Overview of Common ERP Components Part 3

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ERP Components

Error-Related Components

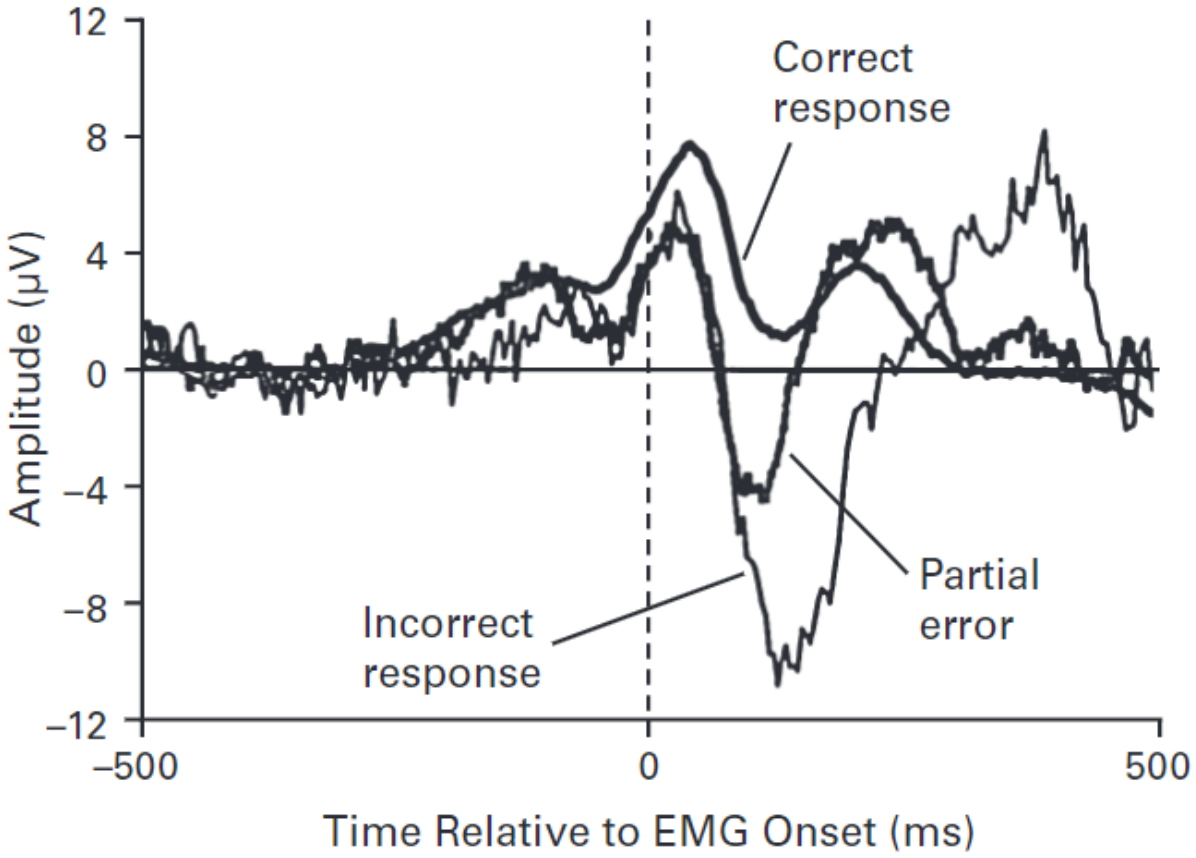
- Comparing ERP waveform on error trials and correct trials

  → learn about the cause of error & brain's response

- Error-related Negativity (ERN) or N_e

Vidal et al., 2000

Error-Related Components Continued



1) Fully incorrect → ERN
2) Partial error → Smaller ERN
3) Correct trial → CRN
4) Error positivity (P_e)

Error-Related Components Continued

- Difference wave approach can isolate error-related processes
  - Problem

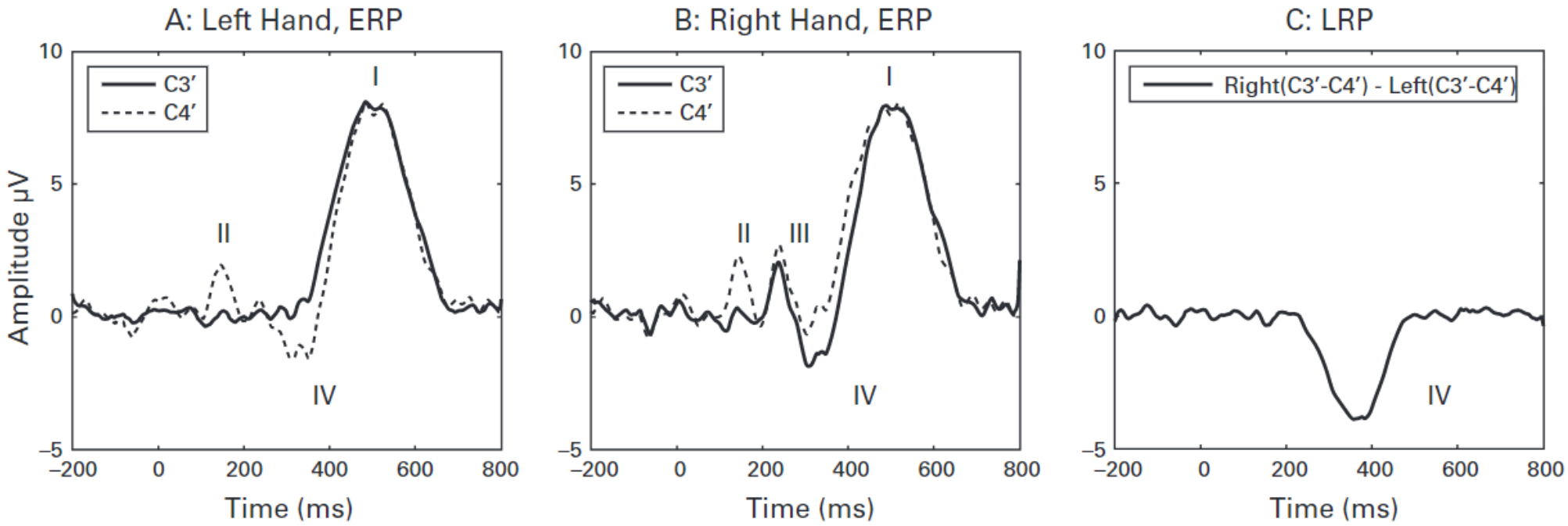
1) The difference may partly reflect a later onset of P3 wave on error trials
2) Activity prior to the response may differ
3) The strength of the process that generates the ERN may be equally present on other trials

Response-Related Components

- Elicited when..
  - Instructed to make a series of occasional manual responses, with no eliciting stimulus
  - Tasks that require subjects to make responses to stimuli
- Bereitschaftspotential(BP) or readiness potential(RP)
- Depends on..
  - Which effectors will be used to make the response
  - Which side of the body (left or right) will be used
  - Which effector is used within a given side

Response-Related Components

- Lateralized readiness potential (LRP)
- Easily isolated from other ERP components



Response-Related Components

- Generated (at least in part) in motor cortex
- Appears to reflect some aspect of response preparation

Steady-State ERPs

- Transient response & Steady state