On Defining Cephalic Gesture Categories[1]

There is a wide variety of studies on gestures in general (cf. McNeill 2000; Müller et al. 2013; Seyfeddinipur, Gullberg 2014), mostly considering hand gestures, whereas other kinetic forms (the head movements in particular) have not been investigated so widely (see Hadar et al. 1985; Bull 1987; Kousidis et al. 2013).

The paper reports some initial steps towards the definition of cephalic gesture categories in the discourse. Head movements are studied on the corpus resource called "Russian Pear Chats and Stories" (see www.multidiscourse.ru in Russian) aimed at describing multimodal data within a unified approach.

For annotation purposes we should address some fundamental concerns. Firstly, we know that the nature of cephalic gestures is inherently different from that of manual gesticulation. Hand gestures are distinct from insignificant movements called adaptors (Ekman, Friesen 1969) or manipulators (Ekman 1999). Hence, here is the first question: whether we should discriminate between head *gestures* and head *movements,* not being meaningful signs. The second question is: what is a unit of annotation – a movement or a period between movements (we may call it a head posture), thus discerning figure and ground according to (Müller, Bressem et al. 2013). The third question is: if a head gesture is a simple movement or it can include several movements.

In our project we consider all head movements as gestures, since at this stage it is impossible to differentiate meaningless head movements and voluntary head gestures, while all of them apparently play a role in communication.

Secondly, some head movements are conventionalized and conceptualized in language, like *nod*, *shake* and *jerk* in English. On the one hand, literature analysis suggests that the research usually revolves around those notions/ gestures (McClave 2000; Allwood, Cerrato 2003; Benoit, Caplier 2005). Undoubtedly though, here there is a danger to mix formal, functional and semantic approaches towards defining the cephalic gestures. Moreover, with this viewpoint it is not quite clear how we should tackle all the other head movements which can be seen in discourse and which do not fall into those categories.

Thus, our consideration is that gestures are the movements and the pauses between them are rest positons. There should be a *physical effort*, a change in the *direction* of a movement along the three axes, i.e. vertical, horizontal and angular (see the Figure 1 p. 212 in Wagner et al. 2014), and change in its *intensity* for us to single out or label a gesture.

Thus, annotating head gestures in ELAN, we have a vocabulary for a free **Type of Head Gestures**, which includes all kinds from simple – to compound – to complex gestures, where e.g. a simple gesture is a *drop*; a compound gesture is a *forward-back*; and a complex gesture is a *multiple nod*. There are 20 items in the vocabulary with a physical description of each. Some movements may combine (for example, a *nod* and a *turn-right*), so an annotation represents physical complexity of the movement.

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