Testing theories of irony processing using eye-tracking and ERPs

1. Purpose of the visit
The purpose of the visit was to work on preparing a manuscript for publication, based on the eye-tracking and ERP studies carried out during the period of the grant.

2. Description of the work carried out during the visit
Considerable progress was made on preparing the manuscript for publication, specifically:

- Completion of writing the introduction, including:
    o Literature review
    o Discussion and justification of methods used
    o Outline of predictions/hypotheses
- Completion of method section for eye-tracking experiment (Experiment 1)
- Completion of results section for eye-tracking experiment (Experiment 1)
- Completion of discussion section for eye-tracking experiment (Experiment 1)
- ERP data were re-examined using newly developed techniques at Tuebingen
- Completion of method section for ERP experiment (Experiment 2)
- Completion of results section for ERP experiment (Experiment 2)
- Preliminary work on discussion section for ERP experiment, and general discussion
- Preliminary work on references and appendices (including sample materials)

3. Description of main result obtained

The work reported in the manuscript can be summarised by the following abstract:

Irony is a common communicative tool, however, little is known about how people process and understand ironic utterances. There are a number of theories of irony comprehension, including; the Standard Pragmatic View, the Direct Access View, and the Graded Salience Hypothesis. However, a limited amount of empirical work has tested these theories, and to date, most studies have simply compared processing of ironic vs. non-ironic statements. A key aspect of the graded salience hypothesis distinguishing it from other accounts is that it predicts differences between processing of familiar and unfamiliar ironies. Specifically, if an ironic utterance is familiar (e.g., "That's just great!"), then the ironic interpretation should be available without the need for extra inferential processes, whereas if an ironic utterance is unfamiliar, the literal interpretation would be computed first, and a mismatch with context would lead to a re-interpretation of the statement as being ironic. We recorded participants' eye movements while they were reading (Exp. 1), and electrical brain activity while they were listening to (Exp. 2), familiar and unfamiliar ironies. Results showed more disruption to eye movements during reading, and evidence of N400 effects for unfamiliar ironies only, but revealed P600 effects for both familiar and unfamiliar ironies. This pattern of effects is most in line with the predictions of the graded salience hypothesis.

4. Future Collaboration

Given the success of this project, we plan to continue the collaboration by applying for a bilateral (UK-Germany) research grant.

5. Projected publications

We intend to submit the manuscript to an international journal of high impact (e.g., *Journal of Experimental Psychology: Learning, Memory, and Cognition*, or *Psychophysiology*).