

The Role of Recollection in the Confidence-Accuracy Relationship for Negative  
Decisions

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## SUMMARY

This research used a series of word recognition paradigms to investigate the relationship between post decision confidence and accuracy for negative recognition decisions (identifying a stimulus as unseen). The experiments focussed on a specific factor that may impact on this relationship: the extent to which individuals used recollected evidence, as described by dual-process theories of recognition. This is important for understanding in which situations and for which types of decisions confidence may be used to predict accuracy. Negative recognition decisions have previously been found to have weaker confidence-accuracy relationships than positive recognition decisions (recognising that a stimulus has been seen) in certain tasks. The aim of this research was to discover whether this positive-negative difference also occurs in word recognition tasks and to investigate the role of use of recollection in this relationship.

The experiments used word recognition paradigms including item recognition, plurality discrimination and an opposition procedure involving read and heard words to investigate the relationship between confidence and accuracy for negative decisions when different amounts of recollected evidence were available. This is important as an understanding of the relationship between the type of evidence used in recognition decisions and the capacity of confidence to predict accuracy allows prediction of when confidence may be used to indicate accuracy and when it may not. This is influential in many fields where human recognition decisions have weighty consequences, and therefore estimating the likely accuracy of a decision maker is desirable.

In the first set of experiments I compared tasks expected to vary in the use of recollection due to the availability of recollected evidence in the task and the degree to which participants were expected to view it as useful. Results demonstrated that in the tasks where recollected evidence was expected to be used more, the relationship between confidence and accuracy for

negative decisions was stronger. The second set of experiments manipulated recollection to ensure differences were not due to other discrepancies between the paradigms. These experiments demonstrated that when recollection was impaired, the confidence-accuracy relationship for negative decisions was also impaired. The final experiment attempted to manipulate recollection in the reverse direction by increasing the availability of recollected evidence for some decisions. Results demonstrated that the confidence-accuracy relationship for negative decisions was strengthened and the positive-negative difference was reduced when recollected evidence was made more available.

These results have implications for a) the situations in which confidence may be used as a marker of accuracy and b) how recognition memory testing situations might best produce the strongest possible confidence-accuracy relationship for negative decisions. They also demonstrate that the positive-negative difference generalises across recognition tasks and is therefore likely to be based on underlying differences in basic cognitive processes. I suggest that neglect of recollected evidence in recognition tasks may be an important cause of poor confidence-accuracy relationships for negative compared with positive decisions, and therefore future research should aim to investigate methods of increasing recollection in important recognition tasks, and the impact these manipulations have on the confidence-accuracy relationship.

## DECLARATION

I certify that this thesis does not contain any material that has been accepted for the award of any other degree or diploma; and that to the best of my knowledge and belief does not contain any material previously published or written by another person except where due reference is made in the text of the thesis or notes.

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