STRUCTURAL ANALYSIS OF SNAKE NAMES IN THE SYSTEM OF ENGLISH ZOONYMY

Khidirova Makhfuza Amirkulovna
Senior Lecturer
Denov Institute of Entrepreneurship and Pedagogy
E-mail: m.xidirova@dtpi.uz
Tel.: +998 97 553 89 68

Annotation. This article examines the structural characteristics of 160 snake names in the English language. Zoonyms are analyzed based on the number of components, covering models from single-word names to complex five-component phrases. The study reveals that two-component (bilexemic) and three-component (trilexemic) structures constitute the vast majority of snake nomenclature, reflecting the analytical nature of the English language.

Key words. Zoonym, snake, structural analysis, component, nomination, terminology, lexis, herpetology.

INGLIZ TILI ZOONIMIYA TIZIMIDA ILON NOMLARINING STRUKTURAVIY TAHLILI

Xidirova Maxfuza Amirkulovna
Katta o‘qituvchi
Denov tadbirkorlik va pedagogika instituti
E-mail: m.xidirova@dtpi.uz
Tel.: +998 97 553 89 68

Annotatsiya. Ushbu maqolada ingliz tilidagi 160 ta ilon nomining strukturaviy xususiyatlari tadqiq etilgan. Zoonimlar tarkibiy qismlar (komponentlar) soni bo‘yicha tahlil qilinib, bir komponentli nomlardan besh komponentli

murakkab birikmalargacha bo‘lgan modellar yoritilgan. Tadqiqot natijasida ingliz tilida ilonlar nomlanishida ikki va uch komponentli nominatsiyalarning mutloq ustunligi, bu esa ingliz tilining analitik tabiatini aks ettirishi aniqlangan.

Kalit so‘zlar. Zoonim, ilon, struktur tahlil, komponent, nominatsiya, terminologiya, leksika, herpetologiya.

СТРУКТУРНЫЙ АНАЛИЗ НАЗВАНИЙ ЗМЕЙ В СИСТЕМЕ АНГЛИЙСКОЙ ЗООНИМИИ

Хидирова Махфуза Амиркуловна
Старший преподаватель
Деновский институт предпринимательства и педагогики
E-mail: m.xidirova@dtpi.uz
Тел.: +998 97 553 89 68

Аннотация. В данной статье исследуются структурные особенности 160 названий змей в английском языке. Зоонимы анализируются по количеству компонентов, освещая модели от однокомпонентных названий до сложных пятикомпонентных сочетаний. В результате исследования выявлено, что двухкомпонентные и трехкомпонентные номинации составляют подавляющее большинство змеиной номенклатуры, что отражает аналитический характер английского языка.

Ключевые слова. Зооним, змея, структурный анализ, компонент, номинация, терминология, лексика, герпетология.

Introduction. The study of animal names, scientifically referred to as zoonymy, represents a vital intersection between linguistics, biology, and cognitive science. Zoonyms are not merely arbitrary labels; they serve as linguistic mirrors reflecting how human beings perceive, categorize, and interact with the natural world. Within the vast lexical system of the English language, herpetological

nomenclature—specifically the naming of snakes (Serpentes)—constitutes a unique domain characterized by a high degree of taxonomic precision and descriptive richness.

From a structural perspective, English snake names provide a fascinating field for linguistic analysis due to the language's analytical nature. Unlike languages that rely heavily on morphological synthesis (suffixation or prefixation), English frequently utilizes syntactic compositions to form nominative units. These names often evolve from simple monolexemic roots (e.g., *Cobra*, *Viper*) into complex multilexemic phrases (e.g., *Western Diamondback Rattlesnake*). The structural complexity of a zoonym is typically driven by the need for differentiation; as more species are identified within a single genus, the language adapts by adding descriptive layers—color, habitat, geographical origin, or physical morphology—to the headword.

Despite the abundance of herpetological data, the structural organization of these names within the English zoonymic system has remained relatively underexplored. Most existing research focuses on the etymology or the cultural symbolism of snakes, often neglecting the formal syntactic patterns that govern their common names. This article aims to address this gap by conducting a comprehensive structural analysis of 160 snake names. By categorizing these zoonyms based on the number of their lexical components, this study seeks to identify the most productive naming models and explore how English balances cognitive economy with the requirements of biological specification. Understanding these structures offers valuable insights into the lexical productivity of English and the hierarchical nature of specialized terminology.

Materials and methods. The methodological framework of this research is designed to provide a systematic structural classification of English snake

nomenclature. To ensure scientific rigor, the study was conducted through a combination of qualitative linguistic description and quantitative statistical analysis.

The primary material for this study consists of a specialized corpus of 160 English snake zoonyms. These names were selected to represent a diverse range of families, including *Boidae* (boas), *Pythonidae* (pythons), *Viperidae* (vipers), and *Elapidae* (cobras and kraits). The zoonyms were extracted from authoritative herpetological and linguistic sources to ensure the accuracy of standardized common names:

a) The Reptile Database [10]: Used as the primary source for verifying standardized English common names for globally recognized species.
b) A Dictionary of Zoology (Oxford) [1]: Consulted to verify the lexical status and orthographic conventions of the selected zoonyms.
c) Encyclopedia of Life (EOL) [5]: Used to cross-reference common usage in English-speaking scientific communities.

The focus was placed strictly on the English common names (e.g., *"King Cobra"*) rather than their Latin binomial nomenclature (e.g., *"Ophiophagus hannah"*), as the objective is to analyze the internal syntactic structure of the English language itself.

The research applies several linguistic methods to analyze the collected data: Structural-Semantic Analysis was used to break down each zoonym into its constituent parts (components) and determine the relationship between the "headword" (the generic category) and its "modifiers" (the descriptive attributes).
The zoonyms were classified into five distinct groups based on the number of lexical units (words) they contain:

- ✓ Monolexemic (1 component);
- ✓ Bilexemic (2 components);
- ✓ Trilexemic (3 components);

- ✓ Quadrant-lexemic (4 components);
- ✓ Multilexemic (5 or more components).

Simple statistical frequency calculations were performed to identify which structural model is the most prevalent in English snake naming. This helps in determining the "ideal" length of a biological label from a cognitive-linguistic perspective. Descriptive-comparative method is used to compare the structural variety found in snake names with other reptile groups (such as lizards) to highlight specific trends in herpetological zoonymy.

Discussion. The structural analysis of 160 English snake zoonyms reveals significant insights into the linguistic mechanisms of biological nomenclature and the cognitive processes of naming within the herpetological domain. The data clearly demonstrates a hierarchy of complexity where the number of components in a zoonym is directly proportional to the level of taxonomic precision required to differentiate a species within the suborder *Serpentes*.

1. The Dominance of bilexemic and trilexemic models. The most striking finding in this study is the overwhelming predominance of two-component (55%) and three-component (32.5%) structures. Collectively, these two models account for 87.5% of the entire corpus. This distribution confirms that English snake nomenclature operates on the principle of cognitive economy, which suggests that the human brain prefers labels that balance descriptive detail with brevity [8]. According to Eleanor Rosch's Prototype Theory, humans tend to categorize natural objects at a "basic level" (e.g., *Cobra, Python, Rattlesnake*) which provides the most useful information with the least cognitive effort [8]. In our corpus, the headword provides the general category, while the modifier (e.g., *King, Ball, Timber*) serves as the specific differentiator, creating a balanced bilexemic unit.

2. Semantic layering and syntactic hierarchy. As we move from bilexemic to trilexemic names, we observe a sophisticated process of semantic layering. In

names like *"Western Diamondback Rattlesnake"* or *"Mozambique Spitting Cobra,"* the syntactic structure follows a rigid hierarchical order: [Geographic Origin/Habitat] + [Physical characteristic/Behavior] + [Generic Category]. This layering reflects what Leonard Bloomfield described as the "attribute-and-head" construction, where each added modifier narrows the semantic field of the headword to achieve maximum precision [2]. The analytical nature of English allows for this flexible "stacking" of adjectives, providing a vivid mental image that is often more accessible to the general speaker than the Latin binomial equivalent (e.g., *Crotalus atrox*).

3. The status of monolexemic zoonyms. The study identified 12 monolexemic (one-component) names, such as *"Cobra," "Python," "Mamba,"* and *"Viper."* While representing only 7.5% of the corpus, these names hold high linguistic status as "primary lexemes." As noted by Brent Berlin in his theory of ethnobiological classification, these single-word names usually represent the most culturally significant or morphologically distinct organisms in a language [3]. Most of these terms are either ancient roots or direct borrowings from Portuguese, Latin, or indigenous African and Asian languages, acting as the foundational anchors for the more complex multilexemic structures.

4. Complexity in multilexemic structures (4 and 5 Components). At the higher end of the structural spectrum, four and five-component zoonyms (e.g., *"South American Coral Snake"* or *"Eastern Black-necked Spitting Cobra"*) represent the limit of linguistic specification. These names appear when multiple physical traits (color + behavior) must be combined with geographical data to distinguish a species from numerous close relatives. However, as the component count increases, the name shifts from a "lexical unit" toward a "definitional phrase." From a communicative standpoint, these longer names are prone to Zipf's Law (The Principle of Least Effort), where speakers naturally shorten them in

casual discourse (e.g., *"Spitting Cobra"* instead of the full version) to ensure communicative efficiency [9].

5. Geographic and morphological attribution. A significant portion of the analyzed models relies on a combination of toponyms (geographic names) and morphological markers. This indicates that for English speakers, the "where" of a snake is often as vital for identification as the "how it looks." Descriptors like *"Caspian," "Philippine,"* or *"Texas"* act as primary spatial classifiers. In contrast, behavioral and morphological modifiers—such as *"Diamondback," "Spitting,"* or *"Rat Snake"*—appeal to the observer's immediate sensory perception. As John Lyons argues, the naming of natural kinds often relies on "salient characteristics" that are easily observable, such as the rattle of a rattlesnake or the hood of a cobra [7].

In summary, the structural diversity of English snake names is a testament to the language's ability to adapt its syntactic rules to the rigorous needs of biological classification. The preference for analytical constructions (phrases) over synthetic constructions (complex words) allows for an almost infinite variety of nominations. This study confirms that English snake names are not random labels but are logically constructed linguistic units that prioritize visual, behavioral, and spatial markers to facilitate human understanding and categorization of the natural world.

Results. The structural analysis of the 160 snake zoonyms in English reveals a diverse range of syntactic models. The data was categorized based on the number of lexical components forming each name. The quantitative distribution of these models highlights the linguistic preferences of the English language in creating biological nominations for this group of reptiles. The findings are summarized in the following table:

Table 1: Quantitative and structural distribution of English snake names

Structural Category	Number of Components	Quantity (n=160)	Percentage (%)	Representative Examples
Monolexemic	1	12	7.5%	Cobra, Python, Mamba, Viper
Bilexemic	2	88	55.0%	King Cobra, Ball Python, Black Mamba
Trilexemic	3	52	32.5%	Green Tree Python, Mozambique Spitting Cobra
Quadrant-lexemic	4	6	3.75%	South American Coral Snake, Red-bellied Black Snake
Multilexemic	5	2	1.25%	Eastern Black-necked Spitting Cobra
Total		**160**	**100%**	

The data indicates that Bilexemic (two-component) names are the most frequent, representing more than half of the total sample (55%). These are followed by Trilexemic (three-component) names at 32.5%.

In contrast, Monolexemic names (7.5%) are relatively more common in snakes than in other reptile groups like lizards, primarily due to the existence of globally recognized primary lexemes like *"Python"* or *"Boa."* However, Quadrant-lexemic and Multilexemic models remain a small fraction (5%),

appearing only when extreme taxonomic precision is required, combining multiple variables such as geographical origin, physical markers, and behavioral traits.

Conclusion. The structural investigation of 160 snake zoonyms in English allows for several key linguistic conclusions:

1. Similar to other branches of English zoonymy, the naming system for snakes is predominantly analytical. The language favors the "modifier + head" syntactic pattern, allowing for the creation of precise, descriptive phrases that function as stable terminological units without the need for complex morphological synthesis.
2. The prevalence of two and three-component structures (87.5%) reflects the principle of linguistic economy. These models provide an optimal balance, offering enough information to identify the genus and specific traits (e.g., *"King Cobra"*) while remaining concise enough for effective everyday and scientific communication.
3. As the degree of species differentiation increases, the zoonym expands through a systematic layering of attributes. The research identifies a consistent hierarchy where geographical origin (*Texas, Caspian*), physical morphology (*Diamondback, Red-bellied*), and behavioral characteristics (*Spitting, Racer*) are stacked onto the taxonomic headword.
4. While long multilexemic names like *"Eastern Black-necked Spitting Cobra"* provide maximum scientific accuracy, they occupy a marginal place in the lexicon. English tends to resist excessive length, often leading to the shortening of these names in practical usage, which demonstrates the language's natural drive toward simplicity.

In summary, this research illustrates how English snake nomenclature mirrors the biological diversity of the *Serpentes* suborder through flexible and logical syntactic structures. These findings provide a basis for further comparative

studies, particularly in exploring how these analytical English structures translate into synthetic or descriptive models in other languages such as Uzbek or Russian.

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