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SCIENTIFIC DISCOURSE AND THE PRACTICE OF ACADEMIC WRITING: A COMPARATIVE ANALYSIS IN LAW, COMPUTER SCIENCE, AND MANAGEMENT

НАУКОВИЙ ДИСКУРС І ПРАКТИКА АКАДЕМІЧНОГО ПИСЬМА: ЗІСТАВНИЙ АНАЛІЗ У ГАЛУЗЯХ ПРАВА, КОМП’ЮТЕРНИХ НАУК ТА МЕНЕДЖМЕНТУ

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This article explores academic writing as a key component of scientific discourse, focusing on its role in structuring knowledge, shaping disciplinary identities, and legitimizing professional practices. While academic writing is often viewed as a universal form governed by shared conventions of clarity, coherence, and evidence-based reasoning, it demonstrates significant variation across disciplines, reflecting distinct epistemological traditions, methodological approaches, and communicative purposes. The study adopts a comparative perspective on three domains (law, computer science, and management) highlighting how structural, lexical, and rhetorical choices align with the priorities of each field. Legal writing is characterized by definitional precision, formulaic expressions, and reliance on precedent, which serve to stabilize concepts and ensure institutional authority. In contrast, computer science texts emphasize innovation, methodological transparency, and terminological dynamism, frequently introducing acronyms, compounds, and neologisms to capture rapidly evolving concepts. Management writing combines technical terminology with evaluative and metaphorical language, creating a hybrid discourse that seeks both analytical rigor and persuasive appeal for decision-making and practical application. Despite these contrasts, the three domains also share common features, including the systematic use of definitions, consistent terminology, and rhetorical strategies that frame arguments within accepted scholarly norms. All rely on specific strategies of knowledge representation and argumentation to make claims credible, whether through reference to authority, empirical validation, or strategic framing of evidence. The findings suggest that academic writing should be viewed not as a uniform practice but as a discipline-specific activity shaped by epistemic commitments and communicative goals.

Key words: academic writing, scientific discourse, law, computer science, management, disciplinary variation, structure, lexicon, rhetoric.

Стаття присвячена аналізу академічного письма як ключового компонента наукового дискурсу з акцентом на його роль у структуруванні знань, формуванні дисциплінарних особливостей та відображенні професійних практик. Хоча академічне письмо часто розглядається як універсальна форма, що регулюється спільними принципами ясності, послідовності та доказовості, воно демонструє суттєві відмінності між дисциплінами, що відображають різні епістемологічні традиції, методологічні підходи та комунікативні цілі. У статті порівнюються три галузі (права, комп’ютерних наук та менеджменту) для з’ясування того, як структурні, лексичні та риторичні особливості академічних текстів співвідносяться з пріоритетами кожної з них. Академічне письмо у сфері права вирізняється точністю дефініцій, формульованими виразами та опорою на прецедент, що забезпечує стабільність понять і інституційну авторитетність. Тексти з комп’ютерних наук, навпаки, зосереджуються на інноваційності, прозорості методології та динамізмі термінології, часто використовуючи акроніми, словоскладання й неологізми для позначення швидко змінюваних концептів. У сфері менеджменту академічне письмо поєднує технічну термінологію з оцінною та метафоричною лексикою, створюючи гібридний дискурс, що прагне як аналітичної точності, так і переконливості для прийняття рішень і практичного застосування. Попри відмінності, усі три галузі мають спільні риси: систематичне

використання дефініцій, усталену термінологію та риторичні стратегії, що сприяють аргументації. Усі вони спираються на специфічні стратегії репрезентації знань та аргументації, щоб зробити твердження переконливими – через посилання на авторитет, емпіричну перевірку або стратегічне подання доказів. Результати дослідження свідчать, що академічне письмо слід розглядати не як уніфіковану практику, а як дисциплінарно зумовлену діяльність, яка формується епістемологічними установками та комунікативними завданнями.

Ключові слова: академічне письмо, науковий дискурс, право, комп'ютерні науки, менеджмент, дисциплінарна варіативність, структура, лексика, риторика, репрезентація знань.

Introduction. Academic writing is a central component of scientific discourse, serving not only as a means of communicating research findings but also as a tool for constructing disciplinary identities, legitimizing knowledge, and shaping professional practices. Despite the universality of its conventions, academic writing varies significantly across disciplines, reflecting differences in epistemological traditions, methodological approaches, and communicative needs [1]. In this regard, a comparative perspective allows for a deeper understanding of how academic texts function as both linguistic and cognitive artifacts in specific professional domains.

Law, computer science, and management represent three fields that demonstrate notable contrasts in their discourse practices. Legal writing is characterized by conservatism, reliance on precedent, and the frequent use of formulaic expressions and stipulative definitions. Computer science, by contrast, tends toward innovation, precision, and rapid lexical change, manifested in compounding, acronyms, and neologisms. Management occupies an intermediate position, combining technical terminology with metaphorical and evaluative expressions aimed at persuasion and strategic communication. These disciplinary distinctions underscore the need for a comparative study of academic writing as an essential dimension of scientific discourse.

The present article explores the interplay between academic writing and scientific discourse in the selected fields. It examines how terminology, rhetorical strategies, and textual structures operate to achieve disciplinary goals, establish authority, and facilitate knowledge transfer.

The **aim** of this article is to investigate the role of academic writing in structuring and shaping scientific discourse, with a particular focus on the comparative analysis of legal, computer science, and management texts. Research tasks are: to outline the theoretical foundations of academic writing as a component of scientific discourse; to analyze the structural, lexical, and rhetorical features of academic texts in law, computer science, and management; to identify discipline-specific strategies of knowledge representation and argumentation in the selected fields; to compare similarities and differences in the practice of academic writing across the three domains. The study is based on legal, computer science and management texts presented in BNC [15].

Literature overview. Research on academic discourse highlights that writing conventions are strongly shaped by disciplinary epistemologies, reflected in structural, lexical, and rhetorical choices [1]. Comparative studies show that different fields favor distinct ways of packaging information and positioning the author, with "hard" and "soft" sciences diverging in complexity and stance [2].

A key concern is grammatical and phrasal complexity. Academic writing tends toward dense nominal structures, subordination, and information packaging, distinguishing it from conversation [4]. However, corpus studies reveal variation in syntactic strategies across contexts, with advanced writing often shifting from clausal subordination to phrasal compression [6], [13]. Nominalization is especially salient as a resource for abstraction and cohesion, though its frequency and function differ across genres [14].

Pedagogical research stresses that complexity is functional rather than uniform. Students must learn when subordination, nominalization, or phrasal modification best fit communicative goals [4], [6]. Corpus-based analyses show that metadiscourse, evidentials, and terminological framing are shaped by genre norms, underscoring the value of discipline-specific corpora in instruction [2].

Beyond linguistic features, socialization into academic communities is crucial. International doctoral students, in particular, face challenges related to feedback, publishing, and adapting to implicit conventions [5], [7], [9], [10], [11], [12]. Studies recommend scaffolded feedback, supervisor support, and structured templates to help novices build academic identity and coherence [8], [11].

Recent work also considers the role of artificial intelligence, which offers both opportunities for guided noticing of linguistic patterns and risks of overreliance [3]. Used responsibly, AI tools can enhance awareness of clause–phrase balance, hedging, and citation practices, but they must be embedded in integrity-focused pedagogy.

Results. Academic texts in law, computer science, and management demonstrate marked contrasts in their structural, lexical, and rhetorical organization, reflecting the distinct ways each discipline constructs

and transmits knowledge. Structurally, legal writing is often built around codified patterns such as definitions, stipulations, and hierarchically ordered clauses, with frequent reliance on cross-references to statutes or precedent. By contrast, computer science writing typically follows the logic of problem statement, methodological exposition, experimental design, and results reporting, often supported by tables, figures, or pseudocode. Management texts usually adopt a problem-analysis-recommendation sequence or hypothesis-driven research design, with sections devoted to practical implications and stakeholder perspectives.

Lexically, legal discourse is characterized by conservative terminology, reliance on Latin and French borrowings, and formulaic expressions that ensure precision and institutional authority. It favors nominal density and performative verbs such as *shall* and *must*, which leave little room for interpretive ambiguity. Computer science discourse, by contrast, abounds in acronyms, compounds, and neologisms that emerge rapidly in step with technological innovation. Its vocabulary emphasizes operational clarity and technical taxonomy, leading to compressed multi-word noun phrases. Management writing, meanwhile, blends technical terminology with evaluative and strategic vocabulary, often relying on metaphors drawn from warfare, biology, or economics. Its lexical repertoire balances specialized terms with accessible business lexis to reach both academic and practitioner audiences.

Rhetorically, legal texts cultivate authority and stability, grounding claims in precedent and statutory authority, with limited hedging in operative clauses. Their persuasive force derives from institutional legitimacy and the intertextual weight of established sources. Computer science writing relies on transparency, benchmarking, and empirical validation, employing cautious claims qualified by statistical evidence or comparative results. Its rhetoric appeals to reproducibility and novelty. Management texts, in turn, are shaped by their dual orientation toward scholarship and practice. They combine empirical warrant with persuasive framing to legitimize recommendations, frequently using stance markers, boosters, and explicit reader engagement to align with managerial decision-making.

Taken together, these disciplinary contrasts reveal that academic discourse is neither structurally nor rhetorically uniform but adapts its complexity, lexical choices, and argumentative strategies to the epistemological priorities of the field. Legal discourse prioritizes precision and continuity, computer science values clarity and innovation, while management emphasizes applicability and persuasion. These differences underscore the importance of approaching academic writing as discipline-specific practice, shaped as much by communicative goals as by linguistic convention.

In law, knowledge is represented through definitional precision, taxonomic ordering of concepts, and a dense intertextual web of authorities. Terms are stipulated at the outset to delimit scope; categories such as tort, contract, and property are stabilized through lineage to statutes and precedent; and meaning is anchored by canons of interpretation. Argumentation proceeds by marshaling hierarchical sources (constitutional provisions, statutes, binding and persuasive cases) while distinguishing ratio decidendi from obiter dicta. Claims are advanced through analogical reasoning to prior cases, careful treatment of counter-authority, and tightly controlled deontic modality that minimizes ambiguity in operative clauses. The IRAC sequence (*issue, rule, application, conclusion*) functions as a shared argumentative pattern, ensuring that conclusions appear as the necessary outgrowth of rules applied to facts rather than as mere opinion.

In computer science, knowledge takes form as formal definitions, algorithmic specifications, and modular decompositions that render problems tractable. Concepts are encoded in notations, pseudocode, and diagrams that prioritize unambiguous semantics and reusability. Argumentation is evidentially anchored in reproducibility: authors specify datasets, hyperparameters, baselines, and evaluation metrics; they situate contributions against related work; and they calibrate claims through benchmarking, statistical testing, ablation studies, and error analyses. Where appropriate, proofs of correctness or complexity provide deductive warrant, while open-sourced code and data extend the argumentative force into verifiable practice. The persuasive arc hinges less on rhetorical flourish than on transparency of method and demonstrable improvement over accepted standards.

In management, knowledge is represented through integrative frameworks that mediate between theory and application. Constructs are introduced via conceptual models, strategy matrices, causal path diagrams, and operational definitions of key performance indicators that make phenomena legible to decision makers. Argumentation blends empirical warrant with pragmatic feasibility: hypotheses or propositions are tested through quantitative analyses, cases, or mixed methods; findings are translated into scenarios, risk-benefit assessments, and implementation roadmaps; and recommendations are

justified by triangulating evidence with stakeholder constraints and market logics. Persuasion relies on audience design (explicit signposting, calibrated hedging and boosting, and narrative problem-solution-impact sequencing) to move readers from diagnosis to action without sacrificing analytical rigor.

Across the three fields, then, discipline-specific strategies align with distinct epistemic commitments. Law privileges stability and legitimacy through definition, categorization, and authority-driven reasoning; computer science privileges formalization, operationalization, and empirical verification under conditions of reproducibility; management privileges integrative modeling and consequential reasoning oriented to decision and implementation. These differences shape not only how knowledge is packaged (legal clauses, algorithmic modules, managerial frameworks) but also how claims earn their right to be believed: by fidelity to precedent, by transparent and testable performance, or by demonstrable value under real-world constraints.

Academic writing in law, computer science, and management shows both similarities and clear differences, which reflect how each field understands knowledge and how arguments are made credible. In all three areas, writers are expected to situate their claims in relation to earlier work, use evidence that is accepted within the discipline, and organize their arguments in a way that is logical and transparent to the reader. Each field also relies on cohesion devices such as definitions, consistent terminology, and metadiscourse to guide the reader through the argument. These shared practices highlight the common academic aim of making reasoning explicit, verifiable, and open to discussion.

At the same time, structural patterns differ. Legal texts are organized around definitions, rules, and their applications, often following a sequence that leads from issue identification to conclusion. Computer science articles usually follow a technical research format: problem, method, experiments, results, and evaluation. Management writing often mixes research structure with applied sections, moving from literature review and hypotheses to results and managerial recommendations.

Lexical choices also reflect disciplinary identity. Law tends to use traditional and formulaic expressions, with a high level of nominalization to achieve precision and authority. Computer science relies on acronyms, compounds, and rapidly evolving technical terminology, often compressed into dense noun phrases. Management combines technical terms with evaluative and metaphorical vocabulary, balancing specialist language with more accessible expressions suited to practitioners.

Rhetorically, each field builds credibility in its own way. Legal argumentation is grounded in precedent and statutory authority, with little room for hedging in operative passages. Computer science emphasizes reproducibility and innovation, using cautious claims backed by benchmarking and empirical testing. Management writing seeks to persuade by linking evidence to practical implications, often addressing both academic and professional audiences.

Thus, while all three domains share the broader academic principles of clarity, evidence, and coherence, they differ in structure, vocabulary, and rhetorical strategy. Law stresses stability and precision, computer science values technical clarity and reproducibility, and management prioritizes applicability and persuasive framing. These differences show that academic writing is not uniform but shaped by the communicative needs and epistemological goals of each discipline.

Conclusion. The comparative analysis of academic writing in law, computer science, and management demonstrates that while all three domains adhere to the general academic values of clarity, coherence, and evidence-based reasoning, they diverge significantly in their structural organization, lexical repertoire, and rhetorical strategies. Legal discourse emphasizes stability and precision, computer science privileges technical clarity and reproducibility, and management highlights applicability and persuasion. These distinctions confirm that academic writing is a discipline-specific practice shaped by epistemological priorities and communicative goals. Recognizing both shared and divergent features not only deepens our understanding of scientific discourse but also provides important insights for teaching, learning, and supporting academic writing across professional fields.

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