**ONLINE SUPPLEMENTARY MATERIALS**

**Testing stimuli: non-words (trained and untrained) and real words**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Trained non-words** | | | | | | | | | | | | | | | | |
|  | **iː** | | **ɪ** | | **æ** | | **ʌ** | | **ɜː** | | **e** | | **ɒ** | | **ɔː** | |
| **s\_** | siːg | *seegue* | sɪg | *sigg* | sæʒ | *sage* | sʌʒ | *suge* | sɜːg | *surgue* | seg | *segg* | sɒʒ | *soge* | sɔːʒ | *sorge* |
| **z\_** | ziːg | *zeegue* | zɪg | *zig* | zæg | *zagg* | zʌg | *zugg* | zɜːg | *zurgue* | zeg | *zegg* | zɒg | *zogg* | zɔːg | *zorg* |
| **f\_** | fiːm | *feem* | fɪm | *fim* | fæʒ | *fage* | fʌʒ | *fuge* | fɜːg | *furgue* | feg | *fegg* | fɒʒ | *foge* | fɔːʒ | *forge* |
| **v\_** | viːg | *veegue* | vɪg | *vigg* | væd | *vad* | vʌd | *vudd* | vɜːg | *vergue* | veg | *vegg* | vɒb | *vob* | vɔːb | *vorb* |
| **tʃ\_** | tʃiːg | *cheegue* | tʃɪg | *chigg* | tʃædʒ | *chadge* | tʃʌdʒ | *chudge* | tʃɜːg | *churgue* | tʃeg | *chegg* | tʃɒd | *chod* | tʃɔːd | *chord* |
| **dʒ\_** | dʒiːd | *jeed* | dʒɪd | *jid* | dʒæd | *jadd* | dʒʌd | *judd* | dʒɜːd | *jerd* | dʒed | *jedd* | dʒɒd | *jodd* | dʒɔːd | *jorde* |
| **\_s** | jiːs | *yeece* | jɪs | *yiss* | jæs | *yass* | jʌs | *yuss* | bɜːs | *burse* | bes | *bess* | tʃɒs | *choss* | tʃɔːs | *chorce* |
| **\_z** | jiːz | *yeez* | jɪz | *yizz* | jæz | *yazz* | jʌz | *yuzz* | dɜːz | *durs* | dez | *dez* | vɒz | *vozz* | vɔːz | *vaws* |
| **\_f** | jiːf | *yeef* | jɪf | *yiff* | jæf | *yaff* | jʌf | *yuff* | gɜːf | *gurf* | gef | *gueff* | tʃɒf | *chof* | tʃɔːf | *chorf* |
| **\_v** | jiːv | *yeeve* | jɪv | *yivv* | bæv | *bavv* | bʌv | *buvv* | gɜːv | *gurve* | gev | *gev* | bɒv | *bovv* | bɔːv | *borve* |
| **\_tʃ** | giːtʃ | *gueetch* | gɪtʃ | *thitch* | gætʃ | *gatch* | gʌtʃ | *gutch* | gɜːtʃ | *gurch* | getʃ | *guetch* | mɒtʃ | *motch* | mɔːtʃ | *morch* |
| **\_dʒ** | giːdʒ | *gueedge* | gɪdʒ | *guidge* | gædʒ | *gadge* | gʌdʒ | *gudge* | gɜːdʒ | *gurge* | gedʒ | *guedge* | vɒdʒ | *vodge* | vɔːdʒ | *vordge* |
| **Untrained non-words** | | | | | | | | | | | | | | | | |
| **s\_** | siːʃ | *seesh* | sɪʃ | *sysh* | sæθ | *sath* | sʌθ | *suth* | sɜːʃ | *sirsh* | seʃ | *sesh* | sɒf | *soff* | sɔːf | *sorf* |
|  | siːb | *seab* | sɪb | *sybb* | sædʒ | *sadge* | sʌdʒ | *sudge* | sɜːm | *serm* | sem | *sem* | sɒv | *sovv* | sɔːv | *sorve* |
| **z\_** | ziːʃ | *zeash* | zɪʃ | *zysh* | zætʃ | *zatch* | zʌtʃ | *zutch* | zɜːθ | *zirth* | zeθ | *zeth* | zɒt | *zott* | zɔːt | *zort* |
|  | ziːn | *zeen* | zɪn | *zynn* | zæv | *zavv* | zʌv | *zuvv* | zɜːb | *zirb* | zeb | *zeb* | zɒn | *zonn* | zɔːn | *zorn* |
| **f\_** | fiːθ | *feeth* | fɪθ | *fyth* | fætʃ | *fatch* | fʌtʃ | *futch* | fɜːt | *firt* | fet | *fet* | fɒtʃ | *fotch* | fɔːtʃ | *fortch* |
|  | fiːv | *feev* | fɪv | *fivv* | fæm | *fam* | fʌm | *fum* | fɜːv | *firv* | fev | *fev* | fɒv | *fovv* | fɔːv | *forvv* |
| **v\_** | viːʃ | *veesh* | vɪʃ | *vish* | væk | *vack* | vʌk | *vuck* | vɜːp | *virp* | vep | *vep* | vɒθ | *voth* | vɔːθ | *vorth* |
|  | viːð | *veathe* | vɪð | *veethe* | væm | *vam* | vʌm | *vum* | vɜːm | *verm* | vem | *vem* | vɒg | *vogg* | vɔːg | *vorgue* |
| **tʃ\_** | ʧiːʧ | *cheech* | ʧɪʧ | *chich* | ʧæs | *chass* | ʧʌs | *chuss* | ʧɜːθ | *chirth* | ʧeθ | *cheth* | ʧɒt | *chott* | ʧɔːt | *chort* |
|  | ʧiːd | *cheed* | ʧɪd | *chid* | ʧæn | *chan* | ʧʌn | *chunn* | ʧɜːb | *chirb* | ʧeb | *cheb* | ʧɒv | *chovv* | ʧɔːv | *chorve* |
| **dʒ\_** | ʤiːk | *jeek* | ʤɪk | *jik* | ʤæp | *jap* | ʤʌp | *jup* | dʒɜːp | *jirp* | dʒɜːp | *jep* | ʤɒp | *jopp* | ʤɔːp | *jorp* |
|  | ʤiːv | *jeev* | ʤɪv | *jiv* | ʤæð | *jathe* | ʤʌð | *juthe* | dʒɜːg | *jurg* | dʒeg | *jeg* | ʤɒm | *jom* | ʤɔːm | *jorm* |

*Note:* Given that some of these non-words could be pronounced in different ways, written annotations were available for the native speakers who produced them so that they knew what the researchers needed (e.g. *sath,* 'th ' as in *bath*; *jathe* ('a' as in *bat*; 'the' as in *soothe*). Additionally, all the recording sessions were monitored by one of the researchers to ensure that speakers produced the non-word as required. If speakers produced any of the non-words differently than what was expected, the researcher illustrated what the required pronunciation was.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Untrained real words** | | | | | | | | | | | | | | | | | | | | | |
| **iː** | | | **ɪ** | | | **æ** | | | **ʌ** | | | **ɜː** | | | **e** | | | **ɒ** | | **ɔː** | |
| <ee> | *sheep* | <i> | | *ship* | <a> | | *back* | <u> | | *buck* | <ir> | | *dirt* | <e> | | *debt* | <o> | | *shot* | <or> | *short* | |
| <ee> | *seen* | <i> | | *rich* | <a> | | *cat* | <u> | | *cut* | <ir> | | *bird* | <e> | | *best* | <o> | | *cod* | <or> | *cord* | |
| <ea> | *reach* | <i> | | *live* | <a> | | *drag* | <u> | | *drug* | <ur> | | *burst* | <e> | | *bed* | <a> | | *what* | <ar> | *wart* | |
| <ea> | *leave* | <i> | | *sin* | <a> | | *mad* | <u> | | *mud* | <ur> | | *turn* | <e> | | *ten* | <a> | | *was* | <ar> | *wars* | |
| <ie> | *priest* | <y> | | *cyst* |  | |  | <o> | | *son* | <or> | | *word* |  | |  |  | |  |  |  | |
| <ie> | *niece* | <y> | | *myth* |  | |  | <o> | | *done* | <or> | | *work* |  | |  |  | |  |  |  | |
|  |  |  | |  |  | |  | <ou> | | *touch* | <er> | | *herb* |  | |  |  | |  |  |  | |
|  |  |  | |  |  | |  | <ou> | | *young* | <er> | | *serve* |  | |  |  | |  |  |  | |

**Training stimuli (trained words)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **iː** | | **ɪ** | | **æ** | | **ʌ** | | **ɜː** | | **e** | | **ɒ** | | **ɔː** | |
| **s\_** | siːf | *seef* | sɪf | *siff* | sæf | *saff* | sʌf | *suff* | sɜːp | *surpe* | sep | *sepp* | sɒtʃ | *sotch* | sɔːtʃ | *sortch* |
|  | siːg | *seegue* | sɪg | *sigg* | sæʒ | *sage* | sʌʒ | *suge* | sɜːg | *surgue* | seg | *segg* | sɒʒ | *soge* | sɔːʒ | *sorge* |
| **z\_** | ziːf | *zeef* | zɪf | *ziff* | zæf | *zaff* | zʌf | *zuff* | zɜːk | *zurke* | zek | *zek* | zɒp | *zop* | zɔːp | *zorp* |
|  | ziːg | *zeegue* | zɪg | *zig* | zæg | *zagg* | zʌg | *zugg* | zɜːg | *zurgue* | zeg | *zegg* | zɒg | *zogg* | zɔːg | *zorg* |
| **f\_** | fiːp | *feep* | fɪp | *fip* | fæp | *fap* | fʌp | *fupp* | fɜːk | *furke* | fek | *feque* | fɒʃ | *fosh* | fɔːʃ | *forsch* |
|  | fiːm | *feem* | fɪm | *fim* | fæʒ | *fage* | fʌʒ | *fuge* | fɜːg | *furgue* | feg | *fegg* | fɒʒ | *foge* | fɔːʒ | *forge* |
| **v\_** | viːp | *veep* | vɪp | *vip* | væp | *vap* | vʌp | *vupp* | vɜːk | *verke* | vek | *veck* | vɒp | *vop* | vɔːp | *vorp* |
|  | viːg | *veegue* | vɪg | *vigg* | væd | *vad* | vʌd | *vudd* | vɜːg | *vergue* | veg | *vegg* | vɒb | *vob* | vɔːb | *vorb* |
| **tʃ\_** | tʃiːθ | *cheeth* | tʃɪθ | *chith* | ʧæʃ | *chash* | ʧʌʃ | *chush* | tʃɜːt | *churt* | tʃet | *chett* | tʃɒθ | *choth* | tʃɔːθ | *chorth* |
|  | tʃiːg | *cheegue* | tʃɪg | *chigg* | tʃædʒ | *chadge* | tʃʌdʒ | *chudge* | tʃɜːg | *churgue* | tʃeg | *chegg* | tʃɒd | *chod* | tʃɔːd | *chord* |
| **dʒ\_** | dʒiːθ | *jeeth* | dʒɪθ | *jyth* | dʒæf | *jaff* | dʒʌf | *juff* | dʒɜːθ | *jerth* | dʒeθ | *jeth* | dʒɒθ | *joth* | dʒɔːθ | *jorth* |
|  | dʒiːd | *jeed* | dʒɪd | *jid* | dʒæd | *jadd* | dʒʌd | *judd* | dʒɜːd | *jerd* | dʒed | *jedd* | dʒɒd | *jodd* | dʒɔːd | *jorde* |
| **\_s** | θiːs | *theesse* | θɪs | *thiss* | θæs | *Thass* | θʌs | *thuss* | ʃɜːs | *shurse* | ʃes | *shess* | θɒs | *thoss* | θɔːs | *thorse* |
|  | jiːs | *yeece* | jɪs | *yiss* | jæs | *yass* | jʌs | *yuss* | bɜːs | *burse* | bes | *bess* | tʃɒs | *choss* | tʃɔːs | *chorce* |
| **\_z** | θiːz | *theezz* | θɪz | *thizz* | θæz | *thazz* | θʌz | *thuzz* | tɜːz | *turs* | tez | *tezz* | θɒz | *thozz* | θɔːz | *thaws* |
|  | jiːz | *yeez* | jɪz | *yizz* | jæz | *yazz* | jʌz | *yuzz* | dɜːz | *durs* | dez | *dez* | vɒz | *vozz* | vɔːz | *vaws* |
| **\_f** | kiːf | *keef* | kɪf | *kiff* | θæf | *thaff* | θʌf | *thuff* | hɜːf | *hurf* | hef | *heff* | pɒf | *poff* | pɔːf | *porf* |
|  | jiːf | *yeef* | jɪf | *yiff* | jæf | *yaff* | jʌf | *yuff* | gɜːf | *gurf* | gef | *gueff* | tʃɒf | *chof* | tʃɔːf | *chorf* |
| **\_v** | kiːv | *keeve* | kɪv | *kivv* | pæv | *pavv* | pʌv | *puvv* | tɜːv | *turve* | tev | *tevv* | tɒv | *tovv* | tɔːv | *torve* |
|  | jiːv | *yeeve* | jɪv | *yivv* | bæv | *bavv* | bʌv | *buvv* | gɜːv | *gurve* | gev | *gev* | bɒv | *bovv* | bɔːv | *borve* |
| **\_tʃ** | θiːtʃ | *theetch* | θɪtʃ | *thitch* | ʃætʃ | *shatch* | ʃʌtʃ | *shutch* | tɜːtʃ | *terch* | tetʃ | *tetch* | kɒtʃ | *kotch* | kɔːtʃ | *korch* |
|  | giːtʃ | *gueetch* | gɪtʃ | *guitch* | gætʃ | *gatch* | gʌtʃ | *gutch* | gɜːtʃ | *gurch* | getʃ | *guetch* | mɒtʃ | *motch* | mɔːtʃ | *morch* |
| **\_dʒ** | tiːdʒ | *teedge* | tɪdʒ | *tidge* | θædʒ | *thadge* | θʌdʒ | *thudge* | kɜːdʒ | *kurge* | kedʒ | *kedge* | kɒdʒ | *kodge* | kɔːdʒ | *korge* |
|  | giːdʒ | *gueedge* | gɪdʒ | *guidge* | gædʒ | *gadge* | gʌdʒ | *gudge* | gɜːdʒ | *gurge* | gedʒ | *guedge* | vɒdʒ | *vodge* | vɔːdʒ | *vordge* |