Does a synesthetic mechanism aid robot's language learning?

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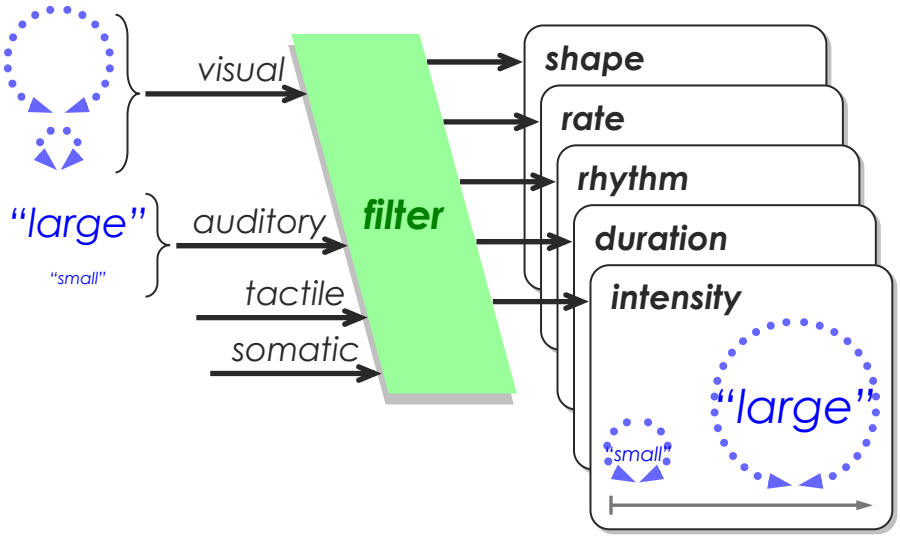
What is synesthesia?

An involuntary experience that the stimulation of one sensory modality causes a perception in one or more different senses [Cytowic, 1995]
← caused by the quantitative similarity of stimuli (?)

Robot
learning language by a synesthetic mechanism

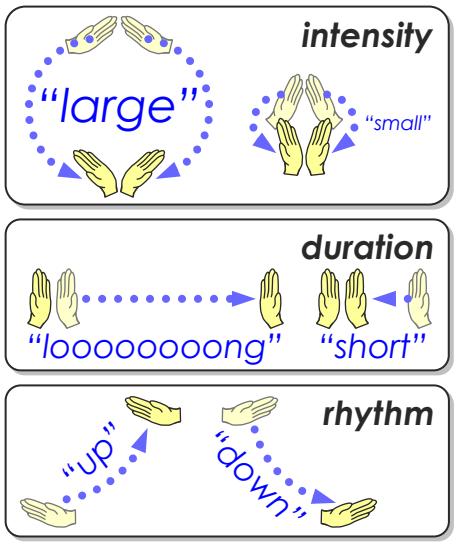
To extract **the modality-independent features** of multimodal stimuli and then associate them according to **the quantitative similarities**



scaffolding

Caregiver
teaching language by motherese/motionese

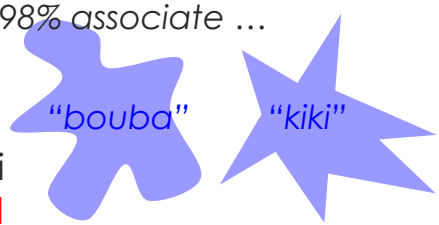
To convey **multimodal similarities** by modifying their speech and actions



Psychological supports

■Synesthesia might evolve proto-language [Ramachandran & Hubbard, 2003].

■Newborns are synesthetic. They don't differentiate stimuli from different modalities, but rather mix them and respond to the total amount of energy [Maurer & Maurer, 1988; Maurer & Mondloch, 2004].



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