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Resolute Choice in interaction: a welfare comparison

Abstract

In this paper we extend the model of Resolute Choice to a situation of interaction and compare it with the Sophisticated-subgame perfect equilibrium and the Myopic Choice models in terms of welfare implications. The framework adopted is a non-cooperative game in which two players with different preference orderings over outcomes move sequentially. We consider the combinations of the players' preference structures which generate the different plans and find games where there exist either one or two outcomes Pareto-dominant over Sophisticated Choice. On the one hand, this allows us to drop myopic behaviour as an explanation for choosing an outcome Pareto dominant over the Sophisticated-subgame perfect equilibrium model; on the other, it opens the question of extending the general definition of Resolute Choice as Pareto dominance, which allows discriminating choice between the two different Pareto dominant outcomes.

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1. Introduction

In the context of dynamic individual decision-making under risk and uncertainty, the model of Resolute Choice (McClennen, 1990) plays a very important role: it offers a solution to the inconsistency of the dynamic choices of the agent whose preferences violate Expected Utility Theory.

The present work extends the Resolute Choice model to an interactive context. The interest in considering the model from an interactive perspective comes from the temporal structure of the dynamic decision problem, and the possibility to interpret it as a problem of *intrapersonal* choice. In this perspective, the agent can be thought of as divided into a series of time-defined selves, each with its own preference structure[1]. Following this line of argument, we define a simple non-cooperative game in which two players move sequentially and have different preferences over future actions as the structure where to apply the model of Resolute Choice to interaction and compare it with the models of Myopic and Sophisticated behaviour. In order to do this, we work out all the combinations of the players' preferences which generate the different plans and all the game situations where there exist either one or two outcomes Pareto dominant over Sophisticated Choice.

On the same line as Grout's (1982) paper on dynamic choice under certainty, we find that in some decision trees not only myopic but also resolute behaviour can be Pareto superior to sophisticated behaviour.

Besides, the analysis of Resolute Choice in an interactive context suggests that the essential characteristic of Resolute Choice in interaction - the concept of Pareto optimality - may not be sufficient to predict choice in those game situations where there are *two* Pareto efficient outcomes. We suggest that the definition of Resolute Choice in interaction can be extended beyond straight Pareto optimality, allowing to overcome the puzzling result of a myopic outcome to be superior to sophistication (at least for those games where a resolute solution exists). One possibility is to make recourse to the concept of bargaining, which is somehow intrinsic to the model - Resolute Choice presupposes the existence of a bargain between the different selves around the Pareto dominant outcome(s).

In the following section, an overview of the Resolute Choice model is given. Section 3 extends the model to interaction and outlines the different game situations and plans, and section 4 concludes.

2. The model of Resolute Choice – from individual dynamic choice to interaction

The model of Resolute Choice (RC) is introduced by McClennen (1990) in the context of the debate on the normative validity of Expected Utility Theory. McClennen focuses on the discussion

[1] See for instance Grout (1982), Schelling (1984).

of Hammond's consequentialist argument (Hammond 1988a,b;1989), which he considers the most formal and complex of the pragmatic arguments in defence of the normative validity of the expected utility models of choice and of two of its axiomatic presuppositions - the principles of Weak Ordering and Independence.

According to this argument, violation of Weak ordering or Independence makes the agent's preferences subject to dynamically inconsistent changes. If this occurs, the agent may find himself in a dynamic choice situation in which what at the present moment he prefers to choose at a later point in time when he actually arrives at that point is not what he will prefer to choose. The problem with dynamically inconsistent shifts in preferences is that they are not compatible with the agent always maximising with respect to his preferences for consequences: the agent may act according to a plan that is strictly dominated by another available plan with respect to preferences for outcomes.

As this is not compatible with the maximisation of preferences for consequences at every point in time, the axioms of Expected Utility Theory must be taken as prescriptive for preference and choice[2].

McClennen's approach to the problem of dynamic inconsistency develops as a discussion of Hammond's defence of Expected Utility. McClennen constructs his argument by introducing a set of conditions for rational dynamic choice[3]. On the one hand the conditions provide a model for Hammond's consequentialist argument constructed in favour of the two axioms - McClennen shows that the two principles follow logically from the conjunction of the dynamic choice conditions. On the other hand they have implications for a more general pragmatic approach, as will be discussed below[4]. Despite their relevance for McClennen's argument, the principles for choice cannot be discussed in detail here. In our context they play an important role in a more general pragmatic approach, as they allow to evaluate from a pragmatic point of view different *approaches to choice* or *plans* or *strategies*.

In fact, even though an agent who does not conform to the two axioms of choice is liable to preference shifts, there exist strategies available to the agent which protect him from pragmatic difficulties. McClennen discusses the two approaches to choice which traditionally have been considered in the literature on dynamic choice and changing preferences (Strotz 1956; Hammond 1976): Myopic and Sophisticated Choice.

According to *Myopic Choice* (MC) the agent selects at each decision point those strategies which he judges acceptable from the perspective of that point. In this way, the myopic agent, in case of

[2] In Hammond (1988b) the author offers an axiomatic treatment of the principle of consequences in a dynamic choice context, and recovers the two expected utility axioms of Weak Ordering and Independence as theorems.
[3] Dynamic Consistency, Separability and Normal-Extensive Form coincidence.
[4] Another approach which studies how axioms of Expected Utility follow from assuming certain principles of dynamic choice is Cubitt (1996). For a discussion of this and other similar approaches see for example Starmer (2000).

preferences changing through time, may violate dynamic consistency, leaving ex post the plan adopted ex ante.

The agent can avoid this problem by anticipating how he will be disposed to choose in the future and acting according to *Sophisticated Choice* (SC). The sophisticated agent anticipates his future choice and chooses with a process of backward induction the best plan among those he is ready to follow to the end, rejecting those plans which imply a choice he anticipates he will not make. By making ex post choice behaviour constrain ex ante choice, he avoids violating dynamic consistency.

However, sophistication is not the only possible alternative to myopia that the agent can adopt to avoid inconsistent behaviour. In fact, the condition of dynamic consistency requires consistency between present and future choices, but it does not specify *how* this consistency is to be achieved. If for the sophisticated agent ex post behaviour constrains ex ante choice, it may well be that ex ante choice constrains ex post behaviour.

According to McClennen this is what characterizes *Resolute Choice* (RC). The resolute agent resolves to act according to a plan judged best from an ex ante perspective, and intentionally acts on that resolve when the plan imposes on him ex post to make a choice he disprefers. He is constrained ex post by what he judges ex ante to be the best available plan and thus avoids dynamically inconsistent behaviour.

Therefore, in a dynamic choice situation in which the agent's evaluation of prospects violates independence, the problem of dynamic inconsistency can be resolved in two ways:

- The agent can achieve dynamic consistency by adopting a sophisticated choice approach, taking the feasibility of the plans as conditioned by how his "future" self will be disposed to choose, therefore making ex post evaluation to control for ex ante choice;
- The agent can achieve dynamic consistency by adopting a resolute choice approach, taking the feasibility of the plans as conditioned by how his "past" self will be disposed to choose, therefore making ex ante evaluation to control for ex post choice.

While the sophisticated approach relies on a condition of separability between future preferences and background of earlier preferences, the resolute approach overcomes separability, by treating choice within the context of the decision problem *differently* from the way he would treat the same choice *abstractly* from that context[5].

McClennen's argument proceeds with comparing the different models of choice in terms of their pragmatic implications and shows that Resolute Choice is the only approach which does not put the agent into pragmatic difficulties, and is therefore (pragmatically) superior to both myopic and

[5] In the context of dynamic choice under risk and uncertainty, Machina (1989) develops a model similar to Resolute Choice. According to Machina, the dynamically inconsistent behaviour of the non-expected utility agent depends on an assumption regarding the way the agent reconsiders choice at a point within the decision tree - which is referred to as *consequentialism*. This assumption imposes on the agent to evaluate the tree starting at the decision point as a new tree, so that the strategy to be adopted at that point will depend only on the outcomes and probabilities of the new tree. In McClennen's terminology, this seems equivalent to the condition of separability.

sophisticated choice.

This pragmatic argument is of particular interest because it introduces the intrapersonal perspective and opens the possibility of extending the resolute choice model of behaviour to interaction. In order to see how it is important to recall that the argument on the pragmatic superiority of Resolute Choice is connected to the problem of its '*feasibility*': under what conditions can one expect the agent to *really* behave resolutely, that is to adopt a resolute approach to choice *and* implement it? In order to answer this question, it is necessary to recover the relevance of the *temporal dimension* of the dynamic decision problem. The dynamic choice situation is interpreted as a problem of *intrapersonal choice*. The agent is decomposed into a sequence of time-defined selves, each with its own set of preferences and interests, and the dynamic problem is viewed as a problem of coordination between these different selves. Sophisticated choice presupposes a separation between selves as deep as the separation between different individuals. Resolute choice presupposes the existence of a commitment or bargain between the different selves.

The concept of *intrapersonal optimality* allows establishing the conditions under which "the capacity for resolute choice might plausibly be exercised" (McClennen 1990, page 14): the agent will adopt and implement the Resolute Choice plan *if both the ex ante and ex post selves will gain prospects which are better for both of them*. That is, Resolute Choice will be possible under the condition that failure to behave resolutely will cost both the ex ante and ex post selves. In this sense, the criterion of intrapersonal optimality may provide at least a partial solution to the problem of feasibility[6].

3. Resolute Choice in interaction: the relevant game situations

As discussed above, McClennen's argument for feasibility through pragmatic justification establishes the real possibility for resolute choice and opens the possibility to extend the resolute choice approach to an interactive interpersonal situation.

The separation of selves suggests an analogy between the intrapersonal problem, in which a single agent faces a sequence of decisions over time, and that of different agents who have different preference orderings over various possible outcomes, and face the problem of coordinating their actions. A two-person sequential game is the analogue of the strategic situation in which a single

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[6] On the problem of feasibility one more consideration needs to be made. As mentioned above, McClennen defines and evaluates the different choice models in terms of the rational dynamic choice conditions. Therefore, an evaluation from a pragmatic perspective of the different models is closely related to the pragmatic evaluation of the dynamic choice conditions. Referring to Hume, McClennen considers a criterion of choice as rational if it induces the agent in a "choice of means sufficient to his ends". According to this view, no axiom qualifies as an axiom of rational choice, unless its violation induces the agent "to pursue his objectives less effectively than he could have under the same circumstances" (page 4) - then failing to maximize with respect to his preferences for outcomes. The implications for the debate on the normative validity of expected utility are substantial. (1) Agents whose evaluation methods deviate from expected utility axioms - and are placed in a situation where they will violate one of the rational choice conditions – do not behave irrationally at least insofar as they act according to a resolute plan. (2) Resolute Choice - which is pragmatically superior - is characterised by violation of separability. (3) Violation of separability cannot be considered as irrational, as the plausibility of that principle as a condition on rational choice can be questioned: its violation gives the agent an approach to choice which creates no pragmatic difficulties.

agent makes a sequence of choices. McClennen himself suggests that the model of sophisticated choice is the intrapersonal counterpart of a non-cooperative game where agents move in sequence and have different preferences.

The criterion of evaluation adopted in the context of interactive choice is the one of *Pareto optimality*, equivalent to the intrapersonal optimality principle in individual choice. According to McClennen, the strategies that two players adopt can be said to be *interpersonally optimal* if and only if there exists no alternative way of interacting whose associated prospect would be judged preferable by each agent. As the temporal structure of the intrapersonal choice problem suggests, the interactive analogue to the intrapersonal problem can be a non-cooperative ultimatum game where one player selects a strategy, and the other player chooses with full knowledge of the first player's move.

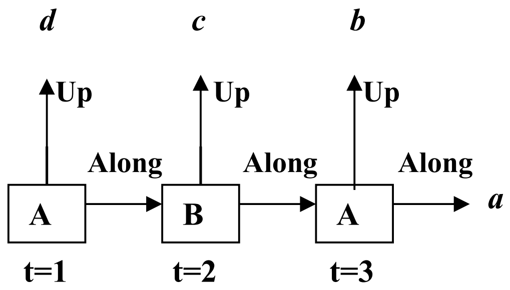
Following these considerations, we adopt a framework to analyse and compare the myopic, sophisticated and resolute models in interaction with a non-cooperative game in which players move sequentially and have different preferences over future actions. This decision tree approach is the one originally introduced by Hammond (1976) and Grout (1982)[7].

The decision tree consists of a set of plans (branches of the tree), and preferences over plans are represented by a strict ordering over the set of plans. Decisions are taken in discrete time; at each period *t* an agent takes a decision at that time. As Grout states "it is possible that the same agent may reappear to make decisions at a later date". A special case of this situation is the one in which the same agent makes decisions at every *t*, and "preferences change over time as a result of an endogenous or exogenous change of tastes" (page 83).

We consider a game with three decision nodes and two players, player A, choosing at the two decision nodes $t=1$ and $t=3$ whether to go Up (U) or Along (A), and player B, choosing at $t=2$ whether to go Up or Along. The preference structure is equivalent to the case where decisions are taken by a different agent at each *t*, and the two agents who move at $t=1$ and $t=3$ exhibit the same preference pattern. That is, the situation of a single agent's change of preferences is equivalent to the one of different preferences for different (in this case two) agents. In all cases, the overall preference structure is one of preferences changing through time.

[7] A similar game structure in a situation of decision under risk - with fixed tastes but non-expected utility preferences - is also adopted by Karni and Safra (1989a, 1989b, 1990) in their behavioural consistency model, where the decision maker is represented by a set of agents, each at a different decision node. In the situation of interaction of interest here, the same agent reappears to make decisions at a later date. This three-node game is a shortened version of the centipede game in the experiment by McKelvey and Palfrey (1990).

In the following game



interaction between the two players yields one of the four possible outcomes *a*, *b*, *c*, *d* depending on the plan the players choose at each decision node and on the players' preference structures. For example, suppose that myopic players choose at each *t* that plan which is most preferred at *t*; if the preference orderings are such that for A, $b \succ a \succ d \succ c$ and for B, $a \succ d \succ c \succ b$, the outcome of the MC plan would be *b*.

A situation of sequential choice with dynamically changing preferences is generally characterized by the possibility of essential inconsistency between the agents' preferences[8]. As discussed above, two outcomes have been analysed in the literature, the *myopic* or *naive* outcome, and the *sophisticated* or *perfect equilibrium* outcome. If there is no inconsistency the myopic and sophisticated plans coincide (Hammond 1976)[9]. In situations where they *do not* coincide, one can address the question of how the different outcomes compare in terms of *Pareto efficiency*.

However, preference structures of the kind considered might give rise to another possible plan that, if adopted and carried out, will result in an outcome Pareto dominant over the sophisticated equilibrium, the *resolute plan*. As discussed above, this plan requires the agent to act resolutely on its adoption, by choosing a dispreferred (non-maximizing) action at some decision node. If the agent behaves according to RC he will choose to go for the outcome that is more preferred at the initial decision node *even if it implies making a choice he dislikes at some future decision node*[10].

According to Grout's results, in all decision trees *with at least three decision nodes*, there exist preference structures such that deviation from equilibrium behaviour by every agent results in a better outcome for all agents. In other terms, Grout proves that (in all but the most trivial games)

[8] In the case of a single player, the possibility of inconsistency in a dynamic decision without risk arises as strict preferences change over time as a result of changing tastes. The concept of essential inconsistency between the agents' preferences, discussed by Grout, is introduced by Hammond (1976) in the "potential addict" example. Suppose there are three plans (leading to outcomes) *a*, *b* and *c*, and the agent's preferences are such that - at $t=1$ - $a \succ b$, $a \succ c$ and $c \succ b$, while at $t=2$, $b \succ a$; then, a contrast occurs between the agent's preferences $a \succ b$ at $t=1$ and $b \succ a$ at $t=2$.

[9] In the example above they do not coincide and the SC-subgame perfect equilibrium is *d*.

[10] In the example above the RC plan would lead to *a*.

there exist preference structures such that the myopic outcome is Pareto superior to the sophisticated equilibrium (page 85)[11].

Grout's results can be extended to the interpersonal decision problem above, which is analogous both to the decision problem where the same agent moves at every node and to the problem where there is a different agent at each node. The myopic, sophisticated and resolute choice models can be extended to the two-person game.

Extending Grout's result to the interpersonal version of the decision problem, we find that there exist preferences for the two players such that myopic and resolute choice strategies can lead the agent to outcomes that are Pareto dominant over the sophisticated choice-backward induction outcome. The strategies can be interpreted as follows. If the agent is myopic, he will rank options at any given node only according to the most preferable outcome reachable by each option. If the agent is sophisticated, he will take into account the behaviour of the other player, work through backward induction and choose the more preferred outcome he can reach given that behaviour. If the agent is resolute, he will aim at the existing Pareto dominant outcome(s). The resolute outcome implies that both players coordinate their actions on the achievement of the Pareto dominant outcome(s), *under the implicit agreement of performing actions that are dis-preferred (non-maximizing) from each player's separate perspective.*

In order to compare the outcomes of the myopic, sophisticated and resolute choice plans, we outline the players' preference structures that generate the different plans.

A detailed description of all the relevant preference combinations is given in Table 1 in the Appendix.

Given the interaction situation represented by the non-cooperative game above, we have considered at first all the possible combinations of the preference orderings over the outcomes *a*, *b*, *c* and *d* between the two players A and B. Among all the possible combinations, we have considered only those cases (72) in which both players have either *a* or *b* as their first preference so that both players will have a preference for moving up to the end of the tree. Among these, we have ruled out as irrelevant the ones in which the myopic, sophisticated and resolute plans coincide, that is, there is no outcome Pareto dominant over sophisticated choice. This occurs when:

(i) player B has either *a* or *b* as his second preference (24 cases);

(ii) player B's preferences are such that:

- $a \succ c$ in those cases where A's first preference is *a* (6 cases). In these cases, outcome *a*, which is the sophisticated outcome, is also the first preference for player A. Therefore, no outcome

[11] Grout's results are extended by Dardanoni (1990) to the case of unchanging preferences under risk.

Pareto dominant over sophisticated choice exists, as it is not possible to increase player B's payoff without making A worse off.

- $b \succ c$ in those cases where A's first preference is *b* (6 cases). In these cases, outcome *b*, which is the sophisticated outcome, is also the first preference for player A. As above, no outcome Pareto dominant over sophisticated choice exists.

In the remaining (36) cases, myopic choice and resolute choice do not coincide with sophisticated choice. It is possible to outline four groups of cases:

1) SC = *c*; MC = *a* (9 cases);

(i) No outcome identifiable as RC exists; MC is not Pareto dominant over SC (6 cases);

(ii) MC is not Pareto dominant over SC; RC = *b* (3 cases).

2) SC = *c*; MC = *b* (9 cases);

(i) No outcome identifiable as RC exists; MC is not Pareto dominant over SC (6 cases);

(ii) MC is not Pareto dominant over SC; RC = *a* (3 cases).

3) SC = *d*; MC = *a* (9 cases);

(i) No outcome identifiable as RC exists; MC is not Pareto dominant over SC (4 cases);

(ii) MC is not Pareto dominant over SC; RC = *b* (2 cases);

(iii) MC is Pareto dominant over SC, and the RC outcome coincides with MC (2 cases)[12];

(iv) There are two outcomes Pareto dominant over SC, MC = *a* and *b*; both are identifiable as RC (1 case).

4) SC = *d*; MC = *b* (9 cases)

(i) No outcome identifiable as RC exists; MC is not Pareto dominant over SC (4 cases);

(ii) MC is not Pareto dominant over SC; RC = *a* (2 cases);

(iii) MC is Pareto dominant over SC, and the RC outcome coincides with MC (2 cases);

(iv) There are two outcomes Pareto dominant over SC, MC = *b* and *a*; both are identifiable as RC (1 case).

With respect to the problem of comparing the outcomes of the myopic, sophisticated and resolute plans, four possibilities emerge from the above preference combinations:

(i) No outcome which Pareto dominates the sophisticated equilibrium exists;

(ii) The outcome which Pareto dominates the sophisticated equilibrium is the RC outcome (*a* or *b*);

(iii) The outcome which Pareto dominates the sophisticated equilibrium corresponds to the myopic

[12] Note that one of these two cases of preference structures - where for A: $a \succ d \succ c \succ b$ and for B: $b \succ c \succ a \succ d$ - is exactly the example given by Grout in order to show that there exist preference structures such that the myopic outcome is Pareto superior to the sophisticated equilibrium.

outcome;

(iv) There are two outcomes which Pareto dominate the sophisticated equilibrium, the myopic and the resolute plan (*a* or *b*).

Consider now the more interesting preference combinations in groups (3) and (4) above. In these cases, A's preference structure ($d \succ c$) is such that player A's decision not to play the perfect equilibrium d is risky, i.e. A loses with respect to *d* if B decides to end the game and goes for *c*. A's decision to give the move to B might be interpreted by B as a signal that A intends to go for a resolute outcome.

From the analysis of the cases considered above, the following points emerge:

1) The situations in which no outcome Pareto dominates SC, even when MC does not coincide with SC are of no interest here.

2) When considering all the different preference structures it emerges - in an extension of Grout's analysis - that there are *other* outcomes Pareto dominant over SC which are *not* MC. On the one hand, this result offers support to the Resolute Choice plan; on the other, it suggests that MC might be reinterpreted as Resolute Choice *whenever it is Pareto dominant over sophistication*. The definition of Resolute Choice which identifies it with Pareto dominance allows leaving aside considerations about the adoption of a myopic plan which can be dominant over sophistication[13].

3) In groups (3) and (4), the adoption of a resolute plan leads to the only Pareto-dominant outcome in cases under (ii). However, the interpretation of resolute choice as the attempt to achieve a Pareto dominant outcome *is not sufficient* to determine which of the *two* Pareto optimal outcomes will be chosen by the agent in the case of the preference combinations under (iv), when there are *two* Pareto optimal outcomes and identification of RC with Pareto dominance allows leaving aside considerations about myopic choice.

Therefore, a more specific interpretation of Resolute Choice should be considered - which might account for the cases where more than one outcome Pareto dominates the sophisticated equilibrium. Consequently, two definitions of Resolute Choice could be given.

1) According to the wider interpretation, the adoption of Resolute Choice requires both players to coordinate on the achievement of the Pareto-dominant outcome, under the implicit agreement of performing actions that are non-maximising from each player's separate perspective.

2) When the above definition is not sufficient to determine which of the two Pareto-dominant outcomes will be chosen, we can presume that a resolute player will choose that Pareto-dominant outcome which he would choose if he were playing a bargaining game where agreements are binding. For instance, we may assume that he will play according to the predictions of a *Nash*

[13] A result which Grout himself defines as "somewhat counterintuitive" (page 85).

bargaining model, choosing the Pareto optimal outcome which corresponds to the Nash bargaining solution, where the two Pareto dominant-resolute outcomes correspond to the bargaining set and the sophisticated equilibrium outcome corresponds to the disagreement outcome.

4. Conclusion

In this work, we make an attempt to extend the model of Resolute Choice to a two-player three-node sequential game. This allows also us to compare the resolute solution to the subgame-perfect backward-induction sophisticated solution from a welfare point of view, as Grout (1982) does with the myopic model.

Considering all the different preference structures which generate the different plans it emerges - in an extension of Grout's analysis - that there are *other* outcomes Pareto dominant over Sophisticated Choice which are *not* Myopic Choice. On the one hand, this result offers support for the existence of the Resolute Choice plan; on the other, it suggests that Myopic Choice might be reinterpreted as Resolute Choice *whenever it is Pareto dominant over sophistication*. Therefore, the definition of Resolute Choice as Pareto dominance allows overcoming the counterintuitive situation that "the result of individuals not being myopic but using all the information they have available and consequently making decisions with completely correct expectations of the results of their actions will be that everyone is made strictly worse off" (Grout 1982, page 85).

Moreover, from the analysis of the different preference combinations, it also emerges that there are cases where there are *two* outcomes Pareto dominant over the sophisticated equilibrium. This result opens the question of refining the definition of Resolute choice in interaction beyond the wide definition of the search for Pareto optimality, in order to define which of the two outcomes should be chosen. One suggestion is to make recourse to the concept of Nash bargaining solution.

Appendix

Table 1 – Preference combinations which allow to compare MC, SC and RC

	(i) No outcome Pareto dominant over SC	(ii) 1 outcome Pareto dominant over SC (different from MC)	(iii) 1 outcome Pareto dominant over SC (equivalent to MC)	(iv) 2 outcomes Pareto dominant over SC (1 is equivalent to MC)
(1) SC : c MC : a	A: a≻c≻b≻d B: b≻c≻a≻d A: a≻c≻b≻d B: b≻c≻d≻a A: a≻c≻b≻d B: b≻d≻c≻a A: a≻c≻d≻b B: b≻c≻a≻d A: a≻c≻d≻b B: b≻c≻d≻a A: a≻c≻d≻b B: b≻d≻c≻a	A: a≻b≻c≻d B: b≻c≻a≻d A: a≻b≻c≻d B: b≻c≻d≻a A: a≻b≻c≻d B: b≻d≻c≻a		
(2) SC : c MC : b	A: b≻c≻a≻d B: a≻c≻b≻d A: b≻c≻a≻d B: a≻c≻d≻b A: b≻c≻a≻d B: a≻d≻c≻b A: b≻c≻d≻a B: a≻c≻b≻d A: b≻c≻d≻a B: a≻c≻d≻b A: b≻c≻d≻a B: a≻d≻c≻b	A: b≻a≻c≻d B: a≻c≻b≻d A: b≻a≻c≻d B: a≻c≻d≻b A: b≻a≻c≻d B: a≻d≻c≻b		
(3) SC : d MC : a	A: a≻d≻c≻b B: b≻c≻d≻a A: a≻d≻c≻b B: b≻d≻c≻a A: a≻d≻b≻c B: b≻c≻d≻a A: a≻d≻b≻c B: b≻d≻c≻a	A: a≻b≻d≻c B: b≻c≻d≻a A: a≻b≻d≻c B: b≻d≻c≻a	A: a≻d≻c≻b B: b≻c≻a≻d A: a≻d≻b≻c B: b≻c≻a≻d	A: a≻b≻d≻c B: b≻c≻a≻d
(4) SC : d MC : b	A: b≻d≻c≻a B: a≻c≻d≻b A: b≻d≻c≻a B: a≻d≻c≻b A: b≻d≻a≻c B: a≻c≻d≻b A: b≻d≻a≻c B: a≻d≻c≻b	A: b≻a≻d≻c B: a≻c≻d≻b A: b≻a≻d≻c B: a≻d≻c≻b	A: b≻d≻c≻a B: a≻c≻b≻d A: b≻d≻a≻c B: a≻c≻b≻d	A: b≻a≻d≻c B: a≻c≻b≻d

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The author states that there is no conflict of interest.

References

Brandts, J, Charness, G. (2000), "Hot versus Cold: Sequential Responses in Simple Experimental Games", *Experimental Economics*, 2(3), 227-38.

Cason, T.N. Mui, V.-L. (1998), "Social Influence in the Sequential Dictator Game", *Journal of Mathematical Psychology*, 42, 248-65.

Cubitt, R.P. (1996), "Rational Dynamic Choice and Expected Utility Theory", *Oxford Economic Papers*, 48(1), 1-19.

Dardanoni, V. (1990), "Implications of Behavioral Consistency in Dynamic Choice under Uncertainty", *Theory and Decision*, 29, 223-234.

Grout, P. (1982), "Welfare Economics and Decision Making with Changing Preferences", *Review of Economic Studies*, 49, 83-90.

Hammond, P.J. (1976), "Changing Tastes and Coherent Dynamic Choice", *Review of Economic Studies*, 43, 159-73.

Hammond, P.J. (1977), "Dynamic Restrictions on Metastatic Choice", *Economica*, 44, 337-50.

Hammond, P.J. (1982), "Consequentialism and Rationality in Dynamic Choice under Uncertainty", *Institute for Mathematical Studies in the Social Sciences, Economics Technical Report n° 387*, Stanford University.

Hammond, P.J. (1988a), "Consequentialism and the Independence Axiom", in Munier, B.R. (ed), *Risk, Decision and Rationality*, Dordrecht, Reidel, pp. 503-16.

Hammond, P.J. (1988b), "Consequentialist Foundations for Expected Utility", *Theory and Decision*, 25, 25-78.

Hammond, P.J. (1989), "Consistent Plans, Consequentialism, and Expected Utility», *Econometrica*, 57, 1445-49.

Karni, E., Safra, Z (1989a), "Dynamic Consistency, Revelations in Auctions, and the Structure of Preferences", *Review of Economic Studies*, 56, 421-33.

Karni, E., Safra, Z (1989b), "Ascending Bid Auctions with Behaviourally Consistent Bidders", *Annals of Operations Research*, 19, 435-46.

Karni, E., Safra, Z (1990), "Behaviourally Consistent Optimal Stopping Rules", *Journal of Economic Theory*, 51, 391-402.

Machina M.J. (1989), "Dynamic Consistency and Non-Expected Utility Models of Choice under Uncertainty", *Journal of Economic Literature*, 27(4), 1622-1668.

McClennen, E.F. (1990), *Rationality and Dynamic Choice*, Cambridge, Cambridge University Press.

McKelvey, R.D. and Palfrey, T.R. (1990), “An Experimental Study of the Centipede Game”, *Econometrica*, 60(4), 803-36.

Roth, A.E. (1995), “Bargaining Experiments”, in Kagel, J., Roth, A.E. (eds), *Handbook of Experimental Economics*, Princeton, Princeton University Press.

Roth, A.E., Malouf M.W.K. (1979), "Game-theoretic models and the role of information in bargaining", *Psychological Review*, 86, pp. 574-94.

Starmer, C. (2000), “Developments in Non-Expected Utility Theory: The Hunt for a Descriptive Theory of Choice under Choice under Risk”, *Journal of Economic Literature*, 38(2), 332-382.

Schelling (1984), “Self-Command in Practice, in Policy, and in a Theory of Rational Choice”, *American Economic Review*, 74(2), 1-11.

Strotz, R.H. (1956), "Myopia and Inconsistency in Dynamic Utility Maximization", *Review of Economic Studies*, 23, 165-80.