

Supplementary Materials

[C] Bayesian linear mixed effect model specification (R code)

```
brm.LANDING_POSITION <- bf(RELATIVE_LANDING_POSITION.pt.z ~
  sameParadigm.ContrSum / (
    TRIAL_INDEX.z +
    NumOfWords +
    IA_FIRST_RUN_LAUNCH_SITE.rt +
    prevWordLength +
    targetWordLength +
    prevWordFreq.log +
    targetWordFreq.log +
    Levenshtein +
    REcomb +
    Cosine +
    G2L.AllCoAct.rt +          # TrigraphActivation
    G2L.AllCoADiversity.rt +   # TrigraphCompetition
    L2L.Diversity.rt +        # ActivationToContext
    L2L.RTypicality.rt +      # TypicalityToContext
    L2L.RSimilarity.rt +      # SimilarityToContext
    L2L.CSimilarity.rt +      # SimilarityFromContext
    (1|r|targetLemma) +
    (1+TRIAL_INDEX.z|p|RECORDING_SESSION_LABEL))) +
  gaussian()
brm.FIRST_FIXATION <- bf(IA_FIRST_FIXATION_DURATION.pt.z ~
  sameParadigm.ContrSum / (
    TRIAL_INDEX.z +
    NumOfWords +
    IA_FIRST_RUN_LAUNCH_SITE.rt +
    prevWordLength +
    poly(targetWordLength, 2, raw=FALSE) +
    prevWordFreq.log +
    targetWordFreq.log +
    Levenshtein +
    REcomb +
    Cosine +
    G2L.AllCoAct.rt +          # TrigraphActivation
    G2L.AllCoADiversity.rt +   # TrigraphCompetition
    L2L.Diversity.rt +        # ActivationToContext
    L2L.RTypicality.rt +      # TypicalityToContext
    L2L.RSimilarity.rt +      # SimilarityToContext
    L2L.CSimilarity.rt +      # SimilarityFromContext
    (1|q|prevLemma) +
    (1|r|targetLemma) +
    (1+TRIAL_INDEX.z|p|RECORDING_SESSION_LABEL))) +
  gaussian()
brm.DWELL_TIME <- bf(IA_DWELL_TIME.pt.z ~
  sameParadigm.ContrSum / (
    TRIAL_INDEX.z +
    NumOfWords +
    IA_FIRST_RUN_LAUNCH_SITE.rt +
    prevWordLength +
    targetWordLength +
    prevWordFreq.log +
    targetWordFreq.log +
    Levenshtein +
    REcomb +
    Cosine +
    G2L.AllCoAct.rt +          # TrigraphActivation
```

```

      G2L.AllCoADiversity.rt + # TrigraphCompetition
      L2L.Diversity.rt +      # ActivationToContext
      L2L.RTypicality.rt +    # TypicalityToContext
      L2L.RSimilarity.rt +    # SimilarityToContext
      L2L.CSimilarity.rt +    # SimilarityFromContext
      (1|q|prevLemma) +
      (1|r|targetLemma) +
      (1+TRIAL_INDEX.z|p|RECORDING_SESSION_LABEL))) +
    gaussian()
brm.PUPIL_SIZE <- bf(IA_AVERAGE_FIX_PUPIL_SIZE.pt.z ~
  sameParadigm.ContrSum / (
    TRIAL_INDEX.z +
    NumOfWords +
    IA_FIRST_RUN_LAUNCH_SITE.rt +
    prevWordLength +
    targetWordLength +
    prevWordFreq.log +
    targetWordFreq.log +
    Levenshtein +
    REcomb +
    Cosine +
    G2L.AllCoAct.rt +          # TrigraphActivation
    G2L.AllCoADiversity.rt +   # TrigraphCompetition
    L2L.Diversity.rt +         # ActivationToContext
    L2L.RTypicality.rt +       # TypicalityToContext
    L2L.RSimilarity.rt +       # SimilarityToContext
    L2L.CSimilarity.rt +       # SimilarityFromContext
    (1|q|prevLemma) +
    (1+TRIAL_INDEX.z|p|RECORDING_SESSION_LABEL))) +
  gaussian()
brm.lmer_R1<- brm(
  brm.LANDING_POSITION + brm.FIRST_FIXATION +
  brm.DWELL_TIME + brm.PUPIL_SIZE +
  set_rescor(TRUE),
  data=<DATASET>,
  chains=4, iter=8000, cores=4, save_pars=save_pars(all=TRUE),
  control=list(adapt_delta=0.99, max_treedepth=15))
brm.lmer_R1 <- add_criterion(brm.lmer_R1, 'loo',
  moment_match=TRUE, reloo=TRUE)

```