A disorderly household - voicing the noise

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1. First words

Hitherto, the discipline of our discipline has been well equipped for dealing with a certain amount of noise (or, as defined here, disordered information). Where practitioners are concerned, the language of methodological individualism has ensured that those given voice do not meander too far from orthodox assumptions and practices; there simply has been no other language in which to talk or to do economics. As for the economic agents of the household, the error term provides the discipline with a discreet sponge for soaking up any random deviations in their behaviour — ‘white noise’ — so that models are tidy and economical in appearance. Economics is, moreover, a moralistic discipline, eliciting conformity to its maxims with carrot and stick; in this respect, the champions of rational choice theory are both our exemplars and our masters. It is within their gift to grant dispensation to repudiate short-run utility-maximization provided agents have long-run utility-maximizing reasons for doing so; but truancy lies beyond the bounds of acceptable behaviour. Agents who act suboptimally reap lower payoffs, and herein lies the incentive for their foolishness to be displaced by orthodox calculations of strategic advantage. Marshalled and policed by the tools of scientific method, the marginalized, the suppressed, or the merely flagellated of the household could, until recently, take comfort from knowing that the judicial process to which they had fallen victim was administered with the impartiality of an invisible hand.

But economics is no longer master in its own house. Other voices clamour for attention and threaten to upset the modern project of a well-regulated household. I suggest this follows the appearance of a new language: postmodernism, the ‘new rhetoric’ or social constructivism — call it what you will. But within this new self-consciousness is a transformation of the economic imagination with the potential to convert noise into voice. The process is not a clean and tidy one, nor is it given to recognizing property rights:

Language gives one to think but it also steals, spirits away from us, whispers to us [elle nous souffle], and withdraws the responsibility that it seems to inaugurate; it carries off the property of our own thoughts even before we have appropriated them.

(Derrida, 1992, p.80).

This essay reflects upon the terms of the economic imagination as they are beginning to emerge, but it is attentive to the Hegelian suspicion that truth (or what I shall call ‘understanding’) ‘is not a minted coin that can be given and pocketed ready-made’ (Hegel, 1807; 1977, p.22); the re/production and transformation of understanding invokes a multiplicity of voices, past, present and future, and from all parts of the household. These voices challenge the modern notion of the subject prevalent in economics and its model of rational choice and, if heeded, may be saying that it is beyond the agency of economists by themselves to bring about a transformation of the discipline. I suggest it is intrinsic to a discipline constructed on exclusions and enforced silences that it will interpellate itself; all that is needed is a language — or a form of re/presentation — in which the noise can be voiced. Exclusion and re/presentation in the construction of economic knowledge therefore constitute the two central, but interwoven, themes of this essay. At issue are those elements of behaviour which rational choice theory would exclude from its narrational framework, how to re/present them while respecting their complexity, and their impact on our understanding of behaviour.

Exclusion, as Foucault (1984) argues, is the condition of a discourse: by placing boundaries between what is inside it and what is outside it, a discourse constitutes its objects. Thus, he
observes that madness is constitutive of sanity, and criminality constitutive of legality (1971; 1977). Similarly, notions of ‘unreasonable behaviour’ are inescapably implicated in the orthodox economic construction of rational behaviour. In this sense, noise is the means by which the economic discourse constitutes itself. But it is a characteristic of any discipline founded on notions of exclusion that elements which lie outside the discourse retain a claim on those within it. On my interpretation, the Freudian notion of ‘the return of the repressed’ is a paradigm of the way in which elements which have been excluded return to challenge an organization of knowledge which would condemn them to silence. Such is the case when certain ontological assumptions about the nature of human subjectivity are disappointed in behaviour; exclusions return to haunt the discipline in the form of the problems and paradoxes which have surfaced in rational choice theory. ‘– Ça vient de partir. – Ça revient de partir. – Ça vient de repartir.’ says Derrida (1987, p.382), in a rephrasing of the Freudian compulsion to repeat. It is in this sense that the critique of orthodox economics emanates from within the household and is reflexive; it is only the language of that critique which comes from without.

My strategy, then, is to interrupt our discourse on the discourse by staging a forum in which the noise of many narratives can come to voice. I shall report excerpts from transcripts of conversations with and between people as they engage in bargaining problems. For present purposes, the extent to which behaviour conforms to the predictions of rational choice theory is treated implicitly. To privilege the voice of rational choice theory in this performance would harm my purpose in two ways. First, it would suggest that it is the assumptions of the theory which constitute the object of investigation rather than the behaviour itself; and second, it would permit rational choice theory to impose a closure on the subject of bargaining behaviour. In defence of the conversational method itself, let me point out that Arjo Klamer (1984) has already demonstrated that it can alert us to the problems of communication in economic discourse and the frictions between diverse styles of argument. But why limit ourselves to what can be gained from listening in to conversations between economists? And why exclude the economic agents of the household from a conversation about what goes on in the bargaining process? Indeed, Ariel Rubinstein (1991) observes that language plays a crucial role in resolving conflicts, a role which game theory has so far been unable to capture. This is because representation in economics is focused on outcomes, constructed in mathematical terms; as long as we ignore the rhetorical enunciation of our subjects as these outcomes are being negotiated, we cannot fully understand their meaning, let alone how they are reached. The conversational method therefore offers us the potential to open up a new theoretical space, one in which we are sensitive to both regularities and differences in behaviour, and to the negotiation of frictions between the actors themselves and competing narrational frameworks. In other words, it may permit an open-ended giving-taking of understanding (a circulation) in which we can observe how the rhetorical enunciation of the actors folds back on their discourse, at the same time as allowing that discourse to fold back on own.

2 The unfairness of representation: an agenda

The experiment reported below constitutes just one element in a larger research program designed to investigate bargaining behaviour. This program is motivated by the observation that the grand narrative of rational choice theory often sits uneasily alongside the narratives of the actors. The vehicle for my concerns is the orthodox response to Nash’s (1953) ‘demand game’, a game which confronts the discipline with an embarrassment of riches in the form of multiple Nash equilibria. The problem for the theorist is that any pair of strategies leading to a Nash equilibrium can be understood as a rational choice; but the analysis is unable to discriminate between equilibria, or to explain how real people are able to reach an agreement when they do so. The orthodox approach to the dilemma lies in a project of refinements of the Nash equilibrium concept. Thus, for this and
many similar problems, resolution is understood to be a matter of determining the criteria by which certain equilibria can be categorized as 'intuitively unreasonable' and so excluded from the feasible set.

In an earlier essay (Mehta, 1993), I argued that this approach was inappropriate at the positive level and, in so doing, identified an agenda for future work with bargainers. I suggested that models of the Rubinstein (1982) type, which rely upon the subgame-perfect refinement, appeal to the orthodox theorist because they generate a unique solution. But they are products of the presuppositions and predispositions of a discourse which celebrates uniqueness in the context of a normative project rather than having anything to do with the real world and the rich institutional setting in which behaviour takes place. As such, they contribute little to our understanding of real bargaining behaviour. Moreover, a challenging gap exists between accounts of behaviour framed by rational choice theory, and experimental evidence of how people actually do behave in a bargaining situation. Thus, we find that a number of social or institutional factors which have hitherto been regarded as irrelevant to players in the world defined by rational choice theory would appear to explain (i) why bargaining games that are structurally equivalent in game-theoretic terms don’t always yield identical behaviour; (ii) why bargainers may settle for outcomes that ‘fall short’ of Pareto-optimality; and (iii) how players can discriminate and choose between multiple Nash equilibria. Indeed, Roth et al are led to conclude from their experimental work that:

sociological factors – that is, factors unrelated to what we normally consider to be the ‘economic’ parameters of a game – can decisively influence the outcome of bargaining.

(Roth et al., 1981, p.176).

Since these factors enter systematically into behaviour, they cannot be consigned to the error term; yet there is no obvious way of appropriating so-called sociological factors which preserves the unity and order of the orthodox economic program. As an example, consider the notion of ‘fairness’. Using experimental techniques, it would seem to be a straightforward matter to determine the contexts in which fairness is relevant to bargainers and what exactly is meant by ‘a fair solution’. By excluding ‘unfair solutions’, at least some of the indeterminacy generated by standard theory could be eliminated. But under the auspices of deconstruction, I have argued that these elements remain intractible to the functional forms which characterize orthodox economics because they are not fixed and commensurable as the discourse requires. Thus, ‘the fair solution’ does not have some singular, objective meaning or exteriority such that a determinate value can be assigned to it. The meaning of ‘the fair solution’ is not fixed and unequivocal, but situational in that its precise meaning for two bargainers shifts according to its negotiated difference from ‘unfair solutions’ in a given bargaining situation. By similar argument, a bargainer’s sense of self (whether they see themselves as a friend or rival in bargaining, for example), is wholly indeterminate. And if there is no unequivocal meaning with which to represent fairness, nor a unitary identity with which to represent the bargainer, then there is no continuity or stability which can be captured by a single model of bargaining behaviour.

Yet the complexity of some behaviours – their refusal to submit to orthodox functional forms – is not the only reason why they are excluded from representation. We must also recognize the part played by the taxonomies of the dominant discourse in conditioning representation in order to comprehend why it is that behaviour which conforms to the axioms of rational choice theory is privileged, while non-instrumentally-rational behaviours are rendered voiceless. One of the sources
of Foucault’s argument about the part played by exclusion in a discourse is the work of Martin Heidegger. In an essay (originally written in the 1930s), Heidegger observes:

Nature and history become the objects of a representing that explains ... Only that which becomes object is – is considered to be in being.

(Heidegger, 1977, p.127.)

In these terms, he conceives of the modern age as ‘the age of the world picture’, that is, the age in which phenomena must be represented as objects in order to have voice. By implication, the not-object is silent in explanation. Thus, non-instrumentally-rational behaviours fail in their representations because they lie outside the organizing assumptions of rational choice theory: because they are not represented they cannot exist, and so they must be constituted in annulment, that is, in exclusion. The challenge for a new agenda in economics then becomes clear. New forms of representation must be found which give voice to those elements of behaviour which are unpresentable in orthodox models. This approach could take many different directions, each of which has validity if it deepens understanding.

Yet, as we will observe, bargainers themselves play with notions of exclusion; they attempt to bring order to their situation through a negotiation of the criteria by which competing demands for a share of the pie can be categorized as either ‘reasonable’ or ‘unreasonable’, ‘fair’ or ‘unfair’. A discourse which recognizes and engages with these negotiations necessarily radicalizes the gap between oppositions. It doesn’t seek to diminish that gap by focusing on either the unity or plurality of bargaining solutions and their supporting narrational frameworks, but listens to the voices of actors (their petits récits) as meaning and identity are constituted in the bargaining game. In this sense, I advocate a decentring of orthodox concerns for the outcome of bargaining. But let me emphasize that this is not to exclude modern theory’s narrational framework – which would be to repeat the original act of imperialism – but to engage with the dissonance between narratives. While it is beyond such an approach to elicit the fixed and universal forms of understanding which modernity desires, it may enable us to attest to a richness and variety in behaviour which is otherwise unpresentable. Then,

The postmodern would be that which, in the modern, puts forward the unpresentable in presentation itself, that which searches for new presentations, not in order to enjoy them but in order to impart a stronger sense of the unpresentable.

(Lyotard, 1984, p.81.)

In this sense, orthodox economic theory remains very much a part of a transformed economic imagination, but open to interpellation by its exclusions.

3 Games people played: the experiment.

The conversations reported below took place with and between people as they engaged in a one-shot simultaneous-move bargaining problem preceded by one round of ‘cheap talk’. Twenty-four volunteers were recruited from the population of students at the University of East Anglia. None of the subjects had participated in any previous experiments with bargaining games, and subjects were told nothing about the nature of the experiment before they took part. The experiment took place over six separate sessions. For each of these sessions, four subjects were randomly divided into two teams of two players each. Each team occupied a separate room, together with an organizer who read through a set of instructions and tape-recorded the event. Neither team met the other team
either before or after the experiment, and members of the same team had not previously met each other. Within each session, the two teams had to bargain over the distribution of £16 between them, with any gains being divided equally between team members. Subjects were explicitly instructed to think of the game as a bargaining problem; they were given the example of the problem faced by the buyer and seller of a house who each want to get the best possible terms for themselves, and they were instructed to ‘try and get as much as you can for your team’. This instruction was given to reinforce the incentive structure of the game as it is understood by standard theory; the significance of any notions of fairness would then be strengthened if indeed ‘fair play’ was a component of behaviour.

This experiment differed from conventional experiments in economics in two respects. First, it is usual for experiments to be conducted with large numbers of people playing as individuals, the aim being to acquire a substantial dataset describing outcomes. The idiosyncratic thought processes of the bargaining subjects are generally of little interest. But in this experiment, I am more concerned with process than with outcome. When people are part of a team of two, it is necessary for them to verbalize their understanding of the situation so that they might act together. So by using teams rather than individuals, it becomes possible to witness the formation of meaning and identity by the players and the negotiation of any differences.

Second, many of the usual features of a real-world bargaining situation are absent in the experimental environment; for example, in this experiment, people without the history of a relationship find themselves playing either in the same team or in competing teams. But by simplifying the context in which bargaining takes place, we can focus more clearly on the ways in which the actors constitute the meaning of the situation and their identities within it. Two elements of context were introduced to the game, both of which were matters of common knowledge, but both of which would be regarded as irrelevant to behaviour on the orthodox account. The intention was to see if, and how, players would draw on these features to help them coordinate their strategies. First, for each pair of teams, one team was randomly designated ‘the Buyer’, and the other ‘the Seller’; and second, each team was randomly dealt four playing cards from a set of 4 aces and 4 twos. Each team could determine the other team’s cards from their own hand; for example, a team holding 3 aces and 1 two would know that the other team held 1 ace and 3 twos.

All the players received identical instructions. They were told that for the Buyer team, a full set of 4 aces was ‘worth’ £16, but all other sets of cards were ‘worth’ nothing. At the end of the game, a Buyer team holding all 4 aces could exchange their cards for £16 from the organizers. A Buyer team holding less than 4 aces could try to buy the remaining aces from the Seller team. If the teams reached an agreement, the Buyer team would receive the £16, less the amount they had agreed to pay the Seller team for their aces, and the Seller team would receive the agreed selling price. A Seller team, on the other hand, could obtain nothing for their cards from the organizers, even if they held the full set of 4 aces; but a Seller team could try to sell any aces they held to the Buyer team.

Bargaining between teams was enacted anonymously as follows. Each team was instructed to send a preliminary non-binding message to the other team prior to making their final demand. The Buyer team was instructed to complete the statement: PRELIMINARY OFFER: We are willing to pay a total of... to buy the Seller’s aces, by specifying an amount of money. At the same time, the Seller team was instructed to complete the statement: PRELIMINARY OFFER: We are willing to accept a total of... from the Buyer in return for our aces, by specifying an amount of money. When both teams had completed these statements, each team’s message statement was transmitted to the other team by the organizers by telephone. Each team was asked to discuss the final and binding offer they wanted to make and then to complete a further statement. The Buyer team was instructed to
complete the statement: FINAL OFFER: We are willing to pay a total of ... to buy the Seller’s aces, by specifying an amount of money. The Seller team was instructed to complete the statement: FINAL OFFER: We are willing to accept a total of ... from the Buyer in return for our aces, by specifying an amount of money. When both teams had completed these statements, their responses were collated by the organizers by telephone. The pair of teams was deemed to have reached an agreement if the amount the Buyer team was willing to pay for the Seller team’s aces was greater than or equal to the amount the Seller team was willing to accept. In this case, both teams were paid the agreed amounts in cash, with each team member receiving a half share of their team’s gain. But if the amount the Buyer team was willing to pay was less than the amount the Seller team was willing to accept, then the players were deemed to have failed to reach an agreement; in this case, neither team received anything.

4 Representing behaviour

How would we expect people to behave in this experiment, and what did they actually do? The next section represents a response to these questions. Rational choice theory’s narrative appears in a column on the left, the players’ own narratives appear on the right. I don’t deny my organizing role in these narratives – the reader will be aware that they are marked by my own taxonomy of what is salient and what is not. The narrative of rational choice theory is, of course, my own characterization of it. As for the narratives of the players, these are distilled from several hours of tape-recorded conversations. The transcripts were combed for statements which shed light on behaviour in any respect or provide answers to four specific questions: is behaviour affected by the distribution of cards between teams?; is ‘cheap talk’ treated seriously?; do notions of fairness enter into play?; and, is player identity a matter of concern? My eidetic interventions on these issues appear in a boxed third column which spans the other two. The result is not representative of bargaining behaviour, but a representation of how these 24 subjects bargained. As such, it can be treated as a comment on rational choice theory, and a guide to areas of behaviour which call for further investigation. But more importantly for present purposes, it points to what is at stake in the act of representation.

The following information will be of help in following players’ narratives. Subjects were promised that their anonymity would be preserved in reporting behaviour; hence, each player has been assigned an individual code which identifies the session in which they participated. Thus, for Session 1, the Buyers are B1 and B2 and the Sellers are S1 and S2; for Session 2, the Buyers are B3 and B4 and the Sellers S3 and S4, and so on. The effect of these codes is to disembodied player voices. Of course, this feature of the representation is congruent with the orthodox approach which sees ‘rational’ players as constituted by well-behaved sets of preferences and otherwise undifferentiated. But recall that the teams themselves face a disembodied ‘other’. In this setting of relative anonymity, we may be able to discern whether, and in what respect, player identity is a matter of concern.

Of course, in conversation, people do not always speak grammatically, nor do they always finish sentences. In some instances, the meaning of a statement is conveyed or reinforced by gesture or intonation, and agreement or disagreement is signalled by a nod or shake of the head. Within the constraints of the written word, every attempt has been made to report comments as accurately as possible, not to dislocate comments from the context in which they were made, and to use punctuation such that the spirit of the comment is retained. Contextual information which is not otherwise obvious (such as which stage of the game is in the process of being played, or is under discussion) is contained within square brackets. And any interventions by the session organizer are clearly marked.
Table 1 summarizes the quantifiable information pertaining to each session. From this table, it can be seen that there were three different deals of the cards, and that each deal of the cards was held by two teams. For clarity, the offers made by both the Buyer team and the Seller team are expressed in the table in terms of the amount of the pie which each team demanded for themselves; thus, for a pair of Buyers and Sellers to reach an agreement, final demands must sum to £16 or less.
Table 1: Summary of results

<table>
<thead>
<tr>
<th>Session</th>
<th>BUYERS</th>
<th>SELLERS</th>
<th>Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Players: B1 and B2</td>
<td>Players: S1 and S2</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>Deal: 1 ace + 3 twos</td>
<td>Deal: 3 aces + 1 two</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Message: demand £8.00</td>
<td>Message: demand £8.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Final offer: demand £8.00</td>
<td>Final offer: demand £8.00</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Players: B9 and B10</td>
<td>Players: S9 and S10</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>Deal: 1 ace + 3 twos</td>
<td>Deal: 3 aces + 1 two</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Message: demand £12.00</td>
<td>Message: demand £12.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Final offer: demand £8.00</td>
<td>Final offer: demand £8.00</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Players: B3 and B4</td>
<td>Players: S7 and S4</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>Deal: 2 aces + 2 twos</td>
<td>Deal: 2 aces + 2 twos</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Message: demand £10.00</td>
<td>Message: demand £8.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Final offer: demand £8.00</td>
<td>Final offer: demand £8.00</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Players: B7 and B8</td>
<td>Players: S7 and S8</td>
<td>NO</td>
</tr>
<tr>
<td></td>
<td>Deal: 2 aces + 2 twos</td>
<td>Deal: 2 aces + 2 twos</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Message: demand £11.00</td>
<td>Message: demand £11.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Final offer: demand £8.00</td>
<td>Final offer: demand £7.00</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Players: B5 and B6</td>
<td>Players: S5 and S6</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>Deal: 3 aces + 1 two</td>
<td>Deal: 1 ace + 3 twos</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Message: demand £10.00</td>
<td>Message: demand £10.00</td>
<td></td>
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<tr>
<td></td>
<td>Final offer: demand £8.00</td>
<td>Final offer: demand £8.00</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Players: B11 and B12</td>
<td>Players: S11 and S12</td>
<td>NO</td>
</tr>
<tr>
<td></td>
<td>Deal: 3 aces + 1 two</td>
<td>Deal: 1 ace + 3 twos</td>
<td></td>
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<tr>
<td></td>
<td>Message: demand £11.00</td>
<td>Message: demand £8.00</td>
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<tr>
<td></td>
<td>Final offer: demand £9.00</td>
<td>Final offer: demand £8.00</td>
<td></td>
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</tbody>
</table>
V. The narrative of rational choice theory.

Let us consider what we would expect the players to do from the point of view of standard game theory.

First, recall that the distribution of cards between the pair of teams is irrelevant to rational players; this is merely a presentational feature of the game.

V. Conversations with and between bargainers.

B1: We've got £16 in total. So half of it for two, that's £4 per ace.
B2: That would be very reasonable.
B1: ...so shall we put half, then?
B2: You reckon?
B1: OK.

S3: Right; so 2 aces each, and if 4 are worth 16, then these are worth £8.
S4: So we ask for £8, and then everyone gets the same amount.
S3: Yes. £8 each. Seems fair enough.

B7: So the more aces you get, the better it is really.
B8: I don't know really. It's always the same because you need to get all of them. It doesn't matter how many you start off with - if you start off with zero, if you start off with 3: it doesn't do you any favours.

Org: [After the experiment.] Did you think the distribution of the aces was significant?
S7: Yes, I think so.
S8: Yes.
Org: So if you'd had 1 ace, what would you have done?
S7: Put the price up probably.
S8: Yes, probably, because, I mean, in a way, we've got the scarce commodity so I suppose it's worth more.
Org: So with 3 aces, you'd have asked for less?
S8: [Probably about half, in fact.
S7: Yes.
S8: Probably, don't you think?
S7: Yes.
S9: My feeling is that each of the aces are worth £4 to the other team and therefore they should be prepared to pay £4 for each of them because they will make a profit at the end of the day because they will have 4.
S10: Yes.

S9: So I propose that the preliminary thing should be £12.
S10: Yes, right, I agree, seems fair enough.

S5: [After the experiment.] I was just wondering: what's the point of the cards?
Org: Well, that's one of the things we're interested in .. your feeling would be they're of no significance?
S5: No.
S6: No, I didn't even think about it really.

As far as B8, S5 and S6 are concerned, the cards are irrelevant; but other players find them to be significant. In particular, the comments of S3, S4, B7, S7, S8, S9 and S10 provide tentative support for a hypothesis derived from the work of Thomas Schelling (1960), namely that players look to the distribution of the aces for clues to the ‘focal point’ (that is, the solution on which the players’ expectations can converge).

B1: They’re probably going through the same thing as we are, thinking what are we going to do - because they haven’t got a clue.

B1 appears to be reasoning along the lines described by the common knowledge assumption.

Similarly, the asymmetric labels (Buyer and Seller) assigned to each team make no difference to each team’s real bargaining power; in this respect, the players remain undifferentiated.

There are no comments in any of the transcripts which suggest players are influenced by the asymmetric labels (Buyers and Sellers) assigned to them.
All six games share a common mathematical structure. There is a family of pure-strategy Nash equilibria: for any of \( x \) in the range \( 0 \leq x \leq 16 \), any pair of strategies such that one team demands \( x \) and the other team demands \( 16 - x \) constitutes a Nash equilibrium. Each team of the pair can be expected to differ only in terms of their preferences over the different outcomes. (Different teams, or individuals within teams, may of course have different utility-of-wealth functions, and so in this sense there will be a difference between games. But since the cards are dealt at random, there can be no systematic difference between the utility functions of players according to the number of aces they hold.) The distribution of cards, and the designation of teams as either Buyers or Sellers, are therefore merely presentational devices.

Second, some game theorists would suggest that replay communication which doesn't directly affect payoffs will have zero effect on behaviour in the final and binding stage of the game. The rationale for this view is that, in the absence of an external enforcement mechanism or a commitment to the promised course of action, teams comprised of players who are equally rational both know that...

B11: [Mulling over the fact that the teams failed to reach an agreement.] We're not poor enough. We should play this game at the end of term.
B12: I still haven't paid my tuition fees; I've still got loads of money in my account.

S11: Mmmm. Should we overstate or understatement the preliminary offer?
S12: In the preliminary, if we say we’d accept 6, they’ll think, great. They’ll put 6 then, won’t they, and we can’t really up that price.
S11: Alright. ... and we put down 8 and they’ll think, aha, they’re playing it fair, let’s play it fair: we’ll all be better off.

... neither team has any reason to carry out that action. As a result, it is predicted that rational agents will simply ignore messages and act as if they hadn't been sent; in other words, messages will be mere 'babble'. It is on these grounds that Farrell (1987) suggests there is certainly an equilibrium in which messages do not affect behaviour in the game (that is, a 'babbling equilibrium'). He points out that if everyone believes that cheap...

S11 and S12 are using the message to signal otherwise private information about their identities, that is, that they are fair 'fair players'. They anticipate that, once shared, this information will lead to a convergence of expectations on what they perceive to be the fair solution: equal division of the pie.

S12: ... rather than trying to get an extra pound each. I mean, if we just put 8 - I can't think we deserve any more.
S11: No.
S12: Cos, I mean, we need them to get anything and they need us to get anything.
S11: We've got no reason to hold a grudge against them.
S12: No, it's not as though we're dealing with old rivals.
S11: Right - run round the corner and bonk us!
Sl1 and Sl2’s demand for a fair share of the pie is grounded in their construction of the other team’s identity: these are not ‘old rivals’.

... talk will be ignored, then it is optimal for each player to send a message which is uncorrelated with their final action, and then everyone’s skepticism about the role of messages is warranted.

If this is indeed the case, then for the game being played in the experiment we would expect the preliminary demands stated in messages to be randomly distributed. Moreover, we have no grounds for expecting final demands to be other than randomly distributed; nor have we grounds for expecting the final demands of the pair of teams to be correlated. Indeed, if final demands are chosen at random as rational choice theory implies, we would expect 52.3% of pairs of teams to reach an agreement.

Yet casual observation suggests that real people frequently do engage in cheap talk before final actions are taken; are they really exchanging meaningless babble, or is there some means by which non-binding messages can help them to coordinate their strategies? Several theorists claim there can be equilibria in which cheap talk is taken seriously.

Org: [After the experiment.] Did you expect that message to have any effect on how they would behave in the final round?
S5: Oh yes.
S6: Yes, I think so. Yes, I think that if we’d asked for 8 and they’d asked for 6, we’d probably have ended up with less than 8.
S5: Yes.

Org: So you think that by asking for more, you’re likely to end up with more?
S5: Yes.

Org: [After the experiment.] Did you believe the message from the other team?
B1: Yes.
B2: We have no reason not to.

Org: Did you think that by asking for more, you’re likely to end up with more?
B5: No, I thought they’d come down.
B6: Yes, I smiled when you said it because it was exactly what I expected.

Org: Did you expect your message to influence the other team?
B5: Only as much as their’s influenced us.
B6: I think our message said that we weren’t going to be done out: we were going for equal shift, or more for us; we weren’t going to play around really.
B5: Yes.
B11: You must try to squeeze it below 8; you must give them the impression that we are willing to risk all.
B12: Yes, that’s an idea - but we are willing to pay them up to 8?
B11: Yes. The thing is, you want to trick them that we are not willing to go up to 8.
B12: So let’s put 4.
B11: You put 4 or 5?
B12: Let’s make it 5.
B11: Yes, 5. Yes, that’ll do
Org: [After the experiment.] Did you believe the message from the other team?
B7: No... well, I thought maybe they'd be open to change a bit.
B8: I mean, you always, like, if you're in a bargaining decision, you always start higher than you want, or lower than you're willing to pay.
B7: That's what the word 'bargaining' means really.
Org: Did you expect your message to influence the other team?
B8: Yes.
B7: Yes: I think it gives the message that we're prepared to pay a bit higher. But obviously, we're saying, we'll come down. I think that's usual.
Org: So there was a coded message in your message?
B8: Yes.

Notice that 13 players make comments which suggest they are treating cheap talk seriously. B1 and B2 trust in the truth of the message of intent sent to them. In contrast, S5, S6, B5, B6, B11, B12, B7 and B8 view the message as embodying information to be interpreted rather than taken at face value.
Within the literature, there is a class of models which assumes some distribution of player types, and that each player has private information about their own type (see, for example, Crawford and Sobel, 1982; Farrell and Gibbons, 1989). These models typically generate several equilibria, at least one of which could not be supported in the absence of talk. Three conditions are required for messages to be informative: (i) a Sender can be typed according to their preferences over the Receiver's final actions; (ii) a Receiver prefers different final actions depending on the Sender's type; and (iii) the Receiver's preferences over final actions are not completely opposed to the Sender's preferences. It can be shown that if these conditions are satisfied, and contingent upon the combination of player types, there can be an equilibrium in which different player types have an incentive to send different messages. The finding that cheap talk can matter is an interesting one, although it is not clear how the players in this experiments could be 'typed'.

Recall that our players have been instructed to try and get as much money as they can for their team, and that this instruction is common knowledge. If both teams believe that the behaviour of the other is indeed motivated by the maximisation of monetary gain, then the preferences of both over outcomes are transparent and identical: each team prefers the largest possible share of the pie.

The comments of B8, B7 and B5 show that they are finding coordination difficult in the absence of visual clues to player types.
Alternative models have been developed for situations in which there is no private information and the players are assumed to be identical. Arguably, these situations are closer to the one described by the experiment. Farrell (1987), for example, addresses a problem which, in some respects, is analogous to the bargaining problem of this experiment; that is, how 2 players who are initially symmetric are able to achieve asymmetric coordination\(^8\). The vehicle for Farrell’s investigation is a model of an ‘entry game’, where each of two identical firms makes an initial announcement about their entry plans for a natural monopoly market (‘in’ or ‘out’), followed either by entry to the market or staying out. The parameters of the game are such that it is in each firm’s interest to stay out if the other firm enters. Farrell finds there is at least one equilibrium to this game where the information contained in the announcement is treated seriously. For the purpose of this essay, it is sufficient to note that a crucial element of the model is the assumption that where initial plans would constitute a Nash equilibrium if actually played, these plans will be followed in the final stage of the game on the grounds that the equilibrium has become ‘focal’. However, the theoretical grounds for the assumption remain undeveloped. While intuitively it may seem obvious that an announced Nash equilibrium would be played in the final stage of the game, there is nothing in the logic of orthodox game theory to support the assumption. We can only assume that Farrell’s argument involves an appeal to players’ intuitions about ‘prominent’ (or ‘salient’) strategies along the lines of Schelling’s (1960) theory of focal points. But to support this notion, we would have to deviate significantly from the assumptions of standard game theory\(^9\).

Farrell’s assumption appears to be applicable in this experiment. Notice that the preliminary demands of B1, and B2, and S1 and S2 (each team demands £8 as their share of the pie) would constitute a Nash equilibrium if actually played in the final stage of the game; as such, the equilibrium had become focal.

B1: [Debating whether to revise plans that if actually played would lead to agreement.] So shall we stick with that, £8?
B2: Yes, there’s no point in reducing it, because if they increase, then we don’t know how much they’re going to increase it by.
B1: No.

Org: [After the experiment.] Did you expect your message to affect what they would do in the final round?
S1: If the amounts had been different, then I probably would have done. The fact that they were the same meant that I think we’d all come to the same conclusion really.
It remains for us to consider whether there is a role for ‘fairness’ in the game being played. Güth, Schmittberger and Schwarze (1982) undertook a controlled investigation of a (one-stage) ultimatum game. Their key finding is that behaviour deviates significantly from the game-theoretic prediction according to which Player 1 offers all but the smallest possible positive amount to Player 2, which Player 2 accepts on the grounds that a small amount is better than the zero which would result if the offer is turned down (see, Rubinstein, 1982).

Org: [After the experiment.] Suppose you’ve got a situation between an employer and striking workers ...

B5: Yes, you know it’s not an all or nothing situation, that if an employer gives too much they’ll be back at work, but if he doesn’t give enough, they might be out another week. But you know that there’s going to be a result at some point. And you also know your employer is in a stronger position than the worker because he’s a weekly worker and he knows he’s not going to get any wages on Friday: his bargaining power has immediately gone down because his employer knows he’s more desperate and so can usually hold out longer than the employee. But here [the experiment]: it was equalized ... it makes you be fairer than you would be in a real situation.

B6: .. in business, I’d never be that fair [compared to the experiment]; you’re always trying to get more for yourself.

Instead, subjects frequently settle on what they consider to be a fair or justified amount. Güth et al also find that if player roles (first and second mover) are assigned by chance, then the more fortunate subjects are often reluctant to exploit their ‘unjustified’ strategic advantage. Moreover, some subjects are prepared to pay to avoid unfair allocations.

B9: I think we’ve got to show ...

B10: .. that we’re serious about this? No, I don’t agree with that at all. Because if you say to them, you give us all your cards, we’re only going to give you 2 quid for them, they’ll ay, stuff you, that on an ethical basis that is not right, and I would rather have no money than put my principles ...

B10 voices the belief that the other team might forfeit any gains rather than accept an ‘unethical’ share of the pie. B9 is thus persuaded of the merit of offering the Sellers £4 (rather than £2) at the preliminary stage. In fact, the teams settle on £8 each at the final stage. But the demands of B9 and B10 appear to be grounded in pragmatism rather than a preference for fairness.
Kahneman, Knetsch and Thaler (1986) generated a similar set of findings in their investigation of the behaviour of firms. They conclude that 'the characteristics of transactors affect the environment in which profit-maximizing firms operate and alter the behaviour of these firms in predictable ways'. Factors which enter into the calculus may include the history of relations between the firm and a particular individual. Where, as a consequence, rules of fairness are applied, they can induce wage stickiness or asymmetric price rigidities. The implication of these findings is that standard theory is mistaken in assuming that fairness is irrelevant to economic analysis. We should therefore be alert to the possibility that, in this experiment, a preference for fairness may enter into the objective functions the players seek to maximize.

S11: [On hearing that the teams have failed to reach an agreement: this team demanded £8, but the Buyers demanded £9.] The fools!
S12: The donkeys!
S11: ... Probably got a fascist mentality.
S12: I mean, £7!
S11: I just don’t understand why they didn’t go half and half ... I’d just go for 8 quid; it’s the only fair thing, especially considering the situation: you know we’re just 4 people dragged in. You think, oh well, let’s just share the money.
S12: Exactly. ...
S11: ... sending a message of 8 wasn’t just a message of, that’s what we want. It’s also saying, you know, let’s just split the money. Wasn’t it?
S12: Right.
S11: That’s what we decided.

S11 and S12, and B11 and B12, have clearly failed in their negotiations. Both teams treated messages seriously, but the coded information they sent was not as transparent as they perceived it to be.
However, Binmore, Shaked and Sutton (1985) remain unconvinced that ‘fair play’ is of any consequence in bargaining behaviour. They claim that subjects’ convictions about fairness or distributive justice are ephemeral; they are merely features of inexperienced play which are easily displaced by calculations of strategic advantage once players are fully cognizent of the structure of the game. In support of this claim, Binmore et al. point to the results of their own experiment with a two-stage ultimatum game in which a tendency to play as ‘fairmen’ in one game is replaced by a strong tendency to play as ‘gamesmen’ in a second game. On their view, players who display a tendency to make fair demands in the first game are simply choosing ‘equal division’ because it is an ‘obvious’ and ‘acceptable’ compromise in the face of a new problem.

Of course, the game being played in the experiment reported here is a one-shot demand game. But Binmore et al.’s finding does suggest that any tendency towards equal division (£8–£8) should be treated as a trivial and unremarkable result, devoid of any ethical considerations on the part of the players, and a result which we would not expect the players to repeat.

S1: But they’re thinking the same thing; we’re both trying to get as much money for our team as possible. So if they’re thinking, we want to get as much money but so do they, then I think the only fair offer is 8, and hope that they come to the same logical decision.

S2: Yes, I’m game.

S1: Yes, I think 8. You couldn’t go any higher; and any less .. what do you think?

S2: Yes, I think we should go for that. [Completing message statement..] ... Does this mean we’re not good capitalists, trying to be fair?

S1: [After the experiment.] Well, we both played it cooperatively.

S2: fairly.

Org: What’s your sense of ‘fair’?

S1: Well, that both of us had something that was worth nothing without cooperation. So that means, equal cooperation.

Org: So you felt the 50-50 split was fair?

S1: Yes.

Org: What did you think about the result? (£8-£8 split.)

S3: Fair.

S4: Obvious.

Org: In what sense, obvious?

S3: If you think about it, the purpose of it is that everyone should get 8 – well, £4 each. ... it was obvious that £8 for each side was the only obvious outcome.

S4: It’s a case of compromise.

S3: ... because everyone benefits instead of no-one benefiting.

In other words, Binmore et al. See any manifestation of ‘fair’ play in a one-shot game as mere noise and not representative of the behaviour of rational players; certainly, equal division constitutes an ‘obvious’ solution for several of the players in this experiment. Yet it is a solution that is grounded in principles of fairness, and one that at least some players claim they would pursue again if the game was to be repeated.
The small sample size does restrict the degree of significance which can be attached to any findings in this experiment. But the quantifiable results can be summarized, as follows:
- 4 of the 6 pairs of teams reached an agreement about the division of the pie;
- of these 4 pairs, the declared preliminary plans of only 1 pair constituted a Nash equilibrium, and these plans were indeed followed in the final and binding stage of the game;
- all 4 pairs who reached an agreement settled on an equal division of the pie;
- 9 of the 12 teams chose as their final demand the strategy which if chosen by both would yield an equal division of the pie (£8–£8);
- the mean preliminary demand of teams subset according to the number of aces held is: 1 ace: £9.50; 2 aces: £9.00; 3 aces: £10.25;
- the mean final demand of teams subset according to the number of aces held is: 1 ace: £8.00; 2 aces: £8.25; 3 aces: £8.25.

Thus, notice there is a tendency for both preliminary and final demands to rise with the number of aces held.

6 The last word

In the above re/presentation neither rational choice theory nor the players are privileged with the last word on bargaining behaviour. Indeed, even within each narrative, there are several smaller narratives jostling for attention in the struggle to give meaning to behaviour. This observation unsettles my confidence as the organizing authority of the text: perhaps there should be more columns, less text, more text, but which text? It also becomes impossible to situate a ‘Conclusion’ at the end of the text, as the modern convention dictates; any conclusion about bargaining behaviour must be authorized by the narratives themselves and thus necessarily occupies their interstices. So let my last words, like the rest of my words, be an appropriation:

This text, then, is also the piece, perhaps a piece of counterfeit money, that is, a machine for provoking events. (Derrida, ibid, p.96.)
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References


Footnotes

1 For example, James Friedman (1991, p.44) states: ‘It is easy to invent examples of games having multiple equilibria certain of which are intuitively unreasonable. The basic thrust of refinements is the attempt of delineate criteria that can be used to separate the reasonable from the unreasonable equilibria.’

2 For example, an early paper by Morgan and Sawyer (1967) reports that the outcome of bargaining is significantly affected by whether the players are ‘friends’ or non-friends’. Friends, though they prefer equality, will accept an unequal solution when one believes the other might want it; non-friends appear less willing to accept anything but equal solutions. More recently, Kahneman *et al.* (1986) find that maxims of ‘fairness’ can enter into play which take their cue from the social environment and the interactions among transacting agents. For example, a player is prepared to accept a smaller amount when bargaining with a partner regarded as ‘non-greedy’, and will pursue a larger amount when bargaining with a partner regarded as ‘greedy’. And Mehta *et al.* (1992) find people draw on common knowledge of social rules and conventions to help them identify the one solution on which their expectations can coverage.

3 The complete set of instructions is available on application to the author.

4 On the orthodox view, the only features of the game which are relevant to rational players are the utility payoffs and the structure of the payoff matrix itself.
Card deals were randomly assigned, but deals in which the Buyer team received all 4 aces were excluded. Given the objectives and the experiments, this particular game would have been of no interest since it would not have faced the players with coordination problems.

But note that throughout the conversations, Buyers are discussing the amount they are willing to offer to Sellers for their aces.

The expected proportion of the sample (of 6 teams) who coordinate it their demands are chosen at random can be calculated as follows. First, we assume that a team comprised of rational players will not demand zero since they have nothing to lose by making a positive demand and might gain by doing so; by implication, we would expect no rational team to demand £16. We assume the universe of possible demands ranges from £0.50 to £15.50 in intervals of 50 pence; this seems a reasonable assumption given that in previous similar experiments, all players expressed their demands in multiples of 50 pence. If teams choose from 31 potential demands, then:

\[
P(\text{1st demand } = £0.50 \text{ and 2nd demand } \leq £15.50) = \frac{1}{31} \times \frac{31}{31}
\]

\[
P(\text{2nd demand } = £1.00 \text{ and 2nd demand } \leq £15.00) = \frac{1}{31} \times \frac{30}{31}
\]

And so on. Hence, the probability of coordination, assuming random demands, is:

\[
\left( \frac{1}{31} \times \frac{31}{31} \right) + \left( \frac{1}{31} \times \frac{30}{31} \right) + \ldots + \left( \frac{1}{21} \times \frac{1}{31} \right) = 0.523.
\]

In earlier experiments with bargaining problems, the author and her colleagues found that a significant number of initially symmetric players were indeed able to achieve asymmetric coordination (Mehta et al., ibid).

For a development of the line of argument required to sustain the ‘focal points’ assumption, see Mehta et al., 1994a and 1994b.

This is a bargaining game in which Player 1 declares the amount \(a_i\) of the pie of size \(c\) which they claim for themselves. The difference between \(c\) and \(a_i\) and Player 2 receives \(c - a_i\), otherwise both players receive zero.

The reader may be interested in the results of a very similar experiment conducted prior to the current experiment. The only difference between experiments was that the earlier one was conducted with a sample of 98 subjects playing as individuals rather than as teams of two. The results (to be discussed in a separate paper) can be summarized as follows:

- 44 (90%) pairs of subjects reached an agreement about the division of the pie;
- the declared preliminary plans of 12 pairs constituted a Nash equilibrium, and all 12 of these pairs followed their preliminary plans in the final and binding stage of the game (in line with Farrell’s expectation);
- 51 (52%) subjects chose as their final demand the strategy which if followed by both would yield an equal division of the pie (£8–£8);
- the mean preliminary demand of subjects subset according to the number of aces held is: 1 ace: £7.30; 2 aces: £8.74; 3 aces: £9.70;
- the mean final demand of subjects subset according to the number of aces held is: 1 ace: £6.78; 2 aces: £7.83; 3 aces: £8.60

These results suggest that, contrary to the orthodox game-theoretic view, players’ demands, both the message stage and the final stage, are strongly influenced by the number of aces held, the more aces a player holds, the higher are preliminary and final demands. This finding is supported by regression analysis, which also suggests that the asymmetric labelling of players as Buyer or Seller exerts a minor influence at the message stage, but is insignificant at the final stage. Thus:
(i) \( \text{PREDEM} = 6.303 + 1.210 \text{DEAL} - .070 \text{LABEL} \)
\[(10.116) (5.270) (.214)\]
where \( R^2 = .23 \) and Adjusted \( R^2 = .21 \)

(ii) \( \text{FINDEM} = 6.061 + .447 \text{EGOPRDEM} - .264 \text{OTHPREDM} + .080 \text{LABEL} \)
\[(9.633) (10.551) (6.225) (.549)\]
where \( R^2 = .69 \) and Adjusted \( R^2 = .68 \)

Note the DEAL (number of aces held) is dropped from the second equation since it enters through players' preliminary demands (EGOPRDEM being the players' own preliminary demand, and OTHPRDEM their partner's preliminary demand).

\( ^{12} \) In a verbal presentation of this essay, the two columns of text are spoken simultaneously. Readers may wish to try this 'reading' of the text for themselves. The cacophony which results is symptomatic of the problem of representation.
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