２０２１年度

大学院文学研究科博士課程後期３年の課程入学試験

（　春期・一般選抜　）問題

筆記試験　　言語学　　専攻分野

試験開始の合図があるまで、この問題冊子を開いてはいけない。

受験記号番号	

成 績	

２０２１年度

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筆記試験（　　言語学　　専攻分野）

問題Ⅰ. 次の文章を読んで下の問いに答えなさい。

One of the oldest debates in linguistics concerns whether the languages of the world share a set of core invariant properties reflecting universal features of human cognition. At the center of this debate is a tension between the diversity we see when we look across languages and the similarities that crop up when they are analyzed under a certain lens. This tension, between linguistic diversity on the one hand and universal organizing principles on the other, is on full display in one of the simplest linguistic structures we use: the noun phrase. Given just a noun (e.g. *vases*) and three common categories of words that modify it—a demonstrative (e.g. *these*), a numeral (e.g. *two*), and an adjective (e.g. *blue*)—there are already twenty-four possible ways of ordering the words to make a phrase, almost all of which are found in some language. For example, the English order is *these two blue vases*; in Thai, it would be the equivalent of *vases blue two these*; in Vietnamese, it would be *these two vases blue*; in Basque, it would be *two vases blue these*; and so on. Yet there remains a small subset of orders that no language appears to use systematically. For example, we currently know of no language that systematically uses the equivalent of *blue two these vases* or *blue these vases two*.

Linguists have argued that these missing patterns offer evidence of universal organizing principles underlying how noun phrases are built (Cinque 2005, Steddy & Samek-Lodovici 2011, Abels & Neeleman 2012, Dryer 2018, Steedman 2018). As careful analyses of noun phrase order exist for only a small sample of the world's languages (around 700 in Dryer 2018), any one pattern could be absent by chance (Piantadosi & Gibson 2014). Here, we focus not on which patterns are currently attested in the world's languages, but instead on the frequency differences among the twenty-four possible orders. The dramatically skewed distribution is shown in Figure 1a (next page).

What sort of organizing principles might explain why some noun phrase orders are so much more common than others? All current accounts start from the idea that adjectives, numerals, and demonstratives are not created equal. Rather, they differ in how they combine with each other. To illustrate this, take a complex word like *speakers*,

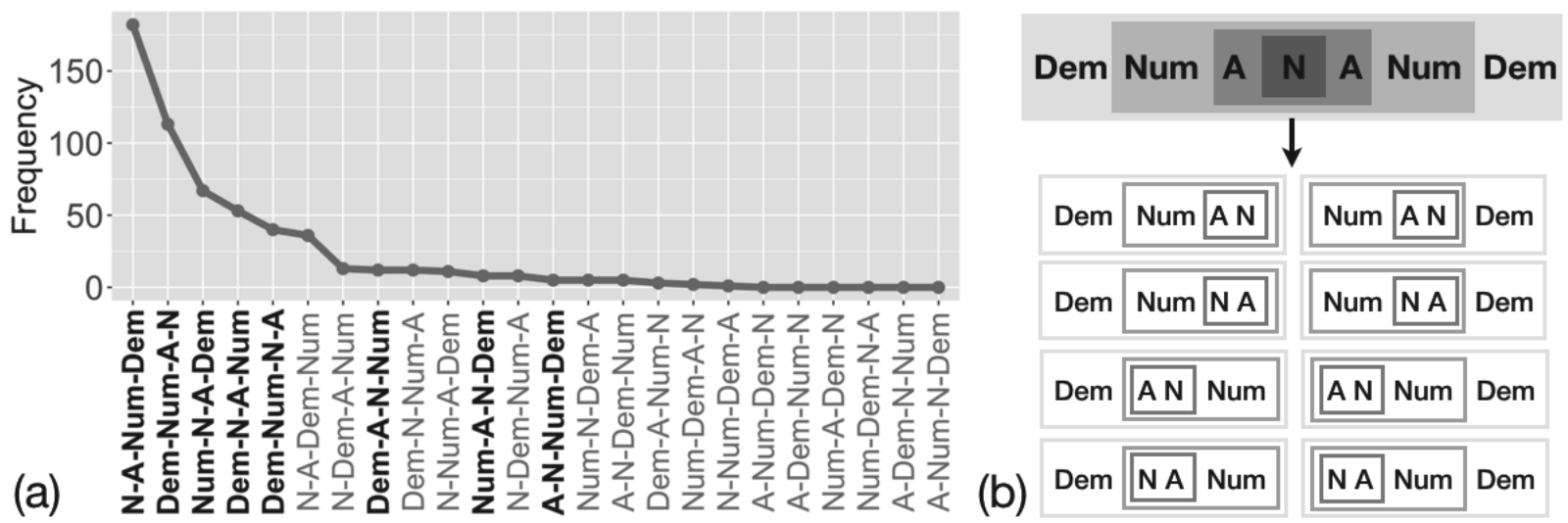

Figure 1. (a) Estimated frequency of each of the twenty-four possible orders (based on counts of languages sampled in Dryer 2018; N: noun, A: adjective, Num: numeral, Dem: demonstrative), with homomorphic patterns highlighted in bold black, showing a clear preference for homomorphism across languages. (b) Schematic representation of subunits or constituents in the noun phrase and the resulting eight homomorphic orders, which preserve this underlying structure.

composed of a lexical root *speak* and two morphemes *-er* and *-s*. The meaning of the word reflects how these two morphemes combine with the root; *speak* combines with *-er* first, creating a noun, *speaker*. This larger unit is then pluralized by combining with *-s*. The order of semantic composition is here preserved in the linear order—the morpheme that combines its meaning with the noun root first is closer to the root. This same idea can be applied to see how elements in the noun phrase (here multiple words) combine to form a coherent meaning. The adjective forms a unit with the noun first (i.e. *vase* is modified by the property *blue*). The resulting unit then combines with the numeral (i.e. the numerosity of the blue vases is specified), and finally that unit combines with the demonstrative (e.g. the group of blue vases is located in space relative to the speaker). This composition order is typically assumed to be reflected in the syntax (Adger 2003, Alexiadou et al. 2007), creating an underlying hierarchical structure in which each subunit forms a syntactic constituent. Just as in the case of morpheme order, the linear order of words in a noun phrase can in principle reflect this underlying structure, or not. An order that does will have the adjective placed closer to the noun, and the demonstrative farthest away. Following Martin et al. (2020), we refer to these as (i)HOMOMORPHIC orders. There are eight such orders, shown in Figure 1b, and they make up the bulk of the most frequently attested orders in Fig. 1a.

The notion of homomorphism—a transparent mapping between underlying structure (i.e. the compositional

units described above) and linear order—thus describes a kind of hidden similarity between languages that on the surface appear to be different. This is exactly the kind of universal organizing principle posited by many linguists, but it is worth unpacking what this might mean. If the explanandum is the frequency differences among noun phrase orders, then two potential organizing principles must be involved. First, there is a universal preference for transparent mappings between underlying structure and linear order. A universal preference is not a hard-and-fast constraint, but rather one that is, by hypothesis, present in all humans but violable in their languages (e.g. as in Culbertson et al. 2013). After all, the majority of languages are homomorphic, but non-homomorphic languages can arise and are learnable. In addition, there is reason to believe that transparent mappings are preferred across cognition, reflecting a domain-general preference for simplicity in learning (Chater & Vitányi 2003, Culbertson & Kirby 2016).

The second piece of the puzzle is the underlying structure itself, in particular, the compositional units described above. Some linguists have argued that constraints on noun phrase order provide potential evidence for innate knowledge (Cinque 2005, Abels & Neeleman 2012, Steedman 2018). While the most obviously language-specific constraints proposed in these theories are designed to rule out specific non-homomorphic orders (rather than to explain the high frequency of homomorphic ones), underlying these theories is the universality of the hierarchy. Where does this structure come from? (ii)One possibility is that the categories Adjective, Numeral, Demonstrative, and Noun are innately known (or expected) by language learners, who tacitly know how they combine semantically, and thus come to the task of language acquisition already equipped with an underlying syntactic structure based on this (Adger 2003). In other words, from the moment children map words in their language onto these categories, they will expect Adjectives to combine with the Noun before Numerals, and Demonstratives to combine last.

Here we explore these two hypothesized universals—a preference for homomorphism, and a universal underlying structure for the noun phrase (reflecting semantic composition and/or syntactic constituency). First, we show that when English speakers improvise a system of gestural communication, their gesture orders are systematically homomorphic. This supplements existing experimental evidence for a homomorphism bias in humans (Culbertson & Adger 2014, Martin et al. 2020) and supports the claim that this bias is at play in explaining noun phrase order in established languages. Then, we use an information-theoretic measure of strength of association to argue that the

universal structure that shapes noun phrase order may in principle be learnable from observing the world, rather than reflecting innate knowledge. Specifically, we show that objects are more closely associated with their properties than with their numerosities; objects and their numerosities are in turn more closely associated than objects and their location and/or relation to the speaker. These nested conceptual representations (which are not linguistic in nature), combined with the linguistic categories Noun, Adjective, Numeral, and Demonstrative, form the basis of the hierarchy from which noun phrase linear order is derived. (iii)The skewed distribution of orders across languages may thus come from a pressure to be homomorphic combined with a universal hierarchical structure derived (in part) from properties of the world around us.

(Culbertson, Jennifer, Marieke Schouwstra, and Simon Kirby. "From the world to word order: deriving biases in noun phrase order from statistical properties of the world." *Language* 96.3 (2020): 696-717 より一部抜粋)

問（1） 下線部(i)の HOMOMORPHIC orders とは何か、本文に即して説明しなさい。

問（2） 下線部(ii)の One possibility とはどのような可能性か、本文に即して説明しなさい。

問（3） 下線部(iii)はどのような主張か、本文に即して説明しなさい。

問（4） 下線部(ii)と下線部(iii)とでは研究推進上の方略としてどちらが望ましいか、自分の考えを根拠を示して説明しなさい。

問題 II. 自分の関心ある言語事象について概説し、それを研究する意義、目的、方法、予測される結果を具体的に述べなさい。その研究の特徴を一般言語学および関連領域の文脈の中に位置づけながら説明しなさい。

【問題 I と問題 II に対する解答は次頁以降にまとめて記すこと】

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