A Linguo-Statistical and Semantic-Structural Analysis of Rodent Nomenclature in English

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Abstract: This article analyzes the linguo-statistical and semantic-structural features of animal names belonging to the order Rodentia in the English language. The research is based on a sample of 51 names. The article statistically examines the structural composition of animal names by the number of words and the frequency of one-word, two-word, and three-word names. Furthermore, it highlights the main principles used in naming rodents, particularly methods such as adding a modifier to a base species name and referring to the animal's specific characteristics or habitat. The most frequent base words and their role in name formation are identified. The research findings reveal the regularities of zoological lexis formation and naming strategies in the English language.

Keywords: Zoonyms, rodents, linguo-statistics, naming principles, semantic-structural analysis, English language, word composition, base noun, lexicology.

Introduction: Language is not merely a tool for communication; it is a vital instrument for understanding the world, reflecting culture, and transmitting knowledge across generations. The lexical stratum of a language, particularly its zoonymic lexis representing the animal kingdom, has consistently garnered interest across various linguistic disciplines. Zoonyms encapsulate a particular people's relationship with nature, their observational acuity, perceptions, and even their historical development. Due to the widespread global use of the English language today, studying its lexical richness, including its zoonymic layer, holds significant scientific and practical importance. Rodents (Rodentia), one of the largest and most diverse orders in the animal kingdom, are distributed across almost all continents and play a crucial role in human life and economy. Their nomenclature exhibits unique linguistic and linguo-cultural features in different languages. A linguistic analysis of rodent names in English not only allows for a deeper understanding of the lexico-semantic system of this language but also enables the identification of naming principles, word-formation methods, and statistical regularities. This research aims to statistically analyze the structural composition of English rodent names based on a sample list according to the number of words, to identify the main semantic principles in their naming, and to determine the most frequent base (root) words.

METHODS

The research employed descriptive, comparative, statistical analysis, and component analysis methods. The findings of this research may hold theoretical and practical significance for further studies in lexicology, zoonymy, comparative linguistics, and translation studies. To achieve this aim, the following objectives were set: To compile a sample collection of English names of rodents for analysis. To statistically analyze the structural composition of the collected names by the number of words (one-word, two-word, and three-word names) and determine their frequency of occurrence; To identify and illustrate with examples the main semantic principles used in naming rodents in

English; To identify the most frequent base (root) words within the names and assess their role in name formation.

The study of zoonymic lexis has a long-standing tradition in linguistics. Globally, extensive research has been conducted on various aspects of zoonyms, including their etymology, semantics, linguo-cultural features, and comparative-typological analysis. For instance, scholars such as Anna Wierzbicka or George Lakoff have explored the cognitive dimensions of animal names in their work, while Zoltán Kövecses has focused on the linguo-cultural characteristics of zoonymic metaphors. Within English linguistics itself, the study of animal names has been approached from various perspectives. Early lexicographical works by figures like Samuel Johnson laid some groundwork by documenting these terms. More contemporary linguists, scholars such as John Lyons, have delved into the semantic fields and structural properties of English vocabulary, which indirectly or directly includes zoonyms. However, dedicated studies focusing specifically on a linguo-statistical and comprehensive semantic-structural analysis of rodent names in the English language appear to be relatively less common. Much of the existing research addresses the broader zoonymic stratum or specific lexico-semantic groups without a detailed quantitative focus on nomenclature structure for an order as diverse as Rodentia. From this perspective, the current research distinguishes itself through its novelty and scientific-practical significance.

DISCUSSION AND RESULTS

The "Rodents" (Rodentia) category, comprising 51 distinct animal names in the analyzed sample, presents an interesting landscape for linguistic-statistical examination in the English language. This analysis focuses on the structural composition of these names and prevalent naming conventions.

I. Structural Composition: word count per name. A quantitative breakdown of the 51 English rodent names based on the number of constituent words reveals the following distribution:

One-word names: A total of 18 names (approximately 35.3% of the rodent sample) consist of a single lexical item. Examples include common terms such as Hamster, Gerbil, Vole, Lemming, Muskrat, Chinchilla, Nutria, Beaver, Chipmunk, Marmot, Woodchuck, Agouti, Paca, Degu, Jerboa, Hutia, Viscacha, and Mara. Many of these are either loanwords adopted into English or well-established, concise terms for specific rodent types.

Two-word names: This category is the most prevalent, with 22 names (approximately 43.1% of the rodent sample) structured as two-word compounds or descriptive phrases. Illustrative examples include House Mouse, Field Mouse, Brown Rat, Kangaroo Rat, Dwarf Hamster, Guinea Pig, Cane Rat, Mole Rat, Hazel Dormouse, and Spiny Mouse. This structure often involves a generic noun modified by an adjective or another noun to specify a particular species or characteristic.

Three-word names: The sample includes 11 names (approximately 21.6%) composed of three words. These often provide more detailed research, frequently incorporating geographical indicators or more specific descriptive elements. Examples are the North American beaver, the Eurasian beaver, the Old World porcupine, the naked mole rat, and the Patagonian cavy.

The analysis indicates a clear preference for two-word names in the English nomenclature of this rodent sample, closely followed by one-word names. Three-word names, while significant, are less common than the other two categories. This distribution suggests a balance between conciseness (one-word names) and a need for specificity that is often achieved through two-word descriptive phrases. The three-word structures typically arise when further research, such as geographical origin or a more nuanced physical trait, is deemed necessary for identification. This pattern reflects a common linguistic tendency to employ compounding and adjectival modification to create a rich and differentiated lexicon for a diverse biological order like Rodentia.

II. Prevailing principles in the English nomenclature of rodents. A semantic and lexico-morphological analysis of English rodent names reveals several consistent principles employed in their designation. These principles serve to classify, differentiate, and reflect the distinctive characteristics of these animals. The following outlines these observed naming conventions:

Modification of a Base Noun: This is one of the most prevalent and productive naming strategies, wherein a general species noun (Mouse, Rat, Squirrel, Hamster, Beaver, Porcupine, Dormouse, Cavy) is modified by an adjective, another noun, or a place name.

Modification by Adjective: Adjectives denoting color, size, or other qualitative characteristics are frequently used as modifiers. For instance, Brown Rat refers to its typical coloration. Gray Squirrel – indicates its fur color. Dwarf Hamster – denotes its smaller size. Crested Porcupine – highlights a distinctive physical feature.

Modification by place name/geographical indicator: The modifier often specifies the animal's habitat or region of origin. Examples include: North American Beaver/Eurasian Beaver/Patagonian Cavy.

Modification by noun: Sometimes, another noun functions as a modifier, often pointing to the animal's habitat or a particular association. For example: House Mouse – indicating its common cohabitation with humans. Rock Cavy – referring to its rocky habitat. Hazel Dormouse – potentially alluding to its diet or arboreal habitat associated with hazel trees.

Names based on distinctive features or appearance: According to this principle, rodent names are derived from their most conspicuous physical attributes, behavioral patterns, or other unique characteristics. Such names are often descriptive. Examples include: Flying Squirrel – alluding to its ability to glide. Spiny Mouse – referring to the stiff, quill-like hairs on its body. Naked Mole Rat – highlighting its hairless body. Springhare – indicating its leaping locomotion and long hind legs.

Names indicating habitat: The names of some rodents directly point to their typical living environments. These names help in understanding the ecological niche and distribution of the animal. For instance, Field Mouse – indicating its preference for fields. Wood Mouse – referring to its woodland habitat. Ground Squirrel – denoting its terrestrial lifestyle and burrowing habits.

Names based on resemblance to other animals: In certain cases, rodent names are coined based on their physical resemblance or behavioral similarities to other, often larger or taxonomically different, animals. This method represents a form of metaphorical naming. Examples include Kangaroo Rat – named for its long hind legs and hopping gait, reminiscent of a kangaroo. Kangaroo Mouse – similarly named for its kangaroo-like locomotion and appearance. Prairie Dog – so-named due to its colonial living and the barking-like calls it makes when alarmed, similar to a dog.

The analysis of English rodent names demonstrates the application of several effective linguistic strategies in the naming process. The modification of a base species noun with a determiner is the most productive method, allowing for the differentiation of numerous subspecies. These principles showcase the lexical richness of the English language and its adaptability in classifying natural phenomena.

III. Analysis of the most frequent base nouns (roots) in English rodent nomenclature. An examination of the 51 English rodent names in the sample reveals a recurring pattern in the use of certain base nouns or root words. These core terms often serve as the foundation upon which more specific names are built through modification. Identifying the frequency of these base nouns provides insights into the primary categories recognized within common English zoological terminology for rodents and highlights the most prototypical members of these sub-groupings. The following base nouns appear with notable frequency in the dataset:

Mouse: This is the most frequently occurring base noun, appearing in 7 distinct names within the sample (approximately 13.7% of the total rodent names). Examples: House Mouse, Field Mouse, Deer Mouse, Harvest Mouse, Wood Mouse, Spiny Mouse, Kangaroo Mouse. The high frequency of "Mouse" underscores its role as a highly generic and widely recognized term for small, typically long-tailed rodents. The various modifiers attached to "Mouse" serve to differentiate numerous species or types that share a general "mouse-like" morphology or ecological niche. This reflects the extensive diversity within the Muridae family and related groups that are colloquially identified as mice.

Rat: The base noun "Rat" is found in 5 names in the sample (approximately 9.8%). Examples: Brown Rat, Black Rat, Kangaroo Rat, Pack Rat (Woodrat), Cane Rat, Mole Rat. "Mouse" and "Rat" serve as core terms, generally referring to medium-sized, long-tailed rodents, often larger than mice. The modifiers help distinguish between common commensal species (Brown Rat, Black Rat) and those with unique characteristics or habitats (Kangaroo Rat, Pack Rat, Cane Rat). The term often carries specific connotations, sometimes negative, due to the association of some rat species with disease or pest status.

Squirrel: "Squirrel" forms the base for 4 names (approximately 7.8%). Examples: Squirrel (Gray Squirrel), Red Squirrel, Flying Squirrel, Ground Squirrel. "Squirrel" is a well-defined base noun for arboreal (tree-dwelling) or terrestrial rodents known for their bushy tails and nut-gathering habits. The modifiers primarily denote color (Gray, Red), unique abilities (Flying), or habitat preference (Ground), effectively categorizing common squirrel types.

Porcupine: This base noun is present in 3 names (approximately 5.9%). Examples: Porcupine (North American), Old World Porcupine, Crested Porcupine. "Porcupine" identifies a distinct group of large rodents characterized by their sharp quills. The modifiers here largely point to geographical distribution (North American, Old World) or a specific physical trait (Crested), the different families, or prominent species of porcupines.

Dormouse: The base "Dormouse" also appears in 3 names (approximately 5.9%). Examples: Dormouse, Hazel Dormouse, Edible Dormouse. "Dormouse" refers to a group of small, typically nocturnal, hibernating rodents.

Other recurring base nouns (with 2 occurrences each, approximately 3.9% each). Beaver: Beaver (North American), Eurasian Beaver. (Focuses on large, semi-aquatic, dam-building rodents). Hamster: Hamster (Syrian/Golden), Dwarf Hamster. (Refers to small, stout-bodied rodents, often kept as pets). Cavy: Patagonian Cavy, Rock Cavy.

The prevalence of base nouns like "Mouse" and "Rat" highlights their status as hypernyms or umbrella terms for large, diverse groups of smaller rodents in common English parlance. The systematic addition of modifiers to these core terms is a highly productive word-formation strategy. Other frequent base nouns like "Squirrel," "Porcupine," and "Dormouse" represent more specific, but still well-recognized, categories within the Rodentia order. This pattern of a few dominant base nouns with numerous specific derivatives demonstrates an efficient linguistic system for categorizing and identifying animal species based on perceived commonalities and distinguishing features. The frequency of these roots also reflects the ecological and cultural salience of these particular rodent groups to English speakers.

CONCLUSION

The linguo-statistical and semantic-structural analysis of the sampled English rodent names has provided several key insights into the patterns and principles governing this particular segment of zoonymic lexis. In summary, the English nomenclature for rodents, as evidenced by this study, is not arbitrary but is governed by discernible structural and semantic patterns. The preference for descriptive multi-word names, the consistent application of specific naming principles based on observable characteristics and ecological factors, and the hierarchical structure built around frequent base nouns all contribute to a rich and functionally differentiated lexicon. Further research could expand this analysis to a larger corpus of rodent names, incorporate diachronic perspectives to trace the evolution of these names, and conduct more extensive cross-linguistic comparisons to identify universal versus language-specific naming strategies. Such studies would continue to illuminate the fascinating intersection of language, cognition, and the natural world.

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