Marco Antonio Flores Coronado

Education

Bachelor in Hispanic Language and Literature, National Autonomous University of Mexico
Master in Science (Cogntive Robotics) Autonomous University of Morelos State
Predocoral researcher Basque Center on Congnition Bran and Language

Research Experience:

Signal Processing in Neuroimaging(2022-), Basque Center on Congnition Bran and Language
Data analyst, MhGAP (2021) PAHO
Cognitive Robotics Lab (2019-2022), Center for Science Investigation, UAEM
Cognitive and Language Development Lab (2018-2022),Psychology School, UNAM
Psycholinguistics Lab (2016-2022),Psychology School, UNAM

Research Interests:

Neuroimaging
Multisensory integration -language-
Embodied cognition -meaning-
Language Processing
Cognitive Robotics
Language Aquisition -word and meaning- (typical and atypical)
Lexical networks -semantic and grammar interaction-

Research queries

Which is the relevance of multisensory integration in meaning and syntax emergence?

Which are the neural correlates of affordance based meaning? (i.e., tools Vs. food)

How do multisensory integration explain non-referential meaning?

How can we model language development/processing?

[Barsalou et al., 2003, Barsalou et al., 2018, Kuhnke et al., 2020, Twomey and Cangelosi, 2020]

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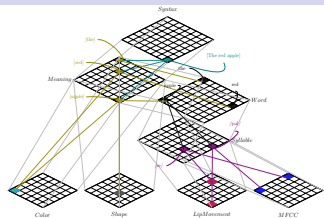
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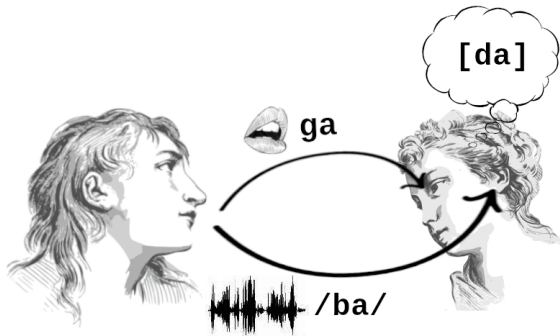How do multisensory integration explain non-referential meaning?

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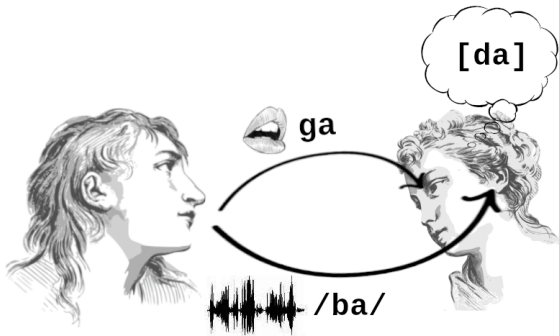# Modelling of the McGurk effect, a multisensory integration illusion

visual $/ga/$
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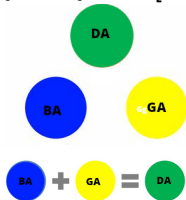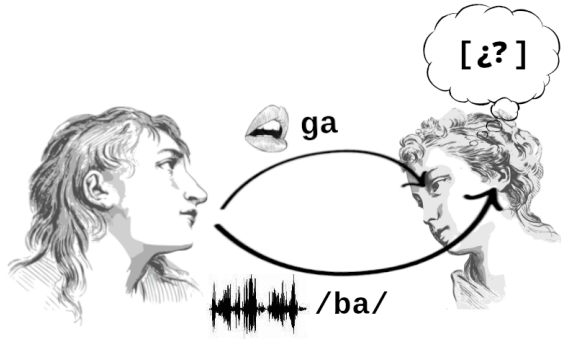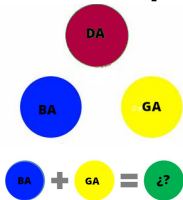

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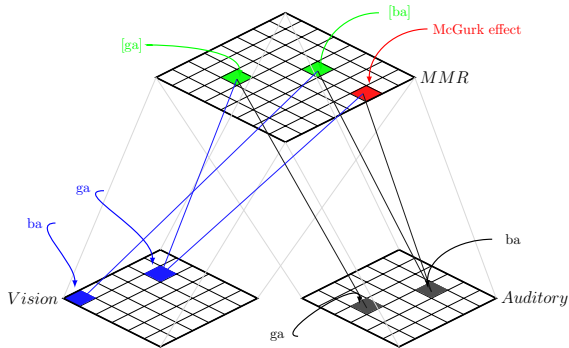
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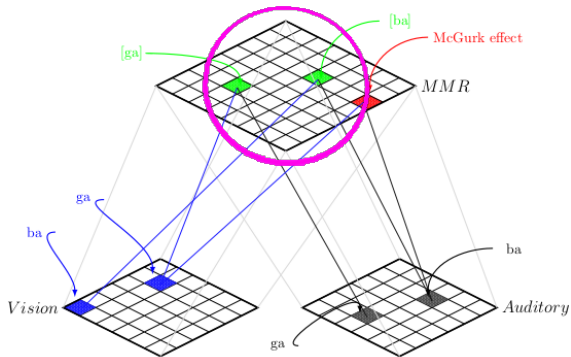
Self-Organized Internal Model Architecture (SOIMA)

Note. Computer Achitecture. Multysensory integration happens in the Multimodal Representation Map (MMR).

[Escobar-Juárez et al., 2016, Morse and Cangelosi, 2017]

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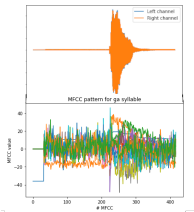
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Feature extraction/model training

Vision

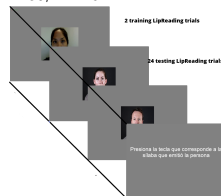*Oriented Histograms of Regional Optic Flow*

Audition

Mel-frequency cepstral coefficients

Model validation
Psychopy -online-
Lipreading experiment

N= 36, n= 20

[Basu Mallick et al., 2015, Viola and Jones, 2001, Kazemi and Sullivan, 2014, Liu et al., 2016, Gold et al., 2011, Hoffman and Gelman, 2014]

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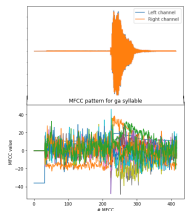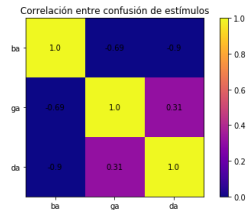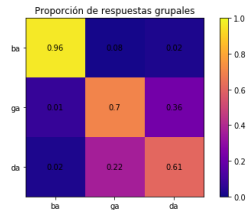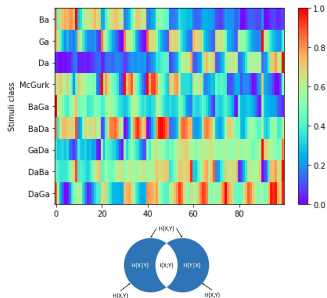
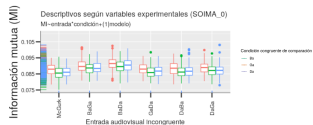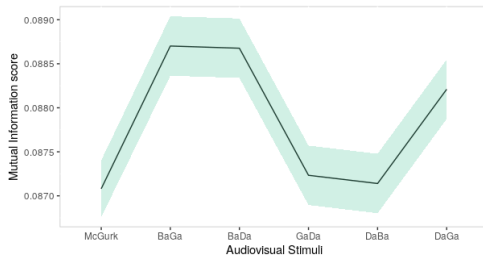# Results

Congruent and Incongruent stimuli activation

Linear Mixed Effects analysis

Predicted Mutual Information scores

Mutual Information: incongruent - congruent stimuli

Predicted Mutual Information scores

7
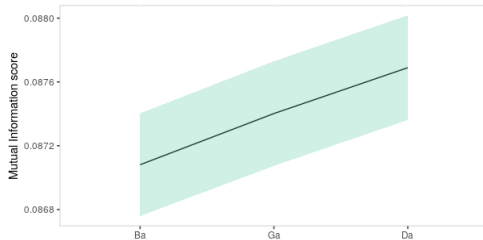
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