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The Polar Contradiction Between “Power” And “Justice”

Harald Wiese¹ 

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Abstract

One might surmise that distributions (of payoffs) that result from (i) “power” or (ii) “justice” are not systematically related to each other. However, I claim the existence of a polar contradiction between these two types of distributions. The framework for my assertion is similar to the one of (Wiese et al. (eds), *Rationality in Social Science: Foundations, Norms, and Prosocial Behavior*, Springer, 2021), where interpersonal comparability of utility (ICU) is defended. ICU is important in the contexts of both bargaining (the power perspective) and welfare (the justice point of view). The bargaining-framework is evoked by the Shapley value from Cooperative Game Theory and in a sociological paper by Emerson. The particular welfare perspective taken in this paper is due to Harsanyi. The current paper (but not the former one) argues for a polar contradiction in the following sense: ICU parameters in utility functions that make one bargaining agent obtain a large share of a “pie” are exactly those that attribute a small share to the very same individual from a welfare perspective.

Keywords Emerson · Harsanyi · Balancedness · Shapley value · Interpersonal comparability of utility

JEL Classification C71 · C78 · D63

1 Introduction

Many bargaining models on the one hand and practically all welfare models on the other hand assume or lead to Pareto efficiency. This is also true for the models discussed in the present paper. Apart from this commonality, it is not obvious how distributions (of payoffs) which result from (i) “power” in bargaining situations or from (ii) “justice” in a welfare perspective are related. In particular, are there any reasons why utility parameters that make one agent obtain a large share of a “pie” from

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bargaining also lead to a large share for that agent from a welfare-maximization perspective? This paper makes just the opposite claim. There exists a polar contradiction between these two types of distributions.

The framework for my assertion is similar to the one of Wiese (2021), where interpersonal comparability of utility (ICU) is defended. Indeed, ICU is important in the contexts of both bargaining (the power perspective) and welfare (the justice point of view). In particular, Harsanyi (1977, chapter 4) argues that ICU is indispensable when we talk about justice. Nozick does not contradict, but he suggests to find out about ICU without the intervening and possibly distorting influence of normative beliefs (see Nozick (1985, p. 169)). With respect to bilateral monopoly, Nozick (1985, p. 169) remarks that “we lack a fully adequate theory [...] of where on the contract curve a bargain will be struck. [...] The question is: who diswants no agreement more?”.

Most probably, Nozick was unaware of the approaches by Emerson and Shapley, who independently contribute to ICU in the bargaining framework. These links and many others¹ may not be surprising in view of Nozick’s (1985, p. 161) remark on ICU: “we make such comparisons everyday on an ad hoc and intuitive basis. It would be surprising if our ordinary (and often apparently obvious) judgments were completely built on sand.”

In the next section, I will briefly explain Emerson’s approach to ICU. That section does not substantially go beyond Wiese (2021). The section after next briefly sketches Harsanyi’s approach and the ensuing polar-contradiction thesis, not present in Wiese (2021). Imagine a pie to be distributed between two people endowed with utility functions. These utility functions employ ICU parameters. It turns out that the ICU parameters that make one agent obtain a large share of the pie in Emerson bargaining are exactly those that attribute a small share to the very same individual from a Harsanyi welfare perspective.

2 Emerson’s and Shapley’s Use of ICU in Bargaining

Emerson (1962) deals with power-over and dependence. For him, power-over is dependency reversed. The author convincingly argues that unbalanced dependence relations (or unbalanced power-over relations) tend to balance out. For the purpose of this paper, it is sufficient to illustrate Emerson’s idea by an example taken from his paper. Imagine two children *A* and *B* that often play together. Since they differ in their preferences, they take turns in playing their respective favorite games. Now, assume that child *B* in the *A* – *B* relationship finds another playing buddy *C*. Then, power-over between *A* and *B* becomes unbalanced. Child *A* would suffer more if *B*

¹ In the context of a dynamic conception, balancing also underlies the thinking of the famous anthropologist Malinowski (1926, p. 40): “[...] most if not all economic acts are found to belong to some chain of reciprocal gifts and counter-gifts, which in the long run balance, benefiting both sides equally”. Wiese (not dated) adduces yet another independent link, found in the Old Indian philosophical literature (sometime after 700 BCE).

decides not to play with A any more, than the other way around. After all, B can turn to her new-found alternative C . In that situation, argues Emerson, balancing operations set in that lead to B imposing her favorite game on A more often than before. One might imagine that power over can be measured by way of “where would you be without me” payoff differences. B would suffer more from A ’s withdrawal than the other way around. Importantly, these payoff differences are meaningless unless understood in an interpersonally comparative manner.

A second major contributor to the issue at hand is Shapley (1953). The Shapley value is definable in different (but of course equivalent) manners. Here, I focus on what might be called the equal-damage axiom. If a player A withdraws from a game, the damage to some other player B in terms of B ’s Shapley payoff equals the damage that player A suffers should player B withdraw. The definition of the Shapley value in terms of this axiom is due to Myerson (1980). There exists a close link between Emerson and Shapley, which was not stated in Emerson’s or Myerson’s papers and, to the best of my knowledge, has been observed by Thomas Voss in a private communication for the first time. While Emerson is concerned with the forces that bring about a balanced situation, the Shapley value fulfills the property of balancedness, which we addressed as the equal-damage axiom above. Thus, both Emerson and Shapley employ ICU.

To my mind, balancedness is a very fruitful solution concept. I will now illustrate with a two-player two-good Edgeworth box example.² Two players A and B share a pie of size one in two states of the world 1 and 2. The probability for state 1 is π . Let a_1 and a_2 denote A ’s shares in the two states, and let b_1 and b_2 stand for B ’s shares in the two states. We assume $0 < a_i, b_i < 1$ and $a_i + b_i = 1$ for $i = 1, 2$. Similar properties hold for the players’ endowments that are denoted by \bar{a}_i, \bar{b}_i for $i = 1, 2$. Furthermore, assume von-Neumann-Morgenstern utility functions u and v for players A and B , respectively. The two players have the utility functions

$$U^A(a_1, a_2) = \pi u(a_1) + (1 - \pi)u(a_2)$$

and

$$U^B(b_1, b_2) = \pi v(b_1) + (1 - \pi)v(b_2)$$

In this context, an Emerson trade fulfills the equal-damage property

$$U^A(a_1, a_2) - U^A(\bar{a}_1, \bar{a}_2) = U^B(b_1, b_2) - U^B(\bar{b}_1, \bar{b}_2)$$

Let us first examine the implications of Pareto efficiency. Consider the specific von-Neumann-Morgenstern utility functions u and v which are defined by $u(a) = \alpha \ln(a)$ and $v(b) = \beta \ln(b)$ with $\alpha, \beta > 0$. One obtains Pareto efficiency iff

² Wiese (2021) sketches how balancedness might be employed in Edgeworth-box bargaining and in dynamic bargaining as introduced by Ståhl and Rubinstein. While Ståhl (1972) introduced and solved the finite alternating-offer bargaining model, Rubinstein (1982) presented and solved the infinite horizon version.

$$\frac{a_2}{a_1} = \frac{b_2}{b_1}$$

holds. By $a_i + b_i = 1$ for $i = 1, 2$, we obtain $a_1 = a_2$ for any Pareto optimum. That is, the risk-averse agents do not bear any risk. Note that neither α nor β enter the Pareto-optimality condition. Note also that our example does not depend on the von-Neumann-Morgenstern framework; any sufficiently convex preferences represented by the utility functions U^A and U^B would do.

Pareto optimality plus the equal-damage property yields

$$\alpha \ln(a_1) - \alpha [\pi \ln(\bar{a}_1) + (1 - \pi) \ln(\bar{a}_2)] = \beta \ln(1 - a_1) - \beta [\pi \ln(\bar{b}_1) + (1 - \pi) \ln(\bar{b}_2)]$$

and hence

$$[EE] \quad \frac{\alpha}{\beta} = \frac{\ln(1 - a_1) - [\pi \ln(\bar{b}_1) + (1 - \pi) \ln(\bar{b}_2)]}{\ln(a_1) - [\pi \ln(\bar{a}_1) + (1 - \pi) \ln(\bar{a}_2)]}$$

where EE stands for Edgeworth-Emerson.

Now, the larger α/β , the smaller $a_1 = a_2$. Depending on one's stand with respect to ICU, one may like or dislike this property. I argue here, similar to Wiese (2021), that a player who does not "care a lot" about the pie might be expected to obtain a larger share. After all, he can tell the other player: "You have more to lose than me if we do not agree." Indeed, this argument would be supported by Nozick (cited in the introduction), who asks the methodological question of "who diswants no agreement more?" Clearly, our result and Nozick's intuition stand in contradistinction to outcomes from Nash bargaining or Kalai-Smorodinsky bargaining (see Roemer (1996, pp. 51–93)), where $\alpha, \beta > 0$ would be irrelevant. This irrelevance should not come as a surprise because neither Nash nor Kalai-Smorodinsky use interpersonal comparison of utilities and therefore, distributive outcomes of the different kinds of models cannot be compared directly.

3 Harsanyi Welfare Maximization and The Polar-Contradiction Thesis

Let us now turn to Harsanyi's idea of defending utilitarianism by assuming that agents make their ethical choices "behind a veil of ignorance". In the context of the simple model sketched above, Harsanyi would assume that the two agents have the same probability of finding themselves in the positions of players A and B , including the utility functions. Arguably, they would then both support the same consumption bundle (a_1, a_2) that maximizes welfare

$$W = \frac{1}{2} [\pi u(a_1) + (1 - \pi) u(a_2)] + \frac{1}{2} [\pi v(1 - a_1) + (1 - \pi) v(1 - a_2)]$$

Of course, one does not need to subscribe to welfare defined in this particular manner. Roemer (1996, pp. 138–150) critically assesses Harsanyi's utilitarianism and other

attempts to defend utilitarianism by Harsanyi and other authors. Sidelining these issues and using the von-Neumann-Morgenstern utility functions given in the previous section, welfare maximization amounts to

$$[HM] \quad \frac{\alpha}{\beta} = \frac{a_1}{1 - a_1} = \frac{a_2}{1 - a_2}$$

where HM stands for Harsanyi maximization. Pareto optimality holds.

For the purpose of this paper, the main conclusion immediately follows from a comparison of [EE] and [HM]: The larger α/β , the smaller (the larger) player A's share of the pie in Edgeworth-Emerson bargaining (under Harsanyi welfare maximization). I call this the ICU polar contradiction between Emerson's and Harsanyi's approaches.

The polar contradiction identified in the present paper clearly vindicates Nozick (1985, p. 169) who suggests to "triangulate"—employing the word used by Nozick—without the intervening and distorting influence of normative beliefs. However, it is not clear how a normative approach might help to find out about ICU.

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