Is Linguistic Organization Amodal? Some Evidence from the Sign Languages

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Abstract. This paper aims to justify that linguistic organization is amodal from the aspects of sign languages. Then some evidence was illustrated to explore language is one multi-modal system of interaction with the examples of gestures in sign languages, sign space, iconicity, and comparison of spoken language and sign language.

1. Introduction

The linguistic modality is biologically set including different parts such as auditory and visual parts，and modality of production of spoken languages is always vocal-auditory. But from the research on sign languages (SL) (Tang, 2019) [1], SL is also regarded as one natural language and tends to use the visual-spatial modality (Pernis, 2012)[2]. It is acceptable that linguistic modality has to be interacted when languages are used, so language can be seen as one interactive multi-modal system and it shows linguistic organization is amodal. More evidence can be found from SL. Articulation in SL, different from speech liked with respiration and acoustic signals, can be expressed by joints and muscles, which implies that sign perception tend to use external light sources. Besides articulation, SL can also employ simultaneously other linguistic organization at the different levels of phonology, morphology and syntax in the forms of manual or non-manual marks, which presents the amodal feature of linguistic organization.

2. Evidence from the sign languages

Based on the linguistic features of SL, four aspects of evidence proved the modality feature of linguistic organization in terms of gesture, sign space, iconicity and comparison between spoken language and sign languages. Meanwhile theses features tend to be embodied at the level of phonology, morphology, semantics and syntax, similar to the speech perception.

2.1 Evidence on gesture

As Özyürek (2012)[3] points out that all kinds of language can invoke different representational gesture to show the non-identical "lexical, semantic and grammatical patterning" of any information, just like spoken languages SL adopts multi-modal channels to express attitudes and propositions. The gestures in the SL that comprise semantic, syntactic and pragmatic information can contribute to the verbal part in the communication, which differs from the gesture in spoken languages with a continuum of conventionalization in the dimensions of form-meaning relationships and semiotic meaning and function.

Actually, when speakers use representational gestures to communicate with others, they tend to use their "imagistic thinking" to produce these gestures, which are parts of language. And some SL gesture components, also deriving from imagistic thinking, are similar to representational gestures used in spoken languages. So gestures in SL can be represented as part of the cognitive process and be combined with language as "blended" signs in language production (Özyürek, 2012). [3]

2.2 Evidence on sign space

Take sign space for another example. Sign space in SL means the space in front of the signers' body, and is used by signers to construct different meanings to communicate with others or express

themselves because "By virtue of being produced in the visual-spatial modality, essentially all of linguistic expression in sign languages depends on the use of space. " (Pernis, 2012, p. 413) [2]

As for topographic use of sign space, it is one instance of amodality in language production. Firstly, it explores the iconic properties of the visual-spatial modality of language and matches the spatial relationships between the location in sign space and the referents in a real or imagined world. In addition, the topographic features of sign space can be used to produce more complex spatial representation. Just as Emmorey (2002) described how the signers make good use of space sign to express the topographic layout of one center or a town in their communication, how the signers viewed the space conceptually facilitated them to use different kinds of styles on topographic mapping. Furthermore, by mapping different discourse themes onto different representational areas of sign space, signers can achieve discourse cohesion. Specifically, signers manipulate variety of modalities of linguistic organization or structure to express themselves, communicate with others or accomplish their tasks. In terms of morphosyntax, one of linguistic feature, signers associate some devices with the creation of spatial location, such as classifier predicates, directional verbs, pointing signs. Even some signers can displace spatial signs to represent citation form. So it is found that signers adopt visual-spatial modality to create a visual representation to achieve discourse cohesion, so that addressees can detect the powerful cues of the discourse structure to understand the conveying meanings by visual information chunking (Pernis, 2012) [2].

More evidence in sign space can be testified is about relation between perspective and classifier predicates. In order to communicate, signers tend to structure perspectives and classifier predicates of SL for event representation. Actually, two types of signing perspective are included: observer perspective and character perspective. To build up relationships between signing perspective and classifier predicates in different ways can be realized implicitly and explicitly. With regard to verb semantics and argument structure, signers can use one systematic correspondence to connect entity classifiers and intransitive verbs. For instance, when handling classifiers and transitive verbs, signers use handshapes of the predicate to encode the theme. Another example is interconnection of articulatory and semantic constraints, which can felicitously represent the constraints on the certain information types. When signers use fingers (e.g. index and middle finger extended, fingers pointing downward) as the "so-called 2-leggeed" entity classifier to represent features of the human body, the properties of sign space of fingers can correspond to facets of human body with the extended fingers corresponding to the legs, the tips of fingers to the feet, and back side of fingers to the front of the body (Pernis, 2012) [2].

2.3 Evidence on Iconicity

According to Pernis, Zwitserlood, Özyürek(2015) [11], locative expression in SL has been influenced heavily by the visual-spatial affordances of modality. SL is also one kind of language so the evidence from SL can to some extend testify the features of linguistics. From the aspect of iconicity in SL, it is clear to find iconic mappings between the sign forms used by signers and the real world entities or spatial relationships. For example, in SL the signers can use classifier predicates and morphologically complex predicates to simultaneously signify some real entities and location representation. Among different SLs, in the visual modality the locative expressions comprise three associations types of the iconic representations and spatial affordances: entity representation, locative representation, and simultaneous referent representation respectively. Furthermore, the researchers posited that operationalizing semantic specificity in degree of iconicity can realize the three types of information in SLs. So language modality has am impact on shaping spatial language and modality, and meanwhile some language-specific structure or features also can shape modes of linguistic expression.

It is shown that interaction of modality is one distinct feature of language, at least in SL. For example, if speakers or signers only use vocal modality, it is impossible to represent the highly iconic and topographic encodings of spatial location and simultaneous representation of any spatial relationships. However, these representations are easily possible in the visual modality if signers associate the unique spatial affordances and posture of the two hands as visible articulators.

Actually, variation is not unique to the visual modality, but in overall semantic specificity of iconicity in other modalities. So spatial encoding across SLs testifies the cross-linguistic similarity.

2.4 Evidence on Comparison Between Spoken Language and SL

Then, to compare the space meaning in spoken language and sign language is also the illustration of amodal feature of linguistic organization. Spoken languages in the world contain varieties of semantic, lexical and grammatical means to encode space, location or something like this by using different spatial relations or different modes of spatial references (Ameka 1995[5], Ameka & Levinson, 2007[6], Berman & Slobin 1994[7], Bowerman 1996[8]). As for sign languages, the visual-spatial modality focuses on iconic representations of space by mapping entities and spatial relations into the hand and/or the space in front of bodies (Emmorey 1996[9], 2002[4], Talmy 2003) [10].

3. Conclusion

Therefore, SL is one natural language, and linguistic organization is amodal. To process the bilingual knowledge is online, and bilingual knowledge can be interacted simultaneously. Modality can interact with modes of language acquisition including auditory mode, visual mode and naturalistic input in different modes. Notwithstanding it is beneficial for deaf children to acquire SL to help them lay strong language foundation or full competence, which can facilitate their literacy or spoken language learning in the future if they want.

Acknowledgment

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