Brazilian Sign Language and Articulatory Phonology

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It was not until 1960 that American Sign Language (ASL) was demonstrated by William Stokoe to exhibit the same structural principles as spoken languages, and, afterwards, started to be acknowledged as a language on its own [1]. This has attracted other researchers to investigate more deeply ASL and other signed languages across the world. In addition, this has led to the establishment of a new field within Linguistics, where those languages became the object of study.

Because of the difference in their modality of articulation and perception, research on signed languages, especially the pioneering one, took as their main goal to find more and more evidence that these languages are actual languages. They have tried to accomplish this goal, by analyzing signed languages using the same theoretical constructs developed within linguistics for the analysis of spoken languages.

Despite the unquestionable value of all these studies, this approach, not necessary any longer at this point in signed language linguistics history, has overlooked features of these languages which have no (exact) correspondence in spoken languages. Even more damaging than that: By imposing spoken language theoretical constructs on signed language analysis, this approach has disregarded the possibility that these languages follow different principles or even that those analytical categories may be inaccurate even for spoken languages.

This paper aims to take a different approach. On the basis of Articulatory Phonology, grounded in a “general theory of movement”, we propose a phonological analysis for Brazilian Sign Language (Libras). More precisely, following [2], we determine the articulatory gestures that constitute Libras lexical items. This task takes into account experimental data obtained by [3]. The author carried out a production experiment that consisted in asking 12 deaf adult signers (six men and six women) from São Paulo city to produce three times in isolation the sign corresponding to a figure they were shown. Signers were videotaped and data were analyzed using [4]. This paper focuses on the gestural representation for one sign selected from the set of data. The selected sign was BEETLE-CAR, and its gestural representation, such as proposed by [5], is illustrated in Figure (1).

In order to achieve our aim, we depart from the assumption that signs are produced in a kind of "tract", which, in our view, are the upper limbs. Therefore, signs produced by the action of both hands are assumed to be produced by two "tracts". Since [2] propose a model for providing a phonological representation of speech sounds, we discuss which articulators would be responsible for the sign production in a signed language such as Libras. Moreover, Articulatory Phonology predicts that articulatory gestures are responsible for implementing discrete tasks involved in a skilled action. Due to the obvious reason that signs differ from speech sounds in relation to the articulators involved in their production, we try to determine the articulators responsible for the production of signs and the discrete tasks they implement.

By doing so, and by assuming that gestures can coordinate in time, we propose a gestural score for the prototypical form of the Libras sign BEETLE-CAR. The coordination of articulatory gestures over time implies that two gestures can superimpose and that this superimposition can be slight or severe, yielding gradient variation in the production of signs.

Besides, different temporal coordination patterns of the gestures involved in the production of a sign, together with the possibility of activation or deactivation of gestures, can explain some of the variation previous research has documented [6], but also other cases of variation that are frequently overlooked and not satisfactorily explained by approaches that, unlike ours, do not analyze signs in terms of units of action.

(1) Gestural score for BEETLE CAR

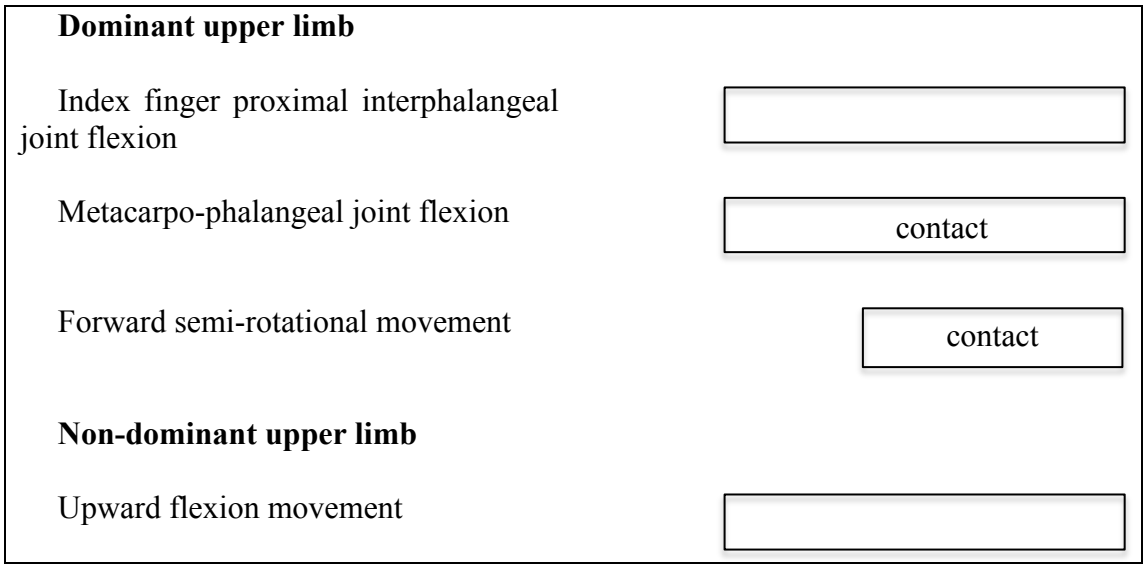

Figure 1. *Gestural score for BEETLE-CAR*.

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