Signal to act: game theory in pragmatics

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Chapter 6

Conclusions & Outlook

What we call the beginning is often the end
And to make an end is to make a beginning.
The end is where we start from. […]
We shall not cease from exploration
And the end of all our exploring
Will be to arrive where we started
And know the place for the first time. (T.S. Eliot, Little Gidding)

In the preceding five chapters I have spelled out a model of step-by-step pragmatic reasoning that incorporates introspectively plausible and empirically vindicated assumptions about the psychology of reasoners. The resulting IBR model is a refinement of rationalizability in which additional assumptions about the cognitive architecture of language users are implemented explicitly in the belief formation process of agents. By additionally giving general principles for the construction and interpretation of signaling games as models of the context of utterance, I have shown how the IBR model accounts for a variety of data such as embedded scalar implicatures, free choice readings and the like. The model’s explicit epistemic approach offered a novel perspective on the interpretation of bidirectional optimality theory and proved helpful in characterizing the development of pragmatic competence surrounding scalar implicatures in early acquisition.

Unsurprisingly, not all questions have been answered; hopefully, some have; probably, some old questions appear still unanswered in a new clearer light; and, certainly, some new questions surfaced for future consideration. Let me just point out some of the most pressing issues here, some of which have and some of which have not been addressed in the text so far.

For one, although chapter 2 provided some crucial insight into the formal characteristics of the IBR model, more results of the same sort would be
welcome. Chapter 2 ended with the conjecture about a proper epistemic character-
ization result of IBR as a solution concept. In future work, I would be curious to test this conjecture by giving a full epistemic characterization. Similarly, I would appreciate an answer to the question whether there is a natural class of signaling games for which the IBR model always reaches a fixed point, and perhaps even the same fixed point for both sequences.

Another open issue is an interpretation of the IBR model as a model of language change. As mentioned in section 2.4.2, formally speaking the IBR model as is could be taken as a diachronic model implementing a special form of best-response dynamics. This would allow many further applications and would also allow further comparison to bidirectional optimality theory where the latter is considered a diachronic model too. To justify the use of the IBR model as a diachronic model, however, it would be necessary to go through the set of assumptions that informed its present formulation, all of which were motivated by appeal to empirically or intuitively reasonable assumptions about human reasoning. It would then be essential to see whether and how these assumptions can be brought to bear on a model of language evolution. Related but in a sense orthogonal to this project is to check whether the IBR model as a model of individual reasoning could not be combined with existing models of learning and diachronic adaptation. Both of these issues seem very promising and interesting topics for future research.

Finally, I believe that an extension of the IBR model that incorporates reasoning about unawareness, as briefly introduced in section 5.2.4, could be very fruitfully applied to matters of linguistic and philosophical interest. For instance, Sperber and Wilson (1995) argue that certain features of a conversational context should not be considered beliefs of an agent, but be subjected to a different, weaker epistemic relation which they call mutual manifest-
ness (Sperber and Wilson 1995, p. 38–46). Similarly, I have argued against a standard interpretation of prior probabilities in game models in section 3.1 as specifications of hearer beliefs. I suggested that prior probabilities in context models are best conceived of as a condensed representation of the associative strength with which an interpretation comes to mind when hearing a given form. This still leaves many questions open, but I have the hunch that including the dynamics of awareness in relevant ways into our game model could solve many outstanding issues with classical beliefs and probabilities. This may eventually lead to interesting new insights concerning issues such as transparency and recognition of the speaker’s communicative intention.