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Explicit and hidden zoological categories in early Chinese taxonomies

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Abstract: The present article investigates the problems of zoological taxonomical categories in texts that range from the Warring States (ca. 453–221 BCE) to the Eastern Han periods (25–220 CE). It focuses its attention on the *Erya* (attested 3rd c. BCE), a work that had a pivotal role during the development of Chinese lexicography. This terse glossary is probably one of the first texts that deal with the problem of taxonomical classification in early China through the use of syntactical devices that I call "categorical markers", i.e. normalised characters that introduce an ontologically independent category of entities. By dint of the analysis of selected case studies, it will be shown that along fairly well attested "categorical markers" that constitute dichotomous systems (such as *shou* 獸 "quadruped furred creatures" versus *niao* 鳥 "bipedal winged creatures"), early Chinese taxonomies reveal less explicit linguistic devices that are implied in zoological classification, e.g. the presence of "sub-categorical markers" as noun modifiers (*chou* 醜 "being physically similar" or *shu* 屬 "to belong to a category") used in order to create embedded taxonomies within the standard "categorical markers". This complexity reveals an organised taxonomical system that helps us to better define the early Chinese conception of the natural world.

Keywords: taxonomy, animals, lexicography, Erya, organisation of knowledge

1 Introduction

The organisation of knowledge in pre-modern civilisations, such as in early China, necessitates a coherent and yet not overcomplicated set of schemes on which entities – and words – are accurately classified and catalogued. Knowledge of the animal world in pre-modern China is in fact characterised by a recurrent subdivision into different "categorical marks" that represent what biologists today

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would call classes (e.g. mammals) or *phyla* (e.g. arthropods). Early Chinese texts do not offer a rigorous biological classification based on Linnaean taxonomy or much more modern taxonomical studies: that would be, of course, preposterous and anachronistic. However, the methods of taxonomisation are surprisingly more complex and refined when it comes to identifying not only the taxonomic ranks of class or *phylum*, but also the lower taxonomic ranks of order (e.g. carnivorans) and family (e.g. cats/felids). This article aims to investigate the complexity of early Chinese zoological taxonomical categories and how they were structured in Warring States and Han texts (roughly from 453 BCE to 220 CE), a timeframe considered as the foundational period of Chinese lexicography, generating the richest lexical database of animal names. As a case study, apart from the more explicit way to categorise entities with well-attested hypernyms such as "fish", "birds", early Chinese lexicographies, such as the *Erya* 爾雅 (*Approaching Elegance*),[1] show us a more complex and structured system of implicit sub-categories that were used to create smaller groups of entities that shared a common characteristic.[2]

By systematically applying a philological (Coblin 1972, Carr 1979) and a linguistic approach (Harbsmeier 1998, Bottéro 2002) to a pertinent selection of zoological glosses, this paper aims at exploring the linguistic strategies through which early Chinese proto-zoological categories were organized (Needham 1986, Sterckx 2002). By dint of the analysis of selected case studies, it will be shown that animals were not only organised into dichotomous systems made of fairly well

1 The title of this text is somewhat vague, and it is difficult both to translate and to understand. Other possible translations proposed for this glossary include "Sprachrichtigheit" (Karlgren), "Approaching Perfection" (Bottéro and Behr), "The Ready Guide" (Peng/Yong 2008, although this translation appears less convincing than the others). *Er* 爾 (Baxter-Sagart *n[ə][r]ʔ) is in fact cognate with *er* 邇 (BS *n[ə][r]ʔ) which means "near", "close by"; *ya* 雅 (BS *N-ɢˤraʔ) means "elegant", "cultured", "refined". The latter is also quasi-homophone with the character *xia* 夏 (BS *[ɢ]ˤraʔ), which possesses ethno-anthropological features: this character, in fact, represents the name of the Xia dynasty and at that time was an epithet of belonging to a proper Chinese heritage. This graph eventually expanded its semantic value in order to describe elegance and regulation. This is why it is a cognate with *ya* 雅. See Coblin 1972; *Hanyu da zidian*, 4405. A passage in the *Xunzi* 荀子 (c. 3rd century BCE) states that "the people of Yue are at home in Yue, and the people of Chu are at home in Chu—the gentleman is at home in what is graceful." 越人安越,楚人安楚,君子安雅 (trans. by Hutton 2014: 142), with the last character sometimes written as *xia* 夏.

2 The analysis of the *Erya* glosses focusing on its different chapters, stems from the doctoral dissertations of Weldon South Coblin 1972, and Michael Carr 1979, which respectively investigate the first three chapters and the botanical chapters of the *Erya*. My study started from the analysis of three of the zoological chapters of the *Erya* with the intent of having a full lexicographical map of this particular text, with also phonetic reconstruction notes.

attested "categorical markers" (such as *shou* 獸 "quadruped furred creatures" versus *niao* 鳥 "bipedal winged creatures" or *shou* 獸 "wild beasts" versus *chu* 畜 "domestic animals"). Early Chinese taxonomies, in fact, reveal also less explicit linguistic devices that are implied in zoological classification. Within the *Erya* text, it is possible to identify "sub-categorical markers" as noun modifiers used in order to create embedded taxonomies within the standard "categorical markers": inside the five "explicit" categorical markers, there are two "implicit" categorical markers, namely *chou* 醜 "being physically similar to" and *shu* 屬 "to belong to [a category]".

2 Lexicography and taxonomy: The strive to collect and categorise characters and names

Lexicographic works in early China were identified by the disyllable *xiaoxue* 小學 [lesser/minor learning], a term which in origin designated education in the six arts (rites *li* 禮, music *yue* 樂, archery *she* 射, charioteering *yu* 御, calligraphy *shu* 書 and mathematics *shu* 數), but by the Han period "the term *xiao xue* starts having the meaning of studies of characters", i.e. philology and/or lexicography [...] it translates gently the Latin ars minor".[3] The most important primary source for this study is the *Erya*, traditionally considered a 3rd century BCE "dictionary of words" (*cidian* 辭典)[4] that reached its present form as late as the mid-2nd century BCE,

3 Bottéro, 2017: 4. Lexicography and dictionary studies are undoubtedly intertwined with the *Weltanschauung* of the Han period principally because "as long as Confucianism was the state ideology, it was taken as axiomatic that the object of lexicology was to enhance a correct understanding of the *Classics*." (Wilkinson 2013: 77). See also *Hanshu* ("Yiwen zhi" ch. 30, 1720–1721), Bottéro 2002; Chi Xiaofang 1998. Also see Roetz 1993 on the "axial age of Chinese thought".

4 The Chinese language has at least two different expressions for "dictionary": *cidian* 辭典 (dictionary of words) and *zidian* 字典 (dictionary of graphs). The former can be interchangeably written *cidian* 詞典. Harbsmeier 1998: 65, along with the latter two categories (which are respectively identified by him as "semantic dictionary" and "pictographic-cum-semantic dictionary"), points out that there exists yet another type of Chinese dictionary: a folk-etymological-phonetic dictionary category that is represented by the *Shi ming* 釋名. Generally speaking, the main difference between the two is that *zidian* are organised graphically using a recurring graphic component that each Chinese character possesses, i.e. the "semantic classifiers" or *bushou* 部首 ("section header"). The English word "radical" was used in the past as a translation for *bushou*, but it implied an oversimplified metalinguistic adaptation of the Chinese language to Indo-European linguistics. *Cidian* instead are organised by semantic categories, i.e. different topics like the names of mountains, seas, animals or plants.

though this dating is quite debatable.[5] The *Erya* is a text made up of brief glosses and divided into 19 chapters, each dealing with a particular semantic area of interest: utensils, musical instruments, mountains, rivers, plants and animals. Among these, there are five zoological chapters:

1) "Shi chong" 釋蟲 (Glosses on [generic] creatures);
2) "Shi yu" 釋魚 (Glosses on aquatic animals);
3) "Shi niao" 釋鳥 (Glosses on winged animals);
4) "Shi shou" 釋獸 (Glosses on quadrupeds];
5) "Shi chu" 釋畜 (Glosses on domestic animals).

Although the *Erya* is a relatively short text composed of laconic glosses, this heavily stratified "dictionary of words" was probably conceived as a thesaurus to understand obscure characters that are found in the Classics, especially the *Shijing* 詩經, (*Book of Odes* or *The Classic of Poetry*). From the Han dynasty onwards, the *Erya* assisted scholars, students and pupils to understand the original meaning (according to Han scholars) of characters in need of an explanation for whatever reason;[6] moreover, it provided a reliable repertoire of synonyms that were needed in order to get closer to an "authoritative lexicon".[7]

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5 At present, there are wildly conflicting datings of the *Erya*, and controversial ideas of its filiation with other texts. The bibliographic chapter in the *Hanshu* 漢書 (The Book of the Former Han, ca. 111 CE), known as the "Yiwen zhi" 藝文志 (Treatise on Literature), states that the *Erya* was compiled by the Duke of Zhou (*Zhou Gong* 周公, before 1000 BCE). By the first half of the last century, Bernhard Karlgren had dated this text's original compilation to the 3rd century BCE. There was subsequently agreement on the fact that the *Erya* is a multi-layered text, with passages both from the 3rd century BCE and the Han period. Bottéro, 2017: 583–584 for instance, says that: "[...] a closer analysis of the text suggests a quite different scenario. The structure of the Ěryǎ is quite heterogeneous and may have combined two or three different texts. The first two sections [...] consist in lists of synonyms or quasi-synonyms [...] These sections probably correspond to an originally independent text. The third section [...] was probably an independent text attached to the Shījīng. [...] All the 16 other sections follow an encyclopedic organization with a peculiar classification glossing." The controversies still continue today, as South Coblin 2017: 188 points out that: "[...] the dating of the text has been widely discussed in China. Some authorities, such as Hú and Fāng et al. (2001), have [...] opted for a broad dating spanning the Warring States and early Hàn periods. Most others, however, limit the formative period to the late Warring States (475–221 BCE), or at the latest, the Qín (221–206 BCE) periods."

6 For example, a character could be so rare to be a hapax legomenon or simply because it could have obscure or ambivalent meaning in a determinate text.

7 The *Erya* subsumed the lexicon of the Classics and its meaning, which was regarded as a model of stylistic perfection as well as an authoritative lexicon. These two concepts are subsumed once again in the *ya* 雅 graph, which stand both for elegance and authority. See note 1.

Accompanied by the commentary by Guo Pu 郭璞 (276–324)[8] and a sub-commentary by Xing Bing 邢昺 (932–1010)[9], the *Erya* was canonised as one of the Thirteen Classics during the Song 宋 dynasty (960–1279 CE). The influence of the *Erya* on the literary history of China is also inferable from the proliferation of glossaries that are roughly organised in the same way and explicitly edited as expansions of it. The most important examples are the *Yiya* 逸雅 (*Lost* [*Er*]*ya*, c. 200 CE), the *Guangya* 廣雅 (*Extension to the* [*Er*]*ya*, c. 230 CE), the *Piya* 埤雅 (*Increased* [*Er*]*ya*, c. 1096 CE) and the *Erya yi* 爾雅翼 (*Wings to the Erya*, c. 1174–1270). These texts, along with the *Erya*, were edited and compiled during the Ming dynasty into one single glossary entitled *Wuya* 五雅 (The five *ya*).

The abundance of animal names and their explicit categorisation in lexicographies, could suggest that this kind of text might have served as encyclopaedia-like works, where a scholar could consult the names of a particular genus or species of a certain creature, especially if one could speculate that some editions were illustrated.[10] While it is legitimate in a modern scientific treatment to use terms like "species" and "taxonomy", we must be very cautious when it comes to the early Chinese context, as they might be inappropriate. Early proto-scientific theories are not comparable with modern zoology. The word "taxonomy", and the concept

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8 Guo Pu was a writer and scholar of the Eastern Jin period 東晉 (317–420 CE) and is best known as one of China's foremost commentators on ancient texts. Guo was a Daoist mystic, geomancer, collector of strange tales, editor of old texts, and erudite commentator. He was the first commentator of the *Shanhajing* 山海經 (*Classic of the Mountains and Seas*) and of the *Erya*. He is also traditionally considered the author of the *Zangshu* 葬書 (*The Book of Burial*), one of the first sources of *fengshui* 風水 doctrine, although recent studies consider it as a later text, probably of the Tang period. See Lian 1999; Lian 2002. For a study of the *Shanhaijng*, see Fracasso 1996; Strassberg 2002. For a study of the *Zangshu* and *fengshui* related texts, see Paton 2013.

9 Xing Bing was a Confucian scholar of the early Northern Song period 北宋 (960–1126). Together with Sun Shi 孫奭 (962–1033), Xing Bing revised a Tang period collection of commentaries to the Classics, the *Jiujing zhengyi* 九經正義 (*The correct meaning of the Nine Classics*, i.e. the Five Classics and the Four Books). Xing himself wrote commentaries to the *Lunyu* 論語 (*The Analects*), the *Xiaojing* 孝經 (*Classic of Filial Piety*) and the *Erya* 爾雅, the last two became eventually part of the Classics. For the life and works of Xing Bing, see Shi/Nie 2012.

10 The *Erya zhu* by Guo Pu (see note 8), is not the only commentary attested to the Jin scholar. He is also the supposed author of an appendix called *Erya yintu* 爾雅音圖 (*Sounds and Images from the Erya*). Although the only extant edition is a Qing copy of an alleged Song edition, it might be plausible that such a terse list of names like the *Erya* needed to be expanded not only with the correct pronunciation of the single glosses, but also with clear illustrations that identified the object or the creature glossed.

behind it,[11] is, relatively speaking, of recent coinage. "Taxonomy" entered Western dictionaries with the publication in 1813 of *Théorie élémentaire de la Botanique* by the Swiss botanist Augustine P. de Candolle (1778–1841). Nonetheless, I want to use this modern term because it is the most effective and direct linguistic medium that can organise the vast and chameleon-like universe of early Chinese zoological lexemes. In addition, it is in my view justifiable to employ our modern means, i.e. the scientific taxonomy, as a mode of comparison in order to investigate if there are one or more ways in which early Chinese scholars undertook to classify animals and plants on a consistent basis.

Sterckx clarifies from the very outset that it is impossible to apply the modern concept of "taxonomy" when reading and analysing ancient Chinese texts: "Taxonomy is a hermeneutic process which, in early China, was deeply entrenched in lexicography, as can be seen, for instance, in the titles of the 'zoological' chapters of the *Erya*".[12] It is possible then to corroborate the hypothesis that in early China the impulse to classify living beings stemmed directly from the need to classify names, and that it developed through dictionaries and glossaries, i.e. a process that involves taxonomy first and lexicography next. Sterckx stresses that the natural order in ancient China was not interpreted on the basis of proto-biological criteria that determined the affinity between different zoological species. On the contrary, it was based rather on the idea that everything in the universe could be represented by a name, and consequently by a graph.[13] This assertion is in partial contrast with what Joseph Needham wrote about early Chinese debates on taxonomy: "[...] the *Lunyu* [...] obliges us indeed to believe that in the closing years of the 6th-century canons of botanical and zoological nomenclature were being actively discussed by the learned."[14]

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11 From the Ancient Greek τάξις taxis, "arrangement", and -νομία -nomia, "method". Even if it is commonly known that the act of classifying and discerning different animals or plants is as old as the hills, this process never had a clear methodological background. Generally speaking, Western cultural taxonomy was deeply influenced by Aristotle's (384–322) *History of Animals* (Τῶν περὶ τὰ ζῷα ἱστοριῶν Ton peri ta zoa istorion, "Inquiries on Animals") and Theophrastus's (372–287) *Enquiry into Plants* (Περὶ φυτῶν ἱστορία Peri phyton istoria) which developed and established a strongly hierarchical view of life, with human beings at the top of the taxonomic "ladder". Another distinctive feature of this categorisation of living beings is the *genus-differentia* system (common features vs. specific features), a binomial way to classify entities that is still prominent today (*genus-species*). The influence of these taxonomic schemes was undisputed until the theories of Carl Linnaeus (1707–1778) and Charles Darwin (1809–1882) which set the basis for modern taxonomy. See Durkheim 1912; Foucault 1966; Atran 1990; Leroi 2014.

12 Sterckx 2002: 23.

13 "Instead of being concerned with the collection and the classification of animal data and the analysis of the *differentiae* between animals and other living creatures, the analytical exposition and classification of animals in early China was motivated by a concern with the classification of animal names. Much of the protoscientific discourse of animals occurred within the framework of lexicography. This detailed attention for animal nomenclature was part of a wider concern with textual exegesis and lexicographic classification." Sterckx 2002: 43.

14 Needham 1986: 191.

3 The first hypernym: The concept of "animal" in early China

Despite the difficulty of outlining a uniform zoological system in ancient China, the presence of animals in early Chinese culture is abundant: besides the extensive iconographic repertoire of zoological depictions from the Shang 商 (1600–1046 BCE) to Han dynasties,[15] written references to the animal world are recurrent in pre-modern texts. This literary production ranges from analogies and metaphors between the human world and animals' behaviours (both in the Classics and in masters' literature) to catalogues of strange creatures that dwell in the wilderness.[16] For instance, the *Shijing* is rich in biological terminology: plant and animal names occur in 250 poems out of 305, covering 82% of the whole text.[17] Animals are used principally as metaphors or similes: e.g. as similes of beauty, see Mao 57 *Shuo Ren* 碩人, which goes: "Her head is cicada-like, her eyebrows are silkworm-like".[18] Alternatively, the example of the turtledove, or cuckoo, in Mao 152 *Shijiu* 鳲鳩 that is a *topos* representing a person who monotonously complains.[19] While zoological terminology is well attested, there is a lack of a specific literary genre that consistently deals with the animal world: technical texts dealing with animals, such as hunting or husbandry texts, are relatively scarce and the study of animals as living beings is not conceived as of primary importance, at least not in this phase of the pre-modern Chinese worldview.[20]

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15 Sterckx writes: "The zoomorphic is embedded early on in the Shang-period oracle bone script (1200 to 1000 BC) that includes numerous pictographs representing animals [...]. Zoomorphic motifs pervade Shang and Zhou period (tenth to third century BC) bronze vessel decor; and scenes depicting hunts, animal combat, husbandry, and games involving animals abound in Han period (second century BC to second century AD) murals and on decorated ceramic bricks." Sterckx 2016: 1.

16 The most prominent example of this kind of literature is the *Shanhaijing* which exemplifies "[...] the importance of recognizing the *guaiwu* 怪物, or 'strange creatures', that dwell throughout the landscape." Strassberg 2002: 1.

17 Lü Hualiang 2010.

18 *Qin shou e mei* 螓首蛾眉, trans. Karlgren 1950: 38.

19 Xiong Youqi 2003: 2. We can then safely admit that the use of animal analogies (and also plant analogies) is a well-attested and widespread rhetorical phenomenon in both Classical Chinese poetry and literature. See Spring 1993; Graziani 2004; Galvany 2009; Bocci 2010; Ptak 2011a; Ptak 2011b.

20 "While this relative silence regarding animals as an object of scientific inquiry by no means implies that the animal world was a topic not worthy of disputation in Early China, the absence of a canon of analytical writings on animals is noteworthy. It suggests that the way in which animals figured in the Early Chinese perception of the world was based on a different understanding of the correlation between human society and the natural world and the relationship between humans and animals." Sterckx 2000: 2. Nevertheless, in later periods, the inclination towards the animal world shifts, see Ptak 2011a; Ptak 2011b.

It is also difficult to identify a standard zoological label for the concept of "animal" as we know it today: in early China, there are single categories that include different animals, but never a word that subsumes them all.[21] This is because the interest towards the identification and description of a super-category of living beings that are visibly different from humans, was not enough to be translated into a systematic exercise, and this indifference is sometimes reflected in passages where the anthropocentrism of early Chinese society becomes predominant.[22] To correctly name and organise animal lexemes can be a means to understand the human world and regulate

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21 The term *dongwu* appears with the meaning of "animal" only in the *Zhouli*, chapter *Di Guan Situ* 地官司徒 (*Zhouli*, 287–288). The literal meaning is "moving being", and it is not entirely compatible with the concept of "animal": the word "animal" comes from the Latin word "animalis" meaning "to possess a soul", and more extensively "to possess life". This derives directly from the Greek word *zoon* ζῷον with the same meaning. See Sterckx 2005: 28. "One area which illustrates the low share of zoological theory in China is that of the basic terminology used to refer to animals both as a generic category or a collective of different species groups. The classical Chinese language lacks a linguistic equivalent for the term 'animal', which has its origins in the Platonic notion of 'zoon' and presupposes animacy and in-animacy as distinctive criteria". As Carr suggests, another instance of *dongwu* can be imagined as juxtaposed to *zhiwu* 植物 "plant", which literally means "fixed, immobile being." Carr 1979: 48.

22 In the chapter "Emphasize Governance" ("Zhong zheng" 重政) of the *Chunqiu fanlu* 春秋繁露 (*Luxuriant Dew of the Spring and Autumn Annals*) attributed to Dong Zhongshu 董仲舒 (179–104 BCE), there is a sentence that reads: 能說鳥獸之類者,非聖人所欲說也。聖人所欲說,在於說仁義而理之 "Those who can discuss the [various] categories of birds and beasts are not those with whom the sage desires to converse. The sage desires to discuss humaneness and righteousness and lay out their inherent patterns." (trans. Queen/Major 2016: 173). Another important passage is in the chapter "Contra Physiognomy" ("Fei Xiang" 非相) of the *Xunzi* 荀子 ("Master Xun", c. 310– c. 235 BC) in which animals are located in relationship with humans just to compare the moral differences between them, specifying that biological differences are not relevant: 人之所以為人者何已也?曰:以其有辨也。飢而欲食,寒而欲煖,勞而欲息,好利而惡害,是人之所生而有也,是無待而然者也,是禹桀之所同也。然則人之所以為人者,非特以二足而無毛也,以其有辨也。今夫狌狌形狀亦二足而無毛也,然而君子啜其羹,食其胾。故人之所以為人者,非特以其二足而無毛也,以其有辨也。夫禽獸有父子,而無父子之親,有牝牡而無男女之別。故人道莫不有辨。 "What is it that makes a man human? I say that it lies in his ability to draw boundaries. To desire food when hungry, to desire warmth when cold, to desire rest when tired, and to be fond of what is beneficial and to hate what is harmful—these characteristics man is born possessing, and he does not have to wait to develop them. They are identical in the case of a Yu and in that of Jie. But even so, what makes a man really human lies not primarily in his being a featherless biped, but rather in his ability to draw boundaries. For example, the Shengsheng ape resemble a man in form and is also a featherless biped, but the gentleman will nonetheless sip a broth and eat minced meat made from him. Hence, what makes a man human lies not in his being a featherless biped but in his ability to draw boundaries. Even though wild animals have parents and offspring, there is no natural affection between them as between father and son, and though there are male and female of the species, there is no proper separation of sexes. Hence, the proper way of Man lies in nothing other than his ability to draw boundaries." (trans. Knoblock 1988: 207).

it. However, I propose another *caveat* regarding this generalised representation of early Chinese thought: it would be limiting to attempt to arbitrarily compare the contemporary and biological concept of "animal" with the Early Chinese one. For this reason I would rather reflect on "how" this systematisation was developed and not "why" it was organised in a certain way. The organisation of animal categories cannot be compared to the modern necessity of an encyclopaedic analysis. Animals were part of that "natural world" in which human beings lived too, hence their correct identification and naming was functional to human society.

Nevertheless, the abundant zoological terminology of the time was gathered in early glossaries and dictionaries following a taxonomical organisation based on proto-biological assumptions. As noted earlier, one of the main lexicographical sources is the *Erya*; however, due to the lack of zoological theorising in early China, it is not easy to identify a systematic lexicographic frame of reference in which animals were ordered and categorised. Depending on factors such as the time period or social needs, the corpus of lexemes was not fixed. For example, animal terminology in Shang oracle bone script and in Western Zhou (1046–771 BCE) bronze inscriptions is related to hunting and sacrifices, with a focus on the quality of the animal fur, the horn length, animal diseases, animals as gifts, etc. It is not unusual to find the same animal listed under two different lexemes simply because there is an important difference between the two archetypes (e.g. a horse with a different coat colour is still a horse for our organisation of knowledge, but it could have been listed and identified with a different word).[23]

If there were no proto-scientific interest in organising a detailed animal classification, why was the collection of zoological terminology prominent and well developed? One possible interpretation is that giving a name and a character to every single entity in the known universe was the key to imposing human control over nature. On the other hand, it could have reflected the necessity to create a common and understandable universal language. In fact, the "rectification of names" was the epistemological means to understand the natural world.[24]

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23 In the "Shi chu" chapter of the *Erya* there are 58 glosses, and 48 of them are dealing just with different kind of horses. The featured differences are dealing mainly with the colour of the coat or the presence of less coloured spots on the horses' bodies. For example, gloss 44: 白馬黑鬣,駱。 "A white horse with a black mane is called *luo*"; gloss 45: 白馬黑脣,駩。 "A white horse with a black muzzle is called *quan*". See Carr 1979; Schwartz in Sterckx et al. 2018: 35–39.

24 Sterckx notes: "I will argue that the motives underlying animal classification in China were not primarily zoological but figured within a larger project to explain the structures of the cosmos as a whole. Rather than perceiving the world as a purely physical reality that could be analysed as a biological system, the ancient Chinese classified the living species as part of a textual and ritual order based on correlation rather than differentiation. Animal classification was therefore subsumed within a larger hermeneutic quest, namely that of establishing a progressive socio-political, ritual and intellectual control over the world at large." Sterckx 2005: 29.

Confucius exhorted his disciples to read the *Shijing* in order to "become familiar with the names of numerous birds, animals, plants, and trees."[25] Therefore, it is possible to conclude that the processes that led the development of early Chinese proto-zoology – or "zoography"[26] – were indicative of a necessity to establish a functional and ordered cosmos that appeared profoundly divided and heterogeneous after the troubled years of the Warring States period. The dawn of the Han Empire, an epoch in which the final version of the *Erya* is attested, is considered a historic moment where the desire to describe the world in terms of an inclusive and comprehensive whole was part of a drive to promote an ideology that stressed unity and unification.[27] Along with the unification of units of measures, coins and cart axles, the language and its script were standardised mainly to establish the principle of unity in the state. In addition, the categories used within the "common language" had to be unified too. The concept of animal, the names of animals and the zoological classes, were but a small part of a long series of categories waiting to be classified and homogenised, a common fate shared with the names of plants, mountains, rivers, lakes, and all other entities that existed in "All under Heaven".

4 More than one taxonomy: Different methods of classifying animals

Since I began my analysis on the basis that in Early China the classification of animals was not driven by a zoological interest, I do not find it surprising that there existed no method that achieved an unequivocal animal taxonomy. In my analysis, I discern at least three different ways to classify animals in texts of the period: a (lexico)graphical classification, a correlative classification and a pure logographic one.[28]

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25 多識於鳥獸草木之名。*Lunyu* 論語, XVII.9, trans. Watson 2007.

26 This term is used by Sterckx to exemplify that the processes of taxonomisation of the animal world is based on "the belief that through the progressive description of all phenomena in the world one can establish social and political control over these phenomena and influence their inner and outer workings." Sterckx 2005, 30.

27 See Loewe 2011; Goldin/Levi Sabattini 2020; Pines 2009; Pines 2014.

28 These names follow the ones in Sterckx 2005, although the present study will focus more on the terminology implied by the three classifications rather than analysing the motivations behind this kind of tripartite codification. I decided to change the name "graphical classification" to "lexicographical classification" in order to put the *Shuowen jiezi* and the *Erya* methods of classification on the same level. I combined the third category, namely "ritual classification", together with the "correlative classification".

4.1 Lexicographical classification

The first type of classification is applied principally in lexicographic texts such as the *Shuowen jiezi* 說文解字 (1st century CE). The organisation of characters through the "semantic classifiers system" (*bushou* 部首) reveals that certain graphs are used more prominently in order to represent, more or less adequately, a high percentage of words present in the Chinese language. The *bushou* graphs are slightly more important than the other graphs because they possess a semantic link to the words represented thanks to their presence in its depiction.[29] Among the 540 *bushou* that Xu Shen identifies in his *Shuowen jiezi*, there are many pictograms representing animal lexemes that date back to the oracle bone script.[30] Xu Shen provides some heterogenous descriptions of these pictograms that do not reflect a consistent zoological classification.[31]

Although the *Erya* overlooks the graphical aspect of Chinese characters focusing exclusively on their semantic value, its internal organisation reveals the basis of the graphical classification of animals. The designation of the five zoological chapters of the *Erya* shows what the categories of this "lexicographical classification" look like:

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29 This feature of the Chinese writing system is a part of the so-called *liu shu* 六書, the six principles of character formation. These *liu shu* are found in the famous postface (*xu* 序) of the *Shuowen Jiezi* by its author Xu Shen. There is a total of six different "scripts" (or better "writing origins") which all Chinese characters are traditionally divided into. These are *zhi shi* 指事 "indicating the matter", *xiang xing* 象形 "representing a form", *xing sheng* 形聲 "giving form to a sound" (pictophonetic), *hui yi* 會意 "conjoining meanings" (or "syssematic characters", see Behr 2006), *zhuan zhu* 轉注 "reversed and refocused", *jia jie* 假借 "substituted and lent". For the translation choices and the developmental history of the six scripts, see Boltz 2017. In particular, the use of a semantic radical plus a phonetic element is the *xing sheng* 形聲 principle ("phonetic-semantic" compounds or "giving form to a sound") identified by Xu Shen in the *Shuowen* preface. More than 90% of Chinese characters are today represented by this principle, while during the oracle bone script period this percentage was as low as 25%. (See Abbiati 1992; Boltz 1994; Wilkinson 2013; Boltz 2017).

30 There are several pictograms that represent animals and have the status of "semantic classsifier", for example: *ma* 馬"horse", *yang* 羊 "sheep", *yu* 魚 "fish", *niu* 牛 "cattle", *hui* 虫 "a kind of snake", *niao* 鳥 "long-tailed bird", *zhui* 隹 "short-tailed bird", *hu* 虎 "tiger", *shu* 鼠 "rodent", *quan* 犬 "dog", *shi* 豕 "boar", *gui* 龜 "turtle", *meng* 黽 "frog", etc.

31 The description is focused on the graphical aspect of the character rather than the biological features of the animal described. E.g. *hu* 虎 is glossed as [...] *hu zu xiang ren zu ye* 虎足象人足也 (the paws of the tiger resemble the human feet) in order to justify the resemblance between the character *ren* 人 and the bottom of the character *hu* 虎. See *Shuowen jiezi*: 365.

a. "Invertebrates and creeping creatures" (*chong* 蟲 *C.lruŋ)[32]
b. "Fish and aquatic creatures" (*yu* 魚 *[r.ŋ]a)
c. "Birds and flying creatures" (*niao* 鳥 *tˤiwʔ)
d. "Quadruped beasts" (*shou* 獸 *s.tʰu(ʔ)-s)
e. "Domestic animals" (*chu* 畜 *qʰ<r>uk-s)

The main difference between the two dictionaries lies in the fact that the *Erya* does not provide any description of the section heading collective names, while the description of each one of them can be found in the *Shuowen jiezi*. Wang Guowei 王國維 (1877–1927) in the *Guantang Jilin* 觀堂集林 (Collected Writings of Wang Guowei)[33] underlines the fact that the compilers of the *Erya* were principally focused on the explanation of names, not on the biological value of the animals.[34] The order in which these categories are presented appears not to be a casual one since there is a gradual trajectory towards the human being as the highest category, whereby the invertebrates appears as the farthest animal and the domestic animals as the closest to mankind. This particular feature will become an established principle in many later encyclopaedias (e.g. the *Bencao Gangmu* 本草綱目 by Li Shizhen 李時珍, completed in 1578, where the chapter on human drugs, *ren bu* 人部, comes last).

4.2 Correlative classification

This method of classification can be found in various late Warring States and early Han versions of a specific chapter of the *Liji* 禮記 (*Rites Records or Notes on Etiquette*), the "Yue ling" 月令 (Monthly Ordinances), where creatures are classified based on the five phases (*wu xing* 五行) and put into correlation with the seasons of the year, as well as cardinal points, etc. This taxonomical scheme was then widespread in a larger array of texts in the Han period, such as the *Huainanzi* 淮南子 (*Masters of Huainan*), the *Chunqiu fanlu* 春秋繁露 (*Luxuriant Dew of the Spring and Autumn Annals*) and the *Da Dai Liji* 大戴禮記 (*Rites Records by the Elder Dai*). A similar taxonomical scheme is retrievable also in the *Zhouli* 周禮 (*Zhou Rites/Etiquette*), but in this other early text the collective noun for "creature" is not *chong* 蟲 but *wu* 物. While there are some slight differences between the text in dealing with the topic, it is possible to establish that this system

32 Phonetic reconstructions based on Old Chinese by Baxter/Sagart 2014.
33 Guantang 觀堂 is the posthumous name of Wang Guowei. He was one of the 4 illustrious scholars (tang 堂) of the OBS (*jia-gu si tang* 甲骨四堂) along with Luo Zhenyu 羅振玉 (1866–1940, Xuetang 雪堂), Dong Zuobin 董作賓 (1895–1963, Yantang 彥堂) and Guo Moruo 郭沫若 (1892–1978, Dingtang 鼎堂).
34 Wang Guowei 1923: 219.

of classification might have stemmed from a common source.[35] Their main characteristic is that they set different kinds of skins as a parameter to categorise five different species of animals:

a. "scaled creatures" (*lin* 鱗之蟲 *C.r[ə][n])
b. "feathered creatures" (*yu* 羽之蟲 *[ɢ]^{w}(r)aʔ)
c. "naked creatures" (*luo* 贏/倮之蟲 *[r]^{ʕ}o[r]ʔ)
d. "hairy creatures" (*mao* 毛之蟲 *C.m^{ʕ}aw)
e. "armoured creatures" (*jie/jia* 介/甲之蟲 *k^{ʕ}r[e]p-s/*[k]^{ʕ}r[a]p)

Two significant features emerge from this scheme: the first is that, as in the "lexicographic classification", these categories are quite broad and obviously do not correspond to current biological taxonomy. Secondly, a parallel could be directly established with the "lexicographical classification" because "birds" are usually "feathered creatures", while "quadruped beasts", which always belong to the mammal clade, are known as "hairy creatures". Third, these zoological sets are used as antonymic pairs in order to point out differences between one category and the other, rather than subsuming animals with similar biological characteristics. For example, in the *Shuowen jiezi*, animals called *shou* are described as creatures with four legs, while, by contrast, birds are defined as creatures with only two legs. Other juxtapositions exist between animals fed and raised by humans (*chu*) and those which are not (*shou*).

The correspondence of the categories of *yu* and *chong* is seemingly more problematic, primarily because these two classes include a wider range of animals. Most importantly, the two categories sometimes overlap, especially in the case of amphibians or water invertebrates that possess features from both classes *yu* and *chong*. It is important to note that *yu* and *chong* are never used in contraposition; on the contrary, they subsume the "scaly animals" and the "armoured animals" categories from the "correlative classification" illustrated above. One type of evidence of this lexicographic overlap between species is observable in the classification of turtles: as a reptile, they are representable by the broad *chong* category, as maritime creatures they can be included in the *yu* category while they are certainly not considered scaly animals, but armoured ones.

35 The *Zhouli* presents the use of the term *dongwu* to designate animals for the first time, *zhiwu* to designate plants and *min* 民 to designate mankind; both the *Liji* and the *Da Dai Liji* mainly use (but not always) the word *chong* 蟲 as an instance of "animal", not of "invertebrate". Other minor differences occur in the graphic rendering of *luo*, which is written *luo* 贏 in the *Zhouli* and *luo* 倮 in the *Liji* and in the *Da Dai Liji* (*Zhouli*: 288; *Liji*: 602; *Da Dai Liji*: 259); and the term for "armoured/shelled creatures" that appears as *jia* 甲, not *jie* 介, in the *Da Dai Liji*: 259. Nevertheless, the phonetic reconstruction of *jia* and *jie* is very similar and the two terms can easily be swapped (*[k]kr[a]p vs *kkr[e]ps).

4.3 Pure logographic classification

As already explained, some characters became prominent in defining zoological categories in lexicographic works: a single character can subsume a whole set of animals that share some similarities. The logographic nature of the Chinese script presents, however, a uniqueness indicated by the presence of "semantic classifiers" (*bushou*) in the vast majority of characters. This characteristic is relevant for the act of classifying words (or simply the act of reading) because it is more instinctive to associate characters with the same semantic classifier, i.e. a relevant graphical feature, which does not necessarily represent a strong and binding semantic relation. By contrast, the same semantic classifier is just a vague reminder that a character is somehow related to other characters with the same classifier and nothing more than that. Moreover, the semantic classifiers adapted through the evolution of the Chinese writing systems and scripts, and they were sometimes replaced by others for the sake of simplicity or the prevailing of more popular graphic forms.[36]

The identification of a "pure logographic" classification in zoological terminology might seem reasonable enough since it is mainly composed of characters that "represent a form" (*xiang xing* 象形), i.e. pictographs that represent a stylised image of an animal, or by characters "giving form to a sound" (*xing sheng* 形聲), i.e. graphs formed by a "semantic classifier" and a phonetic element. Nevertheless, this affirmation remains true only to a certain extent because the zoological *xiang xing* characters do not consistently serve as the "semantic classifiers" for the zoological *xing sheng* characters.

Among the five categories identified by the lexicographical classification, only three are epitomised by a character that "represents a form": *chong* in its "single form" *hui* 虫, *yu* 魚 and *niao* 鳥. As for the other two, *shou* 獸 is a character that "gives form to a sound" composed by the semantic classifier *quan* 犬 "dog", and the phonetic element *shou* 嘼[37]; *chu* 畜 is instead a "conjoined meaning" character (*hui yi* 會意) composed by *mi* 糸 "fine silk" (written as *xuan* 玄 in contemporary script) and *tian* 田 "cultivated field" with the probable etymological meaning of "(animals) tied with (silk) ropes and kept on farmlands". [38] Even if these former three semantic classifiers directly correspond

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36 See Galambos 2017: 36–41.

37 *Shou* 嘼 is a *xiang xing* character that probably represents an ancient hunting device made by two stones tied together to the upper part of a stick. (Li Xueqin 2012: 101).

38 Li Xueqin 2012: 1203. The animals grouped inside the *shou* and *chu* categories present a different and more complex array of semantic classifiers: the most prominent in the former category is *lu* 鹿 [deer] with 22 entries, followed by *zhi* 豸 [stalking animal, feline] with 19 entries, *shu* 鼠 [rodent] with 14 entries, *quan* 犬/犭 [dog] with 13 entries, *shi* 豕 [boar] with 11 entries, *hu* 虎 [tiger] with 5 entries and *ma* 馬 [horse] with 3 entries. The animals grouped inside the "Shi chu" chapter present these semantic classifiers: *ma* 馬 is the most important with 41 entries, followed by *niu* 牛 [cattle] with 15 entries, *yang* 羊 [sheep] with 8 entries, *quan* 犬/犭 with 7 entries.

to a homonymous lexicographic category, this does not necessarily mean that every zoological term that belongs to one of these categories presents the analogous semantic classifier as part of its graphical structure. One might expect nevertheless that a semantic classifier giving its name to a whole lexicographic category could be the most prevalent in that category: for instance, the "Shi yu" chapter consists of 98 zoological terms, among them only 43 present the *yu* semantic classifier (about 44%, less than half), 28 terms have the single-*chong* classifier (about 29%), the remaining glosses display other semantic classifiers, among the others the most prominent are *bei* 貝 (shell, 5 glosses) and *meng* 黽 (frog, 3 glosses).

Thus, along with a lexicographical and a correlative classification, it is possible to corroborate the existence of a pure logographic classification that is independent of the other two. The limits of this lexical taxonomy are that a pure logographic classification is extant exclusively within a graphical context, i.e. a universe made of "graphs that can represent words" and not "words that represent entities". In other words, we should not be surprised to see a character written with the single-*chong* semantic classifier that is lexicographically classified as a fish.

5 Hidden or "implicit" category markers: *shu* 屬 versus *chou* 醜

One of the main problems in investigating Early Chinese lexicographical works such as the *Erya* is the lack of definitions regarding what taxonomists and biologists identify as "orders", "families" and inferior taxonomic ranks.[39]

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39 As Michael Carr and Joseph Needham point out, there are several terms in the Chinese language that are implied in modern scientific classification for taxonomical purposes, however they are roughly derived directly from Western taxonomy:

1. Kingdom is *jie* 界, e.g. "Animalia" (animals) *dongwu jie* 動物界
2. Phylum is *men* 門, e.g. "Chordata" (vertebrates, chordates) *jisuo dongwu men*脊索動物門
3. Class is *gang* 綱, e.g. "Reptilia" (reptiles) *paxing gang* 爬行綱
4. Order is *mu* 目, e.g. "Testudines" (turtles) *guibie mu* 龜鱉目
5. Family is *ke* 科, e.g. "Trionychidae" (softshell turtles) *bie ke* 鱉科
6. Genus is *shu (zhu)* 屬, e.g. "Pelodiscus" (a kind of softshell turtles) *zhonghua bie shu*中華鱉屬
7. Species is *zhong* 種, e.g. "Pelodiscus sinensis" (the Chinese softshell turtle) *zhonghua bie (zhong)* 中華鱉(種).

5.1 *Shu* 屬: "To belong to a category"

The most evident term implied for a subclassification of fauna within lexicographic texts is *shu* 屬 (*N-tok), with the meaning of "belonging to an (explicit) category". Its appearance in the text is not prominent as it can be found only eight times and only in the last two chapters "Shi shou" (Glosses on quadrupeds) and "Shi chu" (Glosses on domestic animals). This can be partially explained because the *Erya* is already divided into "taxonomic" chapters, and each chapter's title identifies a precise category of biological entities. Whenever it is necessary to explore a more complex category of beings, such as quadrupeds or domestic animals, the *shu* character intervenes in presenting explicit sub-taxonomies within an already given category. Although quite rudimentary and simplistic, this use of sub-categories underlines a desire to create a more sophisticated way to classify animals. We have three explicit sub-taxonomies in the "Shi shou" chapter and five in the "Shi chu" chapter.[40] For instance, "Shi chu" 50 is a laconic statement:

> 牛屬
>
> *niu shu*
>
> "They belong to the (sub)category of cattle"[41]

This two-character sentence comes after the enumeration of all the terms related to the cattle category, with a focus on the various kinds, colours and sizes of oxen, cows, bulls and calves:

> 犘牛,牛,犦牛,犩牛,犧牛,犝牛,犑牛。角,一俯一仰,觭。皆踊,觢。黑脣犉,黑眥牰,黑耳犚,黑腹牧,黑腳犈。其子犢,體長牻,絕有力欣犌。

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40 The three explicit sub-taxonomies in the "Shi shou" chapter are "Animals that dwell in the wilds" *yu shu* 寓屬, "Rodents" *shu shu* 鼠屬 and "Ruminants" *yi shu* 齸屬. There is another sub-taxonomy that Carr labels as "Respirants" *xu shu* 須屬 (Carr 1979: 94), but that I find quite problematic as it is not a sub-category of quadrupeds, but it explains the "needs" that a certain animal has in order to breathe. For instance, under the *xu shu* category there is a gloss that says "the (one of) fish is called *xu*" *yu yue xu* 魚曰須 : Guo Pu states that "(in order to) move, (fish) need to breathe through their gills" *gu sai xu xi* 鼓鰓須息 (*Erya*: 372). The other glosses are quite similar, so it is safe to presume that this part was added to the "Shi shou" chapter as an "inconsequential coda". The five explicit sub-taxonomies in "Shi chu" are "Horses" *ma shu* 馬屬, "Cattle" *niu shu* 牛屬, "Sheep" *yang shu* 羊屬, "Dogs" *gou shu* 狗屬 and "Chicken" *ji shu* 雞屬. There is a sixth explicit taxonomy, which does not follow the pattern X-屬 and that concludes the chapter. It simply reads "The six domestic animals" *liu chu* 六畜 and it follows a summary of the aforementioned five explicit sub-taxonomies plus the category of swines (*zhi* 彘).

41 *Erya*: 381.

"The big ox *ma* with an outstanding colour is a bovine, the zebu *bao* is a bovine, the small *pai* is a bovine, the fat *wei* is a bovine, the yak *lie* is a bovine, the hornless ox *tong* is a bovine, the buffalo *ju* is a bovine. About the horns (of a bovine), if one goes downwards and the other upwards, (those are called) *ji*. If both (the horns) are straight, (those are called) *shi*. (A bovine with) black lips is (called) *run*, with black and shining eyes is (called) *you*, with small ears is (called) *wei*, with a black belly is (called) *mu*, with black hooves is (called) *quan*. Its offspring is called *du* (calves), the ones with a long body (are called) *bei*, the ones with extraordinary power are (called) *jia*."[42]

After this colourful array of bovines, the two characters *niu shu* clearly mark a hiatus in the chapter between a "section" with glosses on cattle and the following "section". In fact, the next section presents glosses on sheep and its last two characters are:

羊屬

yang shu

"They belong to the (sub)category of sheep"[43]

It is not by chance that we find this kind of explicit taxonomy in the "Shi shou" and the "Shi chu" chapters: these two zoological categories are directly in contact with human beings (especially domestic animals), and different animals that belongs to the *shou* and the *chu* category are considered to be of a different "species" while nevertheless belonging to a super-category that could encompass them. For instance, dogs and chickens embody the common feature of being animals which live in symbiosis with humans, they are of course very different from a physical and biological point of view. Thus, the *Erya* compilers decided to place both of them under the *chu* category, since along with horses (*ma* 馬), cattle (*niu* 牛), sheep (*yang* 羊) and swine (*zhi* 彘) they were meant to describe and represent the concept of *liu chu* 六畜 [six domestic animals] that was present in some *loci classici*, but without any exhaustive or unambiguous explanation.[44] In any case, in both "Shi shou" and

42 *Erya*: 379–381.

43 *Erya*: 382.

44 The term *liu chu* is prominently visible in the *Zhouli* (15 references: twice in the chapter *Tianguan zhongzai* 天官冢宰: 102, 197; eleven times in the chapter *Diguan Situ* 地官司徒: 324, 338, 363, 401, 404, 438, 438, 465, 468, 472, 475; once in the chapter *Xiaguan sima* 夏官司馬: 1020–1021; and once in the chapter *Qiuguan sikou* 秋官司寇: 1100) and also in the *Zuozhuan* (2 references: the first one in the 19th year of Duke Xi [Durrant et al. 2016: 342] and the second one in the 25th year of Duke Zhao [Durrant et al. 2016: 1636]). In both the *loci classici*, the elements present in the category of *liu chu* are not explained and this term is often accompanied by other "number+object" categories: e.g. "the five sacrificial animals" *wu sheng* 五牲 and "the three victims" *san xi* 三犧 (Durrant et al. 2016: 1636); "the six quadrupeds and the six fowl" *liu shou liu qin* 六獸六禽 (*Zhouli*: 102, see Sun Xiaoyan 2019: 100–105). Through Du Yu's 杜預 (222–285) commentary on the *Zuozhuan*

"Shi chu" chapters, it is possible to clearly identify special sub-categories of *shou* and *chu*: this could be seen as a rudimentary attempt to establish a more complex taxonomic system within the traditional division of entities into categories.

5.2 *Chou* 醜: "To be physically similar to something"

The second category marker in the *Erya* is *chou* 醜 *t.q^{h}uʔ. This graph may seem problematic because it is glossed nowadays as "ugly" or "abominable",[45] but Duan Yucai 段玉裁 (1735–1815) in his commentary to the *Shuowen jiezi* (*Shuowen jiezi zhu* 說文解字注, 1815), states that:

> 醜,凡云醜類也者,皆謂醜,即疇之假借字。疇者,今俗之儔類字也。
>
> "As a matter of principle, (the graph) '*chou*' means '*lei*' (category). In all cases, it is called '*chou*' (abominable), that is because it is a substitute/lent character for '*chou*' (category). '*Chou*' is what nowadays is vulgarly known as a graph for '*choulei*' (category)."

It is possible to find another instance that corroborates this thesis in the "Shi gu" 釋詁 (Glosses on [difficult/ancient] words) chapter of the *Erya* where *chou* 醜 is glossed as *zhong* 衆 (multitude) and Hao Yixing's *Erya Yishu* adds some precious information about the gloss:

> 儔/醜,輩,羣,類皆以衆
>
> *Chou, bei, qun, lei jie yi zhong*
>
> "'Category' *chou*, 'generation' *bei*, 'flock' *qun*, 'category' *lei* are all ways to say 'multitude' *zhong*"[46]

(*Zuozhuan zhu*左傳注), it is possible to know that sometimes the category of the *liu chu* subsumes all the animals of the *wu sheng* category: "the five sacrificial animals are cattle, sheep, swine, dog, chicken" (*wu sheng*: *niu, yang, shi, quan, ji* 五牲:牛、羊、豕、犬、雞), but when combined with the *liu chu* it gains a different meaning "(the five sacrificial animals are) elaphure, deer, roe-deer, wolf and hare" (*mi, lu, jun, lang, tu* 麋、鹿、麕、狼、兔; *Zuozhuan zhu*: 1669). However, Durrant et al. 2016: 1636 refute this gloss by Du Yu by stating that "The six animals are horse, bovine, sheep, chicken, dog, and pig. The five sacrificial animals are bovine, sheep, pig, dog, and chicken. The three offerings are bovine, sheep and pig."

45 See *Hanyu da zidian*: *kewu* 可惡 [abominable]; *yanwu* 厭惡 [to be disgusted]; *zhishi wu buhao* 指事物不好 [indicates something that is not good]; *yangzi nankan* 樣子難看 [ugly appearance], etc. and *Shuowen jiezi*: *chou, ke wu ye* 醜,可惡也 [(the graph) *chou* is to be abominable].

46 Hao Yixing: 115.

Having said so, the character *chou* as a category marker is present in all the *Erya* biological chapters excluding "Shi yu",[47] and Michael Carr hypothesises that all the glosses with the *chou* mark "are located towards the end of the respective chapters, which may indicate that they were a later accretion to the original *Erya* text".[48] While it is ascertained that the *Erya* is a multi-layered text that was expanded during the Western Han period, I find this explanation quite speculative and approximate since there are glosses towards the end of their respective chapters that do not seem "later accretions", for example at the end of "Shi chong" chapter, where the last glosses seem more related to the *Shijing* and to a more ancient layer of the text.[49] Moreover, Carr speculates that "it would seem that *chou* 醜 is used for 'categories' with one or two members, while *shu* 屬 is used for 'categories' with more members." [50] While this theory seems more convincing, we do not have enough evidence that *chou* is a more restrictive categorical marker than *shu*: the glosses in the botanical chapters and the following examples from the "Shi niao" chapter of the *Erya* ("Shi niao", glosses 84–88) might corroborate the hypothesis since we have a gloss scheme made by XY醜+description, where X and Y are two specific names, hence *chou* could circumscribe all the entities similar to X and Y:

鵲鵙醜,其飛也翾。

"Concerning the category of magpies (*que*) and shrikes (*ju*), they fly upwards and downwards with their feet tucked up under their body (*zong*)"

鳶烏醜,其飛也翔。

"Concerning the category of kites (*yuan*) and ravens (*wu*), they fly spreading their wings and soaring up high (*xiang*)"

鷹隼醜,其飛也翬。

"Concerning the category of hawks (*ying*) and falcons (*sun*), they fly clapping their wings quickly (*hui*)"

鳧鴈醜,其足蹼,其踵企。

"Concerning the category of wild ducks (*fu*) and wild geese (*yan*), their feet are webbed (*pu*) and their heels are erect (*qi*) (while flying)"

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47 The marker is retrievable in "Shi cao" 釋草 [glosses on herbs], "Shi mu" 釋木 [glosses on trees], "Shi chong" and "Shi niao" 釋鳥 [glosses on wildfowl and flying creatures].

48 Carr 1979: 97.

49 "Shi chong" glosses 52–54.

50 Carr 1979: 102.

烏鵲醜,其掌縮

"Concerning the category of ravens and magpies, their feet retreat (*suo*) (while flying)"[51]

However, gloss 53 of the "Shi chong" chapter of the *Erya*, substantially differs in its use of *chou* as an implicit categorical marker. Its use is organisational since it tries to describe and identify different kinds of invertebrates based on their habits and peculiarities:

蚱醜鏬,螽醜奮,强醜捋,蠭醜螫,蠅醜扇。

Cicada-like creatures have the ability to rip open their back to emerge; locust-like creatures have the ability to flap their wings; weevil-like creatures have the ability to use their legs to stroke themselves; wasp-like creatures have the ability to repeatedly hang their abdomens (in order to rest and breath); fly-like creatures have the ability of self-ventilating using their wings.

On an overall view, the five arthropods are indeed very different and so I suppose that they are "representatives" of their genus, if not of their order. It features the character *chou* as a post-nominal modifier, but the difference here lies that there is just one name before it, thus it does not identify a category of no more than two similar entities. This gloss represents in fact a sub-categorisation that roughly subsumes five of the principal types of *chong*.[52] The gloss can be analysed in five parts:

A. The animals belonging to the category of "fliers" *zhu* 蚱 (*tas +) have the ability of "cracking" *xia* (*qq^{h}raks, probably an onomatopoeia).[53] Guo Pu describes the term *xia* as "ripping open the back of the mother and then be born",[54] a characteristic that helps Xing Bing to identify this "fliers" insects with cicadas.[55] The use of *zhu* as cicada is not common, being the character glossed in other sources simply as the verb "to raise" or "to fly lightly", both the *Shuowen jiezi* and the *Fangyan* agree on that.[56] On the other hand, in later sources like the *Guangyun*, it is possible to find the character *zhu* 蠚 with the meaning of cicada, but it is certainly a later amendment in order to avoid confusion.

51 *Erya*: 356–357

52 This might be due to the fact the *chong* category is vast and subsumes many different kinds of creatures, from insects to crustaceans, from molluscs to annelids and so on. It seems that this gloss tries to make order in a chapter that includes "leftovers" from the other explicit taxonomical markers.

53 In Ruan Yuan's collated version, the character is written differently but with the same sound *xia* 鏬 vs *xia* 鏬. See Hu/Fang 2004: 355.

54 *pou mu bei er sheng* 剖母背而生, *Erya*: 325.

55 Xing Bing writes: "It is said that the species of animal that fly lightly are the ones belonging to the cicada category." *chong lei neng fei zhu wei chan shu* 蟲類能飛蚱謂蟬屬。 *Erya*: 326.

56 蚱:飛舉也。[the graph *zhu* stands for flying and rising] *Shuowen jiezi*: 246; 蚱,舉也。楚謂之蚱。 ["to soar" *zhu* is "to rise up" *ju*. It is said *zhu* in (the territory of) Chu] *Fangyan*: 119.

B. The animals belonging to the category of locusts *zhong* 螽 (*tuŋ) have the ability of "flapping their wings" *fen* 奮 (*(ə)pə[r]s). The character *zhong* is used as a hypernym for the locust family.[57] Guo Pu identifies *fen* as "the attitude to flap wings swiftly to make sounds";[58] this term is retrievable on two other occasions in the *Erya*, both identifying the behaviour of a particularly strong specimen of pheasant (*Shi niao*) and chicken (*Shi chu*), i.e. flapping wings vigorously.[59]
C. The animals belonging to the category of weevils *qiang* 强 (*nkaŋ) have the ability of "stroking themselves" *luo* 捋 (*[r]rot). Xing Bing uses the disyllable *qiang-qin* 强蚙 in order to identify the whole category of weevils. The verb *luo* is explained by Guo Pu as "using legs to stroke themselves."[60]
D. The animals belonging to the category of wasps *feng* 蠭 (*p^{h}(r)oŋ) have the ability of "hanging their abdomens" *yu* 螸 (*lo). The character *feng* is described as "a flying insect which stings human beings"[61] and the rare character *yu* is identified by Guo Pu saying that it means "hanging the lower part of their abdomen."[62] This explanation comes from the *Shuowen jiezi*: "the character *yu* stands for the lower and fatty part of the abdomen",[63] Xing Bing adds that wasps do this in order to rest and breathe.[64]
E. The animals belonging to the category of flies *ying* 蠅 (*mrəŋ) have the ability of "self-ventilating" 扇 *shan* (*[l̥][a][r]s). The *Shuowen jiezi* glosses *ying* as "a creature with a large belly",[65] a feature typical of animals represented by characters with the *meng* 黽 (frog) semantic classifier. The action of *shan* is clarified by Xing Bing stating that "(creatures belonging to the) species of flies like using their wings to ventilate themselves."[66]

It is apparent that while the category mark *shu* subsumes a relevant number of different animals that fall under a certain taxonomic rank (e.g. a family or a *genus*),

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57 See *Erya*: 318 ("Shi chong" gloss 21) where the character *zhong* is implied multiple times to identify different members of the order *Orthoptera* (grasshopper and locusts) 蝗螽,蠜。草螽,負蠜。蜇螽,蜙蝑。蟹螽,蟖蚱。土螽,蠰谿。

58 *hao fen xun zuo sheng* 好奮迅作聲*Erya*: 325.

59 雉絕有力,奮。[A particularly strong specimen of pheasant flaps vigorously its wings]; *Erya*: 354. 未成雞健。絕有力奮。 [A chicken that has not reach adulthood is called *lian*, a particularly strong specimen flaps its wings] *Erya*: 384.

60 *yi jiao zi mo luo* 以腳自摩捋*Erya*: 325–326.

61 *fei chong zhe ren* 飛蟲螫人 *Shuowen jiezi*: 1126.

62 *chui qi yu* 垂其腴*Erya*: 326.

63 *Yu: fu xia fei ye* 腴:腹下肥也*Shuowen jiezi*: 298. See David Pattinson, "Bees in China: A Brief Cultural History." In Sterckx et al. 2018: 99–117.

64 *Feng lei hao chui qi yu yi xiu xi* 蠭類好垂其腴以休息, *Erya*: 326.

65 *chong zhi da fu zhe* 蟲之大腹者*Shuowen jiezi*: 1134.

66 青蠅之類好搖翅自扇*Erya*: 326.

the category mark *chou* has a more limited range. In fact, it only groups couplets of different species that share a distinctive characteristic, rather than identifying a sub-taxonomy within an already given macro-category of entities. Nevertheless, the character *chou* (a noun, N) is always preceded by an "X" biological lexeme that "modifies" it (adjective or ad-noun, ad-N)[67]: in this way, the noun "X" that represents a specific kind of animal or vegetable, becomes a "collective" noun (X-*chou*) that epitomises a whole sub-category of living beings, very similar to the English expression "X-like". For instance, an "owl-like" sub-category of birds (*xiao chou* 梟醜) or a list of "cicada-like" (*tiao chou* 蜩醜) creatures.

6 Conclusion

The organisation of biological knowledge in Early China, whether it stemmed from the necessity of cataloguing the observation of animals or just from lexicographic and linguistics purposes, appears more complex and stratified than we might expect. The compilers of lexicographies were not necessarily naturalists or experts of zoology, and they probably never encountered the vast majority of the creatures whose names were selected to be kept in the *Erya* chapters. The complex situation in which the Chinese Empire was struggling to achieve not only a unified ideology, but also a unified language, might have been the real *deus ex machina* that encouraged the court to promote the production of texts that could contain an exhaustive list of names that described the natural world. While correlative thinking could have shaped the boundaries in which these proto-taxonomies were organised and defined, it seemed clear that the five phases were not sufficient to properly describe the complexity of the animal kingdom, and thus new strategies were developed to better order the nominal chaos with its ambiguities and approximations. This necessity for the encapsulation of new pieces of information inside traditional categories that were established centuries before, might have originated from the (felt) need to guarantee the transmission of clearer data for future generations of scholars and scribes. Moreover, the act of mnemonically grouping animals that share something in common stimulated the compilers (or the observers?) to elaborate new and surprisingly modern parameters to classify creatures such as monitoring the flight of birds or identifying the details of tiny insects.

This spirit of observation and classification at the base of the compilation of what we would call laconic "word lists" created an exceptionally variegated and asymmetrical implicit organisational system crafted onto an apparently schematic and dichotomic organisational frame.

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67 For the concept of N (noun lexeme), ad-N (noun modifier), see Harbsmeier 2016.

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