey provided data on the language proficiency levels and general reading abilities of the participants in the study. A total of 50 participants were recruited and assigned to either the AV or PV group, with 25 participants in each group.

Language proficiency levels were self-reported by the participants and verified against their English class academic records. The distribution of language proficiency levels among the 50 participants was as follows: beginner N=8 (16%), intermediate N=26 (52%), advanced N=14 (28%), native N=2 (4%). After that, the participants were assigned to each of the voice groups with an equal number of participants (beginner N=4/4, intermediate N=13/13, advanced N=7/7, native N=1/1) in each group, ensuring a balanced distribution of language proficiency levels between the two groups. This balance allows for a fair comparison of the potential influence of language

proficiency on the comprehension of research articles for both groups.

For general reading ability, based on the pre-test survey data using the Nelson-Denny Reading Test, the mean score for the 50 participants in the study was 63.4, with a standard deviation of 6.5. The scores ranged from 50.1 to 90.1, with two native speakers scoring above 80. Since scores on the Nelson-Denny Reading Test are typically standardized to a mean of 50 and a standard deviation of 10, an average score of 63.4 indicates that the participants in this study scored above average on the reading test, with some variability in scores among the group.

4.2. Comprehension task data results

To analyze multiple-choice comprehension questions, the percentage of correct responses was calculated for each group. The results showed that the AV group had the percentage of correct responses of 75.2% (M = 18.8, SD = 3.7), while the PV group had the percentage of correct responses of 73.2% (M = 18.3, SD = 3.0). A t-test was conducted to determine if there was a significant difference in the percentage of correct responses between the two groups. The results revealed no significant difference ($p = 0.5962$), indicating that the comprehension of multiple-choice questions was similar between the two groups (Table 1).

Table 1. Results for the responses to multiple-choice questions

Таблица 1. Результаты ответов на вопросы с множественным выбором

	AV correct responses	PV correct responses
Question 1	20	18
Question 2	19	21
Question 3	22	13
Question 4	17	20
Question 5	11	18
Question 6	24	22
Question 7	16	18

Question 8	22	16
Question 9	19	22
Question 10	18	15
Total	188	183
%	75.2	73.2
Mean	18.8	18.3
SD	3.7	3.0

Note: AV Group N=25, PV Group N=25

Upon applying the coding system to the open-ended questions, the study categorized the responses for both groups. The results, including the percentages for each category, their means and standard deviations, were calculated for both groups. To determine whether there were any statistically

significant differences between the two groups for each category, independent samples t-tests were conducted. The t-tests compared the means of the AV and PV groups for each category, using their means, standard deviations and sample sizes (Table 2).

Table 2. Results for the responses to open-ended questions

Таблица 2. Результаты ответов на вопросы открытого типа

	Accurate understanding	Partial understanding	Misunderstanding	Personal reflection	Off-topic	Other
Question 1 AV Group	18	4	1	1	1	0
Question 2 AV Group	18	5	1	1	0	0
Question 3 AV Group	19	6	0	0	0	0
Question 4 AV Group	17	3	2	0	0	3
Question 5 AV Group	20	5	0	0	0	0
Question 6 AV Group	15	6	2	1	1	0
Total	107	29	6	3	2	3
%	71.3	19.3	4.0	2.0	1.3	2.0
Mean	17.8	4.8	1.0	0.5	0.3	0.5
SD	1.7	1.2	0.9	0.5	0.5	1.2
Question 1 PV Group	19	2	2	2	0	0
Question 2 PV	16	5	0	2	1	1

Group						
Question 3 PV Group	19	3	3	0	0	0
Question 4 PV Group	16	5	4	0	0	0
Question 5 PV Group	17	3	3	0	2	0
Question 6 PV Group	12	9	0	1	0	3
TOTAL	99	27	12	5	3	4
%	66.0	18.0	8.0	3.3	2.0	2.7
Mean	16.5	4.5	2.0	0.8	0.5	0.7
SD	2.6	2.5	1.7	1.0	0.8	1.2

p-value	0.0417	0.5911	0.0124	0.1860	0.2945	0.5585
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Note: AV Group N=25, PV Group N=25

Using a significance level of 0.05, the results show statistically significant differences between the AV and PV groups in the categories of Accurate Understanding and Misunderstanding. In these categories, the p-values (0.0417 and 0.0124, respectively) are less than the significance level, suggesting that the differences between the two groups are unlikely to be due to random chance.

For the remaining categories (Partial Understanding, Personal Reflection, Off-Topic, and Other), the p-values are greater than the significance level, indicating no significant differences between the AV and PV groups in these categories.

For the short-answer recall questions, the percentage of correct answers for the AV group was 74.4% (M = 18.6, SD = 3.6), while the percentage of correct answers for the PV group was 63.6% (M = 15.9, SD = 3.3).

A t-test was conducted to compare the percentage of correct answers between the two groups (significance level of $p = 0.05$). The results showed a statistically very significant difference between the AV and PV groups ($p = 0.0081$), suggesting a much better ability to recall specific details from the article among the AV group respondents (Table 3).

Table 3. Results for the responses to short-answer recall questions

Таблица 3. Результаты ответов на вопросы, требующие короткого ответа и тестирующие запоминание информации

	AV group correct responses	PV group correct responses
Question 1	25	21
Question 2	22	20
Question 3	23	18
Question 4	16	18

Question 5	14	11
Question 6	17	13
Question 7	19	15
Question 8	16	16
Question 9	17	14
Question 10	17	13
Total	186	159
%	74.4	63.6
Mean	18.6	15.9
SD	3.6	3.3

Note: AV Group N=25, PV Group N=25

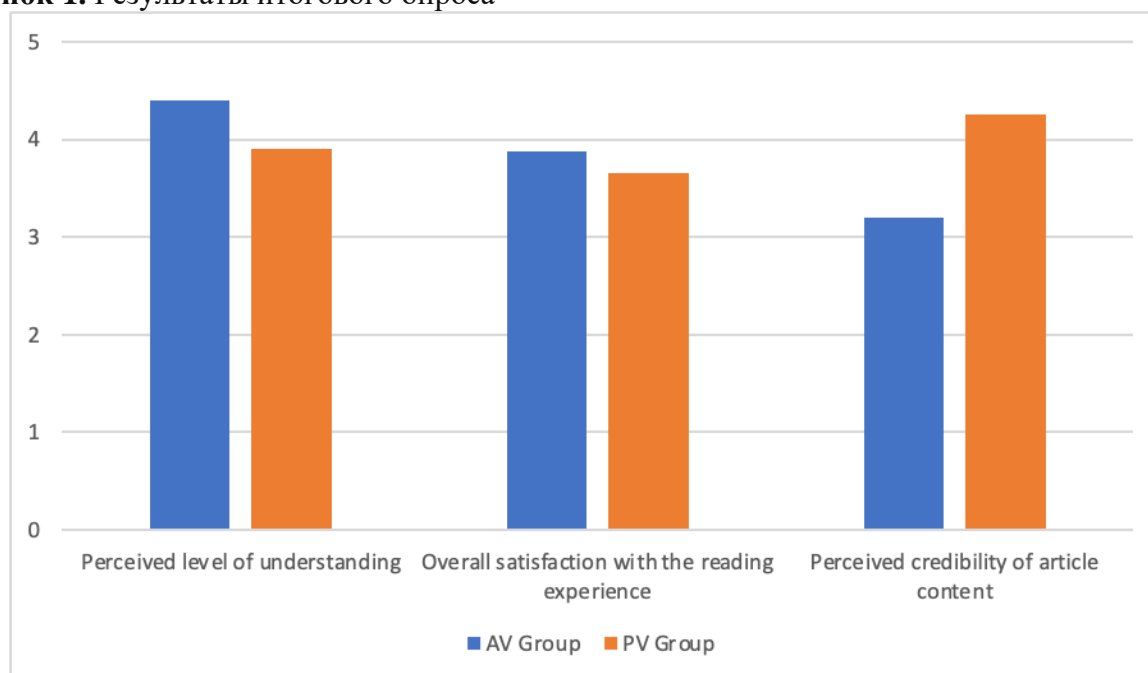
4.3. Post-test survey data results

The post-test survey data provided data concerning participants' perceived level of understanding, overall satisfaction with the reading experience, perceived credibility of

the article content, and general preference for language style. The responses to the Likert scale questions were summarized as follows (Figure 1).

Figure 1. Post-survey data results

Рисунок 1. Результаты итогового опроса



Vertical axis items 1-5 on Linkert scale for Perceived Level of Understanding: 1 = very poor, 2 = poor, 3 = fair, 4 = good, 5 = very good. Vertical axis items 1-5 on Linkert scale for Overall Satisfaction with the Reading Experience: 1 = very dissatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, 5 = very satisfied. Vertical axis items 1-5 on Linkert scale for Perceived credibility of article content: 1 = highly lacking in credibility, 2 = lacking in credibility, 3 = fairly credible, 4 = credible, 5 = very credible.

Participants rated their level of understanding of the article on a 5-point Likert scale. The AV group had a mean score of 4.4, indicating a relatively high level of understanding. In contrast, the PV group had a mean score of 3.9, which also indicates a relatively good level of understanding, but lower than that of the AV group.

The overall satisfaction with the reading experience was rated by participants on a 5-point Likert scale. The AV group had a mean score of 3.88, suggesting a generally satisfying reading experience. The PV group had a mean score of 3.66, indicating a slightly lower, but still relatively satisfying, reading experience compared to the AV group.

Participants rated the perceived credibility of the article content on a 5-point Likert scale. The PV group had a mean score of 4.26, indicating a relatively high perceived credibility. In contrast, the AV group had a mean score of 3.2, which is a significantly lower level of perceived credibility compared to the PV group.

Participants' preferences for language style were not rated group-wise, since it was a general inquiry that looked into respondents' general preferences outside of this study. Participants predominantly preferred the active voice (42%), with 34% expressing no preference, and 24% preferring the passive voice.

5. DISCUSSION

The study aimed to investigate the influence of active voice and passive voice on the comprehension and recall of information in research articles among readers with varying language proficiency. The findings provide evidence that the choice of voice can indeed affect readers' comprehension and retention of information.

In the multiple-choice comprehension questions, the results revealed no significant difference in the average percentage of correct responses between the AV and PV groups. This suggests that both active and passive voice structures were similarly effective in

conveying the meaning of the text when assessed through multiple-choice questions. It is, however, essential to consider that the nature of multiple-choice questions may inherently limit the depth of comprehension being assessed, as these questions tend to focus more on overall understanding rather than specific details, which might explain the lack of significant differences between the groups in this aspect.

The open-ended questions provided more in-depth data on participants' comprehension of the research articles. The AV group demonstrated slightly higher and statistically significant scores for accurate understanding compared to the PV group, indicating that the active voice may facilitate better comprehension of the material. Bearing additional evidence for the same conclusion, the PV group demonstrated higher scores for misunderstanding with a statistically significant difference revealed in the results. Although the difference in comprehension between the groups was not extremely substantial, it still suggests that the use of active voice in research articles may lead to improved understanding of the content.

The most pronounced difference between the AV and PV groups was found in the short-answer recall questions, with the AV group scoring significantly higher than the PV group. This finding suggests that the use of active voice in research articles can be correlated with improved retention of specific details. The active voice may be more effective in facilitating recall due to its simpler and more direct sentence structure, which allows readers to focus on the content (particularly, the specific details such as names, dates, figures, or facts) rather than the sentence construction.

The post-test survey data revealed that the AV group reported a higher perceived level of understanding compared to the PV group. This result aligns with the comprehension and recall task findings, further supporting the notion that the active voice may facilitate better comprehension.

The post-test survey data also indicated that participants in the AV group reported slightly higher overall satisfaction with their reading experience compared to the PV group. This finding may be related to the increased understanding and recall observed in the AV group, as well as the general preference for the active voice.

Interestingly, the passive voice was associated with higher perceived credibility of the article content, despite the lower scores in comprehension, recall, and satisfaction. This observation suggests that the passive voice may still hold some perceived authority or prestige in the context of research articles, potentially due to its historical prevalence in scientific writing.

Regarding the preference for language style, the active voice was generally preferred by the pool of participants. This preference may be attributed to the clearer and more direct nature of the active voice, which is often considered more engaging and easier to understand, particularly for non-native speakers. However, it is important to note that preferences varied among participants, and some still preferred the passive voice, while others claimed they had no preference in this regard.

Summing up the key research findings, study results suggest that the active voice was associated with higher perceived understanding and a slightly more satisfying reading experience, while the passive voice was associated with significantly higher perceived credibility of the article content. The most pronounced difference between the AV and PV groups was found in the short-answer recall questions, with the AV group scoring significantly higher than the PV group. The preference for language style showed some variability, but the active voice was generally preferred by study participants.

Based on the study results, we propose three key recommendations for the use of active and passive voice in research articles to enhance comprehension and accessibility.

1. Proposing active voice for enhanced comprehension in complex narratives. In view

of the observed findings, and in harmony with previous research that associates active voice with better comprehension (e.g., Tarone et al., 1998; Sigel, 2009), using it may be recommended in instances of complex narratives within research articles. The conceptual complexity of scientific articles can often pose a formidable barrier to comprehension. The dense narratives presented in the form of data analysis, results interpretation, and the drawing of conclusions often necessitate substantial cognitive engagement from the readers.

Our study indicates that the application of active voice can ameliorate the processing of such intricate narratives, promoting comprehension and augmenting the accessibility of scientific content to readers of varying language proficiency. This observation echoes prior research that underscored the efficacy of active voice in enhancing readability and comprehension due to its inherent alignment with our cognitive processing patterns. Thus, research in cognitive narratology, the study of cognitive processes invoked by narratives, emphasizes the natural human tendency to organize experiences into a story format, typically characterized by an “agent-action-object” structure (Tucan, 2013). This structure is inherently aligned with the active voice, suggesting that its use might facilitate intuitive absorption of information by adhering to our cognitive sequencing of events, thereby facilitating better comprehension, especially when dealing with complex narratives (Grishechko, 2023; Zuljan et al., 2021). This is also in line with the “ease of processing” principle in cognitive psychology (Sweller et al., 2019), suggesting that readers are more likely to absorb and retain content that is presented in a manner that minimizes cognitive load.

The proposed recommendation to “lighten” this load by using active voice in complex narratives needs a special highlight given the increasingly global nature of scientific research, whereby clarity in communication appears paramount. Other

studies have also corroborated that non-native English speakers who comprise a significant portion of the scientific community find active voice easier to understand and translate (Kotz et al., 2008; Malyuga and McCarthy, 2021). This implies that the use of active voice could increase the global accessibility of complex scientific narratives.

Therefore, we strongly advocate for a deliberate application of active voice in the presentation of complex narratives and conclusions within research articles. This practice, as corroborated by study findings and supporting literature, can significantly enhance the comprehensibility and accessibility of complex scientific content without sacrificing the stylistic nuances and structural requirements of scientific writing. This approach takes into account the balance between complexity of content and readability to offer a more inclusive way of knowledge dissemination.

2. Utilizing active voice for enhanced recall of specific data-driven information. The presentation and interpretation of data-driven information is crucial in scientific writing. This is because scientific research aims to disclose facts about the natural world through observation and experiment, and these observations and experiments are often expressed as data. In order to effectively communicate these facts and interpretations, it is important to present data in a clear, concise, and accurate manner.

Building on the findings of this study and correlating with prior research emphasizing the benefits of simpler syntax in information recall (see e.g., Perham et al., 2009), targeted use of active voice can be advised in presenting specific data, numerical figures, and data-driven details within research articles. This recommendation is predicated on the observed data where participants in the AV group demonstrated a superior capacity in short-answer recall questions, thereby implying a better retention of specific, data-centric information.

This finding most accurately correlates with the established focus of scientific writing

towards presenting text and data unambiguously. Specifically, Dunleavy (2003: 114) asserts that the active voice is instrumental in circumventing “avoidable ambiguities”, ramping up the clarity of the conveyed information, and thus facilitating better recall. The clarity and directness inherent to active voice become crucial in such contexts, offering a straightforward, unambiguous narrative of the data and findings. As active voice reduces the cognitive load needed to understand the conveyed information, it can scale up the reader’s retrieval of these specific details, which facilitates superior recall, as evidenced in our study.

3. Implementing passive voice to enhance perceived credibility. Our study findings echo the sentiment of previous research indicating that the utilization of passive voice in scientific articles is often associated with a heightened sense of credibility. Many advocates of the impersonal form consider objectivity a crucial aspect of academia, and this necessitates the use of passive voice, third person, and other impersonal structures (White, 2000). Macmillan and Weyes (2007a) support this argument, emphasizing the importance of maintaining an impersonal tone in scientific writing.

Although some might argue that the active voice is clearer, there is a counterargument that the use of personal pronouns shifts the attention away from the action itself (Macmillan and Weyes, 2007b). Moreover, scientific discourse often utilizes the passive voice more than standard English, allowing the focus of the sentence to dictate the appropriate voice (Bailey, 2025).

From a historical perspective, the passive voice has been predominant in scientific writing, as a conventional tool in the rhetoric of science. This is mostly attributed to the third person or passive voice imparting an aura of objectivity and emotional distance, minimizing the appearance of personal bias (Brown, 2006). As a result, the passive voice often enhances the perceived credibility of

research articles, not in the least by enabling authors to distance themselves from their work, focusing on the processes and findings rather than the researchers themselves. This detachment conveys objectivity and impartiality, essential traits for establishing credibility in scientific communication.

We argue that these arguments coupled with the results of this study warrant a judicious use of passive voice in sections where credibility is crucial, including the statement of research aims and questions, procedural descriptions in the Materials and Methods section, and the recapitulation of findings in the Discussion and Conclusion sections. In the case of research aims and questions, this mainly has to do with traditional scientific writing conventions, particularly in the natural and social sciences. By conforming to these conventions, researchers can ensure their work is taken seriously and accepted by their peers. In the case of Material and Methods, the general expectation that scientific procedures should be reproducible speaks to the advantage of using passive voice in this section, emphasizing the universal applicability of the methods over the particular actions of the researchers. In relation to the Discussion and Conclusion sections, the use of passive voice can contribute to a sober and reflective tone, motivating a dispassionate interpretation of the findings. This approach attests to the nature of science as a collective, cumulative endeavor, downplaying individual contributions and ego.

We therefore propose the contextual use of passive voice in enhancing the credibility of scientific articles. While this must be balanced against the need for clear and accessible prose, the strategic use of passive voice can effectively bring to the fore the scientific rigor and credibility of the presented research.

In light of the research findings, we have outlined three principal recommendations pertaining to the use of active and passive voice in research articles to increase comprehension and accessibility. It is

important to note that these recommendations should not lead to an exclusive preference for one voice over the other. Indeed, a balanced use of both voices can be valuable, with the choice between them being driven by the context and the particular needs of the intended audience. For example, using active voice to describe the overall study design and passive voice to detail specific procedures can combine the strengths of both voices.

Furthermore, recognizing the variability in language style preferences among our study participants, we advocate tailoring the use of active and passive voice based on the audience's characteristics and needs. When the target audience is broad or includes non-native English speakers, using more active voice can improve clarity and ease of understanding. Conversely, for a specialized audience, passive voice may better convey authority and objectivity.

By incorporating these recommendations into the writing and editing of research articles, authors and editors can help make scientific content more accessible, engaging, and comprehensible for a diverse audience, including non-native English speakers. This, in turn, will help expedite greater inclusivity and collaboration within the global scientific community.

In addition to the issue of grammatical voice, the study offers some initial understanding of how stylistic form could affect the reader's degree of cognitive engagement with scientific writings. Although there were no specific psychometric measures or observational procedures used to gauge cognitive engagement, the comprehension tasks' design was purposefully in line with accepted engagement typologies. Tasks requiring little effort, like multiple-choice questions, are typically linked to passive or surface-level involvement, where information is absorbed but not transformed, according to the ICAP model (Chi & Wylie, 2014). On the other hand, because they require readers to recover, rebuild, or restate content, open-ended and recall-based assignments promote active and productive types of involvement.

The AV group's performance indicates that using active voice may promote deeper engagement with the text in addition to improved memory, especially in the open-ended summary and short-answer recall parts. This indicates the mental effort readers put in to navigate sentence structure, agency, and information flow rather than just processing ease. Active formulations tend to map more clearly onto mental representations, which facilitates retention, whereas passive constructs may hinder syntactic transparency or hide the actor. Because their comprehension may be more sensitive to departures from the standard clause structure, non-native speakers should pay particular attention to this.

Without requiring introspective reporting, the study offers an indirect way to observe reader engagement by embedding tasks along a continuum of cognitive effort. This method provides a means of evaluating how language characteristics influence both what is understood and the cognitive construction of understanding. In this way, the study addresses the issue of how various linguistic forms need distinct kinds of mental work when reading rather than only looking at comprehension results.

While the present study provides valuable observations concerning the influence of voice on comprehension and recall among readers of various levels of language proficiency, some limitations should be acknowledged. The sample size was relatively small ($N = 50$), and future research could benefit from recruiting larger samples. Additionally, the study only included one research article for each voice group, which may not fully capture the range of potential effects. Future research could include multiple research articles with varying topics and writing styles to assess the consistency of the observed effects. It could also explore other factors that may influence comprehension and perception of research articles, such as content familiarity or the role of visuals. Longitudinal studies might also investigate the long-term effects of exposure to active

and passive voice in research articles on language development and understanding of research content among readers of different language proficiency levels. Individual cognitive abilities like working memory, which would have affected recall results apart from linguistic voice, were not taken into account in this study. To account for individual heterogeneity, mixed-effects models and cognitive tests would be useful in future studies.

Although the observed differences between the AV and PV groups in the "Accurate understanding" (original $p = 0.0417$) and "Misunderstanding" (original $p = 0.0124$) categories initially reached conventional significance thresholds ($p < 0.05$), these effects did not remain statistically significant after applying the Benjamini-Hochberg False Discovery Rate (FDR) correction for multiple comparisons. The adjusted p-values were 0.1251 and 0.0744, respectively – values that, while not meeting the strict cutoff, remain relatively close to the conventional $\alpha = 0.05$ threshold. Given the limited sample size and the exploratory scope of this study, these results should be interpreted with caution. However, the consistent pattern of group differences across categories suggests potentially meaningful trends that merit further investigation in a study with greater statistical power and a more targeted design.

Despite the limitations, the results of this study have important implications for researchers, editors, and educators. Encouraging thoughtful use of active and passive voice in research articles may improve comprehension and accessibility for non-native English speakers, while maintaining credibility of research findings, thus promoting a more inclusive scientific community.

6. CONCLUSION

The study aimed to explore the impact of active and passive voice on the comprehension of research articles among readers with varying language proficiency

levels. This investigation is particularly relevant in the context of increasing globalization and the growing importance of accessible scientific communication, as it seeks to explore how language style can influence the understanding and interpretation of research findings.

To address this aim, the study employed a pre-test survey, a reading comprehension task consisting of multiple-choice questions, open-ended questions, and short-answer recall questions, as well as a post-test survey. Participants were divided into two groups, one exposed to an article written in active voice (AV group) and the other exposed to the same article in passive voice (PV group). The methodology allowed for an in-depth analysis of comprehension, perceived understanding, satisfaction with the reading experience, perceived credibility of the article content, and preference for language style.

The key findings of the study can be summarized as follows.

1. The AV group demonstrated better overall comprehension, particularly in the short-answer recall questions, where they scored significantly higher than the PV group.

2. The AV group reported higher perceived understanding and a more satisfying reading experience, suggesting that active voice contributes to a clearer and more engaging presentation of research content.

3. The PV group perceived the article content as more credible, indicating that passive voice may convey a sense of authority and objectivity in certain contexts.

4. The active voice was generally preferred by participants, although a third of the respondents claimed they had no preference in this matter.

Based on these data, the study proposed three key recommendations for the use of active and passive voice in research articles for better comprehension and accessibility: (1) using active voice for enhanced comprehension in complex narratives; (2) active voice for enhanced recall of specific data-driven information; and (3) implementing passive voice to enhance

perceived credibility. These findings have significant implications for researchers, editors, and the broader scientific community. First, they point to the importance of striking a balance between the use of active and passive voice in research articles to optimize comprehension and accessibility for diverse readers, including non-native English speakers and researchers from various disciplinary backgrounds. Second, the study exposes the need for strategic use of language style, with active voice enhancing comprehension of data-centric information, and passive voice conveying authority and objectivity when necessary. The findings also emphasize the role of the target audience in shaping language style choices, as authors should consider tailoring their use of active and passive voice based on the intended readership.

Although the observed differences between the AV and PV groups in the “Accurate understanding” (original $p = 0.0417$) and “Misunderstanding” (original $p = 0.0124$) categories initially reached conventional significance thresholds ($p < 0.05$), these effects did not remain statistically significant after applying the Benjamini-Hochberg False Discovery Rate (FDR) correction for multiple comparisons. The adjusted p -values were 0.1251 and 0.0744, respectively—values that, while not meeting the strict cutoff, remain relatively close to the conventional $\alpha = 0.05$ threshold. Given the limited sample size and the exploratory scope of this study, these results should be interpreted with caution. However, the consistent pattern of group differences across categories suggests potentially meaningful trends that merit further investigation in a study with greater statistical power and a more targeted design.

Although evaluating the effect of voice on textual comprehension is the study’s primary goal, the results also suggest more general cognitive ramifications. The study addresses the issue of how linguistic form influences the depth of cognitive processing by designing tasks to elicit varying degrees of

reader effort, from recognition to recall and synthesis. Active voice usage seems to encourage more laborious forms of interaction, making it easier for readers to extract, remember, and reassemble information. These task-based indicators align with what learning theory defines as active and constructive engagement. This multi-layered approach, which combines cognitive function with linguistic form, paves the way for future research into how language choices in scientific writing can either enhance or limit the reader's ability to interact meaningfully with difficult content.

This study does rely conceptually on the plain language movement. Importantly, however, it does so not in terms of general-public outreach, but as a framework for improving cognitive accessibility of scientific writing among readers with varying levels of language proficiency – particularly non-native speakers and early-career researchers.

In summary, this study has explicated the complex reciprocity between language style and comprehension in research articles. Its findings contribute to a better understanding of how active and passive voice can influence reader engagement, understanding, and perceptions of credibility, offering actionable recommendations for authors and editors seeking to increase the clarity and impact of their scientific communication. By applying the proposed recommendations, the scientific community can work towards making research more accessible and inclusive, which will ultimately work towards promoting the exchange of ideas and the advancement of knowledge across disciplines and borders.

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Scoping review rhetorical structure of discussion section:
genre specifics and principles of modeling

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Abstract:

Background: Although scoping reviews have gained recognition as an independent form of scholarly synthesis, the rhetorical structure of their *Discussion* sections remains theoretically underdeveloped and is not always implemented effectively in practice. Despite increasing standardization of methodological procedures through frameworks such as PRISMA-ScR and the JBI Manual, the rhetorical conventions governing how findings are presented and how contributions are positioned within the research field remain poorly defined. As a result, the *Discussion* section in many scoping reviews appears formally structured but substantively diffuse and overloaded with loosely organized commentary. It often fails to fulfill the genre-specific function of scoping reviews: mapping the research landscape and identifying conceptual, methodological, and thematic gaps.

Problem: This study aims to identify and describe the rhetorical structure of the *Discussion* section in scoping reviews by developing a typology of rhetorical moves and steps and analyzing their frequency, communicative functions, and sequencing. The analysis seeks to clarify how authors construct research-based argumentation in a genre that does not rely on empirical synthesis or quality appraisal.

Methods: The study is based on a corpus of 50 scoping reviews published between 2019 and 2023 in leading English-language journals on education ranked in the first quartile (Q1) of the SJR index. A two-level rhetorical coding scheme was employed: *moves* were conceptualized as macro-level functions aligned with genre-specific communicative tasks, while *steps* were analyzed as micro-level strategies that realize those functions. The initial move categories were identified deductively from established models developed for empirical research articles and were subsequently refined and adapted to the logic of the scoping review genre through iterative

analysis. The coding process was carried out by three independent researchers, with disagreements resolved through interpretive discussion supported by textual evidence.

Results: The analysis resulted in the identification of six core rhetorical moves specific to the *Discussion* section in scoping reviews, each serving a distinct communicative purpose. While analytical and evaluative moves were consistently present across the corpus, introductory and interpretive moves exhibited considerable variation and were frequently absent. Only 24% of the articles implemented the full six-move structure. The two-tiered move-step model revealed stable rhetorical patterns, but also highlighted common omissions, such as limited contrastive framing and reference to prior development of the field, insufficient explanatory commentary, and uncritical transfer of rhetorical structures from systematic reviews, which undermine the logic of the scoping review genre.




Conclusion: The findings indicate that the *Discussion* sections in scoping reviews often suffer from rhetorical inconsistency and genre hybridity. In the absence of a coherent rhetorical structure, discussions tend to reproduce results rather than advance interpretation or field-level insight. The proposed move-step model provides a genre-sensitive rhetorical framework that can enhance both the communicative clarity and argumentative precision of scoping reviews. Moreover, the model contributes to a broader understanding of how research-based argumentation functions in non-synthetic academic genres.

Keywords: Discussion section; Scoping review; Move-step model; Genre-based analysis; Argumentation in review articles; Rhetorical steps in scoping reviews; Scientific writing conventions

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Риторическая структура раздела «Обсуждение результатов»
в обзоре предметного поля: жанровая специфика и принципы
моделирования

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Аннотация:

Актуальность: Несмотря на то что обзоры предметного поля (*scoping reviews*) получили признание как самостоятельная форма научного синтеза, риторическая структура их раздела «Обсуждение результатов» остается теоретически недостаточно проработанной и не всегда реализуется на практике эффективно. Несмотря на растущую стандартизацию методологических процедур в рамках таких протоколов, как PRISMA-ScR и руководство JBI, риторические конвенции, регулирующие способы представления результатов и позиционирования вклада в предметную область, остаются неопределенными. Как результат, раздел Дискуссия в обзоре предметного поля является формально оформленным, но содержательно расплывчатым и перегруженным обсуждениями, которые не обеспечивают выполнение жанрово-специфической задачи (картографирования исследовательского ландшафта и выявления концептуальных, методологических и тематических лакун).

Проблема: Настоящее исследование направлено на выявление и описание риторической структуры раздела «Обсуждение результатов» в обзорах предметного поля путем разработки типологии риторических ходов и шагов, а также анализа их частотности, функций и порядка следования. Анализ призван прояснить, как авторы выстраивают исследовательскую аргументацию в жанре, который не включает синтеза эмпирических данных и оценки качества литературы.

Методы: В качестве материала анализа использован корпус из 50 обзоров предметного поля, опубликованных в ведущих англоязычных журналах по педагогике, входящих в первый квартиль рейтинга SJR (Q1). Применялась двухуровневая схема риторического кодирования: ходы интерпретировались как макрофункции, реализующие ключевые жанровые задачи, а шаги - как их конкретные микростратегии. Начальные категории риторических ходов были выделены дедуктивно на основе существующих моделей для эмпирических исследований, после чего уточнялись и адаптировались к логике жанра *scoping review* в ходе итеративного анализа. Процедура кодирования осуществлялась тремя независимыми экспертами, с согласованием расхождений через интерпретативную дискуссию и аргументацию, основанную на текстовых примерах.

Результаты: Анализ позволил выделить шесть ключевых риторических ходов, характерных для раздела «Обсуждение результатов» в обзорах предметного поля, каждый из которых выполняет отдельную коммуникативную функцию. Аналитические и оценочные ходы присутствовали практически во всех проанализированных текстах. Вводный и интерпретационный ходы продемонстрировали высокую вариативность и нередко отсутствовали. Только в 24% статей была реализована полная шестиэлементная структура всех риторических ходов. Двухуровневая модель (ходы и шаги) позволила зафиксировать устойчивые риторические паттерны, а также выявить типичные смысловые пробелы: отсутствие объяснений, нехватку контрастивной рамки, а

также риторические заимствования из систематических обзоров, нарушающие логику жанра обзор предметного поля.

Выводы: Результаты исследования свидетельствуют, что раздел «Обсуждение результатов» в обзорах предметного поля страдает от риторической несогласованности и жанровой гибридности. При отсутствии целостной риторической структуры обсуждение рискует превратиться в повторение результатов, не обеспечивая ни интерпретации, ни полевой аналитики. Предложенная модель ходов и шагов для обсуждения результатов предлагает жанрово чувствительный риторический каркас, способный повысить прозрачность и аргументативную точность текстов в структуре обзора предметного поля. Кроме того, модель вносит вклад в более широкое понимание принципов научной аргументации в жанрах, не ориентированных на синтез доказательств.

Ключевые слова: Раздел «Обсуждение результатов»; Обзор предметного поля; Модель риторических ходов и шагов; Жанровый анализ; Аргументация в обзорных статьях; Риторические шаги в обзоре предметного поля; Конвенции научного письма

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Introduction

Changes in the nature of scholarly communication and the structure of academic knowledge substantiate recent interest in scoping reviews. As research problems become more complex and the body of research in various disciplines increases, there is a growing need for tools that allow not only to identify reliable evidence, but also to understand how the research space itself is structured (Tikhonova, 2024): which topics have already been explored, which are in early stages of scholarly development, where gaps are identified and how methodological approaches are distributed. Scoping reviews respond to this request, providing the opportunity for a structural analysis of literature without striving for a general synthesis (Grant, Booth, 2009; Moher et al., 2015; Tricco et al., 2016; Peters et al., 2020). This approach is especially in demand in new and interdisciplinary fields where the systematic evidence base is still insufficient, but material has already been accumulated that allows identifying trends and patterns in the development of the field (Arksey,

O'Malley, 2005; Levac et al., 2010; Khalil et al., 2016). Due to this versatility and extensive coverage, scoping reviews are actively used both in academic research and in applied analytics, namely, at the stages of preliminary design, formation of research programmes and expert assessment of knowledge.

Despite their methodological affinity with a systematic review (both formats rely on similar procedures for searching, selecting, and documenting sources), the differences between them are fundamental and relate primarily to the aims of analysis and the logic of argumentation. A systematic review involves a rigorous assessment of empirical evidence: the validity, reproducibility, and evidential value of the results (Grant, Booth, 2009). It is always built around a clearly formulated research question, which can be answered by comparing quantitative or qualitative evidence obtained from primary sources (Arksey, O'Malley, 2005; Khalil et al., 2016). Such a model requires a critical interpretation of the included data and serves as the basis for practical recommendations.

Unlike a systematic review, a scoping review is not aimed at testing hypotheses or drawing conclusions about the reliability of empirical results, but at mapping the research landscape (Schreiber, Cramer, 2022). Its purpose is to determine the structure of knowledge, delineate the boundaries of the topic, track the dynamics of interest in the problem under study, and record dominant concepts and methods against the background of fragmented research (Arksey, O'Malley, 2005). Accordingly, even if there is a research question in the scoping review, it is of a guiding rather than evidential nature. As a rule, it sounds like an open query: "What approaches are utilised to study X?", "What is the geography of publications on topic Y?", "What methodological traditions are involved in the analysis of Z?" Such questions are focused on description and classification, rather than on confirming or refuting a thesis. This difference in goal-setting logic is directly reflected in the structure of all sections of the review, including Discussion, which aims at analytical description of the field rather than its evaluation.

Despite the development of methodological guidelines (including PRISMA-ScR¹ and Joanna Briggs Institute Manual for Evidence Synthesis²), the rhetorical organization of the sections of the scoping review remains poorly defined (Peters et al., 2020; Mak and Thomas, 2022). This uncertainty is most acute in the Discussion section, which, unlike the instrumental sections (source selection criteria, source search, source selection, data extraction, data visualization), is virtually not standardized. In the published scoping reviews, two deviations from genre logic are most typical. Firstly, the discussion of the results often becomes descriptive. In other words, the authors simply repeat the information already presented in the Results

section, without interpreting them analytically and without identifying the reasons for the differences or relationships between the identified research areas. Secondly, there is often a substitution of the genre function. Instead of understanding the structure of the research scope, the authors begin to generate a discussion based on the logic of a systematic review or original empirical research, with an emphasis on evidence, comparison of results and evaluation of the quality of sources. As a result, the coherence of the text is disrupted: the conclusions do not correspond to the stated objectives, and the discussion diverges from the genre-specific purpose.

This confusion of rhetorical strategies is usually due to the lack of understanding of the differences between closely related genres (Tikhonova, 2024). A scoping review is indeed formally close to a systematic review: both reviews follow the same logic of documentation and transparency of procedures (Peters et al., 2020; Schreiber, Cramer, 2022). However, this proximity should not lead to stylistic and genre substitution. In a scoping review, it is better not to use rhetorical techniques aimed at evaluating the reliability of empirical data, as well as it is not recommended to use the structure of the Discussion section of the original empirical study with the evaluation of its results (Arksey and O'Malley, 2005). A scoping review does not produce new data, but works with secondary material, and therefore should offer an analytical synthesis of existing areas and identify gaps in knowledge which is considered to be the pivotal function of the Discussion section. Thus, the development of a clear rhetorical structure of a scoping review Discussion section becomes a necessary step to improve the quality of manuscripts in this genre. An effective rhetorical structure of a scoping review should include a logically verified sequence of rhetorical moves corresponding to the aims of the scoping review, and serve as a guideline for authors, reviewers, and editors.

Writing a research paper demands following conventional rules of its format.

¹ PRISMA for Scoping Review. <https://www.prisma-statement.org/scoping>

² JBI Manual for Evidence Synthesis. <https://jbi-global-wiki.refined.site/space/MANUAL/355862497/10.+Scoping+reviews>

Having distinctive features and communicative purposes, a research paper is usually analysed through its rhetorical structure which is considered to be a part of academic genres (Deng et al., 2024; Jin et al., 2024; Ash'ari et al., 2023; Casal, Kessler, 2020; Samraj, 2016; Basturkmen, 2012). Following the seminal CARS model provided by Swales (1990), an extensive body of research has analysed the rhetorical structures of various sections of research papers in different disciplines (Farhang-Ju et al., 2024; Sun et al., 2024; Golparvar et al., 2023; Tikhonova et al., 2023; Al-Shujairi et al., 2020). Discussion section in a research paper appears to be the most challenging for scholars as it posits the difficulty to demonstrate their persuasive writing abilities to substantiate the novelty and validity of their findings (Tikhonova et al., 2023). Still, the research investigating the rhetorical structure of review papers is scarce.

This study aims to systematically describe the rhetorical structure of the Discussion section in a scoping review, including typical moves and steps, as well as their function in the context of the goals of this genre, in order to ensure genre rhetorical consistency of this section, improve the quality of interpretation of the data obtained and prevent confusion with rhetorical models of systematic reviews.

Theoretical Background

Modern research on academic writing is increasingly turning to the analysis of the rhetorical organization of scientific texts, not only from the point of view of their thematic content, but also from the standpoint of their functional structure, namely, those repetitive rhetorical moves by which authors achieve genre and communicative goals. One of the most stable and productive approaches to describing such a structure has become genre analysis based on the separation of moves and steps. These concepts were proposed by Swales (1990; 2004) and have become widespread in the English-language rhetorical tradition.

According to the genre approach, move is a discursive unit that performs a certain rhetorical function within a scientific text, whereas step is a way to implement this function at the level of a specific utterance (Pho, 2009). The totality of the moves presented in the genre comprises its rhetorical architecture. At the same time, the presence of a certain set of moves, as well as their expected sequence and communicative load, create genre predictability, which, as Swales (2004) emphasizes, is critically important for effective scientific communication. The conventionality of moves and steps serves as a distinguishing mark for both the author and the reader, making it easier to navigate through the text and understand its purpose. When such a structure is not specified or violated, the genre loses its functional transparency, and the scientific text loses its rhetorical manageability.

If stable descriptions of typical rhetorical patterns have been developed regarding the Introduction (Zhou et al., 2023; Swales, 1990), Abstracts (Jin, Gao, 2024; Samraj, 2005), Materials and methods (Cotos et al., 2017; Kanoksilapatham, 2005), Results (Yang, Allison, 2003; Peacock, 2011), Conclusion (Pho, 2009), and even figure legends (Liu et al., 2023), then the structure of Discussion continues to cause the greatest difficulties. As shown by Hopkins and Dudley-Evans (1988), Peacock (2002), Ruiying, Allison (2003), Discussion is characterized by high rhetorical variability and depends on both disciplinary norms and the genre nature of the text as a whole. This is especially true for hybrid and relatively new scientific formats such as scoping review. In particular, the Discussion section in this genre often happens to be either overly descriptive or formally borrowed from other genres (for example, systematic reviews or original empirical research). Such a construction of the text leads to a blurring of argumentation and a decrease in the analytical density of the text, whereas the main task of Discussion in scoping reviews should be the intellectualization of mapping (identifying

patterns, fixing gaps, assessing the distribution of topics and methods, and directing further research). In other words, Discussion in scoping reviews performs not strictly a synthetic or interpretative function but an orienting, generalizing and predictive one.

The focus on the concept of moves and steps in this study is substantiated by the need to replenish the lack of rhetorical devices characteristic of a significant part of the published scoping reviews, and to identify those rhetorical guidelines that make the discussion not just a formal conclusion to the analysis, but a tool for reflection on the state of scientific knowledge.

Materials and methods

Research Design

The present study is a qualitative genre-rhetorical analysis aimed at describing the structure and functional content of the Discussion section in scoping reviews. The research is based on a corpus approach and

focuses on content analysis methods followed by the categorization of rhetorical elements (moves and steps) based on iterative expert discussion. The general logic of the study corresponds to a narrative design with elements of comparative analysis and reconstruction of rhetorical models.

Corpus

The analysis was based on a corpus of 50 scoping reviews, published in leading peer-reviewed journals in the field of education, included in the top 50 of the Scimago Journal Rank (SJR) at the time of selection (as of February 15, 2025; see Table 1). The papers were selected using a continuous sampling method based on the following criteria:

1. There is a separate Discussion section in the article;
2. It is published in English;
3. There is a clear indication (either in the title or in the keywords) of the genre of the review – *scoping review*;
4. The papers should be open access.

Table 1. Journals Demographics
Таблица 1. Описание журналов

	Title	ISSN	SJR	SJR Quartile	H index	Country	Publisher
1	Computers and Education: Artificial Intelligence	2666920X	5,217	Q1	51	Netherlands	Elsevier B.V.
2	International Journal of Educational Technology in Higher Education	23659440	3,912	Q1	77	Netherlands	Springer Netherlands
3	International Journal of STEM Education	21967822	2,606	Q1	63	Switzerland	SpringerOpen
4	Smart Learning Environments	21967091	2,476	Q1	41	United Kingdom	SpringerOpen
5	JMIR Medical Education	23693762	1,974	Q1	36	Canada	JMIR Publications Inc.
6	Computers and Education Open	26665573	1,678	Q1	25	United Kingdom	Elsevier Ltd

7	Australasian Journal of Educational Technology	14493098, 14495554	1,249	Q1	75	Australia	Australasian Society for Computers in Learning in Tertiary Education
8	Medical Education Online	10872981	1,037	Q1	55	United Kingdom	Taylor and Francis Ltd.
9	BMC Medical Education	14726920	0,947	Q1	107	United Kingdom	BioMed Central Ltd
10	Journal of University Teaching and Learning Practice	14499789	0,909	Q1	28	Australia	
11	Online Learning Journal	24725730, 24725749	0,821	Q1	75	United States	The Online Learning Consortium
12	International Journal of Educational Research Open	26663740	0,758	Q1	22	United Kingdom	Elsevier Ltd
13	American Journal of Pharmaceutical Education	15536467, 00029459	0,736	Q1	85	United States	Elsevier B.V.
14	Education Sciences	22277102	0,73	Q1	68	Switzerland	Multidisciplinary Digital Publishing Institute (MDPI)
15	Journal of Information Technology Education: Research	15393585, 15479714	0,712	Q1	38	United States	Informing Science Institute

The choice of journals with a high impact factor is justified by the desire to capture representative rhetorical practice in the most influential academic publications on the subject of education. All articles were encoded (by number and source), which made it easier to compare and reverse-check the data (Appendix 1).

Extracting Data from a Corpus

The data was extracted manually based on pre-encoded PDF versions of the articles. Only the Discussion section was allocated for each article. Conclusions, if they were designed as a distinct section, were not

excluded, but were considered separately. This is due to the fact that conclusions are often integrated into the Discussion. A corresponding entry was added to the data extraction table (Appendix 2), indicating whether the Conclusion was a standalone section or part of the Discussion. The selection of rhetorical units (moves and steps) was based on text segmentation, thematic transitions, and language markers (for example, *This review aimed to ...*, *A major gap identified was...*, *Unlike previous reviews ...*), as well as the logical position of the passage in the structure of the section.

To facilitate analysis, the text of each Discussion section was extracted into a dedicated table. Each entry consisted of individual semantic blocks (ranging from 1 to 5 sentences), which were systematically evaluated based on their rhetorical function. The table included fields for coding moves and steps, along with researcher notes on any genre ambiguity or structural deviations. Additionally, all text fragments were annotated with the corresponding article number, page reference, and original wording to enable traceability and verification.

This method of organizing the extracted data made it possible to ensure textual accuracy of the analysis, avoid interpretative distortions, and maintain transparency of decisions during the transition to the stages of categorization and generalization. In addition, the presence of a database of annotated fragments made it possible to return to previously analyzed articles in case of discrepancies or the need for recoding when refining categories.

Data Analysis

The data were analysed by manual qualitative coding, aimed at identifying and describing the rhetorical structure of the Discussion sections in selected scoping reviews. The main analytical unit was a rhetorical move, that is, a functionally completed piece of text that performs a specific task in the compositional organization of the discussion. Each move, in turn, could contain one or more steps clarifying its function. For example, the Interpretation Move could include steps related to explaining the relevance of the findings, comparing them with other studies, suggesting possible causes of differences, etc.

The analysis was carried out in several stages. At the first stage, for each article, the following were recorded: (1) the number of moves and their sequence; (2) the presence or absence of key steps within each move; (3) rhetorical deviations, including:

- borrowing structures typical of systematic reviews or empirical studies

(e.g. critical assessment of the data validity, discussion of one's own results);

- excessive descriptiveness without interpretation;

- violations of logical coherence between rhetorical blocks.

At the second stage, the data were grouped into tables, where each recorded move and step was matched with a text example from the corpus, as well as the researchers' comments on its function, position in the text, and degree of correspondence to the scoping review genre. This allowed us to correlate real rhetorical practices with the expected genre model.

The formation of categories took place in a dual logic:

- (1) deductively – based on existing rhetorical models, primarily the descriptions of the discussion structure in original empirical studies and systematic reviews;

- (2) inductively – based on the analysis of corpus material, where rhetorical elements that did not fit into the preliminary scheme were discovered. Such cases became the subject of expert discussion and, if necessary, led to the expansion or revision of the categorical apparatus.

For each identified rhetorical unit, its formal and functional features were determined: the nature of the linguistic design, the position in the section, the logical connection with other elements. This provided a multi-layered description of the structure of the discussion section, including both stable, typical solutions and deviations from the norm.

The summarized results are presented in the form of summary tables, which record the frequency of occurrence of moves and steps, their variability and sequence, as well as representative examples from the corpus. The examples illustrate both genre-correct rhetorical strategies and typical errors associated with genre confusion, structural blurring, or lack of interpretation.

Procedure

The analysis of the Discussion sections was carried out independently by three researchers. Each researcher studied the Discussion section of each article in the corpus to identify all the rhetorical moves and their constituent steps used by the authors. A Google spreadsheet was used to organize the collaboration, recording the wording, function, and frequency of each rhetorical element occurrence. Any discrepancies or uncertainties were discussed during joint meetings until consensus was reached.

The initial analysis framework was formed based on the rhetorical structure of the Discussion section in empirical research, described in studies on academic writing and scientific rhetoric. The starting model was based on typical moves (such as interpretation of results, discussion of limitations, comparison with previous research) and their constituent steps, characteristic of original research articles. This framework served as a preliminary coding matrix for the corpus data.

However, at an early stage of the analysis, it became obvious that the structure of the Discussion sections in the scoping reviews differed significantly from the empirical genres both in purpose and compositional logic. The corpus data began to reveal rhetorical moves that were not provided for by the original model: for example, an analytical description of the research field structure, indicating the scope limits without appealing to the quality of the data, highlighting new thematic areas without interpreting empirical results. This required going beyond the ready-made schema and moving to an iterative reconstruction of categories based on textual material.

In this process, a narrative approach to conceptualization was applied, based not on strict formalization of codes at the beginning of the analysis, but on consistent refinement, redefinition, and reasoned discussion of categories as the research team engaged in close reading of the texts. Each potential innovation, whether it was a new category, renaming an existing step, or splitting one

move into two, was evaluated by the research team with reference to specific text passages. The discussion used both textual arguments (language implementation, position in the section structure, functional load) and genre considerations (compliance with the stated purpose of the review, the difference between description and interpretation, genre correctness in relation to the scoping review).

Decisions were made not by vote, but by consensus - that is, until all participants agreed on how to interpret a particular rhetorical move and how to classify it. Thus, the final scheme was not imposed from the outside, but was gradually formed from within the corpus, reflecting the real diversity of academic writing practices within scoping review. This approach ensured not only the flexibility of the analysis, but also a high level of consistency between researchers, since each category has been repeatedly tested in the discussion and textual plane.

Reliability Measurement

To ensure reliability of the analysis, the method of triple inter-rater agreement was used. All discrepancies between codings were discussed until full consensus was reached. Repeated coding of a part of the corpus (20% of articles) with a time interval confirmed the stability of the categories and the uniformity of their application. To assess the consistency of coding, the Cohen's Kappa coefficient was additionally used, which showed a high level of agreement ($\kappa = 0.82$).

Results

The analysis of the corpus of 50 scoping reviews published in leading educational journals resulted in a typology of rhetorical moves implemented in the Discussion section. The final structure is presented in Table 5 and includes six moves being described in terms of the function performed and typical steps of implementation. Separate subsections present the main empirical observations and statistical data on the frequency of use, the function performed and the internal content of moves and steps, as well as typical cases of

violations of genre and rhetorical logic in their use.

Move 1. Introductory Move

The main function of this rhetorical move is to establish the genre and analytical context for the subsequent discussion. Within the framework of a scoping review, where the emphasis is not on the synthesis of evidence, but on mapping the research field, Move 1 performs an orienting function, namely, it sets the starting point, indicating what exactly was analyzed, to what extent, and with what research task. This avoids rhetorical “depressurization” - when the discussion begins without relying on the focus and scope of the review, which is especially important for scoping reviews that do not rely on formalized synthesis. Unlike other moves, Move 1 does not include interpretations, comparisons, or predictive statements. Its rhetoric is neutral, orienting: the author describes, but does not explain; records, but does not analyze.

Step 1. Reaffirming the purpose of the review (and research question, if applicable)

At the first step, the author returns the reader's attention to the original research task and, if available, to the research question that served as the basis for designing the analysis. Unlike the Introduction, where the goal is often formulated declaratively, here its reformulation should be built into the logic of the review, emphasizing its substantive guidelines: thematic areas, types of objects of analysis, research prospects. This approach allows not only to repeat the goal, but to introduce it into the context of the data obtained, indicating which part of the field the author sought to map.

This step is especially important when the review has formulated a research question. Its brief reproduction (usually in a generalized or paraphrased form) strengthens the rhetorical integrity of the text and demonstrates that the discussion is structured within the framework of the given analytical focus. At the same time, the author does not interpret the data or answer the question; he or she merely reminds the reader that the

question served as a constructive basis for the analysis. This structural “reorientation” of the reader is especially important for reviews with a broad scope, where, without it, the subsequent discussion may be perceived as disorganized or fragmented.

Step 2. Descriptive summary of the mapped evidence

The second step of the first move involves a brief but structured presentation of the resulting picture of the research on the subject. Its main goal is to capture the scope, diversity, and distribution of publications by themes, methods, or geographic focus, thereby preparing the basis for further analytical progress. Well-written texts at this stage report: (1) the total volume of sources and time frame (e.g., “the review included 67 articles published between 2001 and 2023”); (2) the typology of sources (e.g., empirical vs. theoretical; journal publications, dissertations, reports); (3) the geographic, institutional, or disciplinary scope; (4) the most frequently encountered topics, methods, or research contexts (using neutral wording, e.g., “the most commonly examined contexts were...”). Unlike analytical moves, here the author does not explain why certain topics prevail or offer conclusions. This is a purely descriptive stage, where the map is documented - without yet introducing the tools for navigating it. This step should not be implemented formally, in one or two sentences, as this reduces its potential as a support for subsequent moves.

Move 2. Analytical Move

This rhetorical move is the analytical core of the Discussion section in the scoping review. Its main function is to offer a structured description of how the research field is organised: which of its components predominate, how they relate to each other, and where systemic unevenness is found. This move does not provide explanations, does not derive cause-and-effect relationships, and does not offer forecasts. The author does not reason, but records - so that this basis can be further relied on in interpretation (Move 3) and in deriving directions for future research

(Move 6). Move 2 is built on the generalization of the data corpus, already briefly presented in Move 1, but performs a different rhetorical function: not introductory, but analytical. Its steps are arranged according to the principle from the overall thematic structure of the research field (e.g., digital equity in education) to its internal asymmetries and emergent trends.

Step 1. Analysis of the scope and types of research

At this stage, the author systematizes the internal architecture of the studied domain based on the formal and substantive characteristics of the identified sources. In the context of a scoping review, this step serves a genre-specific mapping function: it demonstrates what components make up the field, which segments dominate, and how the publications are distributed according to key parameters. These parameters include the type of sources (empirical studies, theoretical works, review articles), methodological approaches used (qualitative, quantitative, or mixed), level of analysis (individual, institutional, or systemic), studied groups (such as teachers, students, or administrators), as well as geographical and disciplinary affiliations.

The goal at this point is not to explain why certain imbalances in distribution occur but rather to document these patterns as an empirical foundation for the subsequent analysis of asymmetries in Step 2 and the identification of trends in Step 3. The formal characteristics to be considered may include the length of the section, the presence of subheadings, and the density and nature of in-text references. Substantive features involve the degree of meta-analytical synthesis, the presence of authorial evaluation, and the use of visual or taxonomic generalizations. These characteristics allow the field to be presented not as a mechanical collection of publications but as a structured body of approaches, perspectives, and data types that require further interpretive analysis.

Step 2. Identification of research gaps

This step aims to capture

underrepresented, missing or systematically excluded areas in the research field: topics, methods, contexts, levels of analysis, categories of participants or theoretical perspectives. This step does not explain why a gap exists or draw conclusions about its consequences – it simply states the absence or lack of research in a neutral analytical manner (in other words, it states facts that will be interpreted in the next move).

Step 3. Identification of dominant trends and directions

This step is aimed at capturing the most stable, recurring, or growing trends in the field being studied. It does not reflect individual thematic points, but patterns: what is most often studied, what methods are consistently used, what concepts or contexts have received more attention in recent years. The author does not explain why these trends appeared, but helps the reader to understand in what direction the field is developing and what vectors have become central.

Move 3. Interpretation Move

This rhetorical move serves the central analytical function in the Discussion section, offering insight into the mapping results. If Move 2 recorded the structural characteristics of the research field (topics, methods, gaps, and trends), Move 3 allows the author to go a step further and comment on why these characteristics are significant, what they may indicate, and how they can be interpreted in terms of the internal logic of the studied scope. In the scoping review genre, interpretation is not evidential or evaluative: it is not aimed at testing hypotheses or determining the reliability of data but performs an orientation function—it helps the reader better understand the architecture of the research space.

Move 3 may include from one to three steps. Step 1 is the main one and is found in most texts. Steps 2 and 3 are used optionally when the analytical framework of the review involves comparing and clarifying internal contradictions. Move 3 plays a linking role between the description of the results (Move 2) and the formulation of directions for

further research (Move 6). Its task is to transform the map of the subject field into a semantic field, to endow the structure with meaning, without moving on to practical recommendations and forecasts.

Step 1. Clarifying the relevance of the findings

This is the core of the interpretation move. Here the author moves from a neutral description to an analytical assessment of the relevance of the patterns identified. In this step, it is important not just to repeat what was found (for example, the prevalence of a certain topic), but to explain why this is significant: what it says about the state of scientific interest, how it reflects methodological priorities, where thematic imbalances are evident. Such an interpretation does not evaluate the quality of research, but affects scientific completeness, representativeness and thematic distribution within the field. The structure of a text description of this type is related to how the field is organised, and not to what is “right” or “wrong” in research on the topic.

Step 2. Comparison with other studies (optional step)

This step is used when the review has a clearly stated research question, and its implementation involves comparing the identified patterns with individual studies from the corpus. The purpose is not synthesis, but rather rhetorical correlation,

demonstrating how individual sources either reinforce or complicate the general picture established in Move 2. This comparison can show the stability of trends, contradictory positions or differences in approaches, while the author does not evaluate which of the authors of the analyzed sources is “right”, but records the heterogeneity of approaches.

Step 3. Explaining internal inconsistencies or contradictions (optional step)

At this step, the author addresses the internal heterogeneity of the field if the included sources provide contradictory or methodologically inconsistent conclusions (differences in the operationalization of concepts, in the sample, in the context of application). The task of the step is not only to record the discrepancy (this has already been done in Move 2), but to explain what it may be due to. Such an interpretation strengthens the argumentative coherence of the text and demonstrates the reflexivity of the author.

Step 2 (Comparison with other studies) and Step 3 (Explaining internal inconsistencies or contradictions) in Move 3 highlight the differences between the sources (Table 2). But they have different rhetorical goals, units of analysis, and analytical emphases of understanding, which fundamentally separate their functions within the scoping review.

Table 2. Comparison of step 2 and step 3 functions

Таблица 2. Сравнение функций шага 2 и шага 3

Criterion	Step 2: Comparison with other studies	Step 3: Explaining internal discrepancies
Purpose	To show that the generalized result agrees or disagrees with individual sources, that is to show agreement/disagreement	Explain why the results of individual sources contradict each other: do not show agreement/disagreement, but explain the reasons for the contradictions.
Focus	Results of the review as a whole ↔ individual articles from the corpus (<i>“Here’s what I found in the review as a whole – and here’s how it relates to the results of individual studies”</i>).	Discrepancies between two (or more) studies included in the review

Type of utterance	Juxtaposition (rhetoric of parallelism or contrast): <i>"The review found..., and some articles say the same thing..."</i>	Interpretation of the reason for the discrepancy (rhetoric of resolution): <i>"These two studies included in this review provide contradictory conclusions. This is due to... (methods, context, sample, definition of concepts)"</i>
Degree of difficulty	Relatively simple comparison (thematic or conceptual)	Requires an analytical assessment of differences in approaches, methods, and context
Context of application	If there is a clearly structured focus or research question	If real contradictions or logical conflicts are found in the corpus
What is being compared?	Summary of the review result and selected studies from the review	Study included in the review with another study/studies included in the review

Move 4. Comparison with Previous Reviews Move

This rhetorical move operates at a meta-analytical level of reflection, in which the author of a scoping review positions their work in relation to previously published scoping reviews on the same topic or in adjacent fields. It is not merely a gesture of academic courtesy or a citation-based comment, but a functionally important element of scholarly contribution. This move allows the author to show: (1) how the field is complemented or expanded, (2) what new perspectives or thematic refinements are introduced, and (3) how the structure of academic knowledge has evolved over time.

Move 4 is especially important in areas where a body of review literature already exists, and where claims to originality require a clear positioning relative to earlier work. In the context of a scoping review, this move helps to avoid the impression of redundancy and demonstrates that the new mapping either covers previously unexplored areas or refines, restructures, or reinterprets existing syntheses. Move 4 may involve one to five rhetorical steps. The first three are core components, while the latter two are optional and appear when the accumulated evidence justifies a revision or reconsideration of the thematic architecture (Table 3).

Step 1. Reference to previous reviews

The function of this step is to introduce the comparison by clearly indicating the existence of previous scoping or systematic reviews on the topic. The author may refer to one or several reviews, briefly outlining their scope or aims without critical evaluation. This establishes a basis for substantive analysis of differences and thematic shifts in subsequent steps.

Step 2. Comparison of the coverage and scope of the current and previous reviews

In this step, the author compares the scope, focus, and methodology of the current scoping review with those of previous publications. This allows them to delineate the boundaries of novelty: how the current review differs, in what way it expands methodologically or thematically, and which segments were previously unaddressed. This step is particularly crucial for establishing the review as a scholarly contribution.

Step 3. Identification of emerging or fading themes

This step highlights that, compared to previous scoping reviews, new themes have emerged in the literature or previously prominent areas have waned. It allows the author to demonstrate the dynamic nature of the field and emphasize the need for renewed mapping. This step is particularly useful in

fast-developing or post-crisis domains where the thematic landscape evolves rapidly.

Step 4. Re-evaluation of earlier thematic groupings (optional step)

At this rhetorical move, the author of the scoping review returns to a previously proposed structural framework of the research field, established in one or more earlier reviews, and, based on the newly assembled corpus of data, demonstrates that this framework no longer reflects the current state of the literature. This does not refer to the emergence of new topics not previously covered (as in Step 3), nor to changes in the content of already known directions (addressed in Step 5), but rather to the need to revise the underlying logic of thematic classification itself. This pertains to cases where earlier thematic blocks, clusters, or lines of inquiry begin to overlap, lose their analytical clarity, partially merge with one another, or, conversely, fragment into smaller, more distinct subfields. Such a revision does

not invalidate the previous structure, but highlights its limitations when applied to the new body of research, thereby justifying the development of a more nuanced or multi-level classification that more accurately reflects the current scope. This move shows that the author not only adds to the existing map but also refines the structure of the navigation itself.

Step 5. Reinterpretation or reframing of previously identified themes (optional step)

This step aims to show that previously defined thematic directions in scoping reviews now carry different meanings or emphases. This may involve a shift in focus, a paradigmatic turn, or the introduction of new terminology within existing frameworks. This step is particularly valuable when the author seeks to illustrate how the semantic content of the field has transformed, rather than simply identifying new topics.

Table 3. Comparing the steps of Move 4

Таблица 3. Сравнения шагов Хода 4

Step	Function	Element being reviewed
Step 2	Compares the current and previous scopes	Scope, method, context
Step 3	Identifies emerging or fading themes	Thematic composition of the field
Step 4	Shows the outdated nature of previous groupings	Architecture of thematic classification
Step 5	Reframes old themes with new meanings	Semantics and structure within existing themes

Move 5. Evaluation Move

This rhetorical move serves a reflexive function within the Discussion section, allowing the author to honestly and professionally outline the boundaries of the review's applicability without diminishing its scholarly contribution. Unlike the Conclusion, where the emphasis is shifted towards constructive generalization, Move 5 underscores the limitations arising from

methodological decisions and genre specifics. It indicates that the author does not claim to be comprehensive or epistemologically definitive and is aware of the framework within which his or her observations are formulated. This enhances the credibility of the work, as it demonstrates methodological awareness and a correct rhetorical stance. Move 5 returns the reader to the real conditions of the study, adjusts expectations,

and demonstrates the author's intellectual integrity. In the context of a scoping review, where generalizations are often built on broad and heterogeneous material, this move helps to maintain scientific accuracy and genre ethics. It strengthens the persuasiveness of the study not through enhanced argumentation, but through honest and structured reflection.

This move is especially important in scoping reviews where the scope is technically or conceptually constrained—by time frame, language, or type of sources. In scoping reviews, which do not synthesize data or formally assess quality, the author's ability to critically reflect on the review itself as a research instrument becomes particularly significant. Move 5 typically includes two mandatory and one optional step, each serving a distinct reflective purpose.

Step 1. Framing the contribution and its limits

In this step, the author articulates the contribution made by the review, while simultaneously acknowledging the boundaries within which this contribution holds. This rhetorical balance is crucial as it emphasizes the significance of the findings without overstating them. Unlike the Conclusion, where the value of the work is stated with confidence, this step follows a more restrained logic: *"Here is what we were able to identify—within the limits of our results obtained"*. This approach helps to maintain analytical integrity and prevent false generalizations, especially in situations where the field is highly fragmented.

Step 2. Methodological and procedural limitations

At this point, the author outlines specific methodological choices that may have influenced the completeness, representativeness, or direction of the findings. These limitations typically relate to the search strategy and inclusion/exclusion criteria for sources. This step is important not as a self-critique, but as a contextualization of the review's reliability, helping readers properly align the findings with the methodological framework within which they were obtained.

Step 3. Absence of quality assessment (optional)

This step is relevant when the review does not include a formal assessment of the quality of sources, which is typical for most scoping reviews but may require clarification for the reader. The author may briefly explain that quality appraisal was not part of the review's objectives, and that the findings do not aim to assess the strength of evidence in the included publications. This approach helps to avoid false interpretations: the reader understands that the review maps, not evaluates.

Move 6. Deduction from the Study

This rhetorical move performs the final analytical function within the structure of the scoping review Discussion section. Unlike Move 3 (Interpretation Move)), which aims to reflect on and explain the obtained results, Move 6 focuses on drawing logical conclusions from the revealed structure of the research field, with an emphasis on the future development of the area. This move does not summarize the data or assess their relevance; rather, it formulates propositions that the scholarly community may use to design future studies.

The key feature of Move 6 is that it does not offer direct practical recommendations (as is typical in systematic reviews), since scoping reviews are not grounded in quality assessment or strength of empirical evidence. Instead, it generates research-oriented proposals: where gaps have been identified, which topics require further exploration, and which methodological approaches remain underutilized. In doing so, Move 6 ensures the genre-specific completeness of the review by transforming the descriptive mapping of the field into a research agenda. It turns the scoping review from a "mapping report" into a scholarly tool that enables the reader not only to understand the current state of the domain, but also to anticipate its potential trajectories. While Move 6 does not function as a rhetorical conclusion (as its place is in the Conclusion section), it endows the discussion with a

future direction, thereby enhancing the scientific significance of the review as a prognostic platform.

In its rhetorical structure, Move 6 may include up to four steps, which vary in terms of their predictive strength and target orientation.

Step 1. Reaffirming the contribution to the field of knowledge

This step acts as a summative frame: the author demonstrates how the review has altered or refined the understanding of the knowledge domain, namely, how it helped to structure, systematise, or reconsider the existing body of literature. It is not a summary of results, but the implementation of the scoping review research function: clarifying what is now better understood, more clearly articulated, or viewed from a new perspective. This step helps the reader recognise the state of the researched field after its analysis and reconsideration.

Step 2. Emphasizing the need for further research

At this step, the author identifies those areas where the reviewed literature remains particularly fragmented or contradictory, indicating the necessity for further study. The step does not require an explanation of why these gaps exist (that is the function of Move 3), but merely notes that existing studies do

not yet present a cohesive picture (e.g., lack of regional diversity, underdeveloped conceptual tools, methodological gaps).

Step 3. (If applicable) Indirect recommendations for policy or practice

Although scoping reviews do not typically offer formal recommendations, in certain cases the author may suggest that the findings are potentially relevant for the educational policy, governance, or regulatory practices. It is crucial to emphasise, that these recommendations are indirect, based on the identified trends, and not derived from the research effectiveness assessment.

Step 4. Making specific suggestions for further study

This is the central step of this move, in which the author formulates specific suggestions for the direction and nature of further research, which may include: (1) methodological refinements (e.g., longitudinal or comparative designs), (2) expansion of the context (research into new countries, groups, levels of the system), (3) theoretical development (concepts, typologies, frames), (4) empirical filling of the gaps discovered during the review. It is important that the proposals are not general or declarative but **are based on the structural features of the scope identified in the review.**

Table 4. Scoping Review Rhetorical Structure of Discussion Section

Таблица 4. Риторическая структура секции Обсуждение результатов в обзоре предметного поля

Moves and Steps	Example from the corpus ³
Move 1. Introductory Move	
Step 1. Reaffirming the purpose of the review (and research question, if applicable)	<p>This study aimed to examine how the scientific literature conceptualises AI literacy in relation to teachers' different forms of professional knowledge relevant for TE. In doing so, we focused on two research questions: 1. What is the current scope and nature of the scientific literature on AI literacy relevant for TE? and 2. How are teachers' different forms of professional knowledge reflected in the literature? (6-4)</p> <p>CQEIIs aimed at evaluating and improving the quality of HE courses continue to</p>

³ The table displays selected examples from the corpus, while the full dataset is available in Appendix 2.

	<p>be developed and refined at universities around the world. This contribution aimed to pull together these disparate works into a more cohesive body of knowledge from which we can learn and improve the development of such instruments. (7-1)</p> <p>The overarching objective of this scoping review was to advance our understanding of the ways in which FYIC are being supported in their pursuit of post-secondary education and to apply these in the Canadian context. (12-2)</p>
Step 2. Descriptive summary of the mapped evidence	<p>This scoping review analyzed a total of 17 studies conducted in different countries from 1995 to 2021 regarding AI teaching tools, knowledge, activities, and impacts on learning and teaching in the crucial field of ECE. Different types of publications are included in this review, such as journal article, book chapter and conference paper. This scoping review shows that most of the studies were conducted in developed Western countries (e.g., United States, Australia, UK, Greece, Austria, and Finland). Only four studies (i.e., Ge et al., 2021; Jin, 2019a, 2019b; Nan, 2020) have been conducted in the Asia context. Most studies were found to use interviews, assessments and observations, followed by questionnaires. Qualitative data were generated to draw conclusions for the proof-of-concept or user studies. (1-3)</p> <p>We found 114 studies that were relevant to our objective, including 47 (41.2%) RCTs, 49 (42.9%) other experimental study designs, 14 (12.3%) cross-over studies, 3 (2.6%) case studies and cases series, and 1 (0.9%) meta-analysis. Most of the papers were published from Europe or the United States. (5-4)</p> <p>Studies on passive participation in collaborative online learning activities in formal learning contexts have spanned twenty years, from 2002 to 2022. However, the number of studies on this topic is very low, with an annual maximum of only five studies. Studies on participation in online learning spaces are abundant (Martin et al., 2020: 7), but studies specifically investigating passive participation are limited. If a narrow definition is applied, the number of studies on passive participation is even lower. (11-2)</p>
Move 2. Analytical move	
Step 1. Analysis of the coverage and types of research	<p>The review was overwhelmingly dominated by small scale pilot studies that were sometimes limited in their application of educational theory and learning design. (4-2)</p> <p>There is a focus on quantitative research, although, because the available survey instruments were considered insufficient to determine digital literacy, researchers often developed their own. (5-3)</p> <p>In this scoping review, we mapped out the existing VR modalities used in undergraduate medical education, including the characteristics of the VR modalities, target population, tools used in development, educational elements, and the outcomes measured of each VR modality. We found 114 studies that were relevant to our objective. (5-4)</p>
Step 2. Identification of research gaps	<p>Finally, for the most part, the body of instruments lacked both explicit capability building supports and an articulation of the underpinning educational theories, pedagogies and research informed best practices influencing the design of the instruments. (7-2)</p>

	<p>While data analysis, interpretation, and visualization are discussed in almost every theoretical framework and case study, this review found a notable lack of research on the planning and implementation of independent data collection. (14-1)</p> <p>This implies that there is a gap in robot storytelling conceptual model research. (15-2)</p>
Step 3. Identification of dominant trends and directions	<p>In addition to the increased number of publications, the current trend suggests increased quality of published work. Specifically, Fig. 1 (left side) shows a sustained increase in the number of journal publications since 2018. (1-2)</p> <p>Ultimately, however, it must be noted that the endeavor of defining AI literacy is still ongoing. (1-4)</p> <p>This picture suggests that AI is making progress in peer assessment, but there is still a considerable way to go, particularly with automated assignment and automated assessment. Calibration and teamwork effectiveness also merit further research. (2-2)</p>
Move 3. Interpretation Move	
Step 1. Clarifying the significance of the findings	<p>Although the results of this review are preliminary, they provide a different understanding of GenAI's role in modernizing and potentially revolutionizing the assessment landscape in higher education. (2-1)</p> <p>These qualitative insights are crucial in generating deeper, more targeted research questions that propel the field forward, ensuring our approaches in STEM education are responsive to diverse student needs (3-3)</p> <p>Our findings can contribute to the understanding of AI literacy within the teaching profession and set the stage for future research within this topic that acknowledges the intricacies and situatedness of teaching. In the next sections, we discuss the findings we consider most crucial for future consideration of the nature of AI literacy, its background in computer science, the related emphasis on digital resources for teaching about AI and AI EdTech in teaching, and how ethics are reflected. (6-4)</p> <p>This uniformity in findings lends substantial credence to the technology's utility and efficacy across a diverse array of research settings, thereby highlighting its considerable promise as an instructional medium. (15-1)</p>
Step 2. Comparison with other studies (optional)	<p>While mentioning cultural-historical activity theory (CHAT), which like Shanahan (2009), we view is a fruitful theoretical framework for use in future studies due to its ability to connect multiple levels of analysis, Naidoo (2017) did not reference Cole, Engeström, Leontiev, and Vygotsky, whose work contributed to CHAT, nor attend to the subject, object, rules, community, and division of labor components of the theory. (3-1)</p> <p>Second, it seems that still, no consensus existed on the definition and measurement of student engagement among scholars (Appleton et al., 2008; Bond et al., 2020). (4-1)</p> <p>This finding aligns with previous literature suggesting that interprofessional training evaluation methods need to shift to include the assessment of long-term impacts on patient care and collaboration. (13-3)</p>

Step 3. Explaining internal inconsistencies or contradictions (optional)	<p>We had assumed that there would be greater correlation between the thematic groupings and individual criteria; however, this is not the case. We propose that the differences at the criteria level arise from individual institutional priorities, rather than a lack of a shared conception of course quality. (7-2)</p> <p>However, it is critical to note that their analysis spanned the entire range of K-12 education without a specific focus on elementary-aged students, which may account for this discrepancy (15-3)</p> <p>The discrepancy between these findings can be attributed to differences in the scope of the two reviews, as Novak et al. included studies spanning all educational levels. (15-3)</p>
Move 4. Comparison with Previous Reviews Move	
Step 1. Reference to previous reviews	<p>In our review, we came to the same conclusion as Long & Magerko in their seminal AI literacy review (2020), in that AI is a relatively novel research field. (1-4)</p> <p>This decision was made based on a previous review of literature that was completed by Deshpande (2017) who completed an exploratory research that examined journals from 1993-2015. It only made sense to review the literature written since that time to find the most current practices used in online graduate advising. (11-1)</p> <p>In a 2021 scoping review, adapting inpatient rounding models to include an interprofessional team and the patient resulted in improved team and patient satisfaction, and positively affected clinical outcomes.42. (13-1)</p>
Step 2. Comparison of scope and coverage of the current with previous reviews	<p>In contrast, our review focused on mapping games for teaching CR, with 16 of the 19 games being simulation games and escape rooms. (8-2)</p> <p>The field of surgery has produced 33 relevant articles according to a scoping review conducted up until April 2020 [29], while internal medicine has contributed 32 articles by 2018 [30]. (9-2)</p>
Step 3. Identification of emerging or fading themes	<p>However, the findings veered away from Deshpande's sensitivity to cultural issues and pairing of faculties and focused on the need for program knowledge and technical skills. (11-1)</p>
Step 4. Re-evaluation of earlier thematic groupings	<p>This paper changes the theoretical framework for artificial intelligence in peer assessment to six areas: Assigning Peer Assessors, Enhancing Individual Reviews, Deriving Peer Grades/Feedback, Analyzing Student Feedback, Facilitating Instructor Oversight, and Peer Assessment Systems. (2-2)</p>
Step 5. Reinterpretation or reframing of previously identified themes	<p>The pre-AI era primarily involved using computers, basic software applications, and early e-learning platforms. The focus was on computer-assisted learning, which mainly entailed using computers as tools to support instructional processes. Learning management systems (LMS) were used to organise and deliver content, but the focus now is the sophisticated capabilities that AI brings (Osamor et al., 2023). (10-3)</p> <p>Therefore, game genre selection should consider not only efficiency, but stakeholder preferences and contextual factors apart. (8-2)</p>

Move 5. Evaluation Move	
Step 1. Framing the contribution and its limits	<p>Overall, we found that initial groundwork has been laid for research on mental models of AI, but there are a number of research gaps that need to be explored in more detail in the future. (1-1)</p> <p>The findings of our review offer some insight into the research status of interprofessional education interventions towards patient safety. (8-3)</p> <p>With that being said, this study contributes to the growing literature on DSE. The identification of challenges in DSE is a step towards building learning programs that are fit for purpose and address various stakeholders' needs. (15-3)</p>
Step 2. Methodological and procedural limitations	<p>Limitations of this review include the small number of studies that directly deal with teaching first aid and also the large number of articles with closed access, unavailable in full in open access to the public, making it impossible the scope of the content that could add to the discussion of the subject covered in this review. Furthermore, another limitation is the low number of old articles that talk about the subject. (12-3)</p> <p>Whilst the authors attempted to carry out a comprehensive and rigorous search strategy there is always a risk that not all relevant articles were located. In addition, the articles included in the review were limited to those published in English and grey literature was not included. This may have led to the exclusion of some relevant articles. (10-2)</p> <p>When constructing the search term, no wildcards were used, which limited the search of potential fitting literature, which must be specified as a further limitation. In addition, more variants of the job title medical professional could have been used to maximize the search results. Another limitation could be the practical implementation of the selection of papers and their evaluation by just 1 author. Although the procedure was planned as a team, and the results were discussed extensively, the process was carried out by only 1 person. (5-3)</p>
Step 3. Absence of quality assessment⁴.	<p>Furthermore, the quality of the included studies was not assessed as part of this scoping review because a scoping study does not seek to assess evidence quality and, consequently, cannot determine whether studies provide robust or generalizable findings [27,28]. However, this should be mentioned as a limitation of this study. (5-1)</p> <p>One limitation of this literature review is that, because of the very nature of scoping reviews, the quality of the included works was not considered in the review process, and all papers were included in the synthesis, irrespective of quality [14]. This may have led to inferior works being included in the results and being placed on an equal footing with high-quality works. (5-3)</p> <p>In accordance with scoping review methodology, there was no quality assessment of the included articles; thus, the included studies may be biased or incomplete in terms of some of the information reported. (5-4)</p>

⁴ In some cases, the authors, on the contrary, include a limited assessment of quality and then explicitly note this as a deviation from the protocol norm, which also requires rhetorical support.

Move 6. Deduction from the study	
Step 1. Reaffirming the contribution to field of knowledge	<p>This review highlights valuable trends and proposes future research directions in GenAI for both researchers and practitioners. (2-1)</p> <p>The current review adds to the recent body of literature investigating the HyFlex course delivery model. (6-1)</p> <p>The unique application of an academic literacies lens to the findings of studies in the review sample reveals insights that suggest the journey of becoming a pedagogic scholar is more than one just filled with “growing pains” (Kim et al., 2021: 168). (10-1)</p>
Step 2. Emphasizing the need for further research	<p>As an increasing number of medical schools turn toward incorporating VR into their curriculum, there is a need to evaluate these novel VR modalities as well as describe the methods used to incorporate VR into the curriculum. (5-4)</p> <p>Further study regarding the implementations of CQEI would make a valuable contribution. (7-2)</p> <p>As a result, it is suggested that new studies be produced on the topic of first aid in schools, in addition to the democratization of access to existing literature, in order to contribute to evidence for practice. (12-3)</p>
Step 3. (If applicable) Indirect recommendations for policy or practice	<p>As GenAI is here to stay and its usage for learning becomes more popular, higher education institutions need to rethink their assessment policies. This is supported by the three aspects: redesigning assessment policies, new literacy and professional development for teachers, shifting educational focus, and rethinking learning objectives. (2-1)</p> <p>Therefore, teachers should know what technologies/tools students will be using, and choose appropriate approaches when delivering courses. Hence, we suggest organizing a tailor-up professional development program. In the training program, proper use of digital tools and technologies (i.e., AR to boost online interaction), positive psychology, or flexible pedagogy should be prioritized. (4-1)</p> <p>Therefore, when integrating nursing education and the emerging technology, educators should comprehensively consider the strengths and limitations of ChatGPT. Educators and educational institutions should embrace this technology with an open mind and avoid simply banning its use. (5-2)</p>
Step 4. Making specific suggestions for further study⁵	<p>Future reviews are invited to extend the scope of their studies by incorporating other moderating variables as well as to use papers from other sources using other methods of data collection such as snowballing (Wohlin, 2014). Furthermore, the</p>

⁵ Step 2 focuses on the importance and necessity of continuing research in general, as a response to identified gaps. It serves primarily to justify the need for further investigation in certain areas, without specifying how such research should be carried out. In contrast, Step 4 offers concrete suggestions—what should be studied, how, by which methods, and in what contexts. At this point, the author moves beyond merely asserting necessity and begins to articulate possible research trajectories. It is a shift from *diagnosis* to *design*. Step 2 performs an argumentative function, aiming to convince the reader that the existing body of knowledge is incomplete, fragmented, or limited. It serves as a rhetorical lead-in to the deductive component. Step 4, by contrast, fulfills an applied function: the author moves from identifying the problem to proposing potential solutions, thereby advancing the argument. This distinction is especially important in the context of a scoping review, where the logic of argumentation is based not on evidence synthesis but on the structural analysis of the research field. Accordingly, it is crucial first to delineate the gaps and only then to propose how they might be addressed.

	<p>research results for one of the research directions identified here can be synthesized in another systematic literature review. (1-1)</p> <p>A more complex consideration of the relationships among the individual competences, for example, through a factor analysis, would also be conceivable and should be investigated in subsequent research work. (5-3)</p> <p>Future research should focus on determining learning outcomes with respect to content but should also assess interprofessional competencies intended to be addressed by the programs. Ideally, longitudinal and impact data would be collected rather than simply focusing on preknowledge and postknowledge and attitude assessments. (13-3)</p>
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Obligatory and Optional Moves: Frequency of Occurrence

The analysis of the rhetorical structure of the Discussion section enabled us to determine the frequency of implementation of specific moves (Table 4). It is obvious that some of them are more consistent and stable than others. The highest frequency is demonstrated by the moves that are inherent for the genre of scoping review as a tool for mapping a research area. Thus, the analytical presentation of results (Move 2) is registered in all 50 papers, that is in 100% of cases, which allows us to interpret it as an obligatory structural element of the discussion, and a scoping review as a genre is impossible without it. Similarly, the Evaluation move (Move 5) associated with the conducted review limitations proved to be frequent. It is present in 46 out of 50 papers, which is 92%. As a rule, it is located at the end of the Discussion section and serves as a critical reflection, testifying to researchers' integrity and a thorough approach to research.

The Introductory move, which provides a transition between the Results and Discussion sections, is present in 47 papers, that is in 94% of cases. Its primary function is to briefly remind about the review purpose (Step 1) and map the scope of the collected evidence (Step 2). Step 1 is found in 48% of papers, while Step 2 occurs in 76%. Move 6 (Deduction from the study) is also implemented in almost all papers of our corpus, that is 49 out of 50, or 98%; its aim is to provide implications for future research. This fact can be interpreted as an indicator

that papers pay great attention to the field development from the current state to a possible future from the point of view of both research potential and pedagogical recommendations. The level of development of this move varies from generalised statements, such as *more comprehensive research into the MyFlex mode is needed* (6-1), to extended comments on specific research topics, geographical areas, methodologies, e.g. *future reviews are invited to extend the scope of their studies by ...* (1-1); *a future investigation of ... would be a valuable addition to build upon the findings in this paper* (7-2); *further research from a ... standpoint is needed* (4-2).

Much less frequent are the moves that are related to a deeper interpretation and meta-positioning of the review. More specifically, the Interpretation move (Move 3) aimed at explaining the relevance of the certain topics, comparing and contrasting the results with the reviewed papers, or accounting for unexpected discrepancies is found in 30 papers, which constitutes 60% of the corpus. It is most frequently found in the studies that include a clearly formulated research question with an analytical component (34 papers). Move 4 related to comparing the current review with previously published ones on the topic is found in 17 out of 50 papers, which is 34%. As a rule, the absence of this move can be explained by insufficient maturity of the research field and the lack of published reviews, which can serve as a basis for comparison. Even if the reviews exist and are cited by the authors, the

emphasis is usually on comparing the scope and coverage rather than development of the subject area from past to present.

Consequently, the full implementation of all six moves was registered only in 11 out of 50 papers, which is 24% of the corpus. This again highlights the lack of a well-established rhetorical model for the Discussion section. Even in leading journals on Education, the results are presented through a limited number of moves, while the interpretation of results and framing of the discovered trends in previous reviews is either limited or completely absent.

The Logic of Distinguishing between the Rhetorical Functions of Moves

At the stage of categorization and re-verification of coding consistency, special attention was paid to the validity of distinguishing rhetorical phrases as autonomous, non-overlapping units. Despite the thematic proximity of some rhetorical moves, their functions in the Discussion section structure are fundamentally different. This difference is traced not only at the level of the task being performed, but also in the direction of argumentation, the degree of generalization, and the nature of the connection with the data corpus.

Thus, the distinction between Move 2 with an analytical representation of the structure of the research field (Analytical Move) and Move 3 with the interpretation of the identified patterns (Interpretation Move) is based on the difference between description and explanation. Move 2 answers the question of what exactly has been discovered: what topics, methods, and approaches are represented in the corpus and where the gaps are recorded. At the same time, it limits itself to recording, without offering judgments about the significance or reasons for the distribution. In contrast, Move 3 takes the next analytical step: it interprets what has been discovered, explains why certain topics have gained a dominant position, what factors can explain the absence of certain approaches, and how the discovered patterns relate to the broader research context. Thus, Move 2

performs the function of describing the structure of knowledge, and Move 3 - of understanding its scientific relevance.

A separate rhetorical block is Move 4 (Comparison with Previous Reviews Move), aimed at comparing the results of the current review with previous review publications. This comparison is carried out not with individual studies included in the corpus (as in Move 3), but with previous reviews on the topic as genre units. Move 4 thus reaches the level of meta-analysis of the genre, allowing the author to show what novelties his work brings in comparison with already existing generalizations. This distinction is especially important for genre self-determination: if Move 3 remains within the boundaries of the corpus under consideration, then Move 4 allows the text to be positioned as an element of academic dialogue, recording the contribution to the evolution of the scientific description of the field.

Another key transition is from interpretation (Move 3) to recommendations (Move 6. Deduction from the study). Here, the difference is not so much related to the subject of the study, but to its time perspective. Move 3 completes the analysis of the current state of the field, revealing the internal logic of the patterns discovered. At the same time, Move 6 represents a transition to project-based thinking: it is aimed at formulating directions for future research based on the identified gaps. Thus, Move 3 and Move 6 differ in function (explanation vs. forecast) and in focus (analysis of the present vs. orientation to the future).

The distinction between Move 4 and Move 6, despite possible overlaps in the source material (for example, both moves can refer to previous reviews), also maintains rhetorical clarity. Move 4 describes how the field has changed in recent years – which topics have lost relevance, which, on the contrary, have emerged or intensified. Move 6, based on this understanding of the dynamics, proposes concrete steps: which directions require further development, which methods should be adapted, which aspects

should be integrated into subsequent research. Thus, Move 4 records the evolution, and Move 6 projects the trajectory of development.

The final rationale for the rhetorical autonomy of the moves is presented in the table (see Table 5), where each pair of

potentially intersecting rhetorical moves is compared in content, logic, and function. This table serves as a visual confirmation that the proposed rhetorical model is not a mechanical division of the text, but reflects the deep structural and argumentative diversity within the Discussion section of scoping reviews.

Table 5. Differentiation of Rhetorical Functions
Таблица 5. Различия риторических функций

Thematically related moves	Commenting on functional differences
Move 2 (Analytical move) и Move 3. (Interpretation Move)	Move 2 answers the question of <i>what</i> is in the research field and <i>what is not</i> ; Move 3 - <i>why</i> it is important, <i>how</i> it can be understood, and <i>what</i> it relates to. The first move describes, the second - explains.
Move 3 (Interpretation) и Move 4 (Comparison with Previous Reviews)	Move 3 compares the results of the current review with individual studies included in the corpus; Move 4 – with other reviews as genre generalizations, that is, it works at the meta-level.
Move 3 (Interpretation) и Move 6 (Deduction from the study)	Move 3 completes the analysis of the current state of the field; Move 6 makes a logical transition to the future: what steps need to be taken to fill the gaps.
Move 4 (Comparison with Previous Reviews Move) и Move 6 (Deduction from the study)	Move 4 captures changes in the research landscape (e.g. the emergence of new topics); Move 6 builds on this by suggesting specific directions for further research.

Violations of Genre Logic and Rhetorical Deviations

Corpus analysis revealed a number of rhetorical deviations, indicating the genre instability of the scoping review Discussion section. These deviations were found in 21 out of 50 analysed papers, which is 42% of the corpus. The deviations manifested themselves in various forms, but all of them had a common basis, namely, the substitution of rhetorical logic of a scoping review with the logic of a different academic writing genre, such as a systematic review and original empirical research

The most frequent rhetorical deviation was lack of interpretation of the obtained

results alongside with their detailed presentation. It was observed in 20 papers, i.e. 40% of the corpus. In these cases, the Discussion section resembled the Results section, reproducing the same information in an expanded form, but unchanged in content. In this case, the authors of the review often entitle the section as Discussion, without making any effort to build interpretative logic or formulate analytical conclusions. As a result, Discussion becomes a formality, while the text stays incomplete and lacks proper rhetorical development and function being the interpretation of the research field composition and indication of potential research directions.

The second most common rhetorical deviation was shifting the focus from mapping the evidence and building it into the subject area development towards outlining practical recommendations. These recommendations became the central line of 8 papers, which constitutes 16%. It is pivotal to note that overall, 37 papers out of 50 presented practical recommendations based on the results, which did not present a deviation. The violation was observed when all findings, identified trends and topics were presented through the lens of improving instructional design, classroom practices, teacher/student interactions. This focus might be explained by an assumption within the research field of education, which presupposes research-based enhancement of pedagogical practices, but contradicts the requirements of the scoping review as a genre.

The third most frequent violation was inappropriate incorporation of rhetorical strategies typical of a systematic review. This was observed in 9 out of 50 cases, i.e. 18% of papers. In these cases, the authors built into the discussion such elements as reliability and validity assessment of reviewed papers, using terminology and argumentation typical of a critical review of evidence, without specifying such a need in the source selection criteria. For example, there were formulations that implied conclusions about the reliability of data, the strength of evidence, the reproducibility of results, etc. These conclusions, however, cannot be correctly integrated into the logic of scoping review rhetorical development, since the genre, by definition, does not presuppose evaluation of the source's quality and results verification⁶. These rhetorical elements not only violate the genre purpose but also undermine transparency of the author's methodological position by shaping an erroneous conception of the scoping review purposes and attributes.

⁶ The exceptions are the papers in which the authors set out to include these review criteria and stated in explicitly in the Materials and Methods sections. In our corpus such cases were not registered.

The fourth type of deviation was observed less frequently but requires special attention due to its fundamental genre incorrectness. These are the cases in which the authors propose their own hypotheses, form causal relationships and make predictions without solid methodological justification, only based on the analysis of the reviewed publications. Such elements were found in 3 papers (6%). In some fragments the texts approached the format of an original empirical research or even an essay instead of a scoping review. It happened because the authors tried to build their own explanatory models for phenomena and to express their attitude to them instead of systematising and mapping existing approaches. This can be explained by incomplete understanding of the genre and lack of guidance for writing the Discussion section of a scoping review.

It is essential to state that in several papers some moves migrated to other paper sections. The most common examples include adding Deduction from the Study (Move 6) and Evaluation (Move 5) to the Conclusion Section, Limitations (Move 5 Step 2) follow or is included into the Methods; Comparison with Previous Reviews (Move 4) becomes part of Introduction and Related Work. Although these can be journal requirements, the same information acquires a different rhetorical function within the paper and leaves the structure of the Discussion section incomplete. By not building Deduction, Evaluation and Comparison with Previous Reviews into Discussion, the authors fail to present a synthesis of research trends within a topical field based on the past state, through the current development, and to the future prospects. These rhetorical moves have different goals in other parts, namely, reference to previous research in the Introduction section serves as a reason for conducting the current review, Limitations in the Methods section highlight only the methodological aspect excluding other considerations, and Conclusion is aimed at providing closing remarks without focussing

on representing a coherent view of the research field development.

Finally, the logical inconsistency that to a greater or lesser extent disrupted the rhetorical structure of the Discussion sections pertains to the order of information presentation. Being present as a rhetorical unit, moves and steps were occasionally distributed across the section or its sub-sections, which could violate the logical sequence and presented a challenge to the reader. One example is distributing a summary of collected evidence throughout various parts of the section instead of framing it as a single rhetorical unit.

Discussion

This study aimed to describe the rhetorical structure of the Discussion section in scoping reviews published in leading journals on Education. The analysis allowed us to identify and describe a rhetorical model of six functionally distinct rhetorical moves, each of them playing an independent role in the logic of developing a scientific argument. This model allows us to more clearly understand the genre specificity of a scoping review as an independent form of scholarly communication with its own rhetorical organization, structurally and functionally different from both systematic reviews and original empirical research.

The described rhetorical model demonstrates that although most authors confidently implement key genre functions (the description of the research field structure, the indication of existing gaps in knowledge and future research implications), the interpretative and metapositional components often remain either weakly expressed or completely absent. This lacuna is especially indicative in relation to moves that involve analytical comparison with other reviews. Only in 24% of cases in the context of the analyzed corpus was a full set of six moves recorded, while in the remaining texts either omissions of moves/steps or substitutions of rhetorical tasks were observed.

The revealed irregularity of the Interpretation move implementation indicates

a systemic rhetorical lacuna that reduces the genre completeness of the scoping review. Despite the fact that this format does not imply any synthesis of evidence or evaluation of the data quality, the interpretation of the identified patterns, gaps, and directions remains its mandatory component (Levac et al., 2010; Peters et al., 2020; Bouck et al., 2022). It ensures the transition from description to analytical orientation and allows the review to perform the function of scientific navigation, and not just an inventory. The insufficient representation of this rhetorical move in the corpus indicates its undeserved stylistic displacement: interpretation is often perceived as optional, whereas in essence it constitutes the core of research reflection and should be integrated into the structure of the discussion along with the description and predictive conclusions. This perspective has significant implications for the genre identity of the scoping review. When interpretive components are underrepresented, the review risks functioning merely as a descriptive inventory rather than as a theoretically oriented instrument capable of not only documenting the current state of knowledge, but also modelling its prospective development and epistemic trajectories. Thus, the formation of a stable rhetorical model of discussion within the framework of scoping reviews requires not so much normative prescriptions as institutional recognition of the analytical function of interpretation as a central element of scientific communication in this genre.

All the recorded deviations from the described rhetorical model of the Discussion section, despite their outwardly diverse manifestations, have a common basis: the absence of a stable rhetorical model of the Discussion section, purposefully adapted to the purposes and functions of scoping reviews. Moreover, some researchers use the terms “scoping review” and “systematic review” as synonyms. Attempts to integrate argumentative structures borrowed from other genres into the scoping review and to shift the focus to practical significance indicate the

need to develop methodological and genre-rhetorical guidelines that would help authors structure their discussion considering the specifics of the scoping review format. Recent work in genre-based academic instruction highlights the importance of explicit rhetorical modeling not only for writing productivity but also for genre awareness among early-career researchers (Jin et al., 2024). This further supports the argument that genre-specific guidance in constructing the Discussion section is both pedagogically and rhetorically necessary. Only if there is a complete and balanced model, genre integrity, analytical clarity, and internal consistency of the discussion in scoping reviews can be ensured.

These findings are consistent with earlier observations suggesting that, despite the formal institutionalization of the scoping review through protocols such as PRISMA-ScR and the JBI Manual (Peters et al., 2020), its rhetorical conventions remain only partially articulated at the level of genre. As noted by Grant and Booth (2009) and later reaffirmed by Peters et al. (2020), the Discussion section represents the most structurally volatile and genre-vulnerable component of the review: it is precisely here that rhetorical uncertainty most often results in unreflective borrowing from more established formats - particularly from systematic reviews. The results of the present study empirically confirm this tendency. In more than one-third of the analyzed in this research texts, we observed genre displacement in the form of critical appraisals of study validity or interpretive framing of the discussion as if the authors were reporting their own empirical data (both of which fundamentally contradict the mapping-oriented logic of scoping review).

At the same time, the findings also indicate that adherence to a purpose-driven rhetorical structure (where each move and step is explicitly linked to a defined communicative function) serves not only to reinforce genre integrity, but also to minimize

textual redundancy. As shown in Tikhonova et al. (2024), functionally organized academic discourse is inherently economical: it avoids repetition, prevents genre drift, and compels the extracted data to perform rhetorical work within the architecture of the review, rather than remain inertly descriptive. This observation aligns with the rhetorical distinctions identified by Tikhonova (2024) in original empirical research, where each rhetorical move contributes to the epistemic function of the section and strengthens internal argumentative cohesion. In this light, a genre-sensitive model of the Discussion section should be understood not as a formalistic constraint, but as a necessary condition for rhetorical coherence, epistemic transparency, and effective scholarly communication.

Implications

While the structural delineation of rhetorical steps allows for a clearer compositional model of the Discussion section, this alone does not guarantee rhetorical coherence or genre effectiveness. Without stylistically stable and genre-relevant realizations, each step remains abstract and of limited practical value. The corpus analysis revealed that rhetorical moves in published scoping reviews are often incompletely verbalized, confused with other genre elements, or overly dependent on context thus hindering reproducibility and violating the functional integrity of the text.

To tackle this problem, the study devised linguistic patterns aligned with each rhetorical move (Table 6). These patterns were constructed independently of any specific thematic content but are carefully aligned with their communicative function, discursive structure, and typical linguistic realisations. They are not prescriptive clichés, but functionally justified formulations intended to serve as reference points for authors aiming for genre precision and rhetorical consistency when constructing the Discussion section.

Table 6. Functional examples of speech patterns to describe each rhetorical step in the scoping review Discussion section.

Таблица 6. Функциональные примеры речевых моделей для описания каждого риторического шага в разделе «Обсуждение результатов» обзора предметного поля.

Moves and Steps	Speech patterns to describe each rhetorical step
Move 1. Introductory Move	
Step 1. Reaffirming the purpose of the review (and research question, if applicable)	This review was undertaken to examine how inclusive pedagogical practices are conceptualized and investigated within the context of digital education. The aim was to map the thematic range, methodological diversity, and target populations addressed in recent empirical studies, rather than to evaluate the effectiveness of specific interventions. Accordingly, the review was guided by the following question: <i>What types of approaches to inclusion have been explored in digital learning environments, and how are these approaches framed across different educational levels and contexts?</i> This question provided the analytical orientation for identifying dominant patterns and underrepresented areas across the mapped literature.
Step 2. Descriptive summary of the mapped evidence	The review included 74 publications published between 2005 and 2023, the majority of which were peer-reviewed empirical studies conducted in Europe and North America. Most studies focused on the primary and secondary education sectors, with a smaller subset addressing higher education or informal learning settings. Thematically, the literature most frequently addressed technological accessibility, teacher training for inclusion, and student engagement in digital environments. Methodologically, qualitative case studies and mixed-methods designs predominated, while quantitative longitudinal designs were relatively rare. Across the literature, studies tended to emphasize practical implementation over theoretical framing, although several contributions did engage with inclusive education models or sociocultural theory.
Move 2. Analytical move	
Step 1. Analysis of the scope and types of research	The corpus comprised predominantly empirical studies (n=58), with a smaller number of theoretical or policy-oriented contributions (n=16). Most studies were conducted in Western Europe (n=31) and North America (n=22), while research from the Global South was significantly underrepresented. The literature focused largely on primary and secondary education, with limited attention to early childhood or vocational training. Methodologically, qualitative designs (particularly case studies and ethnographic approaches) dominated, while experimental and longitudinal studies were rare. The reviewed works addressed teachers more frequently than learners, and institutional or policy-level perspectives appeared sporadically.
Step 2. Identification of research gaps	Notably absent from the reviewed literature were longitudinal studies that trace the sustained impact of inclusive digital practices over time. Few studies examined early childhood education or informal learning settings. Additionally, there was a marked lack of research focusing on multilingual classrooms, rural schools, and marginalized learner groups such as newly arrived migrants or students with emotional and behavioral needs. Theoretical engagement was also limited, with most studies relying on applied frameworks and very few referencing critical or intersectional perspectives.
Step 3. Identification of pivotal trends and	Across the reviewed literature, a growing emphasis was placed on digital tools as enablers of inclusive pedagogy, particularly in response to the COVID-19

Moves and Steps	Speech patterns to describe each rhetorical step
directions	pandemic. Several studies published after 2020 focused on the integration of assistive technologies in mainstream classrooms. There was also a noticeable shift in terminology, with earlier work centering on "access" and more recent publications framing inclusion through the lens of "participation" and "agency." In terms of research design, the use of practitioner-led inquiry and design-based approaches appeared to be gaining traction.
Move 3. Interpretation Move	
Step 1. Clarifying the relevance of the findings	The strong focus on teacher-centered perspectives observed across the reviewed studies indicates a continuing reliance on institutional and instructional framings of inclusion, while learner-centered or community-based approaches remain underexplored. This imbalance may suggest a narrow conceptualization of inclusive pedagogy within digital contexts, privileging formal settings and teacher agency over more participatory or context-sensitive models.
Step 2. Comparison with other studies (If applicable)	While the majority of studies emphasized teacher readiness and technology access as primary enablers of inclusion (e.g., Author, 2009; Author and Author, 2021), a smaller number of contributions (e.g., Author, 2020) highlighted relational and affective dimensions, pointing to the importance of trust and belonging. This divergence in emphasis reveals the presence of parallel strands within the field, each privileging different operational definitions of inclusion.
Step 3. Explaining internal inconsistencies or contradictions (If applicable)	The divergent findings regarding the impact of digital tools on learner participation may stem from the heterogeneity of study contexts. For instance, studies conducted in urban, resource-rich schools (e.g., Author, 2020) reported positive effects, while those based in rural or under-resourced settings (e.g., Author, 2021) emphasized barriers and limited impact. These inconsistencies likely reflect contextual variables such as infrastructure, teacher digital competence, and administrative support, which shape the implementation of inclusive strategies.
Move 4. Comparison with Previous Reviews Move	
Step 1. Reference to previous reviews	Several prior reviews have examined aspects of inclusive digital education, most notably Author et al. (2018), who focused on policy frameworks, and Author & Author (2020), who synthesized intervention-based studies targeting students with disabilities.
Step 2. Сравнение охвата и предметного поля текущего и предыдущих обзоров	Unlike the review by Author et al. (2020), which focused solely on secondary education, our study includes both primary and secondary levels.
Step 3. Identification of emerging or fading themes	While earlier reviews highlighted issues of access and equity (Author et al., 2019; Author et al., 2021), more recent studies (Author et al., 2019; Author et al., 2021) (including ours) show a growing interest in digital engagement.
Step 4. Re-evaluation of earlier thematic groupings	The three-part categorization proposed by Author et al. (2018) (infrastructure, pedagogy, and policy) no longer adequately captures the thematic complexity of the field. Our review shows that many recent studies operate at the intersection of these domains, particularly in contexts where inclusive practices emerge through hybrid responsibilities. As such, the earlier segmentation may need to be revised in favor of more integrated or multidimensional thematic groupings.

Moves and Steps	Speech patterns to describe each rhetorical step
Step 5. Reinterpretation or reframing of previously identified themes	Although the theme of accessibility remains central, its framing has evolved: whereas earlier studies focused on hardware provision, recent work increasingly addresses cognitive and linguistic accessibility, expanding the concept beyond its infrastructural roots.
Move 5. Evaluation Move	
Step 1. Framing the contribution and its limits	This review contributes to the understanding of how inclusive practices in digital education are currently framed and operationalized, particularly in school-based contexts. However, it does not aim to provide an exhaustive synthesis of all possible approaches, nor does it account for implementation outcomes or intervention effects, which lie beyond the scope of this analysis.
Step 2. Methodological and procedural limitations	The review was limited to peer-reviewed articles published in English between 2005 and 2023. As a result, relevant studies published in other languages or within grey literature repositories may not have been captured. Additionally, the search strategy was restricted to four databases and may have excluded studies using non-standard keywords for inclusion.
Step 3. Absence of quality assessment (If applicable)	Consistent with scoping review methodology, this study did not assess the methodological quality of the included articles. The aim was to map the scope and characteristics of existing research, rather than to determine its evidentiary robustness.
Move 6. Deduction from the Study	
Step 1. Reaffirming the contribution to field of knowledge	This review contributes to a clearer conceptual understanding of how digital inclusion is addressed in contemporary education research, highlighting the multidimensionality and recent shifts in focus.
Step 2. Emphasizing the need for further research	Despite the increasing attention to equity in digital learning environments, studies on low-resource settings remain scarce and largely descriptive.
Step 3. Indirect recommendations for policy or practice (If applicable)	While the aim of this review was not to generate practice-based guidelines, the findings suggest that institutional frameworks for digital equity could benefit from greater alignment with current research on algorithmic fairness.
Step 4. Making specific suggestions for further study	Future research could employ comparative case study designs across socio-economic regions to better capture structural disparities in access and outcomes.

While the proposed typology offers a rhetorically coherent and genre-sensitive structure for the Discussion section, it is important to recognize that the actual layout of articles may be influenced by specific formatting requirements imposed by journals. For instance, the move of Deduction may appear in the Conclusion, or Limitations may be placed within the Methods section. Such shifts do not necessarily eliminate the

rhetorical function of these elements but rather relocate them to other parts of the article. As a result, the typology should be understood as a flexible functional framework that can support authors' rhetorical decisions even when structural constraints are present.

Limitations

This study is subject to several limitations. First of all, the corpus was

composed of articles from the leading educational journals ranked among the top 50 in the SJR index. While this ensures the high quality of the analysed material, it may also limit the generalisability of the findings, particularly to other disciplinary fields. Secondly, the analysis was conducted manually, which, despite a high level of inter-coder agreement, still allows for some degree of subjective interpretation. Furthermore, the study was limited to English-language publications, which excludes from consideration potential cultural and regional features of academic writing in other language traditions.

Despite these limitations, the findings allow us to propose a rhetorical model that may serve as a practical guide for authors, reviewers, and instructors of academic writing. A clearly structured Discussion section enhances not only genre coherence but also analytical argumentation. This is especially important given the growing number of publications adopting the scoping review format. Overall, this study shows that the scoping review genre requires its own rhetorical framework, focused not on the synthesis of evidence, but on the mapping of scientific knowledge. The development of such a framework is an important step towards formalising academic writing standards in rapidly evolving scholarly publication formats.

Conclusion

The present study aimed to systematically describe the rhetorical structure of the Discussion section in scoping reviews published in the field of education. Based on the analysis of a corpus of 50 papers selected from journals in the SJR first quartile, a functionally substantiated discussion model was reconstructed, including six rhetorical moves, each of them implementing a specific task in the genre logic of scoping reviews. The results of the study confirmed that, despite the existence of methodological guidelines for conducting scoping reviews, their rhetorical organization remains

insufficiently regulated. Particularly vulnerable elements appeared to be those related to interpretation, comparison, and prediction, while the description of the field structure and discussion of limitations were performed stably in all analyzed texts.

The proposed model not only describes the current practice of writing the Discussion section in scoping reviews, but also serves as a basis for formulating genre recommendations necessary both for enhancing the rhetorical consistency of such publications and for teaching academic writing. The delineation of rhetorical functions between moves showed that typical errors of authors consist not in the absence of content, but in the violation of genre boundaries, namely, borrowing structures from systematic reviews, the absence of an interpretative component, or the substitution of analytics with a generalization of results.

Thus, the results of this study confirm the need to develop a stable rhetorical model for scoping reviews. Such a model not only contributes to increasing the genre transparency and quality of academic texts, but also strengthens the methodological independence of scoping review as a fully formed academic genre. In the future, it would be advisable to expand the analysis to other disciplines, as well as to study how differences in rhetorical strategies are related to the goals stated in the introduction and the structure of the Results section.

Declaration

This manuscript was refined using AI-assisted tools, specifically ChatGPT 4.0, to improve language clarity and coherence, since English is not native for the authors. AI was used for language editing. However, all conceptual arguments, analyses, and interpretations were developed independently by the authors.

Заявление

Текст рукописи был обработан при помощи инструмента ИИ ChatGPT 4.0 для улучшения ясности и связности языка поскольку авторы не являются носителями английского языка. Разработка концепции,

анализ и интерпретация результатов реализовывались без опоры на ИИ.

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<https://doi.org/10.1016/j.jeap.2022.101212> (In English)

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Appendix 1. Coding Table

	title	article	code
1	Computers and Education: Artificial Intelligence	Marx, E., Leonhardt, & Bergner, N. (2023). Secondary school students' mental models and attitudes regarding artificial intelligence - A scoping review. <i>Computers and Education: Artificial Intelligence</i> , 5, 100169. https://doi.org/10.1016/j.caeai.2023.100169	1_1
		Joksimovic, S., Ifenthaler, D., Marrone, R., De Laat, M., & Siemens, G. (2023). Opportunities of artificial intelligence for supporting complex problem-solving: Findings from a scoping review. <i>Computers and Education: Artificial Intelligence</i> , 4, 100138. https://doi.org/10.1016/j.caeai.2023.100138	1_2
		Su, J., & Yang, W. (2022). Artificial intelligence in early childhood education: A scoping review. <i>Computers and Education: Artificial Intelligence</i> , 3, 100049. https://doi.org/10.1016/j.caeai.2022.100049	1_3
		Laupichler, M. C., Aster, A., Schirch, J., & Raupach, T. (2022). Artificial Intelligence Literacy in Higher and Adult education: a Scoping Literature Review. <i>Computers and Education: Artificial Intelligence</i> , 3, 100101. https://doi.org/10.1016/j.caeai.2022.100101	1_4
2	International Journal of Educational Technology in	Xia, Q., Weng, X., Ouyang, F., Lin, T. J., & Chiu, T. K. F. (2024). A scoping review on how generative artificial intelligence transforms assessment in higher education. <i>International Journal of Educational Technology in Higher Education</i> , 21, 40. https://doi.org/10.1186/s41239-024-00468-z	2_1

	Higher Education	Topping, K. J., Gehringer, E., Khosravi, H., Srilekha Gudipati, Jadhav, K., & Surya Susarla. (2025). Enhancing peer assessment with artificial intelligence. <i>International Journal of Educational Technology in Higher Education</i> , 22, 3. https://doi.org/10.1186/s41239-024-00501-1	2_2
3	International Journal of STEM Education	Zhai, Y., Tripp, J., & Liu, X. (2024). Science teacher identity research: a scoping literature review. <i>International Journal of STEM Education</i> , 11, 20. https://doi.org/10.1186/s40594-024-00481-8	3_1
		Videnovik, M., Vold, T., Kjøning, L., Bogdanova, A. M., & Trajkovik. V. (2023). Game-based learning in computer science education: a scoping literature review. <i>International Journal of STEM Education</i> , 10, 54. https://doi.org/10.1186/s40594-023-00447-2	3_2
		Borrego, M., Chasen, A., Tripp, H. C., Landgren, E., & Koolman, E. (2025). A scoping review on U.S. undergraduate students with disabilities in STEM courses and STEM majors. <i>International Journal of STEM Education</i> , 12, 2. https://doi.org/10.1186/s40594-024-00522-2	3_3
4	Smart Learning Environments	Yang, D., Wang, H., Metwally, A. H. S., & Huang, R. (2023). Student engagement during emergency remote teaching: A scoping review. <i>Smart Learning Environments</i> , 10, 24. https://doi.org/10.1186/s40561-023-00240-2	4_1
		Meenaghan, A., & van Sintemaartensdijk, I. (2024). The use of XR technology in criminal justice teaching and education: a scoping review. <i>Smart Learning Environments</i> , 11, 60. https://doi.org/10.1186/s40561-024-00351-4	4_2
5	JMIR Medical Education	Lie, S. S., Helle, N., Sletteland, N. V., Vikman, M. D., & Bonsaksen, T. (2023). Implementation of Virtual Reality in Health Professions Education: Scoping Review. <i>JMIR medical education</i> , 9, e41589. https://doi.org/10.2196/41589	5_1
		Zhou, Y., Li, S. J., Tang, X. Y., He, Y. C., Ma, H. M., Wang, A. Q., Pei, R. Y., & Piao, M. H. (2024). Using ChatGPT in Nursing: Scoping Review of Current Opinions. <i>JMIR medical education</i> , 10, e54297. https://doi.org/10.2196/54297	5_2
		Mainz, A., Nitsche, J., Weirauch, V., & Meister, S. (2024). Measuring the Digital Competence of Health Professionals: Scoping Review. <i>JMIR medical education</i> , 10, e55737. https://doi.org/10.2196/55737	5_3
		Jiang, H., Vimalasvaran, S., Wang, J. K., Lim, K. B., Mogali, S. R., & Car, L. T. (2022). Virtual Reality in Medical Students' Education: Scoping Review. <i>JMIR medical education</i> , 8(1), e34860. https://doi.org/10.2196/34860	5_4
6	Computers and Education Open	Cumming, T. M., Han, C., & Gilanyi, L. (2024). University student and instructor experiences with HyFlex learning: A scoping review. <i>Computers and Education Open</i> , 7, 100229. https://doi.org/10.1016/j.caeo.2024.100229	6_1
		Schroeder, N. L., Romine, W. L., & Kemp, S. E. (2023). A scoping review of wrist-worn wearables in education. <i>Computers and Education Open</i> , 5, 100154. https://doi.org/10.1016/j.caeo.2023.100154	6_2

		Memarian, B., & Doleck, T. (2024). A scoping review of reinforcement learning in education. <i>Computers and Education Open</i> , 6, 100175. https://doi.org/10.1016/j.caeo.2024.100175	6_3
		Sperling, K., Stenberg, C.-J., McGrath, C., Åkerfeldt, A., Heintz, F., & Linnéa Stenliden. (2024). In search of artificial intelligence (AI) literacy in Teacher Education: A scoping review. <i>Computers and Education Open</i> , 6, 100169. https://doi.org/10.1016/j.caeo.2024.100169	6_4
7	Australasian Journal of Educational Technology	Bowers, P., Graydon, K., Ryan, T., Lau, J. H., & Tomlin, D. (2024). Artificial intelligence-driven virtual patients for communication skill development in healthcare students: A scoping review. <i>Australasian Journal of Educational Technology</i> , 40(3), 39–47. https://doi.org/10.14742/ajet.9307	7_1
		McInnes, R., Hobson, J. E., Johnson, K. L., Cramp, J., Aitchison, C., & Baldock, K. (2024). Online course quality evaluation instruments: A scoping review. <i>Australasian Journal of Educational Technology</i> , 40(2), 55–75. https://doi.org/10.14742/ajet.8978	7_2
		Imam Hossain, S., Kelson, J., & Morrison, B. (2024). The use of virtual patient simulations in psychology: A scoping review. <i>Australasian Journal of Educational Technology</i> , 40(6), 76–91. https://doi.org/10.14742/ajet.9559	7_3
8	Medical Education Online	Tonheim, L. E., Molin, M., Brevik, A., Malene Wøhlk Gundersen, & Garnweidner-Holme, L. (2024). Facilitators and barriers to online group work in higher education within health sciences – A scoping review. <i>Medical Education Online</i> , 29, 2341508. https://doi.org/10.1080/10872981.2024.2341508	8_1
		Koelewijn, G., Hennis, M. P., Kort, M., Frenkel, J., & Thijs van Houwelingen. (2024). Games to support teaching clinical reasoning in health professions education: A scoping review. <i>Medical Education Online</i> , 29, 2316971. https://doi.org/10.1080/10872981.2024.2316971	8_2
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9	BMC Medical Education	Sterpu, I., Herling, L., Nordquist, J., Rotgans, J. I., & Acharya, G. (2024). Team-based learning (TBL) in clinical disciplines for undergraduate medical students—A scoping review. <i>BMC Medical Education</i> , 24, 18. https://doi.org/10.1186/s12909-023-04975-x	9_1
		Zhang, R., Xu, X., Luo, X., & Huang, P. (2024). “Building bridges”—communication education for residents in radiology: a scoping review. <i>BMC Medical Education</i> , 24, 662. https://doi.org/10.1186/s12909-024-05660-3	9_2
		Gamborg, M. L., Salling, L. B., Rölfling, J. D., & Jensen, R. D. (2024). Training technical or non-technical skills: an arbitrary distinction? A scoping review. <i>BMC Medical Education</i> , 24, 1451. https://doi.org/10.1186/s12909-024-06419-6	9_3

		Donkin, R., Yule, H., & Fyfe, T. (2023). Online case-based learning in medical education: A scoping review. <i>BMC Medical Education</i> , 23, 564. https://doi.org/10.1186/s12909-023-04520-w	9_4
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		Lesunyane, A., Ramano, E., Niekerk, K. van, Boshoff, K., & Dizon, J. (2024). Life skills programmes for university-based wellness support services for students in health sciences professions: A scoping review. <i>BMC Medical Education</i> , 24, 1418. https://doi.org/10.1186/s12909-024-06162-y	9_6
10	Journal of University Teaching and Learning Practice	Dobbins, K. (2024). Applying an Academic Literacies Lens to the Scholarship of Teaching and Learning (SoTL): A Scoping Review. <i>Journal of University Teaching and Learning Practice</i> , 21 (5).	10_1
		Killingback, C., Tomlinson, A., & Stern, J. (2024). Compassionate pedagogy in higher education: A scoping review. <i>Journal of University Teaching and Learning Practice</i> , 21 (10). https://10.53761/7yvrw787	10_2
		Mahrishi, M., Abbas, A., Radovanovic, D. & Hosseini, S. (2024). Emerging dynamics of ChatGPT in academia: A scoping review. <i>Journal of University Teaching and Learning Practice</i> , 21 (1).	10_3
11	Online Learning Journal	Meyer, H. S., Preisman, K. A., Samuel, A. (2022). Get connected: A scoping review of advising online graduate students. <i>Online Learning</i> , 26(3), 274-292.	11_1
		Choi, H., & Hur, J. (2023). Passive participation in collaborative online learning activities: A scoping review of research in formal school learning settings. <i>Online Learning</i> , 27(1), 127-157. https://doi.org/10.24059/olj.v27i1.3414	11_2
		Wright, A. C., Carley, C., Alarakyia-Jivani, R., & Nizamuddin, S. (2023). Features of high quality online courses in higher education: A scoping review. <i>Online Learning</i> , 27(1), 46-70. https://doi.org/10.24059/olj.v27i1.3411	11_3
12	International Journal of Educational Research Open	Bulfone, G., Bressan, V., Zerilli, I., Favara, G., Magnano, R., Mazzotta, R., Barchitta, M., Alvaro, R., & Agodi, A. (2024). Nursing students' health literacy skills: A scoping review for driving research. <i>International Journal of Educational Research Open</i> , 7, 100379. https://doi.org/10.1016/j.ijedro.2024.100379	12_1
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13	American Journal of Pharmaceutical Education	Moote, R., Kennedy, A., Ratcliffe, T., Gaspard, C., Leach, E. R., Vives, M., & Zorek, J. A. (2023). Clinical interprofessional education in inpatient pharmacy: Findings from a secondary analysis of a scoping review. <i>American Journal of Pharmaceutical Education</i> , 88, 100617. https://doi.org/10.1016/j.ajpe.2023.100617	13_1
		Soueid, R., Michael, T.J.F., Cairns, R., Charles, K. A., & Stocker, S. L. (2024). A scoping review of pharmacogenomic educational interventions to improve knowledge and confidence. <i>American Journal of Pharmaceutical Education</i> , 88(3), 100668. https://doi.org/10.1016/j.ajpe.2024.100668	13_2
		McLean, M., Bogle, D., Diggins, C., MacInnis, M., MacDonald, A., & Wilby, K. J. (2024). A scoping review of interprofessional education training aimed to improve 2SLGBTQ+ health. <i>American Journal of Pharmaceutical Education</i> , 88 (4), 100683. https://doi.org/10.1016/j.ajpe.2024.100683	13_3
14	Education Sciences	Witte, V., Schwering, A., & Frischemeier, D. (2025). Strengthening data literacy in K-12 Education: A scoping review. <i>Education Sciences</i> , 15 (1), 25. https://doi.org/10.3390/educsci15010025	14_1
		Simon, P. D., & Zeng, L. M. (2024). Behind the scenes of adaptive learning: A scoping review of teachers' perspectives on the use of adaptive learning technologies. <i>Education Sciences</i> , 14 (12), 1413. https://doi.org/10.3390/educsci14121413	14_2
		Pennington, S. E., Tang, J. H., Divoll, K., & Correll, P. (2024). A scoping literature review on parent interactions with teachers and school environments at the middle level. <i>Education Sciences</i> , 14 (12), 1364. https://doi.org/10.3390/educsci14121364	14_3
		Schweighart, R., Hast, M., Pampel, A. M., Rebien, J. A., & Trautwein, C. (2024). Transition into distance education: A scoping review. <i>Education Sciences</i> , 14(10), 1130. https://doi.org/10.3390/educsci14101130	14_4
15	Journal of Information Technology Education: Research	Fokides, E., & Lagopati, G. (2024). The utilization of 3D printers by elementary-aged learners: A scoping review. <i>Journal of Information Technology Education: Innovations in Practice</i> , 23, Article 6. https://doi.org/10.28945/5288	15_1
		Essien, G., & Parbanath, S. (2024). Exploring the world of robot-assisted digital storytelling: Trends, models, and educational implications. <i>Journal of Information Technology Education: Research</i> , 23, Article 27. https://doi.org/10.28945/5378	15_2
		Msweli, N. T., Mawela, T., & Twinomurinzi, H. (2023). Data science education – A scoping review. <i>Journal of Information Technology Education: Research</i> , 22, 263-294. https://doi.org/10.28945/5173	15_3

Appendix 2. Data Extraction Table

<https://docs.google.com/spreadsheets/d/1MXhEICSpcKEuvQlZZtTwHwUMyL3FqSWm/edit?gid=1176978533#gid=1176978533>

РАЗДЕЛ IV ЛИТЕРАТУРЫ НАРОДОВ МИРА
SECTION IV. WORLD LITERATURES

UDC 82.091

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Comparative Analysis of Victor Hugo's *The Last Day of a
Condemned Man* and Leonid Andreev's *The Seven Who Were
Hanged: A Thanatological Study*

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Abstract: As the world modernizes, expectations for the enhanced enjoyment of basic rights often contrast with the reality of their contestation or reinterpretation. The right to life, one of the most fundamental rights, has increasingly been interpreted merely as the right not to be killed. Literature, as a reflection of societal values, offers a unique lens to explore this evolving interpretation of the right to life. This study examines Victor Hugo's *The Last Day of a Condemned Man* and Leonid Andreev's *The Seven Who Were Hanged* through comparative literature and thanatology, focusing on death and the defense of the right to life. Employing a comparative-thematic approach guided by thematology, it incorporates René Wellek and Austin Warren's humanist perspective, Susan Bassnett's interdisciplinary lens, and Sigmund Freud's Eros-Thanatos psychoanalytic framework. The analysis systematically explores key motifs, such as nature, time, and psychological states, and themes of execution and freedom, unveiling death's biological, psychological, and sociological layers. The findings reveal that both authors critiqued the death penalty and upheld life's sanctity within a thanatological context, bridging their unique cultural settings. The study demonstrates how the right to life serves as a unifying force across disciplines, geographies, and cultures, highlighting literature's role in understanding this fundamental right.

Keywords: Comparative literature; thanatology; death penalty; Victor Hugo; Leonid Andreev

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Сравнительный анализ произведений Виктора Гюго «Последний день приговоренного к смерти» и Леонида Андреева «Рассказ о семи повешенных»: танатологическое исследование

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Аннотация: По мере модернизации мира ожидания, связанные с более полной реализацией основных прав, часто вступают в противоречие с реальностью, где эти права оспариваются или переосмысливаются. Право на жизнь – одно из самых фундаментальных прав – всё чаще интерпретируется лишь как право не быть убитым. Литература, как отражение общественных ценностей, предлагает уникальную призму для изучения этой эволюционирующей интерпретации. В данном исследовании анализируются произведения Виктора Гюго «Последний день приговорённого к смерти» и Леонида Андреева «Рассказ о семи повешенных» с точки зрения сравнительного литературоведения и танатологии, сосредоточиваясь на вопросах смерти и защиты права на жизнь. Используя сравнительно-тематический подход, основанный на тематологии, исследование интегрирует гуманистическую перспективу Рене Уэллека и Остина Уоррена, междисциплинарный подход Сьюзен Басснетт и психоаналитическую концепцию Эроса и Танатоса Зигмунда Фрейда. В ходе анализа систематически исследуются ключевые мотивы, такие как природа, время и психологические состояния, а также темы казни и свободы, раскрывая биологические, психологические и социологические аспекты смерти. Результаты показали, что оба автора критиковали смертную казнь и отстаивали святость жизни в танатологическом контексте, отражая при этом свои уникальные культурные контексты. Исследование демонстрирует, как право на жизнь служит силой, преодолевающей дисциплинарные, географические и культурные границы, подчёркивая роль литературы в осмыслении этого фундаментального права.

Ключевые слова: Сравнительная литературоведение; Танатология; Смертная казнь; Виктор Гюго; Леонид Андреев

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Introduction

The right to life is the most natural right of human beings. Although the concept of natural rights dates back to Ancient Greece,

the seventeenth century saw the renewal and modernization of this idea begin to develop. Natural rights are divided into two categories: classical and modern. According to the

classical theory of natural rights, the existence of the state is natural and necessary, and individual lives can be satisfied by fulfilling the duties assigned to them. In accordance with the modern theory of natural rights, the state is artificial, its existence is not absolute, and rights come before duties for individuals (Kaya, 2017: 177). Thomas Hobbes (1588–1679), Baruch Spinoza (1632–1677), and John Locke (1632–1704), who were sixteenth-seventeenth century philosophers, were prominent defenders of modern natural rights. The modern state is also identified as a particular structure that originated in north Western Europe during the same period (Çapar and Yıldırım, 2012: 78). The reason why both natural rights and a modern understanding of the state emerged at the same time was the advancement and emphasis on reason and science. Free thought became a widespread phenomenon, making people more aware of their individual rights.

While the right to life is a legal and philosophical concept, its intersection with death, examined through the lens of thanatology, offers a multidimensional perspective uniquely captured in literature. The subject of death may seem more relevant to the fields of biology and medicine. However, when considered alongside its causes and consequences, the concept is connected to many branches of science, as it includes biological, psychological, psychiatric, and sociological elements (Duday, 2011: 3).

The word thanatology is derived from Greek. It is formed by an amalgamation of the words *thanatos* (θάνατος means death) and *-logy* (-λογία means speaking, discourse, science). Thanatos is the son of Nyx (the Goddess of Night) and the brother of Hypnos (the God of Sleep). As the personification of death, Thanatos represents all destructive, murderous impulses in man. This is the opposite of Eros, who represented creativity and love. In the 1930s, under the leadership of Austrian neurologist Sigmund Freud's (1856–1939) psychoanalytic studies, the word Thanatos was explained in English as an

unconscious self-destructive instinct. Influenced by ancient Greek mythology, Freud claims that the id is driven by two basic drives: Eros (life) and Thanatos (death) (2014: 74). He states that the first is effective in maintaining the life and generation of the organism, and the second drives the human being towards death and destruction. They are constantly at war and the first war in history started between these two drives. But this war is not limited to the human body or mind. It also carries over to societies and states of which humans are members. The main question here is: Who will win the war, Eros or Thanatos? While the idealized answer seems clear, reality often differs from ideals. Therefore, since this internal conflict is inherent to humanity, its outcome, even if not its origin, can potentially be influenced. As a result of the focus on the sporting, cultural, and artistic fields, and the pleasure to be gained from these, it may be possible to reduce the annihilative and destructive effects of Thanatos. This process serves the unifying and constructive power of Eros. Because cultural activities generally involve creating bonds, creativity, and construction, they reinforce the foundations of civilization (Freud, 1962: 68-69). By means of sublimation¹, the energy of Thanatos is thus channeled into creation instead of destruction.

Although medical dictionaries may provide insight into the biological implications of thanatology, a deeper and broader analysis of the term's meaning is necessary. Thanatology is defined in *Webster's Third New International Dictionary* as "the description or study of the phenomena of somatic death" (Gove, 1981: 2367), in *The Comprehensive Dictionary of Russian Language* as "scientific discipline that studies death, its causes, mechanisms and signs" (Kuznetsov et al., 2000: 1305), and in *The Dictionary of French Le Petit Robert* as

¹ Sublimation is one of Freud's defense mechanisms. By using this mechanism a person can channel unpleasurable drives and urges into more useful, productive and socially acceptable behaviours (Gemes, 2009: 38).

“1-study of the different biological and sociological aspects of death, 2- the medico-legal study of the circumstances leading to the death” (Robert, 1985: 1955). Consequently, the word does not deal merely with the concept of death. As seen from the examples, it examines the conditions that cause death and its signs. In short, thanatology encompasses the entire process and mechanism of death

Rather than directly investigating the meaning of life and death, thanatology explores their mechanisms of action and people in action-reaction domains (Narayanan, 2021: 581). Thanatology is a relatively new science and interacts with the economic, political, and social aspects of life, especially medicine. It truly gained a place in psychology after the release of the book *The Meaning of Death* by American psychologist Herman Feifel (1915-2003). According to Feifel (1959: 123), death cannot be ignored because its abstract state in the mind is more tiring and frightening than the realization of the phenomenon. However, what human beings need to do is to realize the value of life while thinking about death and to raise the consciousness of living. Robert Kastenbaum (1932-2013) and Christopher M. Moreman's approach to death is a game-changer. According to this approach, death should not be rejected, but rather accepted. In *Death, Society, and Human Experience*, they use social and behavioral sciences, especially religion, literature, philosophy, art, and history, to better understand the construct of death (Kastenbaum and Moreman, 2018).

In thanatology, death is examined in three ways: biological, social, and psychological. Whereas biological death is defined as the “termination of vital functions in the living body”, sociological death is “the termination of the communication of the living being with its surroundings, independent of the mentioned functions”. This type of death is based on Aristotle's thesis that man is a social being and the acceptance by others that the person is alive. The third way is psychological death, which deals with how

people cope with the concept of death in their minds. Cultural thanatology is born from the coming together of these three types of death. Religious beliefs, cultural patterns, traditions and customs, material and spiritual elements of the soul constitute the components of cultural thanatology. In short, thanatology is everything related to death, the interdisciplinary study of death (Singaram and Saradaprabhananda, 2020: 313).

The phenomenon of death shows existential resemblance to the concept of time. Both exist on the linear plane. They are abstract and resist all attempts to be concretized. The German philosopher Arthur Schopenhauer (1788–1860) read death and time through the idea of abstraction and absence. The famous philosopher believed it was unnecessary to constantly worry about a case and moment that does not exist, and added: “If what makes death seem so terrible to us were the thought of non-existence, we should necessarily think with equal horror of the time when as yet we did not exist. For it is irrefutably certain that non-existence after death cannot be different from non-existence before birth. An entire infinity ran its course when we did not yet exist, but this in no way disturbs us” (Schopenhauer, 2012: 466).

The death penalty is found in *The Code of Hammurabi*, which is considered the beginning of written law in history. Until the Age of Enlightenment, it was executed as the legitimate right of the state to punish criminals. Cesare Beccaria (1738-1794) made serious criticisms of the death penalty in his book *On Crimes and Punishments (Dei delitti e delle pene)*, which eventually led him to be considered the founder of the modern legal system (see Beccaria, 1995). On the other hand, the death penalty has been constantly debated since its emergence. Today, in many countries around the world, especially in America, whether the death penalty is deterrent, what its criteria should be, and whether there are laws that can prevent the execution of an innocent person have become topics of debate. In addition, extra-legal elements such as religion, politics, and

ideology also sometimes influence death penalty decisions to impose the death penalty (Trejbalova et al., 2024: 449).

In the process of developing some common criteria reflecting the changing standards of universal human values in Europe after the First World War, 19th century Russian literature played an important role. From Russian literature, the names of Tolstoy, Dostoyevsky, Gorky and Leonid Andreev (*The Seven Who Were Hanged* (*Рассказ о семи повешенных*) was reprinted many times) came to the fore (Obolenskaya, 2022: 112). Similarly, from French literature, Victor Hugo was included in this context due to his humanist perspective, exemplified in works like *The Last Day of a Condemned Man* (*Le Dernier Jour D'un Condamné*), which anticipated the ethical concerns later echoed by Russian writers in their critique of dehumanization and the death penalty. Hugo, who liked to see his works as works that emerged from his own mind, waged a serious struggle against terrorism and the death penalty, especially after the 1820s (Lunn-Rockcliffe, 2024: 1-2). The abolition of the death penalty, as well as its reintroduction, are still hotly debated by many states in the modern world. Therefore, this study will examine the subject of execution, a shared thematic element in both literary works, with a particular emphasis on the value accorded to human beings and the right to life.

Theoretical Framework

This study is situated within the theoretical and methodological framework of comparative literature. Establishing the foundation for the subsequent analysis of Victor Hugo and Leonid Andreev necessitates a review of key theoretical works within the field. Comparative literature fundamentally involves the study of literature beyond the confines of a single nation or language, examining relationships between literatures across national, linguistic, and cultural boundaries (Remak, 1961: 3; Wellek & Warren, 1949: 46-49). Its origins are often traced to the Enlightenment ideal of 'world literature' (*weltliteratur*), as articulated by

Goethe, which envisioned a global network of literary exchange and understanding.

Early developments in the discipline, particularly associated with the French school, often focused on empirical studies of influence and reception, meticulously tracing historical connections between authors and texts across borders. However, subsequent theoretical discussions, particularly prominent within the American school, considerably broadened the discipline's scope. René Wellek and Austin Warren, in their seminal work *Theory of Literature* (1949: 48, 73, 139), argued against a narrow focus solely on extrinsic factors. They advocated for the intrinsic study of literature, emphasizing the analysis of literary works themselves – including universal themes and aesthetic qualities – while still maintaining a comparative perspective. This paved the way for approaches comparing works based on analogy rather than solely on direct influence.

Currently, comparative studies are most commonly conducted through shared subject, theme, and motif (Aytaç, 2016: 93), and thematology provides a framework for these studies. Thematology, the study of themes and motifs across different literary works and traditions, is central to many comparative analyses and particularly relevant to this study. Scholars such as Paul Van Tieghem, Raymond Trousson, Elisabeth Frenzel Raymond and Harry Levin have explored the methodologies and challenges of tracing how recurring subjects—like the theme of death and common motifs examined in this research—are treated across diverse cultural and historical contexts, revealing both shared human preoccupations and culturally specific nuances. Analyzing the portrayal of the death penalty and the right to life in Hugo and Andreev through a thematic lens facilitates such a cross-cultural investigation.

Furthermore, contemporary comparative literature emphasizes interdisciplinarity, recognizing that literary understanding can be enriched through engagement with other fields of knowledge. Susan Bassnett, in *Comparative Literature: A*

Critical Introduction (1993: 1, 4-6, 10, 31), advocates for this approach, arguing that literature should be integrated with its historical, cultural, and theoretical contexts. Wellek and Warren's humanist approach enables this study to explore how Hugo and Andreev universalize the experience of facing death, while Bassnett's interdisciplinary lens integrates thanatological insights into the literary analysis. This often requires insights from disciplines such as history, philosophy, sociology, psychoanalysis, and thanatology (the latter being employed in this study). This interdisciplinary dimension enables a multi-faceted analysis that moves beyond purely formal literary criticism to explore the complex interplay between literature and broader human experiences and knowledge.

Therefore, this study draws upon these core tenets of comparative literature. It utilizes a comparative-thematic approach, informed by the principles of thematology, to examine the treatment of death and the right to life in the works of Hugo and Andreev. Simultaneously, it adopts an interdisciplinary perspective, integrating insights from thanatology, psychoanalysis, and humanist philosophy. This aligns with the contemporary understanding of comparative literature as a field enriched by dialogue across disciplines. This theoretical grounding provides a robust framework for exploring how these two authors, from different national contexts, engaged with universal questions of life, death, and justice.

Research Model

This study adopts a comparative-thematic and interdisciplinary analysis model to examine Hugo's *The Last Day of a Condemned Man* and Andreev's *The Seven Who Were Hanged* in the context of the theme of death and the right to life. The fact that both works are shaped around the theme of death, their critical approach to the death penalty, and their humanist stance defending the right to life play a role in the selection of these works. The model is grounded in comparative literature, drawing on Wellek and Warren's humanist approach and Bassnett's

interdisciplinary perspective, while enriched by a thanatological framework. The analysis integrates humanist and psychoanalytic methods, addressing the literary portrayal of death through its biological, psychological, and sociological dimensions. Death-related motifs in both works (season, sun, light, sky, flower, color, fat man, clock, mental confusion, unconsciousness, drunkenness, sleep, compressed time) are systematically identified and compared. The handling of the themes of death and the right to life in each work is analyzed. Findings from comparative literature are integrated with a thanatological perspective to present a multi-dimensional portrayal of death. This model aims to illuminate literature's capacity to advocate for the right to life and represent death in a multidimensional manner.

Comparative Literature and Thanatology: Literary Representations of Death in Hugo and Andreev

Since the writers cannot remain indifferent to issues such as death and one's right to life, they frequently include the subject of execution in their works. One such noteworthy writer is Victor Hugo (1802-1885) and another is Leonid Andreev (1871-1919). Hugo wrote *The Last Day of a Condemned Man* in 1829, and Andreev wrote *The Seven Who Were Hanged* in 1908. Hugo's novel tragically describes the last day in the life of a convict sentenced to death by guillotine². The work holds a special place because it is the first story by Victor Hugo written in the first person singular, and the definition of 'miserable', a term frequently used in his novels, first appears in this work. Andreev's work was dedicated to Lev N. Tolstoy, and depicts the last days of seven convicts. The work influenced many writers and revolutionaries during its period. Andreev was also influenced religiously, philosophically, and literarily by Hugo, who left his mark on

² The guillotine is a kind of execution device designed to decapitate the prisoner to be executed. It was first used in 1792 to execute a thief. Considered a 'humane' method of execution, the guillotine continued to be used until 1977 (Clapham, 2010: 210).

the literature of the nineteenth century. He takes the theoretical basis of his book, *The Seven Who Were Hanged*, from *The Last Day of a Condemned Man*. Andreev further diversifies the themes of execution, death, life, and humanity he took from Hugo and carries them to the twentieth century (Iezuitova, 1996: 54).

According to Hugo, both the power to create and the power to destroy belong to God, and so, there is no place for the death penalty in the civilized world that he created. Writing this book was essentially an act of rebellion against the death penalty, and a manifesto for its abolition. This matter of life and death should be decided in the courtroom, not enacted on the gallows. In front of the judge, not the executioner. Hugo gives the prisoner a pen, hoping this act will enable decision-makers to be more conscientious and thoughtful (Hugo, 2016: 72). This was the will of the author himself, rather than that of the protagonist. Hugo could not stand the pain he felt on the topic of execution and wrote his work hoping that it would begin to address the issue. Andreev also rebelled against the death penalty, which the tsarist courts turned into an ordinary event between 1907-1914. The author wrote so skillfully that many people who were alive during those dark years wrote something to Andreev before they died (Bozkaya, 2006: 7). Evidently, writing relieved the psychological pain experienced by both writers. Because the subconscious wants to express feelings such as love, hatred, conflict, anxiety, anger (Holloway, 2023: 814-815). The main reason why both writers wrote their works was their own struggle for existence.

Both works were inspired by real stories, observations, and documents. There was a failed revolution in 1905 which led to a horrific stretch of executions in Russia. In fact, between 1907 and 1914, someone was put to death almost every single day, making the job of the executioner quite tiring. A similar event had taken place in France during Hugo's day, forcing prisoners to wait in line for their own executions. One day, while

walking around the streets of Paris with a friend, Hugo witnessed the execution of a prisoner in Greve Square and immediately fled. This dramatic event deeply affected Hugo, and later spurred him on to write the book.

In Russia, in 1907, Vsevolod V. Lebedintsev (1881-1908), Lev S. Sinogub (1887-1908), Sergey G. Baranov (1885-1908), Aleksandr F. Smirnov (1886-1908), Lidiya A. Sture (1884-1908), Anna M. Rasputina (1874-1908) and Elizaveta N. Lebedeva (1887-1908) socialist-revolutionaries planned to assassinate Ivan G. Shcheglovitov (1861-1918), who served as minister of justice between 1906-1915, and Prince Nikolay Nikolaevich (1856-1929), but they were betrayed by the provocateur-revolutionary Yevno F. Azef (1869-1918). They were all captured and executed on the night of February 17th to 18th, 1908. Despite being executed, they would later be declared 'heroes' of the cause (Gerasimov, 1985: 122-123). These people are given the names Sergey Golovin, Musya, Vasily Kashirin, Tanya Kovalchuk, Verner, Ivan Yanson, and Mishka in the work.

Both works begin by contrasting the general social panorama with the past lives of the heroes, initially portrayed in a way meant to evoke positive remembrance. Hugo's hero is free, has dreams, and is happy. However, after entering the prison, he begins to see the phrase 'condemned to death' everywhere: on the guard's face, on the floor, and on the wall. He even hears it in his ears. In *The Seven Who Were Hanged*, little information is given about the lives of five young assassins, the peasant Ivan Janson, and the gypsy Mishka. Mishka is a murderer and robber because no one gives him a job. He ultimately commits a crime because he is hungry, and is offered the role of an executioner in prison even though he himself killed a person. However, he rejects this job, which could have spared him from his own death sentence. Ivan Yanson is mistreated on the landlord's farm, so he then turns into a thief, rapist, and murderer. All five assassins are young, decent people, but

they take such action to counter the oppressive regime of the time. Both authors seemed to want their audience to understand that their heroes lived ordinary lives before being convicted.

According to Hugo, all of us, without exception, have envisioned or imagined what the last day of a death row inmate might be like. Although we do not express them out loud, fears and thoughts regarding this scene always exist in our subconscious. The starting point of the author in writing his work was his subconscious. Hugo found himself unable to forget the death of the prisoner being beheaded (Hugo, 2009: 4). His agony, the blood pool behind him, and the red color in Greve Square would always be with him. Hugo's main purpose in writing the story is the driven by the psychological need to purge these painful memories that suffocated his soul, as he claimed to feel relieved when he started to write the story (Hugo, 2009: 5). After learning about his death sentence, the prisoner asks for pen and paper as he sees this as a means of reducing his suffering. Andreev, too, was deeply shaken by the executions that began after the 1905 revolution in Russia. Andreev had a strong character of sensitivity to others, often seeking to aid them materially and spiritually as best he could. Their suffering and despair were too much for him to handle. The Russian writer, like Hugo, wrote his work to reduce this inner turmoil and help people. However, to understand why he chose the theme of death while giving this message, it is necessary to look at the author's life. Death is a common subject or motif in many of his other stories as well, including *Once upon a Time* (*Жили-были*), *In Spring* (*Весной*), *Thought* (*Мысль*), *The story of Sergey Petrovich* (*Рассказ о Сергее Петровиче*), *Peace* (*Покой*). Psychological reasons such as sadness over the death of his father, several suicide attempts, and the loss of his wife later in life likely contributed to his persistent focus on death (Krasilnikov, 2006: 92-94).

In 1822, Hugo married Adele Foucher (1803–1868), who was a writer just like him.

Having a more refined perspective on the concept of family, Hugo argued that to kill a prisoner is to shed the blood of his family, and that the prisoner does not die alone (Hugo, 2009: 18). In the words of his hero on this subject: "And after I die, three women who will remain sonless, husbandless and fatherless; there would be three different kinds of orphans, the three widows created by the law" (Hugo, 2016: 75). Such a statement highlights the significance of the family institution. Andreev wrote very highly of his own wife. In one letter, he related his life on Capri Island to his friend Vikentiy V. Veresaev (1867–1945), with the following words: "Until now, there is only one question for me, 'Will I be able to endure the death of my wife?' Of course, I am not talking about suicide, but much more deeply. There are some bonds that you can never break without an irreparable loss to the heart" (1985: 398). The author, who was left alone when he finally became a nuclear family, puts Golovin's farewell to his family at the peak of lyricism in his work. That farewell scene signifies the author's past life, his love for his wife, father, and child.

Two years after their marriage, Hugo had a daughter named Leopoldine (1824–1843). However, she ended up drowning less than two decades later during a trip celebrating their wedding anniversary. The event shook Hugo so deeply that he gave up writing for some time. Likewise, what hurts the heart of Hugo's imaginary prisoner the most is the difficulties his daughter will experience after he dies. Another peak of lyricism in the work comes with the scene on the morning of the execution day, where the prisoner hugs and kisses his daughter and the daughter does not know her father. Because of his changing face, her daughter does not know him, asked about her father, she says, "he died, sir". The prisoner breaks down at these words: "I am not a father anymore!" "Dad! I was condemned not to hear that word" (Hugo, 2016: 140). When the prisoner asks his daughter to pray for him, the girl answers: "I can't, sir. It is not possible to pray

in the daytime. Come to my house tonight, I will pray for you there" (ibid.: 141). Finally, the prisoner asks his daughter if she can read, the girl answers, "I know" and proceeds to read something like "v.e.r. ve. r.d.i.c..." she reads something. The text that the little girl reads is the sentence of her father's execution. At last, the prisoner is ready for anything, including the death penalty. Considering the writing date of the work, it is not a coincidence that the Hugo, who was the father of a daughter himself, chose this scene as the most emotionally intense moment.

In *The Seven Who Were Hanged*, Andreev took Golovin one step further among his heroes and placed him at the peak of the lyricism of the story, an observation that requires further analysis. Daniil L. Andreev (1906-1959) was born to Leonid and his wife on November 2, 1906. However, this joy would be a temporary one as Aleksandra A. Mikhaylovna (1881-1906), beloved wife of the author, succumbed to malaria just three weeks later on November 28. Andreev was devastated and felt as if he was losing his mind. It was so bad that he did not want to see his newborn son. In the work, this event is embodied in the scene of Golovin's meeting with his family while in prison. The colonel's father maintains his composure throughout the interview, but at the moment of separation experienced a viscerally emotional release: "And suddenly his head fell on his son's shoulder, as if he had been severed, broken by the handle. Before, he was taller than his son, now he was short next to him. His white, downy head laying on his shoulder like a white ball. They were kissing each other non-stop. They kissed each other without speaking. The son his father's soft white hair and the father his prisoner's garb were stroking" (Andreev, 1909: 46).

At this point in the work, the author was likely reliving the emotional release of not seeing his child until then and trying to stay strong. With a bit of guilt, he does what he was unable to do for their real son: kisses, and hugs him. The author chose not to describe the ending of this scene, so he concludes with

this remark: "And what happened next cannot and should not be told..." (ibid.: 46). He left it unfinished, just as his own life had been left unfinished after the death of his wife and separation from his son.

In addition, when creating the character Golovin, Andreev was inspired by his own son Daniil. Golovin is healthy, strong, agile, and happy. He enjoys life to the fullest, loves the sun, is pure, clean, naive, romantic, and popular amongst his friends. These positive stem from Andreev's perception of his own son. In real life, Andreev's son Daniil was taken from Berlin by his sister Aleksandra Elizaveta to Moscow, when the writer did not want to see him. Another person who met with his family before execution was Vasiliy Kashirin. As in the previous cases, Kashirin's father did not want to see him either, so only his mother came to visit. Although the author presents the father-son conflict here, the presence of his son is felt in the background. With Kashirin's words "My God, my God! What is this? Even beasts do not act like this. Am I your son or a stranger?" (ibid.: 48). The writer, who seemingly fell once again into the psychology of guilt, demonstrates that his son was in the right. Kashirin feels alone on earth, like a motherless child. He is also the person who fears execution as much as a child, even the most afraid. The expression "staying in limbo" means a dream world, a life of puppets for Kashirin, and a dream, unconsciousness and fainting state for other heroes. As a child, he sees everyone as a toy, a puppet in his imagination. On the morning of the execution, when the people come to his cell to collect him, he is frightened like a child. And when he is told that he must leave, he says: "I will not do it again! I will not do it again!" (ibid.: 71) and retreats to the corner of his cell as if escaping from his father, who would raise his hand and walked towards the boy when he was little.

In recalling this event, he exhibits his suppressed subconscious feelings and reverts to a childlike demeanor to escape the situation. Freud describes this return as the immature defense mechanism known as

regression³. It would not be wrong to say that Andreev attributed his son's childhood to Kashirin and his own youth to Golovin. The fact that Andreev gave only two of the seven prisoners the chance to meet with their families (with a significantly detailed depiction of the interaction) is certainly more than a coincidence, considering what the author had experienced in his own life.

In both works, the first target of criticism is the regime, kingdom/tsardom, and official authority. While they have the opportunity and authority to eliminate these systems, decision-makers want this suffering to continue. Another criticism is directed towards the clergy, as they are always depicted speaking nonsense and reading the same cliché text. Andreev's prisoners do not want to see the clergyman before they are hanged, and Hugo's prisoner does not even want to listen. They are a part of the same corrupt system, and are portrayed as useless because they do not attempt to improve it. The motif of the fat man appears in both works as a type representing the bourgeoisie, the establishment, and the overall brokenness of the system. While Madame de Blinval, the philosopher and the knight represent the bourgeois class in Hugo's work, they cannot even bear to hear the name of the book *The Last Day of a Condemned Man*. In Andreev's work, the target of the assassination is a negative stock character, the fat minister, who represents the regime's ideology.

Before the execution, Hugo's prisoner hears strange voices, which he believes may come from a clock. On the day of the execution, every gong of the clock makes the prisoner shudder. As part of the plot, Andreev builds a clock tower opposite the prison, in which the clock chimes every fifteen minutes. These clocks announce death, not time, and make the reader a partner in this countdown. The death-time relationship has the opposite

vector here. The departure of time heralds the arrival of death. As an abstract concept, time symbolizes a concrete step towards death.

The contrasts of morning and evening and light and dark emphasize the dichotomy of good and evil, serving simultaneously as a metaphorical background. While terrible events happen at night as the hours move frighteningly slowly, prisoners, who rarely see daylight, are happy when they witness a beam of light filtering through the stones.

The motifs of season, sun, light, and the sky provide information regarding the situation and the future. Hugo uses constant cold and rainy weather to portray bad events, while Andreev emphasizes cold and darkness. It is a beautiful and sunny August morning when the prisoner in Hugo's story is brought to trial. However, after he is sentenced, the man exclaims: "The sun, the spring, the fields full of flowers, the birds that wake up and sing in the morning, the clouds, the trees, nature, freedom, life, unfortunately, none of them are mine anymore!" (Hugo, 2016: 74). Andreev's heroes, Golovin and Musya, have no desire to listen to the jurors in the courtroom, instead focusing on the blue sky and sun. Gazing at the sky, Golovin returns to the real world for a moment and remembers the happy days of his youth. However, after the court announces the death sentence against them, the blue color of the sky begins to fade, and the warm summer evening begins to cool (Andreev, 1909: 54).

Mental confusion, unconsciousness and drunkenness can also be considered motifs that evoke death. For Hugo's prisoner, this situation begins after the decision to give the death penalty. In his own words, he explains that it is "between the moment of sleep and the moment of awakening". Thoughts are not clear in the foggy atmosphere that is depicted, and the prisoner sometimes cannot stand it and faints. On the execution day, when they ask him: "Are you prepared?", his eyes go dark, cold sweat pours from his body, his temples begin to beat, his ears fill with a hum, and he finds himself on the verge of fainting. He feels that someone is talking, but is not

³ Regression: According to Freud, if the person is in a difficult situation, he/she can act in more primitive behaviors from lower developmental stages instead of the developmental period he/she is in (Bacanli, 2002: 86).

entirely sure. Mishka, one of Andreev's prisoners, seems to be in drunken dizziness after being imprisoned, his thoughts and dreams collide and become entangled. Golovin shuts off his ears to the outer world to ward off the death sentence. He starts training, but after a while, he understands that it is also useless. Hours before his execution, Golovin falls into a gap between life and death, feeling as if his body no longer belongs to him. Andreev describes this situation as an incomprehensible spirituality that leads to God. After what happened, Golovin calms down again and is filled with energy. On the way to the execution, he calms the people around him, and to give them courage he wants to be the first to be executed. Andreev describes this mood with Musya's words: "How could it not be immortal? He is immortal even in this present moment. How can there be death, how can there be immortality? He is now both dead and immortal, as alive in death as he was when he was alive" (ibid.: 75).

Sleep functions as an additional motif in the work, connoting death. Thanatos (death) and Hypnos (hypnosis), known as the God of Sleep in ancient Greek mythology, are twin brothers. Both brothers live in the world of the dead (Hades). Sleep was understood in Ancient Greece as a temporary death and preparation for the end of life. In fact, various religions and belief systems portray sleep as the brother, twin, cousin, or friend of death. In these two works, the sleep-death brotherhood is quite pronounced. Normally, while sleep is one of the four basic needs alongside food, drink, and sex, it is not an accessible, beautiful, voluntary phenomenon for the heroes. Rather, it is an act they involuntarily engage in. For example, in *The Last Day of a Condemned Man*, when the prisoner goes to court, all the jurors are asleep. For these people, who have the right to speak and make judgments upon the lives of others, sleep is pleasurable and relaxing. At this very point, Hugo could not help but ask: "How could that bitter thought arise out of such sweet feelings?" (2016: 66). And while the judges

feel the purity of Golovin's love and energy for life, Andreev shares that they do not change the death sentence. After hearing the assassination report, the fat minister could not sleep that night despite all his protection and strength. In his ears, "at thirteen o'clock, sir!" sentence keeps ringing because he is hours away from his possible death. Ivan Yanson also sits timidly on the stool at night, but is unable to sleep. In these works, sleep functions as a motif closely associated with the negativity and finality of death. Heroes want to live the compressed time to the fullest. The fundamental right, the right to life, prevails over the basic need of sleep.

One of the most important motifs in the work is compressed time, in other words, the certainty of death. Freud saw death as the purpose of life. According to him, everyone has the subconscious idea that he or she is immortal. Because there is no concept of time in a person's subconscious, there is no thought that time passes quickly (Drobot, 2021). For this reason, the human mind gives neurotic reactions to this compressed time because it is not accustomed to it. For example, in Andreev's work, the fat minister receiving the report of the assassination becomes very angry and the prisoners, whose execution days are approaching, feel themselves somewhere between a state of consciousness and unconsciousness. This is what destroys and devours the prisoners. As Hugo's prisoner said: "all men are doomed to a predetermined death" (Hugo, 2016: 68). However, the certainty of the last day to be lived and the fact that a new day will not dawn transports a person to an unfamiliar state between life and death. And man does not know how to live there, because he is a foreigner in such a land. The guards and jailers talk about the prisoners as if they were things because they were on their way to an existence that excluded life. Sensing this, Hugo's prisoner says to the bailiff, who angered him on the day of his execution: "don't be afraid, I don't have time to hold grudges anyway" (ibid.: 107). In another chapter, the prisoner wants to scribble

something after meeting with his daughter, but he gives up because he has only one hour left. In the first pages of *The Seven Who Were Hanged*, the minister is isolated from the concept of time after learning that there will be an assassination. The concepts of time and meaning undergo a massive shift in his mind. He notes that there is no reason to drink coffee and wear a coat on such a day, and he sees the soldier waiting at his door as a clean-cut man, well-mannered, with beautiful blue eyes. More precisely, the observing individual's focus is immediately and exponentially strengthened because of the following question: "What if death comes and finds me hours later?" For a minister, although he has so much protection and power, although his death is not certain, hours become so worthless, and life becomes so meaningful and valuable. The big fat minister turns into an ordinary, angry, old man who feels naked and vulnerable. The respect, majesty, and glory around him become but empty tins. What about people who have no power, whose death sentence has become definite, and who have been waiting for death for days in a cold and dark cell, away from their loved ones? Andreev makes this clear through the minister's monologue: "They have told me the truth now, I know the situation, therefore I'm afraid of it... But if I hadn't known, I would have enjoyed my coffee, yes, without knowing anything. Then... my dear, what will happen next? ... death... But am I that afraid of death? My kidneys are already sick, it hurts... Someday I will die somehow, but I am not afraid because I do not know when I will die. Furthermore, those fools explained to me: 'At one o'clock in the afternoon, your Excellency!'" (Andreev, 1909: 11-12).

Hugo's prisoner's departure from his cell, his final glance back, his departing look when leaving the courtyard, and the old man saying "*see you again*" to him in front of the infirmary are among the moments that reach the peak of lyricism. Andreev's execution scene is another pinnacle of lyricism. Decomposed corpses cover the ground.

However, the sun rises, life continues, the survivors came from the same route, and the execution squares await their next victims.

Just before the execution, Hugo's prisoner remembers his childhood and recalls good memories. He even falls asleep for about an hour and is woken up when his daughter arrives. After meeting with his daughter, he feels ready to be executed. Until the last moment, he hopes that maybe amnesty will come, but this hope is in vain as his head is cut at exactly four o'clock. Ivan Yanson, one of Andreev's inmates, believes that the longer the execution is delayed, the better. Even up until the very last moment, he does not extinguish the glimmer of hope in case the execution is abandoned.

Hugo depicts humans being stripped of value when the prisoner is stopped at the entrance to the city center of Paris on his way to death. The customs officers inspect the car and say "go", taxes would have to be paid. When he arrives at the Courthouse, he is handed over to the principal by the bailiff, which the author likens to an exchange of goods. At the time when the countdown begins, the architect enters the room with a tape measure and says, "My friend, this prison will be better in six months" (Hugo, 2016: 125). The gendarme responds that one shouldn't talk so loudly in a dead man's room (ibid.). This dialogue is meant to force the reader to witness an inhuman conversation before an inhuman punishment. Just as he calms down, the gendarmes change their guard and the new gendarme says: "Excuse me, I think you're going to kick the bucket today. It is said that the dead can foresee the lottery results. Will you promise to come to me tomorrow night?" (ibid.). In Andreev's story, the people who are tried in the courts are statistically there, it does not matter whether or how they die. In other words, while they have value statistically (as mathematics), they are not valued as humans.

In both works, all prisoners are well taken care of up until death. They do not give Hugo's prisoner a knife or fork to prevent him from hurting himself. They even talk in a

more subtle tone on the last day and ask if he wants breakfast. Additionally, the warden of the prison comes to visit and calls him 'monsieur' for the first time. Andreev's prisoners eat and drink well on the day of execution as well. But all these services are not done because they are loved. Surviving until the appointed date of the execution signifies their submission to the decision that was passed down regarding when they must die.

Both works saw vast repercussions after their publication. For instance, Hugo's work inspired public debates on the death penalty in France, while Andreev's fueled revolutionary critiques of Tsarist executions in Russia, and sparking public debate and forcing the issue into the collective conscience. The main themes are the value given to human beings, the death penalty, and the freedom to live. According to the authors, no crime requires an execution because the person to be killed is first and foremost a human being, and even he deserves to live life to the fullest. Of course, confinement is important, but what the authors are trying to emphasize is the right to life and mental freedom. When Hugo's prisoner is due to appear in court, he does not even seem to realize that his handcuffs have been removed because he is mentally imprisoned. He also strongly opposes his lawyer's request in court to convert the death penalty to a life sentence. He says that bodily pain does not mean anything besides spiritual pain. Andreev's prisoners do not fear death either because they chose the mental infinity rather than the bodily. As a result, death is criticized in both works, but among physical and spiritual death, the main criticism is spiritual, in other words, the taking away of freedom and the right to live from people.

Conclusion

In our study, we brought together the sciences of comparative literature and thanatology. Since the common subject of both is humanity, we wanted to draw attention to the problem of death penalty through these two different sciences. Although written in different years, places, and by different

authors, *The Last Day of a Condemned Man* and *The Seven Who Were Hanged* served the same purpose. Valuing all people while they live, abolishing the death penalty, and not taking away the right to live under any circumstances were the chief motivations and messages of the books.

Hugo and Andreev's works converged in purpose, message, and worldview, rooted in lived experiences and shaped by their creators' subconscious reflections. Emerging from authentic stories, Hugo's witness to an execution and Andreev's response to Tsarist brutality, these texts blended autobiographical elements with a humanist ethos. The theoretical framework, leveraging Wellek and Warren's humanist approach, enabled an exploration of how both authors universalized the condemned's final moments, while Bassnett's interdisciplinary perspective integrated thanatology, psychoanalysis, and philosophy into the analysis. Through the research model's comparative-thematic lens, informed by thematology, we examined motifs such as season, clock, and compressed time, alongside themes of execution, freedom, and human worth. This approach transcends legalistic debates and reveals literature's capacity to advocate for life amid mortality, delving into death's philosophical, psychological, and societal dimensions.

Humanism anchored both narratives, mirroring Hugo and Andreev's inner worlds as they confronted death's inevitability and affirmed life's sanctity. The study illuminated the psychological tension between Eros and Thanatos, a framework that underscores their portrayals of condemned individuals facing execution. Within the Research Model's interdisciplinary design, thanatology, defined not as a science of killing but of death's mechanisms, enriched this analysis by exploring mortality through biological, psychological, and sociological lenses. Integrated with comparative literature's humanist, positivist, and psychoanalytic methods, it highlights how these authors support Eros over Thanatos, emphasizing the instinct to live and the right to life. Ultimately,

this interdisciplinary synthesis deepened our understanding of death's literary representation and reinforces the timeless significance of the right to life as a universal human imperative, uniting disciplines, cultures, and geographies in a shared affirmation of humanity.

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Don DeLillo's Myth of the Underworld

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Abstract: This study strives to examine Don DeLillo's reinvention of the underworld myth in his magnum opus *Underworld*, demonstrating how the novel transposes classical *katabasis* (descent into the underworld) and *nekyia* (invocation of the dead) into a modern socio-political and psychological framework. Through a fragmented narrative structure, DeLillo constructs the underworld as a liminal space where repressed histories, ideological forces, and systemic anxieties converge. Interweaving intertextual references – from Bruegel's *The Triumph of Death* to Dostoevsky's *Notes from Underground* and T.S. Eliot's *The Waste Land* and *The Hollow Men* – the novel interrogates the subterranean forces that shape contemporary existence. Central to this exploration is DeLillo's treatment of waste, both material and symbolic, as a signifier of cultural entropy and historical erasure. This study argues that *Underworld* redefines the mythic underworld not merely as a metaphor but as an epistemological site where dominant power structures are exposed and subverted through an intricate dialectic of concealment and revelation. Unlike prior scholarship, which situates *Underworld* within Cold War historiography or postmodern historiographical critique, this research foregrounds its mythological dimensions, tracing how DeLillo appropriates and reconfigures ancient descent narratives to critique modernity's crisis of memory, control, and ideological stratification. Ultimately, *Underworld* challenges linear historical frameworks, offering a counter-history that amplifies the voices of the forgotten and destabilizes the boundaries between past and present, surface and depth, official record and suppressed truth.

Keywords: Underworld; Myth; New York subway system; *Katabasis*; *Nekyia*; *Underworld*; DeLillo; *The Triumph of Death*; Waste; Plutonium; Narrative fragmentation

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Статья поступила 29 августа 2024 г.; принята 15 июня 2025 г.;
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Аннотация: Настоящее исследование рассматривает переосмысление мифа о подземном мире в романе Дона Делилло *Подземный мир*, демонстрируя, как автор трансформирует классические *катабасис* (нисхождение в подземный мир) и *некийю* (призывание мертвых) в современный социополитический и психологический контекст. Посредством фрагментарной нарративной структуры Делилло конструирует подземный мир как лиминальное пространство, в котором сходятся подавленные исторические пласты, идеологические силы и системные тревожности. Переплетая интертекстуальные отсылки – от *Триумфа смерти* Брейгеля до *Записок из подполья* Достоевского, *Бесплодной земли* и *Полых людей* Т. С. Элиота – роман исследует глубинные, скрытые механизмы, формирующие современное бытие. Центральным аспектом данного исследования является трактовка Делилло отходов — как материальных, так и символических – в качестве знака культурной энтропии и исторического забвения. В отличие от прежних исследований, помещающих *Подземный мир* в рамки историографии холодной войны или постмодернистской критики историописания, данная статья акцентирует мифологическое измерение романа, выявляя, как Делилло заимствует и переосмысляет нарративы нисхождения в подземный мир для критики кризиса памяти, контроля и идеологической стратификации в условиях модерности. В конечном итоге *Подземный мир* ставит под вопрос линейные модели исторического осмысления, предлагая контр-историю, которая усиливает голоса забытых и дестабилизирует границы между прошлым и настоящим, поверхностью и глубиной, официальным дискурсом и вытесненной истиной.

Ключевые слова: Подземный мир; Миф; Система метро Нью-Йорка; Катабасис; Некия; *Подземный мир*; Делилло; *Триумф смерти*; Отходы; Плутоний; Фрагментация нарратива

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Introduction

Over the course of its millennia-long history, the notion of the underworld, or subterranean realm, has evolved into a multifaceted construct, rich with implications and references that permeate the domains of religion, social and political order, popular culture, art, politics, and urbanism. This concept has accrued a vast network of associations that shape the cultural imagination, generating an expansive and often ethically and emotionally divergent array of images, metaphors, allegories, and symbols. This cultural imagination is not merely an intellectual construct; it embodies an existential dread that permeates myths and literature alike. As T. S. Eliot famously writes in *The Waste Land*, “I will show you fear in a handful of dust” (Eliot, 1948: 42), capturing the deep-seated anxieties surrounding decay, transience, and the inevitability of loss – concepts central to the mythology of the underworld. In many traditions, descent into the underworld is not only a journey through physical or mythic landscapes but also a confrontation with the very nature of mortality and the fragility of human existence. Almost all world mythologies and religions, whether ancient or still practiced, include conceptions of the underworld, varying in complexity and detail. These conceptions encompass its topography, the nature of existence within it, and the structure of its inhabitants, presenting it as either one of, or the sole, otherworldly realm, distinct from the visible aspects of life on earth. Predominantly, the underworld is conceived as the domain of what persists beyond human life, though in certain traditions, it also encompasses what precedes human existence. Although designated for the afterlife, the underworld is never absolutely and invariably separate from this world. This is evidenced by the widespread cultural practices of honoring the dead, rituals that periodically renew the symbolic connection with the deceased, particularly ancestors, and the various beliefs in spirits or other forms of presence/return of

the dead. Additionally, numerous rites of passage or initiation into higher states of existence or different age, status, or professional categories involve symbolic death, a psycho-physical state representing temporary death and a temporary sojourn in the world of the dead.

The significance of symbolic death in initiation processes, as well as in the philosophical-psychological concepts of influential thinkers such as Jung and Hillman, underscores the ambiguity and evaluative ambivalence of death/the death drive and the underworld. This realm is simultaneously terrifying and repulsive, yet also fruitful, maintaining a connection with the creative and life-giving forces symbolized by the earth and its interior. Without delving into the specifics of numerous world mythologies and religions, whose conceptions of the underworld often have multiple versions, it can be observed that for all these traditions, if the world of the dead is equated with or partially situated in the underworld, there are commonalities. These include ritualistic, recurring journeys through the underworld – where death for the deceased is not immediate but, as in Orphism or Buddhism, a kind of adventure and journey – as well as individual descents into the underworld on a mission, such as those of Odysseus, Aeneas, Enkidu, Osiris, and Christ. These journeys are typically referred to by the ancient Greek term for descent – *katabasis*.¹

¹ Joseph Campbell's *The Hero with a Thousand Faces* outlines the monomyth, or hero's journey, which consists of stages such as the Call to Adventure, the Descent into the Underworld, and the Return. In *Underworld*, DeLillo reworks this mythic structure in a postmodern context, using fragmented narratives and historical layers to explore America's collective subconscious.

Nick Shay, the novel's central figure, can be interpreted as an anti-hero navigating a metaphorical underworld. His journey involves a descent into the past, revisiting traumas, moral ambiguities, and the Cold War's shadow. Instead of the traditional hero's quest leading to enlightenment, Nick's journey exposes the disintegration of meaning in a media-saturated world. The “underworld” here is not just a

In this latter case, the descent into the underworld is undertaken to retrieve something – knowledge or objects symbolizing enlightenment, initiation into secret knowledge, revelation, and the like – or to bring someone back to the earth. While many literary works, particularly those from antiquity and the medieval period, depict the underworld and *katabasis* directly, drawing characters, situations, and episodes straight from mythology and religion, there is also a significant number of works that evoke these elements indirectly. These works use imagery with connotations and allusive potential to evoke the sense of the underworld in the reader, employing depictions of descent, well-known symbols of chthonic worlds and their deities, encounters, and other events that suggest or invoke similar elements of mythic descent.

Among the works that portray *katabasis* literally, not only do *The Odyssey* and *The Aeneid* play crucial roles as the most famous and influential models, but a series of so-called Menippean satires also contribute significantly. These satires often involve a fantastical journey, with the underworld frequently serving as the setting, an alternative realm through which the real world is subjected to satire. This tradition offers parodic, burlesque, and farcical versions of *katabasis*, using the theme to scrutinize, relativize, and ironize, demystifying power, knowledge, established values and attitudes, and the social and political order.

psychological or mythical space but also a historical and cultural one, filled with nuclear anxieties, waste, and lost time.

Campbell's notion of the *belly of the whale* – where the hero is swallowed into darkness before transformation – resonates with Nick's existential reflections, particularly in his return to the Bronx and his entanglement with waste management, a symbolic purgatory of discarded histories. However, DeLillo subverts the final stage of Campbell's journey, the Return with the Elixir. Instead of bringing wisdom back to society, Nick remains in an unresolved, liminal space, mirroring the entropy and instability of the world around him (cf. Campbell, 2008).

We must also bear in mind that modern writers incorporate mythic images and symbols into their works, along with specific modes of understanding and interpreting myths and mythology in general. These authors not only recontextualize and reinterpret specific myths or mythemes but also connect these mythemes to cosmic forces, abstract spiritual principles, psycho-physical processes and phenomena, social and political events, etc. This can be done either to build upon and extend certain interpretations or to scrutinize or parody them.

Originally, the mythological and religious concept of the underworld was based on the practice of burying the dead in the earth. Over time, however, the underworld (underworld, underground, subterranean) came to metaphorically represent other hidden, largely invisible worlds. It symbolizes realms of immorality, crime, and illicit activities, reflecting the fact that the haunts of criminals were, and sometimes still are, located in “underground” structures such as basements, tunnels, and catacombs. As “underground,” the term also refers to genres and forms of popular culture that emerge independently of major institutions, production-distribution chains, and corporations. In this context, the opposition between mainstream and underground is metaphorically based on geological and hydrological concepts, suggesting not only life beneath the earth's surface but also underground water and streams, which in many mythologies – whether as a source to be drunk from, a lake, a river, or a boundary to be crossed – play a significant role in the topography of the underworld.

Additionally, various natural or artificial underground forms – caves, tunnels, catacombs, subterranean corridors, crypts, as well as atomic shelters and other post-war hideouts stemming from fears of nuclear or similar catastrophes – are inseparable elements of histories filled with secrets. These include political, religious, romantic, or clandestine operations and organizations, whether involving secretive power plays or

subversive, sectarian, illegal, heretical, or adulterous activities. In the novel under discussion here, the term explicitly refers to social, cultural, class, racial, ideological, and gender stratifications and the relative positions of different groups and classes.

Although Freud's most famous metaphor for the human mind is the iceberg, the underworld is also a common psychoanalytic metaphor for the subconscious, particularly in the works of C. G. Jung and his followers. For instance, for Hillman, descent into the underworld represents a necessary journey: "underworld is psyche," and to understand it, the dominant aspect of the self, the ego, must die (Hillman, 1979: 46). Hillman's view of the human psyche does not aim at the fulfillment, strengthening, or regeneration of ego wholeness but rather its desubstantialization and dispersion – an idea that aligns with postmodern notions of subject and identity. According to Hillman, Hades represents a "shift in consciousness" (Hillman, 1979: 66) and a radical plunge into the meaning of death itself, not merely as physical demise but as the immanent presence of inherent oppositional psychic forces that cannot be co-opted by consciousness and must not be neutralized through rationalization and interpretation. Dreams, in this context, are one way to descend into the underworld, reaching deeper than the repressed individual layers.

The underworld as an existential state, depicted dramatically by F. M. Dostoevsky in his novel *Notes from Underground*, portrays a torturous, anxious, and irresolvable condition of the human spirit and mind entangled in doubts and contradictions. The underground man himself states, "I am a sick man... I am a wicked man. An unattractive man. I believe my liver is diseased", immediately establishing his alienation from society and his descent into self-destructive introspection (Dostoevsky, 1961: 3). This psychological entrapment mirrors the motif of katabasis, where descent into the underworld signifies confrontation with one's own fragmented self. Dostoevsky's protagonist further reflects: "to

be overly conscious is a sickness, a real, thorough sickness", reinforcing the idea that excessive self-awareness leads to paralysis and existential torment (Dostoevsky, 1961: 5). This depiction of the human condition has resonated widely, notably influencing Albert Camus, who redefined the fate of one of the mythological inhabitants of the Greek Hades as a universal image of human destiny. In *The Myth of Sisyphus*, Camus states, "The struggle itself toward the heights is enough to fill a man's heart. One must imagine Sisyphus happy" (Camus, 1955: 78).² This notion transforms the underworld from a space of punishment to one of existential defiance, where meaning is derived not from external salvation but from individual perseverance. Camus, in direct contrast to Dostoevsky, rejects divine redemption, instead suggesting that "There is no fate that cannot be surmounted by scorn" (Camus, 1955: 77). Thus, while Dostoevsky's underground man remains trapped in his own self-conscious despair, Camus' Sisyphus finds meaning in the very act of resistance against his fate. In the twentieth century, this recontextualized and reevaluated Plato's image of the earthly world as an underground cave, a famous allegory from *The Republic*. Plato's cave, where prisoners, shackled in place, mistake shadows for reality, serves as a foundational metaphor for the limitations of human perception. As Plato describes, "Anyone who has common sense will remember that the bewilderments of the eyes are of two kinds, and arise from two causes, either from coming out of the light or from going into the light" (Plato, 1979: 376).³ According to this tradition, an inverted relationship between two planes of existence is posited, with the

² Here, Camus transforms the eternal torment of Sisyphus into a metaphor for the human condition, making the relentless struggle—whether for meaning or purpose—into a defining aspect of existence.

³ This duality is evident in both Dostoevsky's and Camus' works—where the underground man recoils from illumination, embracing his exile, while Camus' Sisyphus, though condemned to darkness, finds personal meaning in his defiance.

underworld depicted as the normal mode of human existence – an entrapment in a world of bodiless, insubstantial, yet deceptive and alluring shadows, representing ontological and epistemological inferiority (Plato, 1979: 177–178).

Thus, the underworld no longer merely signifies the realm of the dead but also denotes certain phenomena and aspects of earthly life. Specifically, it represents unique forms of human existence on earth that, in relation to dominant forces and official, desirable, or imposed orders – both socio-political and psychological-spiritual – contravene conventional, ingrained, majority-held beliefs. These phenomena represent the “other,” the unrecognized, secret, prohibited, suppressed, and hidden aspects of life.

The purpose of this study is to examine how DeLillo’s *Underworld* repurposes the classical underworld myth, incorporating elements of *katabasis* and *nekyia* to explore themes of memory, historical erasure, and ideological structures. By analyzing the novel’s engagement with intertextual references and its depiction of waste as a metaphor for cultural entropy, this research aims to contribute to the broader discourse on mythological adaptation in contemporary literature. Unlike prior scholarship, which primarily situates *Underworld* within Cold War historiography or postmodern historiographical critique, this research foregrounds its mythological dimensions, analyzing how DeLillo appropriates and reconfigures ancient descent narratives to critique modernity’s crisis of memory, control, and ideological stratification.

The primary **research material** consists of Don DeLillo’s *Underworld*, a novel that intricately reconfigures classical myth through a fragmented, multi-perspective narrative. Additionally, the study engages with a range of intertextual sources, including Bruegel’s *The Triumph of Death*, Dostoevsky’s *Notes from Underground*, T. S. Eliot’s *The Waste Land* and *The Hollow Men*, Homeric and Virgilian descent narratives, and psychoanalytic interpretations of the

underworld by thinkers such as Jung and Hillman. By situating DeLillo’s work within this broader literary and philosophical tradition, the paper seeks to illuminate the novel’s complex reimagining of subterranean spaces as both literal and metaphorical landscapes of cultural entropy.

This study employs a **multidisciplinary methodological approach** that combines intertextual analysis, literary close reading, mythological criticism, and psychoanalytic theory. Through intertextual analysis, the research identifies how DeLillo engages with and transforms classical and literary antecedents, drawing from ancient descent narratives and modern reinterpretations of the underworld. Close reading is employed to analyze the novel’s intricate narrative structure, fragmentation, and symbolic motifs – particularly its treatment of waste, decay, and liminality.

The mythological framework is informed by classical katabasis narratives, examining how DeLillo reconstructs the journey to the underworld as a meditation on historical and ideological amnesia. Additionally, the research incorporates psychoanalytic theory, particularly Jungian and Hillmanian perspectives, to explore the underworld as a representation of the repressed unconscious – both individual and collective. Furthermore, this study engages with postmodern historiographical perspectives, investigating how *Underworld* destabilizes linear historical narratives and challenges official memory structures.

By synthesizing these methodologies, the research not only situates *Underworld* within contemporary mythological discourse but also elucidates its broader implications for literary and cultural studies, particularly in its critique of ideological formations and its reconceptualization of historical memory.

Results and Discussion

DeLillo’s reinvention of the myth of the underworld in *Underworld*

DeLillo’s magnum opus *Underworld* (1997), among others, demonstrates not only

the relevance of thinking about the underworld in the contemporary world but also the proliferation of these “other” realms within the one we believe we inhabit. These worlds are shaped by forces of power and control, rebellion, resistance, or fear and retreat into invisibility. Therefore, we can argue that this descent into the underworld, akin to Plato’s, becomes an ethical-political obligation (cf. Plato, 1979: 180-181). However, the meaning of this obligation has evolved – it is no longer about illuminating the underworld with the light of reason and true knowledge but about encountering one’s own cultural-historical and collective underworld. Through dense, almost ethnographic yet fragmentary descriptions of various aspects of everyday life in America in the second half of the twentieth century, Don DeLillo, in *Underworld*, explores the ethical, ideological, psychological, and anthropological meanings and consequences of the omnipresence of the underworld.

In *Underworld*, which encompasses much of DeLillo’s previous work and reflects his fascination with the underworld in various forms, allusions to the underworld emerge as early as the prologue, through Pieter Bruegel the Elder’s painting *The Triumph of Death*. In the painting itself, fragments of which are described as falling onto FBI director J. Edgar Hoover, there is not a descent into the underworld but rather an “overflowing” or inversion of the earth/hell, a return of the dead. Hoover’s association between the entrance to hell and the entrance to the subway, with which he begins to imbue the image of a sixteenth-century painter using medieval iconography and a preoccupation with death, reflects his era, personal phobias, and premonitions. Later in the novel, this interpretation is affirmed and continued by Hoover’s doppelgänger, his sister Edgar, who states: “these are the dead who will come out of the earth to lash and cudgel the living, to punish the sins of the living – death, yes, triumphant” (DeLillo, 1997: 246). Bruegel’s painting becomes the subtext of the text because not only is DeLillo’s structuring of

the city space analogous to Bruegel’s structuring of the painting (a multitude of unconnected small figures or groups of figures in a vast space), but also many details from the novel are ekphrases or quotations from elements of the painting (the dance of death, the fool, etc.). Bruegel’s painting enters the world of the novel like his dead from hell. This not only points to paranoia, apocalyptic fears, eschatology, and the constant threat of global nuclear destruction as distinctive characteristics of the period whose cultural history DeLillo portrays but also to the essential ambiguity regarding death, which is reflected in the relationship with phenomena metonymically or associatively linked to death – such as the relationship with the material remains of the past and with memory and remembrance as spiritual and mental traces of individual and collective pasts.

The fact that parts of the reproduction through which Hoover begins to view himself and the world in the light of information about Soviet nuclear tests, seemingly summoning the dead, come from the famous American magazine *Life* introduces the theme of death in life, which DeLillo will gradually develop through the montage of this and other Bruegel paintings, such as *Children’s Games*, into a representation of the immanence of death. However, with this initial appearance of death in the world of the novel, death as revenge and violence in a moment of ecstatic celebration and carnival-like relativization of physical and conceptual boundaries, one of the commonsense assumptions that DeLillo will examine is ironically inverted – namely, that death triumphs at the end, not at the beginning. It is precisely because of such a beginning that the entire novel is experienced as an attempt to challenge that triumph. Thus, in conjunction with the title, certain cultural reminiscences essential for the continuation of the narrative are activated – in ancient cultures (myths, epics), descent into the underworld is often motivated by the desire to overcome death, one’s own or another’s, to abolish death, or to rescue

someone/something from death as the final end.

The motif of the descent into the underworld is primarily evoked in connection with the main character and sole first-person narrator, the waste management executive and “cosmologist” of waste, Nick Shay. From the rooftop where he first appears in the novel to the basement where he seemingly accidentally, but not entirely, kills a man who played a paternal role in his life, thus symbolically liberating himself from the subconscious Oedipus complex, Nick moves on the vertical plot plane in a direction opposite to that of the narrative plot, which depicts his success as a rise from the Bronx to “the bronze tower.” The inversion on the chronological plane allows DeLillo to portray life as bidirectional movement, so with each new chapter, time shifts backward, into the more distant past, and forward, on the level of that chapter itself. Nick’s descent into the past, mirroring the novel’s reverse chronology, reflects the liminality of his existence – a man suspended between memory and reality, between action and inertia. His journey is not merely an exploration of retrospection but an encounter with its inherent fragmentation, where history resists coherence and identity remains in flux. As T. S. Eliot articulates in *The Hollow Men*, “Between the idea / And the reality / Between the motion / And the act / Falls the Shadow” (Eliot, 1948: 65). This “Shadow” signifies the inescapable void between intention and realization, between past and present, mirroring Nick’s struggle to reconcile his personal history with his constructed identity. His descent, much like that of classical figures undertaking katabasis, is neither wholly illuminating nor redemptive but rather an unsettling confrontation with unresolved trauma. Just as Eliot’s *hollow men* exist in a space of perpetual suspension, incapable of fully inhabiting their own reality, Nick remains trapped within the contradictions of memory and self-perception, reinforcing DeLillo’s broader critique of historical and personal dislocation.

The central part of the novel begins after an ellipse that encompasses the period from the end of 1951 to the beginning of 1992, a little over forty years, which, given that the first scene takes place in the desert, evokes the biblical forty years in the wilderness, for example, “The Lord’s anger burned against Israel, and he made them wander in the wilderness forty years until the whole generation that had done what was evil in the Lord’s sight was gone” (*The Holy Bible*, “The Fourth Book of Moses”, Numbers, 32:13).⁴ This evokes a period of suffering and redemption, echoing the apocalyptic tone of the novel’s prologue. However, considering that biblical symbolism also influenced Dostoevsky, whose unnamed protagonist in *Notes from Underground* “spent all the forty years of [his] life in a mousehole under the floor” (Dostoevsky, 1961: 112), this ellipse will also suggest to us that DeLillo’s novel will not only address the nation’s position on a global scale, undermining the imperialistic and colonialist pretensions of the nation in expansion as postulated by the first sentence but also the spiritual and existential state of the protagonist who will represent the fate of that nation. The dense network of evocations, reminiscences, and quotations that constructs the first scene of the first part – Nick contemplating the automobile industry as he drives through the desert – already hints at a kind of underworld: “Hollow bodies coming in endless sequence” (DeLillo, 1997: 63), simultaneously evoking the mute, empty, dreamlike shadows of the dead that surge before Odysseus (Homer, 1998: 190, 195, 200)⁵ and, even more so, in conjunction with

⁴ Retrieved from: <https://biblia.com/books/csb/Nu32.13>

⁵ “The Realm of Shadows,” as the Book XI of Homer’s *Odyssey* might be titled, encompasses both the *nekylia* – the summoning of the shades of the deceased – and the *katabasis*, i.e. descent into the underworld. *Nekylia*, a term derived from the Greek word νεκυία, refers to a ritual in ancient Greek literature, particularly in Homer’s *Odyssey*, where the living communicate with the dead. In the Book XI of the *Odyssey*, Odysseus performs a *nekylia* to summon and speak with the spirits of the dead in the underworld. This ritual involves sacrifices and the invocation of spirits to gain

the sound of rustling wind, "The Hollow Men" by T. S. Eliot.⁶

Events from this first part of the novel should further serve as motivation for delving into the past and its novelistic excavation, transitioning from spatial to temporal underground. One such event is Nick's sudden urge to visit the place where the artist Klara, his former lover, creates, and his encounter with her, which includes an interview she is giving for television at that moment. Her thoughts move in a direction that corresponds to contemporary theories of the loss of the Real, with her sense of unreality linked to the experience of closure – her reflections on the end of the so-called Cold War and the changes she observes on the ideological and existential-epistemological level highlight the theme of closure, characteristic of the end of the millennium. And her work is indeed a vision of a past from the perspective of its end, not the past as such. This sense of closure makes the future opaque, too indefinite and unpredictable for one to face – it seems there is nowhere to go forward, so returning to the past is the only way to survive: when Nick recounts his everyday life in the next section of the first part, the flow of his thoughts, which form a rhythmic, associative alternation of several loosely connected themes, as well as the unfinished and iterative nature of his evocations, evoke a consciousness revolving in a narrow circle of obsessive images and ideas, needing some resolution, a movement in some direction, and this movement will unfold towards the past. Nick's resistance to Klara's view of the fictitiousness of individual destiny and her imposition of reacting to the past and assimilating the past as soon as it is thematized, precisely because Nick is aware

knowledge or guidance from those who have passed away. It is closely associated with the theme of *katabasis*, or descent into the underworld, where the protagonist often seeks wisdom or prophetic insights from the dead.

⁶ "We are the hollow men [...] Our dried voices, when / We whisper together / Are quiet and meaningless / As wind in dry grass [...]" (Eliot, 1948: 63).

of it, because he needs to defend himself against it before himself. The fact that the decision to visit the site of Klara's installation itself is "the debt to memory" becomes a reference point for memory and introspection (DeLillo, 1997: 64). In constructing his descent into the past, DeLillo has assigned Klara the role that Circe and the Sibyl have in *The Odyssey* and *The Aeneid*, respectively. As Homer's Circe instructs Odysseus, "You must go to the house of Hades, to the world of the dead, to consult the ghost of Tiresias", guiding him on his own descent into the underworld (Homer, 1998: XI. 10–11). Similarly, in *The Aeneid*, the Sibyl warns Aeneas: "The way is easy, but the return is hard", marking the foreboding journey into the underworld, much as DeLillo's narrative suggests that spiritual stagnation precedes a descent into the past (Vergilije, 1970: VI.81–82).⁷ Here, the descent into the underworld is preceded by an atmosphere of resignation and inertia, despite external signs of success and meaning. Conversations with colleagues and friends, along with recollections of the game from the prologue in which Nick "participated" via radio broadcast from the roof of his building, his purchase of the ball that brought shame to the team he supported, and the dream in which it is suggested that Nick may have once killed someone – all converge to evoke a cascade of memories, leading him to grasp for the same ball as a form of salvation and solace. DeLillo's novel mirrors the classical *katabasis* structure, where, like Odysseus and Aeneas, Nick embarks on a journey that begins in a state of disillusionment and spiritual paralysis. His descent into memory does not merely seek resolution but instead confronts the persistence of the past in shaping contemporary anxieties. This echoes the treatment of trauma in post-9/11 literature, where, despite narratives of resilience, trauma remains inescapable. However, unlike the first part of the novel, where Nick is the sole narrator, each subsequent section introduces

⁷ Translated into English by the author of the paper.

an increasing number of character-focalizers – ranging from members of his immediate family to individuals with whom he has only indirect, associative, or symbolic connections. As the narrative expands, it reflects a broader mythological framework, where katabasis is not merely a literal or psychological journey but also a confrontation with the past through multiple perspectives. In this way, his personal past becomes part of others' lives, assimilating situations and events from their lives, with the backward progression of time, the reevaluation and reconstruction of the past involving the reader's knowledge of what Nick has become, uniquely shaping the relationship between the present and the past and questioning Nick's notion of identity constructed through the cumulative accumulation of selected experiences and of life as a coherent linear narrative (cf. Hagan, 2021). As the range of characters expands, so does the space the novel encompasses, including new, very specific types of places – marked by class, ethnic identity, status, race, profession – such as specific New York neighborhoods, the subway, bars, landfills, highways, etc.

By intertwining Nick's individual past with America's past, DeLillo creates a character in whom the characters of two key epic heroes converge (although, of course, not only them): Odysseus and Aeneas. The former meets the world of the dead to learn from Tiresias how to return home – a symbolic return home is implied in the first chapter: when Klara laconically states that they are a long way from home, Nick assumes she means the Bronx – the place they both come from, even though they have not lived there for decades; after visiting Klara's installation, Nick got into his car and “looked for a sign that would point [him] home” (DeLillo, 1997: 84). Odysseus in the underworld learns what happened in his homeland during his absence, just as events from Nick's past will be placed in the context of what happened in the region he comes from in this novel. On the other hand, the future for which Aeneas descends into the underworld is not personal but state-

building and national, so his katabasis is part of the story of the nation's destiny and mission. Additionally, both Odysseus and Aeneas come to crucial realizations through conversations with their deceased ancestors: Odysseus with his mother, although Tiresias was the true purpose of his visit, and Aeneas with his father. Given Nick's obsession with his father's sudden disappearance, his return to the past is a kind of search for his father – whom he killed in two ways: by inventing his death in the absence of any evidence that he is really dead and by shooting his substitute, George Manza – a search during which he will, in fact, find his mother. The highly suggestive, lyrical scene of Nick and his mother, who, like Odysseus and Anticleia, become closer thanks to the intervention of a “spirit” – in this case the spirit produced by the media and technology, the spirit from the TV set, the already dead comedian Gleason – has its Odyssean completion in the Epilogue when, after his mother's death, Nick feels that he is suffused with her, and that she has “entered the deepest place [he] could provide”, after which Nick truly opens up to his wife for the first time and reveals his past to her (DeLillo, 1997: 804). Similarly, Anticleia's instruction to Odysseus was to remember what he would see in Hades to relay it to his wife (cf. Homer, 1998: 195). Therefore, in the Epilogue, in the dehistoricized, derealized, timeless, twilight, and melancholic world in which we last find Nick, his life is presented as a process shaped by both the visible and manifest disintegration of life into periods defined by crisis moments and their overcoming, and by something imperceptible and unrepresentable, inaccessible to narrative and memory, which made the entire past alive and active and variable in every individual moment, with each moment assimilating the past anew.

With the introduction of each new character in the novel, a plethora of objects emblematic of their lifestyles accompanies them – television shows, or in more distant eras, radio broadcasts they faithfully follow, advertising slogans, preferred film genres, and

other visible markers of the epoch. In this sense, the plunge into personal and national past is presented in the form of a cultural and historical exploration of media and technologies, with DeLillo primarily interested in the mutual relationship between everyday life and official history. The novel inevitably prompts us to ask: is everyday life, the ephemeral, the banal, the powerless, the underground of history produced by powerful global forces, politics, and economy, or is history the underground of everyday life, what invisibly and decisively, secretly, governs life? “Which contains the other, and how can you tell for sure?” (DeLillo, 1997: 826). The antinomy of the external and internal is manifested not only through the relationship between the physical, the real, and the virtual world of the internet, with which the novel ends, but also on other levels. Observing this relationship between everyday life and history in this novel, we may recall Bakhtin’s idea of the hidden chronotope (Bakhtin, 1989: 284), which occurs when the world of the novel is constructed by analogy with some other distinctive “world” – the underworld referred to by the novel’s title, which is its hidden chronotope, whether in a mythological-religious sense, in the sense of the world of crime, in the sense of the subconscious, not only individual but also in terms of introducing history into the order of desire, and thus into the order of the subconscious (which DeLillo does by stating that “longing on a large scale is what makes history” (DeLillo, 1997: 11), or in a geological sense, is never completely separate from the aboveground or this world, but neither is it in it; the boundaries between them are porous, so sporadic and ambivalent communication and circulation of elements occur among them, which includes transformations, “noises,” resistance “from down below,” eruptions, necessary mediators / interpreters.

Edgar Hoover and stand-up comedian Lenny Bruce, the official face and protean reverse of American paranoia, play the role of these mediators in the novel. The fact that it is

Edgar Hoover, with all his pathological fears (mysophobia, bacteriophobia, haphephobia), with his repressed homoeroticism, with his unquenchable desire for control and surveillance, whose product is secret dossiers, which simultaneously reflect and continue to produce and spread the paranoid obsession with conspiracies of forces beyond the power of comprehension and control, lends history, which that power manages, the character of hypertrophied desires and fears. The introduction of this character speaks to DeLillo’s interest in the almost inextricable tangles of relationships between the public and the secret, and the public’s attitude towards the very idea of secrecy, i.e. secret services, secret dossiers, secret reports, secret experiments, secret armament, etc. Is Hoover’s service really secret, and as such, truly powerful and influential on a broader level, or is it presented as secret in order to control the public through the mystified and hyperbolized conception of something hidden and powerful, or are fears and obsessions produced within the public itself supported and nurtured by the bureaucracy by introducing figures like Hoover? DeLillo’s Hoover is not an answer to the question of the nature of power but a means to problematize it.

On the other hand, DeLillo’s portrayal of Lenny Bruce, a drug-addicted comedian, represents a nexus where all the “underground” and official voices of America intersect: Black, Jewish, Hispanic, and others. The character of Lenny Bruce encompasses the voices of presidents, prerecorded instructions to airplane passengers, actors’ voices, voices from television commercials, voices of manipulators and brute force, as well as neurotic, cynical, paranoid, terrified voices, voices of children, lunatics, jazz, and more. Bruce embodies a parody and distortion of these voices, blending characters reminiscent of a series of black street preachers sporadically appearing throughout the novel in various settings and times, as if they were always one and the same – DeLillo’s “Tiresias.” If the “removed arguments” of these preachers are already

“the multiplying into millions of the little do’s and don’ts [carried] around every day” (DeLillo, 1997: 353), then Bruce’s voice stretches those doubts, do’s and don’ts, apocalyptic visions, conspiracy theories, and Freemason beliefs to the utmost limits of exaggeration and hyperbole. In dimly lit, smoky, overcrowded venues, whose heterogeneous audience – a catalog of visitors featured in each episode where Bruce appears – reflects Bruce’s ability for constant identity transformation, the secret history “that never appears in the written accounts of the time or in the public statements of the men in power”, is preserved precisely thanks to his artistry (DeLillo, 1997: 594). Is history behind conspiracies/a series of conspiracies, or merely conspiracy theories, i.e., paranoia? Paranoia here emerges as the product of a contradictory, yet universally present desire among all characters, to establish control over life and the world, while simultaneously evading control (O’Donnell, 2008: 117).

Many of the novel’s minor chronotopes can also be categorized under the overarching concept of the “underworld.” Foremost among these is the landfill. Nick and Klara, by the nature of their respective engagements, frequently find themselves visiting several monumental landfills. From these visits and their discussions on waste and landfill construction emerges a philosophy of waste, most radically advocated by Jesse Detwiler. DeLillo’s depiction of landfills as vast repositories of discarded matter – both physical and ideological – parallels T.S. Eliot’s vision of modern civilization as a fragmented and barren landscape (cf. Dini, 2024). As T. S. Eliot writes in *The Waste Land*, “A heap of broken images, where the sun beats, / And the dead tree gives no shelter, the cricket no relief” (Eliot, 1948: 42). Eliot’s desolate imagery, evoking a world of shattered meaning and existential exhaustion, resonates with DeLillo’s portrayal of waste as the material residue of cultural amnesia. The landfill, much like Eliot’s wasteland, is more than a repository of discarded objects – it is an uncanny monument to what has been

forgotten, an accumulation of abandoned histories and obsolete narratives. Just as Eliot’s poetic landscape denies shelter or relief, DeLillo’s landfills become spaces where time itself collapses, where what is meant to be buried instead lingers, resisting erasure. In this way, both *The Waste Land* and *Underworld* interrogate the tension between permanence and decay, revealing how modernity’s detritus – whether in language, memory, or material culture – continues to shape the present from beneath the surface. The most provocative aspect of Jesse Detwiler’s views involves a historical inversion, suggesting that waste is not merely a byproduct of civilization’s development; rather, civilization itself serves as the means by which humans defend themselves against waste, suppressing it. In this way, waste becomes a metonymic and metaphorical substitution for the subconscious, particularly the collective subconscious – DeLillo hinted at this at the outset by describing every piece of garbage and debris thrown by fans in the stadium as if “[carrying] a shadow identity” (DeLillo, 1997: 45). Thus, the landfill becomes a site of intersection between the sacred, the auratic, and the mundane – a ubiquitous yet ignored, hence invisible, repressed, and unrecognized facet of history. It is a historical legacy that is “science fiction and prehistory” at the same time (DeLillo, 1997: 184), both terrifying, monstrous, grotesque, yet also redeeming residues of human desires and longings, rather than achievements. Landfills are explicitly linked to pyramids, hence tombs and the cult of the dead (DeLillo, 1997: 106, 184).

The fascination that waste, in its various forms and origins, elicits from Nick and Klara, provoking several idiosyncratic modes of creative response, attests to humanity’s loss of essential and authoritative control over things and reality (O’Donnell, 2008: 109, 116), which, in turn, is one of the reasons why the fundamental organizing principle in this novel is the dynamic configuration of connections among objects, places, and events. As the novel progresses, establishing

an analogy between certain elements of the past that have not entered official history and waste, Nick and Klara's attitudes toward waste become a model for their relationship with the past, memory, and recollection (cf. Schneeberger, 2024). Thus, negligence, pushing aside, storage, recycling, burial, exposure, destruction, and what we might call desecration, primarily associated with Klara's artistic endeavors, represent not only the ways in which individuals, institutions, communities, or society at a given moment relate to their own or others' waste but also different types of relationships between the present and the past and ways of sustaining and manifesting individual and collective memory.

Furthermore, there is Martin's basement-museum, the desert bunker where the operation Desert Pocket unfolds, in which Matthew, Nick's brother, is involved. Then there is a series of peculiar shops for collectors, enthusiasts, fans, and fetishists along the Float Street in San Francisco, as well as a grotesque gathering of tunnel inhabitants in the New York subway, comprising of the poor, homosexuals, and that Pynchonesque waste. There is also the semi-destroyed, contaminated, simultaneously tragic and eerie world behind the so-called Wall, overseen by Ismael Muñoz – alias Moonman 157 – a leader of a group of graffiti artists and waste collectors. Each of these objects or places seems to represent a self-contained world, with its own language, myths, and legends, such as the legend of the Bird (Charlie Parker) in the tunnels or the monstrous transformations suffered by the radiation-exposed villagers, propagated by the so-called bombheads from the Desert Pocket. These micro-worlds adhere to their own time, a time that flows at a different pace and in a different direction and, in historical terms, falls outside the present. Therefore, each of them exhibits a certain parodic and perverse element through which they establish a relationship with the rest of the world – tunnel dwellers have shopping carts and wear slippers before bedtime; children from

Muñoz's enclave generate electricity for the television by pedaling a bicycle, while they are offered as a tourist attraction by the media and tourist agencies under the name "South Bronx Surreal"; Marvin, in his quest for the ball, simulates actions carried out by investigative teams during the infamous American "witch hunts" for communists. Each of these worlds is, therefore, simultaneously within and beyond the world governed by official and institutionalized order of life. Each of them is a subversive farce of the official world, its face, and its image. Each of them is also a place of collecting, transforming, and repurposing waste and bric-a-brac.

The symbolism of descent into the underworld is most explicit in the depiction of Brian's visit to Marvin – a baseball memorabilia collector. Similar to, for instance, Oedipa Maas's wandering through San Francisco, this visit to the underworld begins on a bridge. Brian's fear of crossing the bridge is depicted as a temporary plunge into a different plane of existence: "The truth of bridges is that made him feel he was doing some möbius gyration [...] hanging sort of unborn in generic space" (DeLillo, 1997: 167). This fear of abyss, of depth, contributes to Brian's vision of the radio as a medium in an occult sense – the radio becomes akin to that hole dug in Homer's world to access the dead, before which columns of silent souls wait to sound off. Their voice is comforting and protective, which, together with addressing dead presidents (as it is a historically significant place) as protectors, evokes the notion of summoning of dead shades, which marks the beginning of Odysseus' descent into Hades. Moreover, the traditional motif of the river as an obstacle to be overcome on the journey to the underworld, the river as a boundary and fence, precisely because here the river evokes events fundamental to the constitution of the American nation, suggests history and origin as hurdles – to reach Marvin's world, one must overcome, not bypass or discard, official history. Marvin's connection to Tiresias is

established by comparing his character to the comedian, and it has been mentioned that the comedian Lenny Bruce in the novel functions as a prophet from the underworld. Furthermore, the tone and content of Marvin's statements have the character of a prophet's and a mystagogue's speech, guiding followers into secret knowledge and revealing to them the hidden meaning of ordinary things. Marvin's basement is the last page of history: "From end to beginning."

In this way, aside from functioning as one of the many generic models within the novel itself, the basement also serves as a site of revelation regarding the nature of history: by recognizing in Marvin's life an exaggerated and caricaturally recontextualized logic of a political ideology, Brian, upon exiting his basement, becomes inclined to recognize the same duplication, self-reproduction, a closed system of signs that produce tension and fear in the everyday world. However, as much as it grotesquely mimics the official, Marvin's underworld is also its subversion: two completely arbitrary, degrading, rather than synthetic catalogs, catalogs of people, things, places, and atmospheres, comical in their lyrical digressions and disorientation in time and space, through which Marvin sums up his epic quest for a baseball across the American continent, are a parody of official history and historiography and a parody of the system and interconnectedness. History as disorder and chaos – the possibility of "losing yourself to time" (DeLillo, 1997: 319). Marvin is, therefore, an adequate guide – of his wife and the reader, simultaneously – through another underground, Pynchonesque. The depiction of Float Street in San Francisco is a direct reference to Oedipus's nocturnal wanderings and discoveries. It is a world of fetishists, a place of satisfying perverse desires and needs, twisted interests, a gathering place for fanatics of all kinds and those whose measures – physical and any other – are not standard. But that street, with its bars and shops, reflects and multiplies contemporary tendencies towards atomization and segmentation, both

of society, community, and the individual, towards isolating each individual fragment of desire and need as a separate element in the market and a separate target of production and marketing. At the bottom of that underworld, and literally underground, the local pub of Marvin's acquaintance, "the underground of memory and collection" (DeLillo, 1997: 321), a junkyard-bar, reveals the political aspect of seemingly psychological and individual deviations – collecting the most ephemeral and worn-out remnants becomes a form of resistance, a form of struggle for independence from the system – "[trying] to match the enormity of the known forces in the world with something powerful in your own life" (DeLillo, 1997: 323). It is precisely in its chaotic nature that waste provides insight into what DeLillo, in his autopoietic text, referred to as counter-history (DeLillo, 1997), i.e. insight into the multitude of divergent underground currents that do not flow into a coherent and uniform stream.

However, the waste that DeLillo also contemplates, and with which Nick's firm is engaged, is radioactive waste that is buried underground, isolated with the expectation that its radioactivity will eventually diminish until it disappears. Thus, it is invisible and subterranean, and therefore all the more dangerous. This waste is destroyed in the epilogue of the novel through an underground detonation at the same site where the nuclear test was conducted in the prologue, a place described as "frozen away" like Dante's Cocytus⁸, the lowest circle of hell (cf. Alighieri, 2003: Canto XXXII). In this manner, the fate of nuclear waste, as a byproduct of the American-Soviet arms race and militaristic power, reflects the trajectory of the political economy that initiated this

⁸ In Dante Alighieri's *The Divine Comedy*, specifically in the *Inferno*, Cocytus is depicted as a frozen lake in the ninth circle of Hell, where traitors are punished by being encased in ice. This portrayal differs from the traditional depiction of Cocytus as a river but emphasizes its association with extreme sorrow and suffering. The name "Cocytus" comes from the Greek word *kokytos*, meaning "lamentation" or "wailing."

race – from the surface to the depths, from visible “mushrooms” to invisible networks, from the public to the secret, from the understandable, albeit rigid and terrifying, binary logic of Cold War ideology to elusive and protean, subterranean flows and incomprehensible connections (cf. Lane, 2020).

Nuclear waste is the product of plutonium degradation, a chemical element whose name is derived from one of the names of the Greek-Roman god (Pluto) of the dead and ruler of the underworld, and a term for the underworld itself. The fate of this name somewhat parallels the fate of the lexeme “waste,” whose etymology Nick investigates, as he is also, on occasion, a professor of Latin – a language officially dead, yet alive in a multitude of other languages and thus a linguistic underground, a mine of forgotten meanings. Just as “waste” means barren, desolate, consumed, to consume, and so forth, but also waste (rubbish, trash, refuse, depending on the value and emotional context), the world of the novel, literally inundated with waste, suggests a world simultaneously empty and full. Similarly, the name of this deity (and the underworld itself) connotes a related paradox, undoubtedly known to DeLillo. Pluto emerged from the amalgamation of Hades (the invisible one, he who makes invisible) and the Greek god Plutus – one of the older, forgotten deities of fertility and abundance (Hesiod, 1975). Consequently, the Roman Pluto became both a symbol of death, the world of the dead, and a symbol of abundance, even money, or, as we would say today – capital. Marx’s *Das Kapital* serves as the eponym for the epilogue, which, in conjunction with the eponymous prologue, Bruegel’s *The Triumph of Death*, suggests this nexus of death and money as the framework of events, portraying the novel’s world as Pluto’s realm. Capital, owing to the development of information technology, the concept of networking, systemic administrative structures, and globalist tendencies, has become invisible and

acquired the formidable aura of the ancient ruler of the underworld.

As an element of Roman-Italian tradition, Pluto in the novel, through the consciousness of Nick Shay, a descendant of an Italian immigrant, merges with another icon of the underworld and the subversion of one culture by another – the gangster. When Nick reflects on the etymology of the term “plutonium,” part of his conception of this deity includes: “They took him out to the marshes and wasted him” (DeLillo, 1997: 106), indicating that he, in fact, represents the wars of criminal underworlds as a modern theogony. On one hand, he constructs this theogony according to media-produced cultural stereotypes. The swamp he evokes is the Stygian swamp or a manifestation of the River Styx, which in various versions of Greek and Roman mythology, as well as in their literary adaptations, inevitably features in the topography of the underworld, often as a part of the boundary between this world and the next. As a swamp, it appears in Virgil (Vergilije, 1970: 150), from whom Dante Alighieri (Alighieri, 2003: 44) later adopted it as a passage between the various forms of excess (the first four circles) and violence, which are, without a doubt, relevant frameworks for DeLillo’s America. The Stygian swamp, therefore, forms the fifth circle of hell, where the wrathful and sullen float, and in whose mud the spiritually slothful are submerged. Wrath, Achilles’ hubris, is at the core of trauma/sin – the anger caused by loss (which, further, produces the Oedipus complex, rather than being its product) to which Nick’s inverted story and his confrontation with himself lead us: “I was dumb-muscled and angry and real [...] and felt angry and ready all the time, a danger to others and a distant mystery to myself “ (DeLillo, 1997: 810). The image of the swamp also encourages reading Nick’s “bronze tower” as a version of Dante’s “ancient tower,” i.e., as the gate to the blazing City of Dis. Nick’s vision of Pluto in the swamp closely resembles his conception of how his father perished in an alleged mafia

confrontation, how they dragged him out to the marshes and “lowered [him] into the underworld” (DeLillo, 1997: 121), wherein this fixed idea of Nick’s, the idea with which he fills his father’s absence, as well as his later flirtation with the image of the Italian mafioso, is modeled according to cinematic templates. Nick, at times, pretends to act like a gangster, imitating film characters, while internally sensing that his real life is, in fact, a performance, and that this performance is closer to his true self than his official, public persona. Thus, Nick’s character is marked by a sense of division, a gap between his image and some elusive self, so we can say that the underworld to which his story leads us is precisely this gap within the self, this fissure in identity. On the other hand, Nick’s reliance on cinematic archetypes carries additional significance – in a world completely mediated by the media, film is not merely one among many cultural artifacts, entertainment, or art; it has become an integral part of human psyche and consciousness, infiltrating, so to speak, the mechanisms of perception, cognition, and experience. Therefore, the recognition of filmic qualities in certain experiences or the perception of the world as though through a lens, as framing, which is a frequent occurrence in this novel, as much as the simulation of cinematic techniques, is part of the narrative strategy to highlight the subliminal effects of media and media technologies. Through the theoretical discourse on the function of the camera’s gaze, DeLillo further develops and illustrates Walter Benjamin’s thesis on the “optical unconscious” (Benjamin, 2015: 68–69). In other words, instead of illuminating or exposing the external world, the camera “inverts,” turning the observer into the object of observation, drawing his subconscious to the surface as something simultaneously familiar and unfamiliar to him, certainly unsettling (cf. Radin-Sabadoš, 2017). It often seems as though the characters are caught in the gap between the place from which they observe and the place into which they observe. Thus, film contributes to the

construction of temporary spaces and times that, through other means as well, are continually produced in the novel. This also explains the fact that Nick’s past, although narrated in the past tense, does not truly take the form of memory – the nature of evoking the past is suggested by the final sentence of the first part of the novel, after which time begins to move backward, in which a faded film of memory is mentioned.

The narrative time, marked by numerous ellipses, encompasses scenes and events spanning almost half a century (cf. Martín-Salván, 2025). This, combined with the descent evoked by the novel’s title – suggesting that each individual part of the novel could represent a floor or a lower circle of the underworld – also provokes an association with the archaeological uncovering and the never entirely certain reconstruction of increasingly deeper, but often seemingly unrelated, layers of material culture traces within a single space. Each of the novel’s nine sections is further subdivided into segments, with shifts in points of view and narrative styles that constantly adapt on lexical, syntactic, and stylistic levels to the character and world to which they belong, at least at that given moment. This all together produces an ostensibly arbitrary collage of fragments, which is, in fact, supported by a fascinating, multi-dimensional, yet open narrative network. This involves, above all, a series of details that can be considered variations on the same “theme” – an object, image, or idea that undergoes multiple transformations throughout the narrative, as if lines of plots are formed within the novel beyond the comprehension of any single character. Dozens of other stories, which are overwhelmed and concealed by the narratives about Nick, Matthew, Klara, and others, seem, to stay within the themes of the novel itself, to be recycled, transformed, and recontextualized, thus enduring. These stories resemble a New York subway train, which plays an exceptionally significant role in the novel – movements through the “underground” to connect certain points on

the surface, with occasional emergence to the surface itself. If we consider the image of the subway implied by the painter Esther's statement – "The IND plowing under Sixth Avenue with its cargo of human souls." (DeLillo, 1997: 432) – then the connection between the narrative and death becomes explicit.

The central section of the novel is deeply imbued with the motif of the underworld, though its very structure might also evoke the concept of the *axis mundi*, given that the year 1974 occupies the center of the period which begins in 1951 (the year of the novel's Prologue) and concludes in 1997, the year the novel was published and the presumed present of the novel's narrative time. Furthermore, this chapter symbolically encompasses the entire cosmos, extending vertically from the underground (the subway) to the rooftops, and horizontally from New York – from the semi-dilapidated Bronx to the bohemian East Village – to the deserts of the American South. This span, with its spatial oppositions, is simultaneously social and ideological. For example, the opposition between the rooftop and the subway reflects the opposition between the gallery-recognized artist (Klara) and the anarchist artist (Muñoz, alias Moonman 157).

In the novel, Moonman represents one of the New York graffiti artists who drew on subway trains, a subculture that emerged in the 1960s and became a model for similar forms of verbal-visual expression in public spaces worldwide. The very name of this practice preserves the memory of decay and death, as graffiti initially referred to inscriptions and drawings found on the walls of ancient tombs, Roman catacombs, and ruins. This phenomenon was regarded as a form of transgression, an act of vandalism. Given that the graffiti artists of the period in question, including Moonman, were predominantly immigrants and other marginalized, discriminated groups, this form of vandalism was not only an expression of resistance and provocation against the system by the youth, akin to other youth subcultures,

but also a form of political protest. "Bombing" a train, as this activity is referred to in slang, signifies the occupation of public space and resistance to the city's administrative-informational system, as the inscriptions compete with, overshadow, or cover official notices, warnings, and other signs intended to inform the public. Graffiti are not merely a product of so-called street art; they embody the characteristics of life on the street. The artist expresses themselves as a representative of their street, and since streets, neighborhoods, and districts in American cities are often defined by race, nationality, and class, the use of a street number as part of a nickname or pseudonym further underscores the political nature of this gesture – for the city in which they live, the graffiti artist is a faceless number. It is as if the artists feel they lack the possibility or even the right to mobility, both in the literal sense and in terms of class migration, and that they are significantly deprived when it comes to informational and communicational means.⁹

In DeLillo's character Ismael, the awareness of the relationship between identity, rights, and place is quite clear. Therefore, the choice of trains as the means of transportation that connect the entire city symbolizes the symbolic movement of the author and their work, their virtual omnipresence, serving as both a warning and a threat: "[...] you get inside people's heads and vandalize their eyeballs" (DeLillo, 1997: 435). In the 1990s, Moonman no longer exists –

⁹ According to Jeff Ferrell, author of *Crimes of Style: Urban Graffiti and the Politics of Criminality*, "the contrast between graffiti art and the "art" of the corporation and the government, and the link between graffiti writing, busking, and other forms of anarchist entertainment, both point to a final dimension of graffiti writing as anarchist resistance. Graffiti writing breaks the hegemonic hold of corporate / governmental style over the urban environment and the situations of daily life. As a form of aesthetic sabotage, it interrupts the pleasant, efficient uniformity of "planned" urban space and predictable urban living. For the writers graffiti disrupts the lived experience of mass culture, the passivity of mediated consumption" (Ferrell, 1996: 175–176).

Ismael no longer draws on trains but on the Wall. This new form of critical activity, within a new context and style, consists of creating massive murals depicting children from Ismael's ghetto who have died due to violence and disease, with their names and birth and death dates inscribed as on a tombstone (which these children likely never received) (cf. Strombeck, 2023). The rhythm of these graffiti's appearance mirrors the rhythm of dying. These new graffiti are also signs of existence, boldly and vividly announcing to the world both the fact that certain "unofficial" individuals existed and disappeared without leaving any other trace, and that certain modes of dying, which most people ignore, are present. They are memorials, but also parodically grotesque distortions of advertising strategies – large scale, bright colors, sharp contrasts – visual stimuli that the eye can hardly avoid. The association of children's deaths with recognizable signs of consumer culture – brands, clothing styles, types of products aimed at much wealthier and more protected segments of the population that exist only in the context of advertising – produces unsettling effects. The angel in Nike sneakers seems to address a world in which the concept of Heaven or Paradise has been equated with financial prosperity and material possession.

The appropriation and co-optation of signs, representations, and ideas that have already taken root in the collective consciousness, becoming spontaneously recognizable, and their ironic inversion, recontextualization that produces opposing, intriguing, and shocking effects, along with the play on polysemy, constitute a strategy whose various forms are recognizable in multiple places within the novel: although Klara and Moonman never meet, through her reception of his graffiti, she adopts some of his strategies of using signs foreign to his world. This underscores the significance of the creator's position and the place of creation in determining the nature and meaning of the work in the contemporary world. Ismael's Wall, like Klara's desert – formerly a site for

nuclear tests and other secret militaristic operations – is a liminal or liminoid zone, simultaneously within and outside the social order; both places have been produced by society as its shameful reverse.

In the heart of the novel lies another "underworld" beyond the literal subterranean realm: *Unterwelt* – a fictional film credited by DeLillo to the renowned Russian director Sergei Eisenstein. This film unfolds in a secret laboratory beneath the earth's surface, evoking not only the literal underground but also the atmosphere of the real 1927 Hollywood gangster film of the same name. Klara is particularly struck by this connection, likely due to the haunting mood set in the silent film's opening titles: "A great city in the dead of night...streets lonely...moon clouded...buildings as empty as the cave dwellings of a forgotten age" (Sternberg, 1927). Eisenstein, in Klara's vision, is portrayed as a figure deeply enmeshed in multiple "underworlds" – sexual, psychological, and political. He is depicted as a man torn between his suppressed desires and the rigid confines of official ideology, between utopian dreams and harsh realities, ultimately crafting a film that culminates in an underground bunker. This fictional film becomes a potent metaphor within the novel, embodying DeLillo's broader exploration of the "underworld." Set in the 1930s, the film depicts the scientific and technological dehumanization of individuals, screened in a cosmopolitan Art Deco theater – an architectural marvel from the same era. The audience, representing the camp subculture – still emerging and provocative at the time – embodies the contradictions and tensions inherent in the film and its context. Moonman's "bombing" of the subway train, depicted only through sound and the rumbling vibrations it causes underground, serves as an invisible interlude within the film, further expanding the notion of the "underworld" to encompass realms of suppression, concealment, and repression. This includes political dissidents and victims of technological and scientific experiments,

whom Nick encounters in Russian hospitals in the novel's Epilogue, as if they have emerged directly from this fictional "Unterwelt."

As Klara immerses herself in the film, it seems as though the underworld itself begins to permeate her being, becoming an inescapable part of her perception of the world. It is as if she, like Pynchon's Oedipa Maas, has become a projector – but in DeLillo's universe, these projections take on a tangible reality: "She felt she was wearing the film instead of a skirt and blouse" (DeLillo, 1997: 445). This sense of dislocation created by the film mirrors the effect on people's eyeballs described by both Moonman (DeLillo, 1997: 435) and advertising agent Charlie Wainwright who claims that "once we get the consumer by the eyeballs, we have complete mastery of the marketing process" (DeLillo, 1997: 531), with a key distinction: while avant-garde, anarchistic, underground art seeks to violently disrupt perception, forcing itself upon a gaze that might otherwise avoid or ignore it, advertising employs subtle control and manipulation to achieve its ends. By drawing a parallel between the mindset of a young, angry homeless man and that of a successful advertising executive, DeLillo highlights how subcultures adopt and repurpose the strategies of consumer culture, transforming them into tools for their own survival and visibility. In this way, the novel underscores the fluid, often contentious, relationship between art, power, and the means by which marginalized voices assert themselves in a world dominated by commodification and control.

Moreover, the manner in which the musicians altered Prokofiev's music during the screening of Eisenstein's film – specifically the "March" from the opera *The Love for Three Oranges*, which itself includes a scene set in an underworld – by embedding auditory allusions to the 1950s and evoking the ideological and social atmosphere of a more innocent and naive era, only to later reveal the threatening and controlling aspects of entertainment through the same music, directs Klara's reflections toward the idea of a

conflict not between different languages, but within the very system of signs that generates power. Resistance to dominant representations is not manifested through open confrontation, but rather through the subversive reconfiguration of the elements by which these representations are produced. This can be described as a form of semiotic guerrilla warfare. A parallel can be drawn to DeLillo's method of inserting subversive elements into historical narratives, such as the inclusion of a performance by an underground theater troupe depicting a dance of death at Capote's black-and-white ball, which serves as another example of such artistic and cultural guerrilla tactics.

The triptych "Manx Martin" deserves particular scrutiny as it visually, through graphic means, evokes a void – possibly akin to Odysseus's own void, though in this instance, DeLillo himself assumes the role of Odysseus, "excavating" American history and its images and conceptions. Following every two chapters, DeLillo introduces, through the use of graphically distinct black pages, interpolated segments that directly continue the narrative from the prologue. These segments, among other revelations, elucidate the enigma surrounding the initial trajectory of the baseball from the game – a mystery that remains unresolved for the characters in the main narrative. The use of black pages for these interpolated sections creates the impression of a "black hole," a space where gravity is so intense that matter becomes wholly opaque and impermeable. This device relates to the theme of black-and-white opposition, which is one of the novel's thematic threads. This opposition is not only relevant on a racial level (as the Martin family is African-American) but also serves as a metaphorical underpinning for the mythic concept of an utterly dark world with no escape, a realm that renders itself invisible. The narrative about Manx's sale of his son's baseball illustrates what Martin, despite advanced technology, was unable to discover – information that would have completed the genealogical puzzle and confirmed the ball's authenticity for both him and Nick. The

importance of these episodes lies in their exploration of the hidden origins and the impossibility of ever accessing the true beginning of something. By situating this inaccessible origin within an African-American family, DeLillo links the failure of the quest to the repression of the “other.” Additionally, by weaving together a chaotic, contingent, and inverted narrative with a coherent, linear story that progresses in the present, despite chronologically preceding the events into which it is integrated, DeLillo formalizes tensions, polarities, and the often invisible intersections of opposites and heterogeneous elements. Through the continuation of the story about Cotter Martin and his father – who represents a selfish betrayal of his son’s trust and the commodification of memories and cultural artifacts – DeLillo suggests that these “present” sections of the novel reflect archetypal and paradigmatic aspects of the events depicted.

By magnifying the dots of the panoramic mosaic of (post)modern daily life – which itself constitutes a kind of spiritual underworld, a habitat of “images” encompassing the dependence on progress through the space of temptation from the power of precise naming, as in the *Egyptian Book of the Dead* – DeLillo unveils another subterranean world. More specifically, he reveals a labyrinth of multiple, already layered, abyssal underworlds that continuously breach and deconstruct the organized, smooth, tightly networked, and coherent surface from within. Maintaining the ambiguity and duality of Pynchon’s underworlds – which are both a byproduct of systems and products of resistance and subversion against those systems; mechanisms of control and total surveillance as well as means of fruitful, though (self)destructive chaos; apparent oppositions created by the order itself and zones torn from the influence of their creators – DeLillo’s subterranean realms consistently assert a new liminal position, “torn on the horn between season and season / time and time, between / Hour and hour, word and word, power and power” (Eliot, 1948: 75), and the permanent undermining of homologous and monological practices.

Conclusion

Don DeLillo’s *Underworld* reimagines the myth of the underworld as a dynamic and multifaceted construct, embedding it within the sociopolitical, cultural, and psychological landscape of modernity. By engaging with classical and literary traditions of *katabasis* and *nekyia*, DeLillo’s narrative interrogates the subterranean forces shaping historical memory, power structures, and personal identity. The novel’s fragmented structure mirrors the disjointed and elusive nature of the underworld, reinforcing its role as a space of both concealment and revelation. One of the central findings of this study is that DeLillo’s underworld operates not merely as a mythological or symbolic construct but as an epistemological framework that critiques the mechanisms of control, repression, and historical erasure. The interplay between waste – both as material residue and as a metaphor for societal and ideological decay – further underscores the novel’s concern with what is discarded, forgotten, or suppressed. By drawing on intertextual references, from Bruegel’s *The Triumph of Death* to Dostoevsky’s *Notes from Underground*, *Underworld* foregrounds the cyclical nature of history, exposing the tension between visibility and obscurity, surface and depth, the official and the clandestine.

Ultimately, DeLillo’s exploration of the underworld destabilizes linear historical narratives and dominant ideological frameworks, offering a counter-history that amplifies the voices of the forgotten and marginalized. The novel constructs an alternative cartography of the modern world – one where the subterranean is not only a site of death and decay but also of resistance, subversion, and potential transformation. In doing so, *Underworld* challenges the reader to reconsider the boundaries between past and present, the visible and the invisible, and the forces that shape collective and individual consciousness. DeLillo’s narrative resists conventional notions of historical resolution, portraying the past not as a closed chapter but

as an ever-repeating cycle of erasure and return. His depiction of history, memory, and power mirrors the desolate fatalism of T. S. Eliot's *The Hollow Men*, where the world does not end in dramatic finality but in a slow, muted dissolution: "This is the way the world ends / Not with a bang but a whimper" (Eliot, 1948: 66). Much like Eliot's vision of a world fading into insignificance, *Underworld* suggests that history's grand narratives unravel not through decisive ruptures but through fragmentation and entropy. In DeLillo's America, the Cold War's ideological struggles, the detritus of consumerism, and the remnants of forgotten lives accumulate in the underworld of cultural memory – not as definitive conclusions but as lingering echoes, whispering beneath the surface of contemporary existence.

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