THE INTERACTION OF ANIMACY AND WORD ORDER IN HUMAN LANGUAGES: A STUDY OF STRATEGIES IN A NOVEL COMMUNICATION TASK

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Introduction: The use of word order for signaling participants' roles is an important property of human languages. Yet the particular order employed may vary across languages. Indeed, all six possible orders of the components of a transitive event - the subject/actor (S), the patient/object (O) and the action (V) – appear in the worlds' languages. This fact suggests that there is no order which is cognitively or linguistically impossible. However, the distribution of these orders in languages is uneven. Of the six possible orders, two are by far more common than the others: SOV and SVO. This uneven distribution suggests the possibility that cognitive and/or communicative factors are involved in determining word order.

In evolutionary terms, several researchers have argued that SOV is the basic word order, and that other orders developed later, as a response to various processing efficiency and communicative demands. The study presented here investigates the question of what gives rise to different word orders. We suggest that different types of clauses present different communicative challenges, and that one means of coping with these different challenges is the use of differential word order. Two types of transitive clauses are considered here: canonical clauses and reversible clauses. In canonical clauses, the subject/actor (S) is animate and the object/patient inanimate. In such cases, the clause may be understood on the basis of semantics alone. In reversible clauses, both arguments are animate, and special machinery is needed to mark one argument as S and the other is O. We show that in a

communication system invented on the spot, the two types of sentences give rise to two different word order patterns.

Method: Thirty three hearing subjects, native speakers of Hebrew (a SVO language) that were not previously exposed to a sign language were asked to describe by gesture alone a set of 18 short video clips, each depicting a single transitive or di-transitive event. The clips varied with respect to whether the object participant is human (e.g., *the girl pulled **the man***) or inanimate (*the girl pulled **the cart***). Their gesture productions were videotaped and then analyzed according to the order of the gestures representing the instigator of the action (S), the affected argument (O) and the action (V).

*Results***:** A statistically significant distinction was found between the two types of clauses in terms of word order. In clauses with an inanimate object, SOV order is dominant (65% of responses) and SVO appeared only in 31% of the clauses. In clauses with human object the reverse pattern was found: the dominant order is SVO (64%), and SOV occurring in 31% of the responses. Furthermore, subjects invented additional devices when describing sentences with human objects, such as gesturing that there were two human participants: *'Two: man, woman, man look'*.

*Discussion***:** The fact that SOV was the dominant order in canonical clauses supports the hypothesis that SOV is cognitively more basic. In these clauses the message can be understood based on the semantics alone. The consistent SOV order seems to serve more of a cognitive than communicative function. But this basic order is used less in reversible clauses, most likely because they are potentially ambiguous, and demand specific mechanisms to disambiguate the message. Word order, as well as other special devices (not included in the word order count), is used to cope with these challenges. Preliminary results from nine Turkish speakers who performed the same task support the suggestion that reversible clauses call for special machinery. Though SOV (the dominant order in Turkish) was dominant in both types of clauses, in clauses with inanimate object it was almost the only order (accounting for 88% of the productions), while in clauses with a human object it accounted for 64%, and another order, OSV, occurred in 28% of their responses.

Our study shows that different types of clauses pose different communicative challenges, and different word orders and other devices may emerge to cope with them. It may be, then, that a language begins with more than one word order, and conventionalizes to a particular order later in its development.