

Asymmetries in cross-linguistic emotion recognition

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This study investigates the occurrence of asymmetries in cross-linguistic recognition of emotion in speech. Theories on emotion recognition do not predict any asymmetries in the cross-linguistic recognition of emotion: if a particular emotion expressed by e.g. a Korean speaker is difficult to interpret for a Dutch listener, the same emotion expressed by a Dutch speaker should be equally difficult for a Korean listener. This study investigates whether that is indeed the case. Previous studies have established that certain emotions are more accurately recognized cross-linguistically than others, and that language-typological similarity facilitates cross-linguistic emotion recognition, but were unsuitable for assessing asymmetrical recognition patterns.

To investigate asymmetries in cross-lingual emotion recognition, here, a fully crossed design is used, with speakers as well as listeners from two typologically unrelated languages, Dutch and Korean. Additionally, listeners of American English, typologically close to Dutch but not Korean, were tested. This design differs from previous studies, that have either used a *one-to-many* design (presenting emotional expressions from a single language to listeners from more than one native language group) or a *many-to-one* design (presenting emotional expressions from more than one language to listeners from a single native language group). The *many-to-many* (two-to-three) design in the present study enables the investigation of asymmetries that neither the one-to-many nor the many-to-one design allows for.

A large number of emotions (eight) was used, balanced in valence (positive-negative) and arousal (active-passive), including basic and non-basic emotions, recorded by a large number of speakers. Stimuli consisted of posed emotional expressions in a single *nonsense* phrase that was phonologically legal in Dutch, Korean, and English, recorded by eight Dutch and eight Korean professional actors, and selected on the basis of prior perception studies with Dutch and Korean listeners.

28 Dutch, 24 Korean, and 26 American participants heard all Dutch and Korean stimuli, blocked by language. Dutch and American listeners did not know any Korean, and Korean and American listeners did not know any Dutch. Participants indicated for each stimulus which emotion it expressed by mouse clicking on one of the eight emotions or on "neutral".

First, results are in line with previous findings, with effects of language distance, basic vs. non-basic emotions, and valence as expected. Importantly, there were strong asymmetries across languages and listener groups that cannot be explained along those previously described dimensions. Some emotions were expressed more effectively in one language than in another (e.g., all groups, including Dutch listeners, recognized fear better when expressed by Korean than by Dutch speakers). Further, some emotions were recognized more effectively by one group than by the others (e.g., Korean listeners recognized sadness better than the other groups, regardless of the language of the speaker).

Existing theories cannot explain those asymmetries. Previous research, using the one-to-many or many-to-one design, has not captured such asymmetries. The present results thus point to the importance of the many-to-many design for gaining further insights into cross-linguistic emotion recognition, and calls for the extension of theories of cross-linguistic emotion recognition in order to incorporate asymmetrical perception patterns.