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## The Origin of the Headshake

The aim of this talk is to present an explanation for why headshakes indicate negation in most cultures of the world. The theoretical underpinnings of this explanation lie in conceptions of grounded cognition, which state that our cognition relies on multi-modal representation acquired during real-world experiences (e.g., Barsalou 2008) and Hebbian learning (Hebb 1949). Equipped with these ideas, this presentation will elaborate on Darwin's (1872:273) observation that children inevitably shake their heads when sated, thereby establishing a connection between rejection and the head gesture. Later in life, the semantics of the headshake extends from rejection to negation.

As human babies are usually held in the arms of the caretaker to support the weak neck muscles, the only way to stop drinking is a headshake. When this action is repeated numerous times, an association between the bodily experience of shaking the head and refusal is established via Hebbian learning.

Most nonhuman mammals are fed when the mother is either lying on the side or standing. These animals therefore do not need to perform a headshake to stop the feeding. The special posture of human babies in contrast makes other head movements difficult.

This simple theory predicts that (a) the same connection can be established in other mammals whose mothers also hold their babies in their arms, (b) blind humans should also display this behaviour even though they cannot observe headshakes, and (c) the headshake should be a gesture acquired very early in life. Indeed, there is evidence that bonobos, who breastfeed their babies while holding them in their arms, indicate refusal by headshaking (Schneider, Call & Liebal 2010). Prediction (b) is supported by human ethology research demonstrating that deaf-and-blind born children also refuse disliked objects by shaking their heads (Goodenough 1932; Eibl-Eibesfeldt 1973). Finally, prediction (c) is supported by the fact that the headshake is one of the earliest gestures in humans and is initially used to express refusal only (Guidetti 2005). In language acquisition, negative expressions are also initially used to refuse and only later to negate more generally (Stern & Stern 1907:39f.; Dimroth 2010). This talk will also discuss why there are regions in the world where no headshake is used arguing that the connection between negation and the headshake can be overwritten by culture.

### References

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