

# Speech Analysis and Linguistics

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## G2P

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- Grapheme: letter or combination of letters representing a phoneme (articulated sound)
- letter/combination of sounds  $\rightarrow$  sound/combination of sounds/empty sound
- LTS: Letter to sound lookup table (contains G2P rules [grapheme, context, phoneme])
- Challenges: the rules set may not be exhaustive
- Context might not be restricted to the same word (read vs read past.)
- (g,p) pair may not be unique
- Different types of g2p mappings:
  - n2m g2p alignments
  - 12n g2p alignments
  - one2one g2p alignments
- Goal of g2p: get the alignments and map to phonemes.
  - alignments not provided
  - find the phoneme/grapheme sequence
  - $p^* = \operatorname{argmax} (P \text{ belongs to } P^*) p(P|L)$
  - $P$  = phoneme sequence
  - $L$  = grapheme sequence
  - $p(P|L) = p(P) * p(L|P)$
- request for references on g2p
- graphemes: a joint probability of graphemes and phonemes
- graphemes are  $g \text{ seq} = p \text{ seq} == 1$