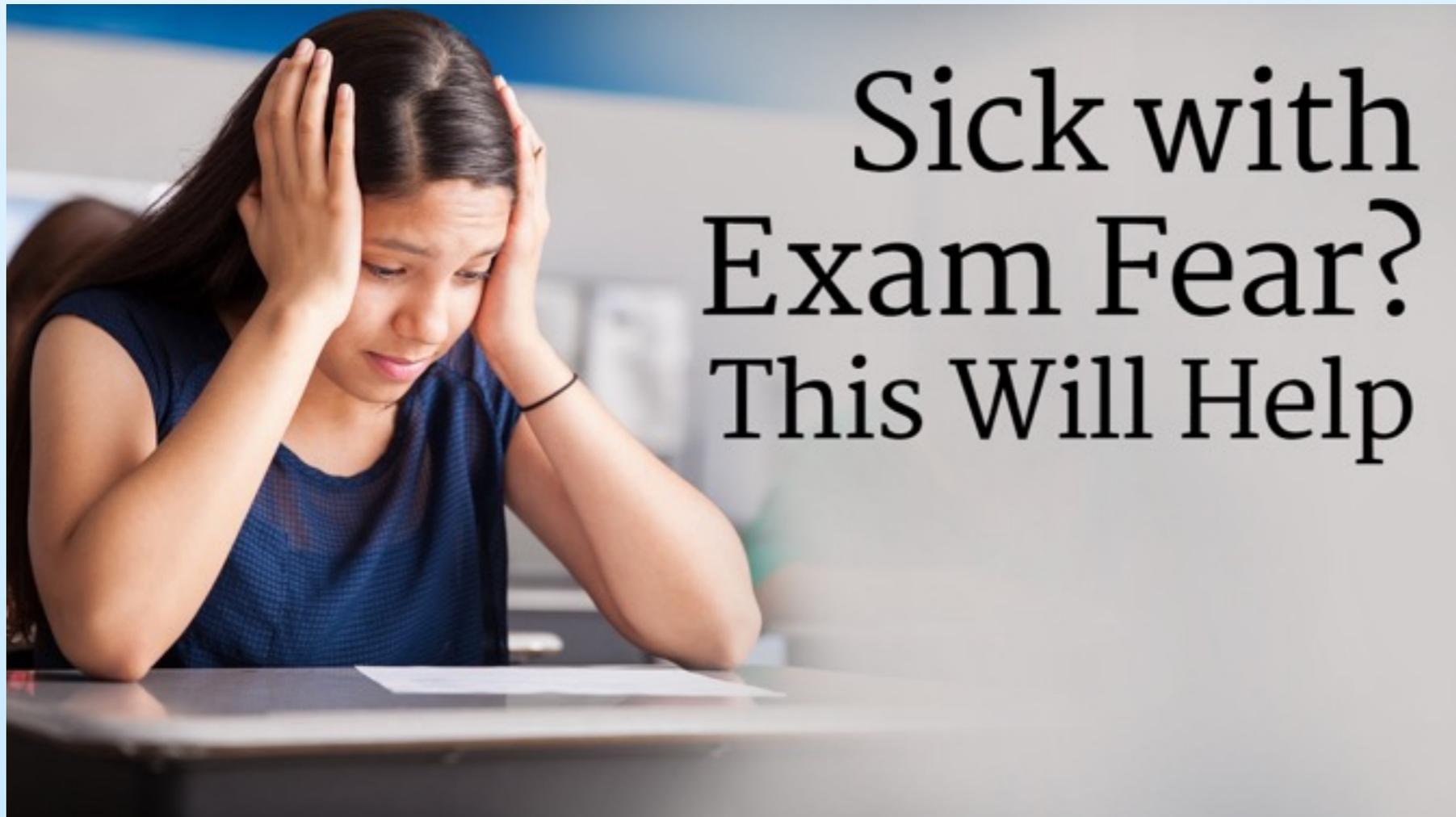# NEUROLINGUISTICS

final part: wrap-up and some questions you want to be able to address

part 1: intro to Neuroscience

- what is Neurolinguistics? (two different approaches)

- what is the brain? what is it made of?

- what is the difference between gray white matter?

- what is a neuron? a synapse?

- what is an action potential? how does it work?

- how did everything begin? what did Broca and Wernicke discover?

- how was the first model in Neuroscience designed?

- what are Broadmann (Ba)'s areas?

- what did Penfield discover?

- how is the cortex organized?

- How is the brain organized, functionally and anatomically?

part 2: methods in Neuroscience

- what is the difference between mental and neural representations?

- how does the EEG work? which parts of the brain can it investigate?

- what are Event Related Potentials (ERPs)?

- what is an ERP component?

- what is the MEG? why is it cool and how it differs from ERPs?

- what is MRI/fMRI?

- what is the BOLD effect? how does it work and why is it important?

- how many phases are there in the BOLD signal and what are they due to?

- what is the difference between Subtractive, Factorial and Parametric design?

- what are the advantages and disadvantages of ERPs, MEG and fMRI?

- when are these methods useful to investigate brain processes?

part 3: hearing and speech

- how do sounds get to the brain?

- how is speech different from other sounds?

- what did Scott et al. (2000) find out?

- how did Overath et al. (2015) aim to improve our knowledge of speech processing?

- what did they find out and what did they suggest with respect to the organization of speech processing in the brain?

- what is pure word deafness and why is it telling?

part 4: neurosyntax

- what are the aims of neurosyntax?

- what are the main syntactic operations and where are they localized in the brain?

- are localization and real-time processing neuroscientific results exactly the same or do they differ? and how?

- what do different syntactic deficits tell us about how the brain processes syntax?

- is it clear what the function of Broca's region is? and if so, which one is it?

- what did Grodzinsky & Santi (2008) and Santi & Grodzinsky (2010) find out?

- which methodologies and designs did they employ?

- what did the findings in Zaccarella et al. (2015) tell us?

- why is the Ding et al. (2015)'s paper important for the study of neurosyntax? what is their methodology and what are the main findings?

- can we build a syntactic map of the brain? and if so, how does it look like?

- when are these methods useful to investigate brain processes?

part 4: intermezzo

- is there any specificity for left vs. right emisphere in language perception?

- are STG and STS Wernicke's area? what is their function?

- can we make molonithic generalizations about the whole Broca's Area?

- is Broca's Area multifunctional? can we subdivide it into smaller regions?

- are brain areas in general multimodal?

- from what does multimodality come from? (2 hypotheses)

- is there any functional specialization for language?

- is neuroscience useful to the study of language, and if so why?

- what are Marr's level of analysis in cognitive science? why are they so important?

- what should cognitive science theory aim for?

- what are linguistic vs. neuroscientific primivies?

part 5: psycholinguistics electrified

- why is ERP and MEG investigation of language useful? what can it tell us?

- what are the most (in)famous linguistic ERP components?

- what did Friederici & al. (2002) find out? what kind of linguistic contrast did they use?

- what did Hagoort & al (2004) find out? what did they conclude?

- what are the main processing streams of Kuperberg's model? what type of information do they deal with?

- what are the challenges to the classic view on the division of labor between syntax and pragmatics in psycholinguistics?

- what are the factors driving the "semantic P600" effects?

- what are the unexplained N400 and why can't they be explained?

part 6: formal neurosemantics

- what is the contribution of formal semantics to the study of language?

- what are the core concepts in formal semantics and how can they be useful?

- what is a formal model of the meaning of a sentence? what is it made of?

- what is the modular view and why did it enter in a crisis?

- what are the alternative views to modularity?

- what are perceptual symbols and why are they problematic?
- what are the core properties of formal semantic representations?

- can/must they be included in a cognitive theory of language and neuroscience?

- what did Pylkkanen, Olivieri and Smart (2009) find out?

- what did Lüdtke & al. (2008) find out?

- what are Negative Polarity Items and why do they pose challenges to psycholinguistics?

- what did Panizza & Romoli (2013) find out and how does it change the classic picture of semantic processing and N400 interpretation?

part 7: the semantic network

- what is the problem of the classic Wernicke-Geschwind model?

- what are the differences between various views of language with respect to the theoretical status of semantics?

- how can we explain the unexplained N400? what is Mancini's proposal?

- What did Mancini et al.'s (2011) find out?

- how did Lau et al. interpret the N400 effects and what is the origin of the N400 component according to their review?

- what are the problems of the model they propose?

- what are the aims and findings of Goucha & Friederici (2015)?

- what are the aims and findings of Del Prato & PIlkkanen (2014)?

- can we identify some areas that are important for semantic processing? and if so, which areas are important for semantic processing?

- are the language impairment findings coherent with the picture above? can we unify the whole semantic network at both theory and implementation levels?

part 8: neuropragmatics

- what is pragmatics?

- what are scalar implicatures?

- what is the aim of Shetreet et al.'s (2013) study?

- what is the difference between semantic and pragmatic violations?

- what are the interesting findings from that study?

- what is the implication of such findings for neurolinguistics?

- what did Panizza et al. investigate with an ERP study?

- are semantic and pragmatic violations processed in the same way by the brain?