



Original Articles

The effect of being human and the basis of grammatical word order: Insights from novel communication systems and young sign languages



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ABSTRACT

This study identifies a central factor that gives rise to the different word orders found in the world's languages. In the last decade, a new window on this long-standing question has been provided by data from young sign languages and invented gesture systems. Previous work has assumed that word order in both invented gesture systems and young sign languages is driven by the need to encode the semantic/syntactic roles of the verb's arguments. Based on the responses of six groups of participants, three groups of hearing participants who invented a gestural system on the spot, and three groups of signers of relatively young sign languages, we identify a major factor in determining word order in the production of utterances in novel and young communication systems, not suggested by previous accounts, namely the saliency of the arguments in terms of their human/animacy properties: human arguments are introduced before inanimate arguments ('human first'). This conclusion is based on the difference in word order patterns found between responses to depicted simple events that vary as to whether both subject and object are human or whether the subject is human and the object inanimate. We argue that these differential patterns can be accounted for uniformly by the 'human first' principle. Our analysis accounts for the prevalence of SOV order in clauses with an inanimate object in all groups (replicating results of previous separate studies of deaf signers and hearing gesturers) and the prevalence of both SOV and OSV in clauses with a human object elicited from the three groups of participants who have the least interference from another linguistic system (nonliterate deaf signers who have had little or no exposure to another language). It also provides an explanation for the basic status of SOV order suggested by other studies, as well as the scarcity of the OSV order in languages of the world, despite its appearance in novel communication systems. The broadest implication of this study is that the basic cognitive distinction between humans and inanimate entities is a crucial factor in setting the wheels of word ordering in motion.

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1. Introduction

Word order is both a necessity and a resource. It is a necessity in the sense that the linguistic signal is linear (de Saussure, 1959), and words in a clause have to be arranged linearly. But languages take advantage of this state of affairs and employ differential orders for various linguistic tasks, including signaling information structure, sentence type (e.g. indicative vs. interrogative, main vs.

embedded), and syntactic/semantic roles such as subject and object or agent (or actor) and patient.¹

¹ It is important to distinguish the event that is depicted and its structure from the linguistic description of the event and its structure. In this paper, we use the term *entity* to denote the persons or objects that are depicted in the video clips (in the elicitation tasks described below) and the term *relation* to denote the state or activity depicted. If one of the depicted entities is acting on the other, we call this entity an *agent*. We call the other entity in such a relation a *patient* and the relation an *action*. For the linguistic description we use the standard terms S(ubject), O(bject), and V(erb), as used e.g. in Dryer (2013a), which we refer to as syntactic/semantic roles, since they refer both to the syntactic roles of Subject-Object and the semantic roles of Agent-Patient of the arguments.

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The use of uniform word orders for signaling the roles of arguments seems to be a basic device in human languages. First, it is quite prevalent. Out of the 1377 languages sampled for word order in the *World Atlas of Language Structures* (2013), over 85% are characterized by a dominant order for signaling the arguments in a transitive clause (Dryer, 2013a). Furthermore, word order is reported to be in use in a variety of emerging communication systems. Word order regularities have been found in homesign systems, the gestural communication systems invented by deaf children not exposed to any language, spoken or signed (Goldin-Meadow, 2003). Young children may rely on word order to encode syntactic/semantic roles before they learn to attend to morphological cues such as case marking, as has been shown for German-speaking children by Dittmar, Abbot-Smith, Lieven, and Tomasello (2008). In pidgins and creoles, word order is the main device for encoding these relations, since inflectional morphology (verb agreement and case markings) is largely absent (e.g. Arends, Muysken, & Smith, 1994). Consistent word order also appears very early on in the development of a new language. Sandler, Meir, Padden, and Aronoff (2005) found that in Al-Sayyid Bedouin Sign Language (ABSL), a sign language that developed de novo in a Bedouin village in Israel with a high percentage of congenital deafness, consistent word order appeared in the signing of second generation signers.

These observations have been taken as evidence that the use of word order to indicate syntactic/semantic roles is an important and basic property of human languages. It has long been known, though, that the particular order employed varies across languages. Indeed, each of the six possible orders of the components of a transitive event – the agent/subject (S), the patient/object (O) and the relation/verb (V) – is dominant in some fraction of the world's attested languages (Dryer, 2013a). This fact suggests that no order is cognitively or linguistically impossible. Still, the distribution of these orders in languages of the world is uneven. Of the six possible orders, two are by far more common than the others: SOV and SVO, 565 and 488 languages respectively in Dryer's sample of 1188 languages with dominant word order, together accounting for almost 90% of these languages.² The next most common, VSO, is found in only 95 languages (8%), and the three orders in which O precedes S total 40 altogether (3%). SOV and SVO are also predominant in sign languages. In a comparative study of word order in 42 sign languages (out of about 150 attested), Napoli and Sutton-Spence (2014) found that only SOV and SVO word orders are attested as dominant orders. This uneven distribution suggests the possibility that cognitive and/or communicative factors are involved in determining the dominant order in a language.

This distribution of dominant word orders across languages and language families raises questions from evolutionary and historical perspectives: what gave rise to this particular distribution? Is one order more basic than others? In what way is it more basic – diachronically or cognitively? If it is more basic in one sense or another, how and why did other orders develop? As is always the case when trying to suggest a scenario for events for which we can have no direct data, the question is what can count as evidence. Three types of studies have been suggested (Schouwstra, 2012, ch. 2, 23–24): (i) comparative

and diachronic studies of existing languages; (ii) studies of word order in linguistic systems that are new or very young; and (iii) studies of word order in novel communication systems invented in the laboratory, such as elicited pantomime. The study we present in this paper is unique in combining two types of evidence, word order in young languages and elicited pantomime, as we discuss below.

Based on comparative and diachronic studies of existing languages, Newmeyer (2000, 372) hypothesizes that “the earliest human language had a rigid SOV order”³ and that SVO order developed later as a response to various processing efficiency demands. His hypothesis is based on the current distribution of SOV and SVO orders in the world's languages, and on diachronic studies of word order change. SOV order is predominant in all continents except Africa, where both SOV and SVO are widespread. SVO is more restricted in its geographical distribution, occurring mainly in Africa and Eurasia, and is hardly represented in the languages of the Americas and Austronesia (see also Dryer, 2013a). Diachronically, there is evidence for many SOV languages shifting historically to SVO, while a shift in the opposite direction is usually attributed to language contact (Gell-Mann & Ruhlen, 2011; Givón, 1979; Vennemann, 1975).⁴ Newmeyer concludes that SOV is likely the basic order in early human languages (the conclusion that Givón, 1979; Gell-Mann & Ruhlen, 2011 also arrive at), and that the current distribution, where SVO is almost as widespread as SOV, is the result of many SOV languages shifting to SVO.

New languages may shed some light on the issue at stake, since they are closer to their “point of origin” than already existing languages in the sense that in early stages of a language there is no stable set of linguistic conventions that users can rely on. Therefore users of these systems need to improvise when they put words together, relying on whatever strategies are available to them. Identifying these strategies may give us a clue to the factors that determine word order to begin with (cf. Schouwstra, 2012, ch. 4).

While we have no consistent evidence on word order in pidgins (Bakker, 2008), creole languages are largely SVO (Bakker, 2008; Huber & the APiCS Consortium, 2013; McWhorter, 2001; Seuren, 1998), leading Bickerton to suggest that the basic word order of the Bioprogram, presumably from a Universal Grammar perspective, must have been SVO (Bickerton, 1981). Other researchers argue that the SVO order in creoles results from the influence of the superstratum languages, many of which are SVO (Gell-Mann & Ruhlen, 2011).

Another type of a communication system that is new in the sense that its users have yet to learn the linguistic conventions to rely on is known as the Basic Variety (BV). This term was coined by Klein and Perdue (1997) to refer to the form of language used by adults who acquired a second language outside the classroom. Klein and Perdue conducted a comprehensive longitudinal study of the form of language used by adult second language learners from various mother tongues and various target languages, and described its properties. Concerning the linear order of arguments and events, they posit two major principles: (a) a semantic principle by which the NP referent with highest control comes first, and (b) a pragmatic principle according to which the focus expression comes last. The NP with the highest control is typically the agent,

² Dryer uses the term ‘dominant word order’, which we adopt here, rather than the term ‘basic word order’, used in many other frameworks. According to Dryer, a dominant order is the sole order possible in a language, or the most frequent order. See Dryer (2013b) for theoretical considerations in determining the dominant word order in a language. The term ‘basic word order’ is used to mean different notions in different works, e.g. the most common order, an underlying order from which all other orders in the language are derived, the order that emerged first diachronically and the order that is easiest to process. In order to avoid confusion, we adhere to Dryer's terminology, which takes the dominant order to be the most frequent one.

³ Newmeyer (2000) assumes that ‘the earliest human language’ is already one evolutionary step ahead of ‘proto-language’. According to him, proto-language must not have used word order to mark thematic relations, but rather used some kind of inflectional morphology for this purpose. That is, he surmises that morphology developed before syntax as a means of encoding thematic relations.

⁴ Yet Vennemann (1974, 370) does not rule out other causes for an SVO language becoming SOV, such as the development of a consistent morphological case marking distinguishing S from O. He gives Persian as an example of a language that developed a definite object marker from a noun meaning ‘goal’, and concomitantly changed from being more SVO-type to predominantly SOV type.

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