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SEMANTIC FIELDS OF WINDOWS OPERATING SYSTEM TERMINOLOGY IN LINGUISTICS

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Introduction

In the digital age, the integration of linguistic knowledge into technological systems has become increasingly important. Operating systems (OS), particularly Microsoft Windows, have developed specialized terminologies that reflect both their functional architectures and user interface designs. These terminologies form distinct semantic fields that help users navigate, understand, and manipulate the digital environment. The semantic field approach in linguistics provides a framework for examining how words cluster based on meaning, context, and usage. In this study, we focus on Windows OS terminology as a unique linguistic subsystem, characterized by specialized lexical units, structured categories, and conceptual metaphors. This article aims to analyze the semantic fields of Windows terminology using linguistic methods, including componential analysis, cognitive models, and corpus-based examination. The findings contribute to the broader understanding of language use in technology and offer insights into the lexicographic organization of digital environments.

Methods

The methodology for this research follows the IMRAD structure and incorporates both qualitative and quantitative linguistic techniques. The study begins with the collection of terminology from Microsoft Windows 10 and Windows 11 systems, using official documentation, user interface texts, help menus, and technical guides. A corpus was created by extracting keywords and interface terms through software tools and manual annotation. The collected data were categorized according to semantic fields based on thematic relevance, lexical relations, and usage context.

Three main analytical methods were used:

1. Semantic Field Analysis – to identify and classify clusters of related terms within the Windows environment.
2. Componential Analysis – to break down each term into its minimal semantic components, identifying shared features.
3. Cognitive Linguistics Approach – using metaphor theory and schema theory to explain conceptual underpinnings.

Tools such as AntConc were used for frequency analysis and keyword-in-context extraction. Reference works included ISO/IEC guidelines for software terminology and established dictionaries of computing terms.

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Results

The semantic analysis of Windows OS terminology revealed a set of structured, interrelated domains of lexical units that facilitate user interaction. Through systematic categorization, the following major semantic fields were identified:

1. System Control and Configuration: Terms in this field include 'Control Panel', 'Settings', 'System', 'Registry', 'Task Manager', and 'Device Manager'. These items share the [+system-level], [+configuration] features and form the nucleus of OS administration. They serve to configure both hardware and software elements.
2. File and Data Management: This semantic domain includes 'File Explorer', 'Folder', 'Document', 'Save', 'Copy', 'Paste', 'Rename', and 'Properties'. Such terms are closely linked through operations performed on user data. The internal logic of this field reflects the user's conceptualization of virtual storage through tangible analogs.
3. Graphical User Interface (GUI): Terms such as 'Window', 'Taskbar', 'Icon', 'Start Menu', 'Dialog Box', and 'Button' fall within this group. The GUI field emphasizes user orientation via visual metaphors and interaction models that reflect real-world affordances. Here, the semantic relations are largely syntagmatic: icons are arranged on the desktop, buttons are located within windows, etc.
4. Security and Access Control: 'Password', 'Encryption', 'Firewall', 'User Account Control', and 'Permissions' are representative terms. This field emphasizes protection and user identity verification, contributing to both internal system integrity and external user trust. Componentially, these terms share [+access], [+restriction], and [+identity] features.
5. Network and Connectivity: Key terms include 'Wi-Fi', 'Ethernet', 'VPN', 'Airplane Mode', 'Proxy', and 'Network Settings'. These terms express the state of connection, signal transfer, and communication protocols. They carry [+connectivity], [+remote access], and [+protocol] components.
6. Performance and Resource Monitoring: This includes 'CPU Usage', 'Memory', 'Disk Activity', 'Performance Monitor', 'Startup Impact', and 'Background Processes'. It centers around the evaluation and management of processing resources, carrying the [+efficiency], [+diagnosis], and [+monitoring] features.
7. Applications and System Updates: Terms such as 'App', 'Install', 'Update', 'Patch', 'Microsoft Store', and 'Uninstall' constitute this dynamic domain. These lexemes reflect the growth and maintenance of the system's software landscape, often associated with lifecycle events in software engineering.
8. Storage and Media: Including terms like 'Drive', 'Disk', 'USB', 'DVD', 'Format', and 'Storage Sense', this field handles physical and virtual storage media. These terms are structured both taxonomically and functionally.

The relationships among these terms exhibit rich paradigmatic associations (e.g., Save–Delete–Rename), meronymic links (e.g., Folder–File), and hypernymic sets (e.g., Application–Browser–Word Processor). In each field, a central prototype (e.g., 'Save' in File Operations) is surrounded by semantically related terms that form radial categories.

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Frequency analysis also confirmed that GUI-related and file management terms are the most commonly used in daily interaction, suggesting their centrality in user cognition.

Discussion

The findings of this study affirm the relevance of semantic field theory for understanding the structure of technical terminologies. Windows OS terminology not only fulfills communicative and instructional functions but also encodes conceptual metaphors that shape user experiences. For example, terms like 'Desktop', 'Recycle Bin', and 'Window' are grounded in metaphorical mappings from physical to digital space, as theorized by Lakoff and Johnson.

The categorization of terms into semantic fields shows how users mentally organize knowledge about the digital world. This aligns with schema theory in cognitive linguistics, wherein recurring conceptual frameworks guide interpretation and usage. The repetition of certain schema structures (e.g., container for 'Folder', source-path-goal for 'Install > Use > Uninstall') reflects habitual conceptualization strategies. Moreover, the structured organization facilitates localization and cross-linguistic consistency. Most terms have direct or metaphorically equivalent translations in major languages, supporting global usability. Lexicographically, such semantic fields form the basis for domain-specific dictionaries and ontologies used in natural language processing (NLP).

From a pedagogical perspective, the field-based approach can aid digital literacy education. Teaching terms through semantic grouping enables learners to develop holistic understanding. In professional translation and software engineering, understanding these relationships enhances consistency in UI text and documentation. Finally, the research contributes to the broader study of terminology management, offering a replicable methodology for analyzing other OS environments (e.g., Linux, macOS). As operating systems evolve, new semantic fields may emerge, requiring continuous linguistic adaptation and study. The linguistic patterns observed here also inform broader discussions in computational semantics, such as automatic term extraction, word sense disambiguation, and knowledge representation in artificial intelligence systems.

Conclusion

The analysis of Windows OS terminology through the lens of semantic fields offers critical insights into the structured nature of language in software systems. By identifying and organizing terms into distinct conceptual domains, this study provides a basis for improved interface design, multilingual software localization, and educational tools for digital literacy. The study also reinforces the utility of linguistic frameworks in analyzing technological discourse, suggesting further research into the comparative semantics of other operating systems and the role of user cognition in term recognition and usage.

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