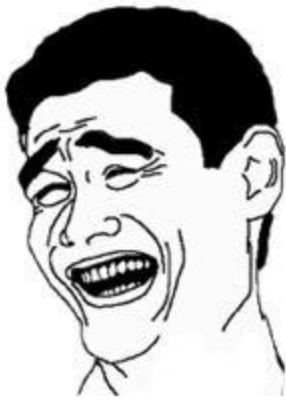


Neural dynamics of joke appreciation and humor



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Essential themes observed in humor theories

- 1) humor reflects a set of incongruous conceptualizations
 - humor contains two incongruous elements
 - one element is socially normal while the other constitutes a violation of the subjective moral order
- 2) humor involves repressed sexual or aggressive feelings (Freud)
 - releases the psychic tension related to inhibiting unconscious sexual or aggressive impulses
- 3) humor elevates social status by demonstrating superiority or saving face

False alarm theory



[Man slips on banana peel, loses legs... joke's on city, News - City ...](http://www.mumbaimirror.com/.../Man-slips-on-banana-peel-loses-l...)

www.mumbaimirror.com/.../Man-slips-on-banana-peel-loses-l...

Aug 1, 2011 – A **banana peel**, the torment of many a movie character, has become the real-life downfall of a railway worker in Karjat. Sarang Lokhande ...

Neural Basis of humor

- Patients with right hemisphere (RH) lesions, particularly in right prefrontal areas, are impaired in appreciating humor
- LH lesion patients are impaired in detecting incongruity but are able to establish coherence with the preceding storyline
- The LH contributes to incongruity detection, whereas the RH is essential for its resolution and for humor appreciation

Task

Funny: What is a boxer's favorite beverage?

Punch

Congruous: What did the snail say when he sat on a thorn?

Ouch!

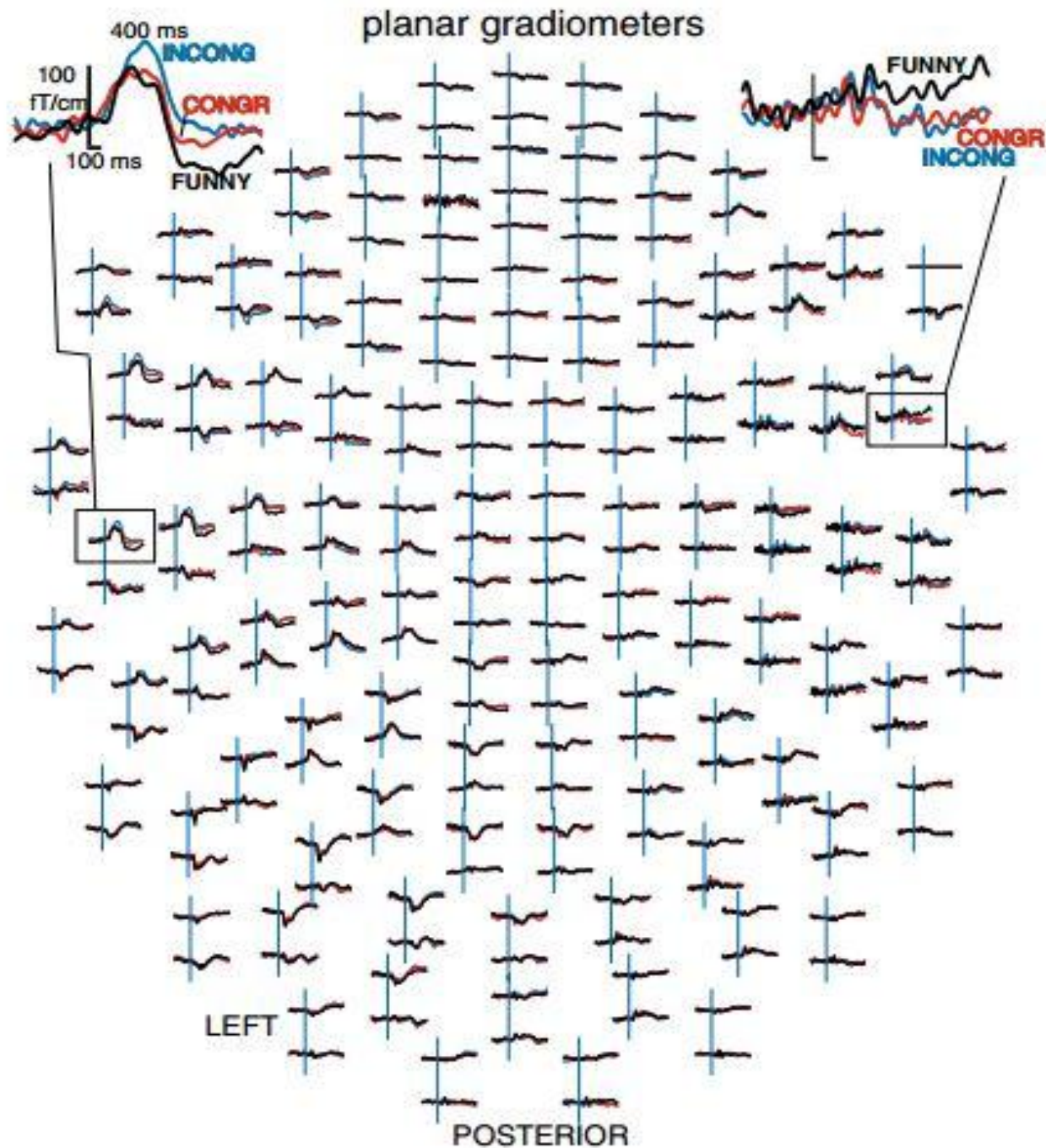
Incongruous: What's the best way to pass a math test?

Cloudy

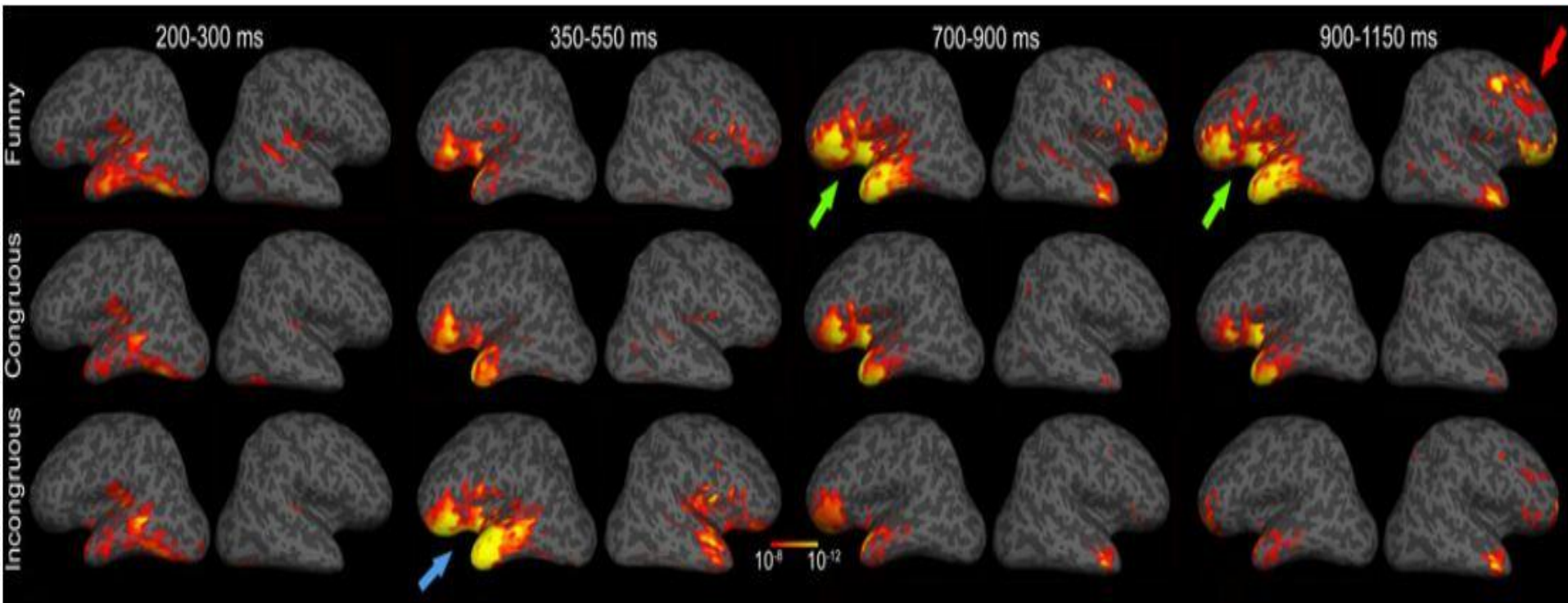
Data acquisition :

- Rating as funny or non funny
- MEG signals, EEG signal referenced to the nose, electrooculogram
- MRI structural images

Average MEG
waveforms



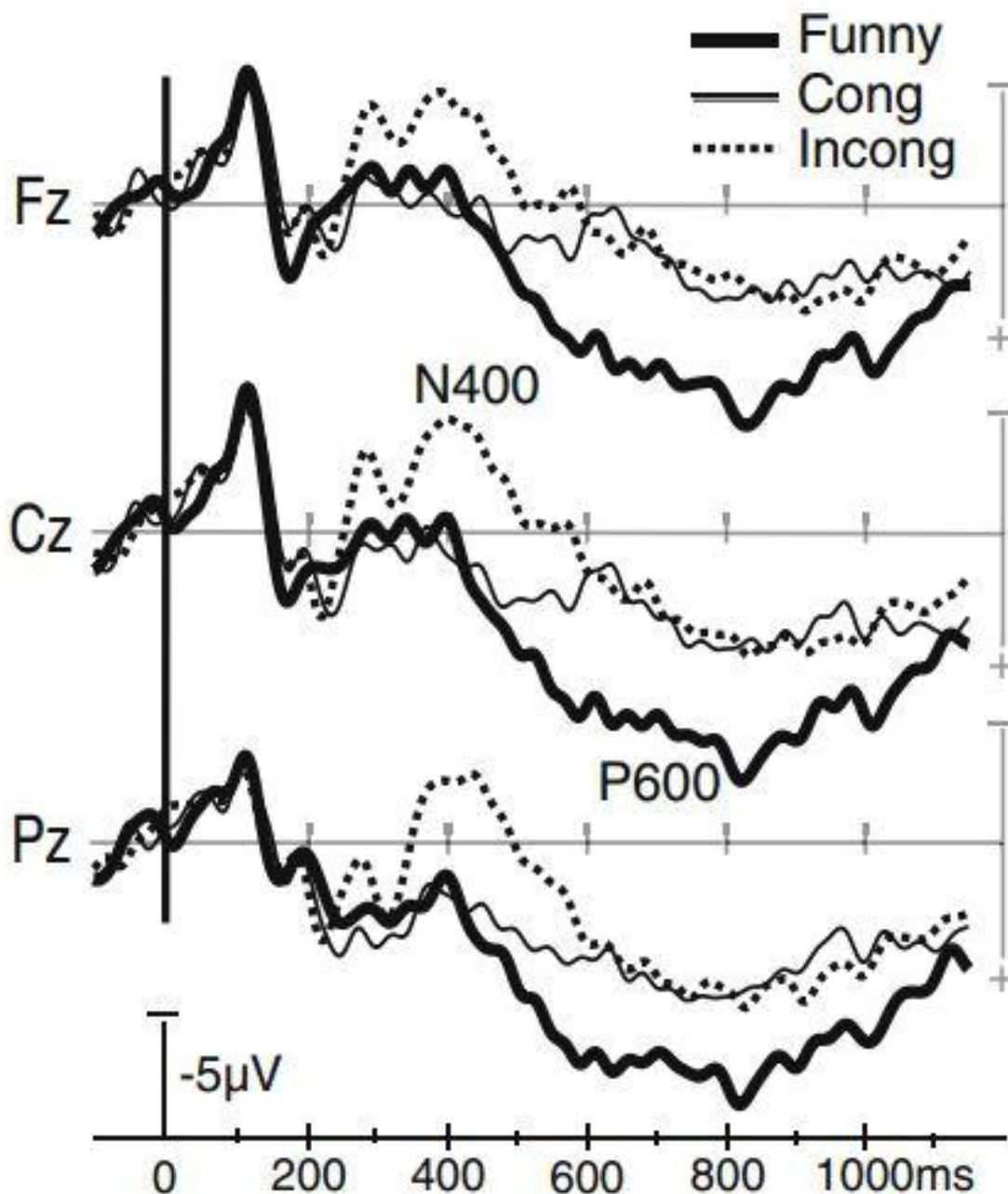
dynamic statistical parametric maps showing successive latency windows to funny, congruous, and incongruous endings



Grand average ERPs:

-Incongruous endings evoke the largest N400m

-funny punch lines evoke a protracted P600-like positivity



Conclusion

- Punch lines are initially processed by the same left-lateralized ventral visual stream as other words
- During the subsequent stage of lexical–semantic integration, the smallest N400m is elicited by funny punch lines in the anterior left temporal area, indicating facilitated initial semantic retrieval
- The left prefrontal area may contribute to semantic processing of the meaning plausibility, whereas the right area may search semantic memory for alternative meanings in order to “get” the joke

References

Right hemisphere has the last laugh: neural dynamics of joke appreciation- Ksenija Marinkovic et al.

The First Joke: Exploring the Evolutionary Origins of Humor- Joseph Polimeni

The neurology and evolution of humor, laughter, and smiling: the false alarm theory- Ramachandran VS