





Motor system involvement during listening without bodily movement

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Listening sensoriomotor hypothesis

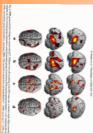
this research is to bear on the current issues in auditory neuroscience, using sensorimotor enactivist perspective to try to explain the findings of motor activation and sesoriomotor activation still remains unclear. of motor areas in immobile agents (passive listening tasks) engaged in auditory tasks. But so far the role of this passive or active perception of the sound. Recent research in cognitive neuroscience has revealed causal involvement listening apparently does not involve movement. motor activity, but has been challenged by the fact that enactivism model of perception predicts involvement of The motor system has not a production and perception happens on separate processes. sound (speech and music) is perceived, posits that its The classical and most widely accepted model on how coupling during "passive" functional role to play in However, sensorimotor listening The aim of

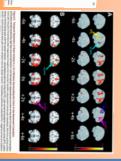
Theories of auditory and speech perception

| Theories of auditory and speech perception | (badas) | Ensilation theory | Motor resosance theory | Moore themy of speech perception | Senserinator theory of perceptual conclusioness |
|---|--|--|--|--|--|
| Principal claims | Speech production are separate precessor. It is supported by the separate precessor. It is not a herarchically organized involves. Two "investor." ("What") and the "invoid" stream, ("Absee") | regend medels (forward and inverse) are simulate the control of the input or output fractions of the metor apporatus. Representational theory | Activation of the mirror returns bytess. "resourance behavious" observation of actions performed by eithers, motor representations become automatically activated in the observers' brain | Speech perception is perception of gentary but reles on moor calments biologically based link between and production, is not a production, is not a notately specified, madule | Rejects representationalism. Uttenlag phenomenal experience constituted by the addition use of annormoter regularities in activa exploration of the world. |
| Authors | Michals & Prospet, Michals & Prospet, July 2006; Alann et al., 2006; Alann et al., 2007; Bellin et al., 2007; Bellin et al., 2007; Bellin et al., 2006; Bulbara et al., 2006; Dugbersan et al., 2006; 2006; 2006; et al., 2008 | Francis et al., 2005; Prazilo et al. 2015; Volport et al. 1998; Orișana et al. 2008; Bastian 2006; Fujeka et al., 2012; Schuborz et al., 2000; Gujert et al., 2000; Gujert et al., 2000. | Rurouari et al., 2001; Nelssen et al., 2003; Kather et al., 2004; Keysen et al., 2004; Fadga et al., 2004; Iamgent et al., 2004; Lahav et al., 2007 | Liberma & Mattiello. 1985. Martin & Burnell, 1981, 1981, 1981 et al., 1970; Festir, 1984 | O'Regan & Nos 2001; O'Regan & O'Regan 1915; Lien, 2014; Silverman 2014 |
| Predictions | Predicts that note pyten adication is not constitute of music and speech perception, but in a secondary learning and action pressing, and action pressing, | Does not preficit motor not preficit motor but is compatible with its presence and even its constitutive rele. Preficts that this activation is inside | Presents that moter opaten activation is constitutive of music and apprecial perception. Predicts this activation from birth. | Predicts that motion system activation is (constitutive of speech perception, Predicts this activation from mouth shouthers or boats modules: | Pandlets that motion is constitution is constitutive of music and speech perception. Predicts that this activation follows learning. |
| Evidence (Motor brain areas activation in passive listening tasks) | Politers with damage to the metan system can orbital seemal action recognition Stateshoot at ML 2017. The "sectual" and "dural" streams in structures in the temporal ideas (Baudriedes, 2012) | Cerisk et al (2007) auditory evekard fields to vocalization during passive listening in adults who statter, though internal models that post an auditory noise integration. | TWS: the human motor resolutes in response to speech sourch, words that irrobe mobilization induces as automatic an automatic facilitation of interior motor corner. (Fadiga et al 2014) | This own greet consultation for a constraint of a constraint of a constraint of articulary representations in the brains of both the spalars and the spalars and the Authory. 1986 Authory. 1986 Upensan and Whalen, 1986 Upensan and Whalen, 2000]. | Boalage et al (2005) trained nermuscant to play a novel pece of music and closely mortuned their tearring process. Marpilis et al (2000) field shat SMA and pre- SMA activity further varies with auditory- motor experience |

Evidence of motor system

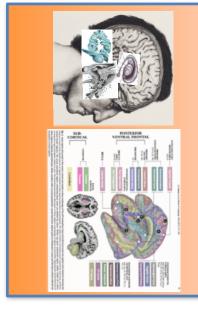






Bangert et al, 2006 Sridharan et al, 2007

Audio-motor coupling



Further research

perception
Role of locomotor system Role of ear bones and middle ear muscles in audio-motor



References
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Schopferd, 46. (2017). Neural dynamics of event segmentation in music; converging evidence for dissociable ventral and dorsal networks. Neuron. 16(4), 1532.