

## FACIAL DISPLAYS IN SIGNED LANGUAGES: A CG ANALYSIS

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### 1. INTRODUCTION

Signed languages employ finely articulated facial displays to express grammatical meanings (Pfau and Quer 2010; Reilly 2006, Wilbur 2000, Dachkovsky and Sandler 2009). Lackner (2019), for example, identifies three major areas — face, mouth, head — capable of articulating more than 100 nonmanual elements expressing such functions as mood and modality, complex propositions (conditionals, causal relations, complementation), information structure (topic, focus), assertions, content and yes/no questions, imperatives, miratives, and so on. Mouth movements in the lower part of the face, on the one hand, and eyebrows' muscle activities, on the other hand, are very common in expression of grammatical meanings in different signed languages. Two facial markers which are widely involved in sign grammar are horseshoe mouth and brow furrow.

Lowered corners of the mouth, or horseshoe mouth, is a common facial marker which appears in many diverse contexts. For example, horseshoe mouth is quite frequent in expressing modality and assertive propositions in Iranian Sign Language and some other signed languages. Brow furrow, which results in a distinct vertical line between the eyebrows, is a very common marker in interrogatives and imperatives across different signed languages.

### 2. MATERIALS AND METHODS

In this paper we examine two facial displays: an upper display in which the eyebrows are pulled together called brow furrow, and a lower display in which the corners of the mouth are turned down into a distinctive shape that resembles a horseshoe or upside-down “U”. Discussing data from Iranian Sign Language (Zaban Eshareh Irani (ZEI)), American Sign Language (ASL), Italian Sign Language (LSI) and other signed languages of the world, we address two puzzles that have previously been unaccounted for: (1) why do these displays mark such different types of grammatical structures in a single language? (2) why do these displays appear in and express similar function across unrelated signed languages?

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Employing the theory of cognitive grammar (CG) and the concept of Control Cycle, we suggest a unified account of the various functions expressed by these two facial displays that answers these two questions.

### 3. DISCUSSION

The control cycle consists of four phases (Langacker, 2013). Elements of the control cycle include an actor (A), the actor's dominion (D), a field (F), and a target (T). The actor is an entity who strives for control. In linguistic interaction, interlocutors strive for effective and epistemic control. One of primary goals is to influence our interlocutor. This may only mean directing the attention of the interlocutor in order to achieve intersubjective alignment — a baseline level of effective control. We also use linguistic interaction to gain epistemic control, knowledge of the world. Epistemic control may be gained by our embodied perceptual interaction with the world. This experience includes our linguistic interaction with others, by which we acquire evidence of their conception of the world. We achieve epistemic control by incorporating and continuously updating these varied experiences into our conception of the world. We may also endeavor to exert effective control by asking someone something (interrogatives), ordering someone to do something (imperatives), and obligating someone to do something (modals).

Signed languages, like spoken languages, have lexical resources for expressing effective and epistemic control. Signed languages also employ facial displays for indicating effective control, such as degrees of exertion, and the phases of the epistemic control cycle. These linguistic resources have multiple functions ranging from marking questions and orders to making assertions and expressing epistemic meaning.

Brow furrow marks many different speech acts in a number of signed languages. Brow furrow marks content or *wh*-questions and is also associated with imperatives. Asking questions and ordering are expressions of effective control. Their goal is to exert force with the potential to influence what happens in the world. The imperative force of an order is directed at the addressee with the intention of eliciting an effective response, such as performing some action. The effective force of a content question is eliciting a linguistic response from the interlocutor.

Another kind of control is epistemic control. The goal of epistemic control is to construct and continually update our conception of reality. Epistemic control is about striving to understand the world rather than influencing what happens in the world. One aspect of epistemic control is the acquisition and control of propositional knowledge. In terms of the control cycle, "At this level, the actor is a conceptualizer, the target is a proposition, and the dominion is the conceptualizer's view of reality (or epistemic dominion), i.e. the set of propositions the conceptualizer currently holds to be valid" (Langacker, 2009). Examples of epistemic control are making an inference or the use of reasoning to determine some inclination towards accepting or rejecting a conclusion; evaluating the veracity of a memory (e.g. whether some event did or did not occur); considering or entertaining a possibility; and concluding. Linguistic expressions of epistemic control include epistemic modality, assertions, and evidentiality. Expressions of epistemic control are frequently marked with the horseshoe mouth in a number of unrelated signed languages.

### 4. CONCLUSION

In this paper, we explore the meanings of two facial displays and examine how they

are manifested in the grammars of signed languages. We propose that the schematic meaning of brow furrow is the exertion of force, both objective force directed at influencing reality and subjective or mental force required to construct a reality conception. The schematic meaning of horseshoe mouth is epistemic control, prototypically indicating an epistemic assessment during the potential phase of the control cycle.

We also explore the interactions between upper face and lower face displays in linguistic expressions that combine effective and epistemic control. Finally, we consider these facial displays as examples of disengaged cognition, as subjectified or grammaticized simulations vis-à-vis their source manifestations.

**Keywords:** Cognitive grammar; Control cycle; Facial displays; Force; Iranian sign language; Sign linguistics