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ABSTRACT

Theoretical Unification in Justice and Beyond*

The goal of scientific work is to understand more and more by less and less. In this effort, theoretical unification plays a large part. There are two main types of theoretical unification – unification of different theories of the same field of phenomena and unification of theories of different fields of phenomena. Both types are usually a surprise; even when vigorously pursued, their form, when they finally appear, may differ radically from preconceptions. This paper examines a series of twenty-one unification surprises in the study of justice and beyond, sixteen in the study of justice and five in the unification of three fundamental sociobehavioral forces – justice, status, and power – and the subsequent unification of the three sociobehavioral forces with identity and with happiness.

JEL Classification: C02, D1, D31, D6, D8, I3, J31

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1. INTRODUCTION

The goal of scientific work is to understand more and more by less and less. In this effort, theoretical unification plays a large part. There are two main types of theoretical unification – unification of different theories of the same field of phenomena and unification of theories of different fields of phenomena. In both, the unification may be of entire theories or of elements of theories. Both types are usually a surprise; even when vigorously pursued, their form, when they finally appear, may differ radically from preconceptions.¹

In both types of unification, there are three main kinds of unification operations -- linking postulates from two or more theories, linking predictions from two or more theories, and linking postulates from one or more theories to predictions from a different theory or set of theories, as shown in Figure 1. Alternatively, the unification may involve new operations that do not fit neatly into the extant frameworks. Indeed, the unification operations often have the character of surprises.

– Figure 1 about here –

This paper examines a series of twenty-one unification surprises in the study of justice and beyond, sixteen in the study of justice and five in the unification of three sociobehavioral forces – justice, status, and power – and the subsequent unification of the three fundamental sociobehavioral forces with identity and with happiness. The first set of unification surprises extended the scope of justice theory and the second set unified several theories, enlarging the

¹ The terms “theoretical integration” and “theoretical unification” are used interchangeably, as in most scientific and philosophical accounts in both the physical sciences (e.g., discussions of electromagnetism and of the electroweak theory) and the social sciences (e.g., Fararo and Skvoretz 2002). This paper, however, leans toward “theoretical unification”, given that “integration” is much used in at least two other important senses, the mathematical operation in calculus and the pivotal social process in the sociobehavioral sciences.

field of phenomena covered by the one theoretical umbrella.

The paper is organized as follows: Section 2 provides brief background material for the sixteen unification surprises in the study of justice, which are presented in Section 3. Similarly, Section 4 provides brief background material for the five further unification surprises beyond the world of justice, which are presented in Section 5. The exposition mirrors the progressive enlargement of the scope of justice theory and the unification of justice, status, power, identity, and happiness. Thus, we start with the most particular and proceed to the most general.

2. THE WORLD OF JUSTICE

To place the justice unification surprises in context, we provide a brief overview of justice analysis. The objective of justice analysis is to describe and understand the operation of the human sense of justice. To that end, justice researchers address four central questions (compiled by Jasso and Wegener 1997):

1. What do individuals and societies think is just, and why?
2. How do ideas of justice shape determination of actual situations?
3. What is the magnitude of the perceived injustice associated with departures from perfect justice?
4. What are the behavioral and social consequences of perceived injustice?

The first and third questions focus on justice ideas and judgments, while the second and fourth questions focus on behaviors that are (partly) based on justice ideas and judgments. For example, activities which directly or indirectly shape actual incomes (wage-setting, consumption decisions) may be rooted, in part, in ideas of justice; and the experience of injustice may be among the determinants of participating in protest movements.

Traditionally, justice analysis has distinguished among the things that arouse the sense of justice, assigning distinct subfields to each: benefits and burdens and their distribution, the focus of distributive justice; punishments and their distribution, studied in retributive justice; and procedures, analyzed in procedural justice. A hallmark of distributive justice and of much of retributive justice is that the benefits, burdens, and punishments are quantitative variables, more specifically, personal quantitative characteristics – things of which there can be more or less or on whose hierarchies or distributions individuals can rank higher or lower.²

Justice analysis identifies the key ingredients in justice processes and suggests that each of the four questions may be addressed by a system of generalized equations. Thus, the framework for justice analysis provides the fundamental building blocks -- fundamental actors, quantities, matrices, distributions, and functions. For example, in the distributive-retributive domain, there are two fundamental actors -- the observer and the rewardee -- and three fundamental quantities -- the actual reward, the just reward, and the justice evaluation.³

In the distributive-retributive domain, the first question is addressed by the observer-specific just reward function (a formalization of the referential structure postulated by Berger et

² The study of justice covers both meanings of the term “distribution”: (1) the “proper-name” distribution of the reward amounts received by particular individuals; and (2) the “anonymous” frequency distribution of reward amounts. As pointed out by Chipman and Moore (1980:402), the English language unfortunately has a single term for both meanings, in contrast to the French (repartition and distribution, respectively). Note that the “proper-name” distribution corresponds to the principles of microjustice – “who should get what, and why” – and the “anonymous” distribution corresponds to the principles of macrojustice – “what should the distribution look like” – following the distinction introduced by Brickman et al. (1981) and elaborated in Jasso (1983a).

³ Sometimes there is a third actor – the allocator. In general, the allocator need not be a human person; it may be society or a deity. If human, the allocator need not be alive, as in the case of bequests and inheritance.

al. 1972), which expresses (the observer’s idea of) the just reward as a function of reward-relevant characteristics, and the observer-specific just reward distribution, which represents (the observer’s idea of) the just distributional pattern. Parameters of the just reward function provide estimates of the principles of microjustice; and parameters of the just reward distribution provide estimates of the principles of macrojustice.

The just reward function is written:

$$C = C(\mathbf{X}, \mathbf{Q}; \epsilon), \tag{1}$$

where C denotes the just reward, \mathbf{X} denotes a vector of reward-relevant personal and situational characteristics, and ϵ denotes a stochastic error.

Meanwhile, the answer to the third central question – the justice evaluation – is a spartan bridge that connects the rich and sometimes raucous and seemingly unruly worlds of the first and fourth questions:



For example, in the realm of distributive justice the justice evaluation function (JEF) represents the justice evaluation as a function of the comparison of the actual reward and the just reward (Jasso 1978, 1999),

$$\textit{justice evaluation} = \theta \ln \left(\frac{\textit{actual reward}}{\textit{just reward}} \right), \tag{3}$$

where θ is the Signature Constant, whose sign is positive for goods and negative for bads and whose absolute value measures the observer’s expressiveness. In turn, the justice evaluation is followed by a myriad individual and social phenomena, from emotions to revolution. As will be seen, many of the unification surprises in the field of justice center on the benefits and burdens,

punishments, and procedures, and the justice evaluations about them, together with the train of consequences triggered by the justice evaluation.

The logarithmic-ratio specification in (3) possesses properties sufficiently appealing that Jasso (1978) proposed it as a universal Law of Justice Evaluation and quickly used it as the first postulate in a new theory (Jasso 1980).

Some properties of the log-ratio specification of the justice evaluation function are: First, it provides an exact mapping from combinations of A and C to the justice evaluation J , with zero representing the point of perfect justice, positive numbers representing degrees of unjust overreward, and negative numbers representing degrees of unjust underreward. Second, it embodies the property that deficiency is felt more keenly than comparable excess – deficiency aversion (and loss aversion, viz., losses are felt more keenly than gains). These properties were quickly discussed (e.g., Wagner and Berger 1985) and remain the most often cited (Whitmeyer 2004). Third, it is the only function which satisfies two other desirable conditions, additivity (the effect of A on J is independent of the magnitude of C , and the effect of C on J is independent of the magnitude of A) and scale invariance (expressing A and C in different units – say, yen instead of dollars – does not alter J). Fourth, the function is symmetric; that is, if the actual holding A and the comparison holding C trade places, the outcome is the negative of J . Two other properties are described below in Unification Surprises 8 and 9 (unification of rival conceptions of the justice evaluation as a ratio and as a difference, and unification of the logarithmic and power-function specifications of its functional form, respectively). Recently, another (almost magical) property has come to light, linking the JEF and the Golden Number, $(\sqrt{5}-1)/2$. Further detail on these properties is found in Jasso (1978, 1990, 2006c).

The new justice theory yields such predictions as: (1) parents of nontwin children will spend more of their toy budget at an annual gift-giving occasion than at the children's birthdays; (2) among World War II veterans, American soldiers are more vulnerable to post-traumatic stress syndrome than are German soldiers; (3) in epochs when wives predecease husbands, mothers are honored more than fathers, but in epochs when husbands predecease wives, fathers are honored more than mothers; (4) interracial conflict is more severe when the overall income inequality is greater; and (5) the just society has a mixed government.⁴

The justice evaluation also leads to several societal justice indexes, including: JI1, defined as the arithmetic mean of the justice evaluations; JI1*, defined as the arithmetic mean of a special case of the justice evaluation, the case in which the just reward equals the arithmetic mean of the actual rewards; and JI2, defined as the arithmetic mean of the absolute values of the justice evaluations (Jasso 1999).

A key question pertains to the individual's choice of reward to value (Jasso 1980, 1981, 1987). Of course, justice situations may involve several rewards simultaneously. For such situations Jasso (1980:6, 10-11, 14, 30) proposed multiple-characteristic justice evaluations. The multiple rewards may be positively associated, negatively associated, or independent, and this shapes the resultant distribution of justice evaluations. Jasso (1980) reported theoretical results for the independent case, and Jasso (1983b:264) for the negatively associated case. If the multiple rewards are identically distributed, the distribution of justice evaluations in the positively associated case remains the same as in the single-characteristic case.

⁴ Exposition of the derivation of these and other predictions is provided in the original articles. For example, derivation of the first example prediction is found in Jasso (1993b) and of the fourth in Jasso (1993a). For further detail on theoretical derivation, see also Jasso (1988, 2001a, 2005).

3. UNIFICATION SURPRISES IN THE STUDY OF JUSTICE

Unification Surprise 1

Unification of Cardinal and Ordinal Goods in Distributive Justice

The initial statement of the proposed new Law of Justice Evaluation embodied in the justice evaluation function in (3) was intended for cardinal goods (Jasso 1978). In modern terms, quantitative characteristics are characteristics of which there can be more or less, or on which entities can rank higher or lower, and goods are quantitative characteristics of which more is preferred to less. Quantitative characteristics span both cardinal things (like wealth and land) and ordinal things (like beauty and intelligence). It quickly became clear that the sense of justice is awakened by ordinal goods as well as cardinal goods. The question was how to treat ordinal goods in the justice evaluation function.

As described in Jasso (1980), the proposed solution was to measure ordinal goods by the individual's relative rank within a specially selected comparison aggregate. Accordingly, in situations involving ordinal characteristics, both the actual reward and the just reward are expressed as relative ranks; cardinal goods continue to be represented in their own units (for example, money or hectares of land). This solution became known as the Measurement Rule.

Unexpectedly, unification of cardinal and ordinal things was to generate an explosion of new predictions in the fledgling new theory of distributive justice. These include the prediction that the most beautiful or most intelligent person in a group experiences only modest overreward in contrast to the richest and the prediction that in a society that values ordinal goods, now known as a nonmaterialistic society, conflict between warring subgroups is a decreasing function of the proportion in the disadvantaged subgroup, while in a materialistic society the relation between subgroup conflict and the proportion in the bottom subgroup can be increasing,

decreasing, or nonmonotonic, depending on the form of the distribution of the valued material goods.⁵

Unification Surprise 2

Unification of Quantitative and Qualitative Characteristics in Distributive Justice

Human characteristics include not only quantitative characteristics – such as the cardinal and ordinal goods of Unification Surprise 1 – but also qualitative characteristics like sex, race, and nativity.⁶ At first it seemed that the justice evaluation function and justice theory ignored qualitative characteristics. Such characteristics did not seem to be much in evidence, in contrast to quantitative characteristics like wealth, beauty, and athletic skill. But soon it became clear that qualitative characteristics play a powerful role in justice analysis, indeed were already playing a powerful role, albeit disguised as “aggregates” or “grouping characteristics” or “attributes” which are “categorical variables” and “ways of sorting people” (Jasso 1980, 1981, 1983b).

First, in the just reward function shown in (1), which addresses the first central question in the study of distributive justice – What do individuals and societies think is just, and why? – qualitative characteristics may operate as reward-relevant characteristics (Jasso 1983a).

Second, in the justice evaluation function qualitative characteristics may operate in two ways: (1) categories of qualitative characteristics provide the group within which the relative ranks on ordinal goods are measured; and (2) categories of qualitative characteristics provide the

⁵ For a sampling of predictions for the effects of materialistic and nonmaterialistic regimes, see Jasso (2001a:672-673).

⁶ The distinction between qualitative and quantitative characteristics, long appreciated in mathematics (e.g., Allen 1938:10-11) and in statistics and econometrics, has since the pioneering work of Blau (1974, 1977ab) come to be seen as structuring behavioral and social phenomena in a fundamental way.

group within which to measure the just reward when it is specified as a parameter of a distribution (such as the mean, minimum, or median).

Third, in theoretical and empirical work involving distributions of justice evaluations, qualitative characteristics operate in two ways: (1) categories of qualitative characteristics provide the collectivity within which the distribution is defined; and (2) qualitative characteristics provide the subgroups discernible within a group. For example, in a study of Japanese men and women, a category of the nationality variable provides the group, and the sex variable provides the subgroups.

Unification Surprise 3

Unification of Goods and Bads in Distributive Justice

Goods are quantitative things of which more is preferred to less, and bads are quantitative things of which less is preferred to more. At least since Berger, Zelditch, Anderson, and Cohen (1972:128), it had been understood that the things that awaken the sense of distributive justice include both goods and bads. Now it came to be seen that the same theoretical and empirical apparatus of distributive justice, including the just reward function and the justice evaluation function, can be used for both goods and bads.

The just reward function shown in expression (1) can be used for both goods and bads. For example, C can as easily be earnings as time in prison (for illustrations, see Rossi, Simpson, and Miller 1985 and Jasso 1998).

In the justice evaluation function in (3), the unification surprise involved the operation of the Signature Constant θ . A decade after the justice evaluation function was introduced, it became clear that the sign of θ indicates whether the observer making the justice judgment regards the reward as a good or as a bad – positive θ for goods, negative θ for bads (Jasso 1990).

Unification Surprise 4

Partial Unification of Distributive and Retributive Justice

An early insight was that many of the punishments covered by retributive justice are a special case of bads. Examples include fines and time in prison. The same theoretical and empirical apparatus can be used for both the burdens of distributive justice and the punishments of retributive justice. Exceptions include penalties which are not quantitative variables, such as a death sentence, loss of citizenship, and exile, and thus we label this unification a partial unification.

The unification was led by Rossi, Simpson, and Miller (1985), who studied time in prison using the empirical framework developed by Jasso and Rossi (1977) to study earnings, and Törnblom and his associates (Törnblom and Jonsson 1985; Törnblom 1988; and Törnblom and Vermunt 1998). Further systematization of the unified framework came from Jasso (1998), with many other scholars simultaneously reaching the same conclusion (see the many pertinent references in the special issue of Social Justice Research edited by Törnblom and Vermunt in 1998).

Unification Surprise 5

Unification of Justice for Self and Justice for Others

Since the early days of the scientific study of justice, justice researchers have studied both justice for self and justice for others. Unification occurred almost without thinking. The thief in the night was the justice evaluation function, which though starting life in an empirical study of justice for others, was from the beginning conceptualized as pertaining to either self or other (Jasso 1978:1400) and was quickly used in a new theory whose starting point was justice for self (Jasso 1980). New vocabulary and notation soon followed (Jasso 1989). The rewarder can be

self or other; the first case is called reflexive, the second nonreflexive. The two cases can be joined in a single framework, where they are contrasted by a special subscript “*r*” which denotes the rewardee and has become part of the five fundamental subscripts representing the five fundamental contexts: *brots* – for benefit/burden, rewardee, observer, time period, and society.

Unification Surprise 6

Unification of Ideas of Justice and Reactions to Injustice

The justice evaluation forms a bridge between two classical literatures, the literature on ideas of justice and the literature on reactions to injustice. The justice evaluation, as shown in expressions (2) and (3), is produced by the comparison of the actual situation with the observer’s ideas of justice. In turn, the justice evaluation sets in motion a train of reactions to injustice. This unification was one of the immediate payoffs of introduction of the justice evaluation function in Jasso (1978). Before the justice evaluation function, going from ideas of justice to reactions to injustice required a leap. Figure 2 presents a diagrammatic view of the world of distributive justice, including both ideas of justice and reactions to injustice.⁷

⁷ Some readers have sought to relate this unification to the classical distinction between subjective things like ideas, attitudes, and judgments and objective behavior, supposing that perhaps ideas of justice are subjective and reactions to injustice are objective. But the justice process is considerably more intricate and more nuanced, for the reactions to injustice include both subjective and objective things. Nonetheless, if we restrict attention to objective reactions to injustice (e.g., signing a petition, contributing time or money, participating in a strike), then we may describe this unification as involving two subjective things and two objective things. The subjective just reward, compared to the objective actual reward, generates the subjective justice evaluation, which in turn triggers the objective reactions to injustice. Before the justice evaluation function was introduced, the links among the four terms – as shown in Figure 2, the link between the actual reward and the justice evaluation, the link between the just reward and the justice evaluation, and the link between the justice evaluation and the reactions to injustice – were hidden from sight. The justice evaluation function brought to light the exact relations among the four terms and in so doing built a bridge between the two classical literatures on ideas of justice and on reactions to injustice.

-- Figure 2 about here --

Unification Surprise 7

Partial Unification of Distributive/Retributive and Procedural Justice

Some of the procedures studied in procedural justice are quantitative variables – for example, the number of persons consulted, the amount of time spent in deliberation, the weights given to different opinions. The same theoretical and empirical apparatus can be used for both distributive/retributive justice and this subset of procedural justice (Jasso and Wegener 1997; Törnblom and Vermunt 1999).

In the case in which procedures are quantitative variables, the just reward function (3), which addresses the first core question -- a function in which the just reward is a function of rewardee and situational characteristics (such as the just punishment is a function of the severity of the crime) – can be used as the just procedure function. For example, the just procedure is a function of the number of persons consulted, etc.

Similarly, whenever procedures are quantitative variables, the justice evaluation function can be used in procedural justice.

Further, predictions of distributive justice theory yield ideas about just procedures – for example, the prediction that the just society has a mixed government in which distribution of benefits is by the many and distribution of burdens by the few (Jasso 1999, 2001b).

Unification Surprise 8

Unification of Ratio and Difference Conceptions of the Justice Evaluation

By the early 1970s, it had been long understood that what later came to be called the justice evaluation arises from the discrepancy between the actual situation and the observer's idea of the just situation. There appear, however, to have been contradictory notions of the best

way to represent the discrepancy. Scholars led by Homans (1974, 1976) argued that it should be represented by a ratio and scholars led by Berger (Berger et al. 1972) that it should be represented by a difference. Published discussions are few, but my experience in graduate school in the early 1970s suggests a lively oral tradition. Discovery of the logarithmic-ratio specification of the justice evaluation function showed a way to unify the opposing ratio and difference conceptions.

This unification was achieved via the properties of logarithms:

$$\begin{aligned}
 J &= \theta \ln\left(\frac{A}{C}\right) \\
 &= \theta \ln(A) - \theta \ln(C).
 \end{aligned}
 \tag{4}$$

This unification was one of the first properties noticed in the new justice evaluation function (Jasso 1978:1417). Subsequently, this unification was described as an example of theoretical integration (Wagner and Berger 1985).

Unification Surprise 9

Unification of Logarithmic and Power-Function Functional Forms for the Justice Evaluation

In classical psychophysics there is a long tradition of argument concerning the best and most faithful representation of sensation functions. The main alternatives are the logarithmic form introduced by Daniel Bernoulli ([1738] 1954) as a specification of the utility function and proposed by Fechner ([1860] 1907) as a specification of the sensation function and the power function favored by S. S. Stevens (1975) and his colleagues. Stevens (1975) provides a lively account of this longstanding discussion.

Jasso's (1978) introduction of the logarithmic-ratio specification of the justice evaluation function triggered similarly lively discussion of the correct form of the justice evaluation

function, starting with Sołtan (1981). As with the earlier discussion of ratio versus difference conceptions, this discussion was most intense outside the published record, in the discussion segments of sessions at professional meetings and lectures and in referee reports. It prompted a full-scale examination of the foundations of the justice evaluation function and a search for properties that a desirable function should satisfy, culminating in Jasso's (1990) compilation of desiderata and of plausible functional forms, together with a proof that the log-ratio form is the only functional form which simultaneously satisfies two of the desiderata, scale invariance and additivity.

Echoing the psychophysical tradition, one of the more appealing alternative forms is a difference between two power functions, a form which satisfies additivity (and symmetry) but not scale invariance. In a remarkable unification surprise, the logarithmic and power-function forms are linked via the following classical result in mathematics (Jasso 1996:293-294, 296):

$$\lim_{k \rightarrow 0} \frac{A^k - C^k}{k} = \ln \left(\frac{A}{C} \right), \quad (5)$$

where, as before, A denotes the actual reward and C denotes the just reward. Jasso (2006b:403, 406-407) shows empirically the rapidity with which the difference between two log functions approaches the log of the ratio.

This remarkable limit in (5) not only unifies the logarithmic and power-function conceptions of the justice evaluation, but also it provides further support for the unification of the ratio and difference conceptions (Unification Surprise 8). Moreover, it shows that a function which is not scale-invariant can approach a scale-invariant form, and it underscores the universal and fundamental character of the logarithmic function, which, like its relative the transcendental number e , appears in the most unexpected places.

Unification Surprise 10

Unification of Micro and Macro Levels in Justice Theory

There are three manifestations of the unification of micro and macro levels in justice theory. The first two involve the representation of micro and macro variables in the basic justice framework. The reward whose consideration generates a justice situation can be a characteristic of individuals or a property of groups. Both of these classes of rewards can be straightforwardly accommodated in both the just reward function and the justice evaluation function.

Micro and macro levels in the just reward function. The just reward function can as easily describe the connection between a person's schooling and just earnings as the connection between a province's climatic features or vulnerability to terrorist attacks and its share of national revenues. Other cases quickly come to mind; consider, for example, the link between a country's health and demographic profile and its share of the world's foreign aid.

Micro and macro levels in the justice evaluation function. The corresponding justice evaluation functions are natural extensions of the individual-level justice evaluation function (Jasso 1994):

$$\begin{aligned} \textit{justice evaluation} &= \ln\left(\frac{\textit{actual mean income}}{\textit{just mean income}}\right) \\ \textit{justice evaluation} &= -\ln\left(\frac{\textit{actual income inequality}}{\textit{just income inequality}}\right) \end{aligned} \tag{6}$$

Micro and macro levels in theoretical predictions. The third manifestation of the unification of micro and macro levels comes from the predictions derived from justice theory, for these span all levels of analysis – from dyads to the largest populations -- as has been shown since the first statement of justice theory (Jasso 1980) and continues to be shown year after year in new derivations. To illustrate, consider the following predictions:

1. The gain from theft is greater when stealing from a fellow group member than from an outsider; and this premium is larger in poor groups than in rich groups.
2. Parents will spend more of their toy budget at an annual giftgiving occasion rather than at the children's birthdays.
3. A thing changes value as it or its owner moves from group to group.
4. Shifts in employment or earnings that increase marital cohesiveness increase the well-being of one spouse but decrease the other's.
5. Vocations to the religious life are an increasing function of income inequality.
6. Whether subgroup conflict increases or decreases with the proportion in the bottom subgroup depends on the distributional form of the valued good.
7. Veterans of wars fought away from home have higher rates of posttraumatic stress syndrome than veterans of wars fought on home soil.
8. The proportions Selfistas, Subgroupistas, and Groupistas in a society are a function of the societal valued goods and their distribution.

Note how the predictions pertain to individuals and to groups of all sizes, as well as to goods and bads.⁸

Unification Surprise 11

Unification of Justice and Inequality

For all of recorded history, humans have linked justice and equality – as in the Gorgias where Plato has Socrates say, “Justice is equality” – and injustice and inequality – as in Theodore Roosevelt’s (1913) observation about “the inequality which means injustice.” The connection

⁸ As noted earlier, full detail on derivation of these predictions is provided in the original articles presenting them.

between justice and inequality seemed self-evident, an axiom perhaps or a primitive to be assumed without further concern. Thus, it was a great surprise when it started to become clear that the link between justice and inequality can be established as a deduced consequence of justice theory. The connection between inequality and justice need no longer be asserted; rather, it is derived from the basic postulates of justice theory.

The first glimpse of the explicit unification to come occurred in Jasso (1980, 1982), but the unification itself did not begin to receive systematic treatment until Jasso (1999) and even now is not yet fully published. The link is made by connecting three distinct representations of inequality to terms derived from the justice evaluation function. In all cases, the links lead to the conclusion that “Injustice is an increasing function of inequality.”

Justice and Atkinson’s measure of inequality. Atkinson (1970, 1975) proposed a family of measures of inequality, one of whose members is defined as one minus the ratio of the geometric mean to the arithmetic mean. This measure, which we call the Atkinson-inequality and denote by $I(\cdot)$, can be shown to appear as a term in the justice index JI1 developed in Jasso (1999). JI1, which is the arithmetic mean of the justice evaluations, can be expressed as a function of four group-level terms, the actual and just mean and the actual and just Atkinson-inequality:

$$JI1 = \ln \left(\frac{[E(A)] [1 - I(A)]}{[E(C)] [1 - I(C)]} \right). \quad (7)$$

Taking the first partial derivative of the justice index JI1 with respect to the inequality in the actual-reward distribution,

$$\frac{\partial JI1}{\partial I(A)} = - \frac{1}{1 - I(A)}. \quad (8)$$

Given that Atkinson's inequality lies between zero and one (being closed at zero and open at one), the derivative in (8) is always negative. Therefore, as Atkinson's inequality increases, the justice index decreases.

Justice and Theil's second measure of inequality. Theil (1967:125-127)) proposed two measures of inequality, the famous Theil's measure and a second measure called variously "Theil's second measure" or the mean logarithmic deviation (MLD), a measure somewhat neglected which has recently received renewed attention because of its additive decomposability. It is a great surprise that the MLD turns out to be the negative of J_{II}^* – the negative, that is, of the arithmetic mean of the special justice evaluations defined with equality as the just reward. Thus, as inequality increases, so does injustice.

Justice and the general inequality parameter in continuous two-parameter distributions. As proposed by Jasso (1991) and Jasso and Kotz (unpubl), in two-parameter distributions one parameter is a location parameter and the second parameter operates as a general inequality parameter, a parameter which governs all measures of inequality, so that all measures of inequality are monotonic functions of the general inequality parameter. If the justice index is expressed in terms of the mean and the general inequality parameter of the continuous two-parameter distribution representing the actual reward distribution, then it can be shown that injustice is an increasing function of inequality. For example, in the case in which the actual reward is Pareto-distributed, the justice index is written:

$$\ln \mu_A + \ln \left(\frac{k_A - 1}{k_A} \right) + \frac{1}{k_A} - E[\ln(C)]. \quad (9)$$

Taking the first partial derivative of the justice index (expression 9) with respect to the inequality in the actual-reward distribution, represented by the general inequality parameter k , we

find that the derivative is positive and hence the justice index is an increasing function of k . Because in the Pareto, inequality increases as k increases, we conclude that in the Pareto, the justice index is a decreasing function of inequality.

Thus, justice theory predicts inequality aversion.

Unification Surprise 12

Partial Unification of Poverty and Inequality

The arithmetic mean of the justice evaluations in distributive justice – the justice index $JI1$ – yields a decomposition of overall injustice into injustice due to poverty and injustice due to inequality (Jasso 1999), expressed in terms of the arithmetic mean and the Atkinson-inequality:

$$JI1 = \ln \left[\frac{E(A)}{E(C)} \right] + \ln \left[\frac{1-I(A)}{1-I(C)} \right], \quad (10)$$

and referred to as:

$$JI1 = JI1_{\text{Mean}} + JI1_{\text{Ineq}}. \quad (11)$$

The two components are known as the mean-component and the inequality-component. In words, the decomposition may be written:

$$JI1 = \ln \left[\frac{\text{actual mean}}{\text{just mean}} \right] - \ln \left[\frac{f(\text{actual inequality})}{f(\text{just inequality})} \right], \quad (12)$$

where f denotes an increasing function.

Unification Surprise 13

Unification of Justice and Subgroup Inequality

When a group or population has a subgroup structure – for example, if the group or population consists of both males and females or persons of two or more races (as discussed in Unification Surprise 2) – a set of subgroup inequality measures are generated. These depict the

gap in some quantitative characteristic, such as income, between two subgroups. One common measure of the subgroup inequality is the ratio of one subgroup's mean to the other subgroup's mean (Jasso and Kotz, unpubl). Thus, for example, empirical analysts have estimated the actual gender gap in earnings and, if data permit, compared it to the estimated just gender gap in earnings (e.g., Jasso and Wegener 1999). What might be the connection between overall injustice and the gender gaps?

As in the other surprises, it was a surprise to discover that the log of the ratio of the actual subgroup inequality to the just subgroup inequality is equal to the signed difference between the mean-components of JI1 for the two subgroups (Jasso 2004:426-427). To illustrate, in the case of gender-based subgroups, the exact relation is:

$$JI1_{\text{Mean}}^{\text{F}} - JI1_{\text{Mean}}^{\text{M}} = \ln\left(\frac{\text{Actual Gender Gap}}{\text{Just Gender Gap}}\right). \quad (13)$$

Note that the inequality components do not appear in this expression, showing that the usual way of measuring gender gaps is inattentive to within-gender inequality.

Unification Surprise 14

Partial Unification of Reality and Ideology

The arithmetic mean of the justice evaluations in distributive justice – the justice index JI1 – yields a decomposition of overall injustice into a portion due to reality and a portion due to ideology (Jasso 1999):

$$JI1 = \ln\{[E(A)][1-I(A)]\} - \ln\{[E(C)][1-I(C)]\}, \quad (14)$$

or in words,

$$JI1 = \ln(\text{reality}) - \ln(\text{ideology}). \quad (15)$$

Unification Surprise 15

Partial Unification of Justice and Impartiality

Classical notions of impartiality highlight impartial assignment of just rewards or, equivalently, universalistic application of the just reward function and the principles of justice. Recent work, however, yields two new types of impartiality which go beyond impartiality in the first central question of justice (highlighting just rewards) to impartiality in the third central question (highlighting justice evaluations). These two new types of impartiality are framing-impartiality and expressiveness-impartiality. Framing-impartiality pertains to impartiality in framing a reward as a good or as a bad, assessing whether the observer frames a particular reward in the same way for all others and/or in the same way for a particular other and self. Expressiveness-impartiality pertains to impartiality in the way the observer expresses the justice evaluation across self and other and across different others. Framing-impartiality is tested by testing the sign of the Signature Constant in the justice evaluation function in (3), and expressiveness-impartiality by testing the absolute magnitude of the Signature Constant. The first empirical assessment of framing-impartiality and expressiveness-impartiality is reported in Jasso (2006a).

The theoretical and empirical apparatus of distributive justice enables assessment of impartiality in ideas of justice, framing, and expressiveness.

Further, this unification surprise opens the door to a systematic examination of impartiality with respect to each of the four central questions in the study of justice (Section 2 above). Impartiality in the just reward (Question 1) is the classical kind of impartiality. Impartiality with respect to framing and expressiveness (Question 3) is the new kind of impartiality brought to light in Jasso (2006a). Remaining types of impartiality are impartiality in

allocation (Question 2) and impartiality in reactions to injustice (Question 4). Note how this unification surprise provides a framework, as it were, for classical notions of impartiality; it sharpens and specifies known types of impartiality even as it brings to light new types of impartiality, broadening the concept and enlarging its scope of operation.

Unification Surprise 16

Unification of Pre-Existing Subgroups and Emergent Subgroups

It has long been noticed that some subgroup structures are pre-existing, that is, they pre-exist sociobehavioral operations, while other subgroup structures arise in the course of sociobehavioral operations. An early insight of justice theory is that in all groups – whether or not they have pre-existing subgroups – justice operations generate three emergent subgroups: the underrewarded, the justly rewarded, and the overrewarded (Jasso 1980). Subsequent justice analysis of groups with pre-existing subgroups – based on qualitative characteristics such as race or sex – enabled assessment of the joint structure of pre-existing and emergent subgroups and paved the way for study of “bridging” phenomena (Jasso 1983b). Only recently, however, has the full potential of this unification started to become visible. A new analysis reported in Jasso (2005) shows how, given a structure of pre-existing subgroups, justice operations generate a new structure of emergent subgroups, consisting of persons oriented to self (called Selfistas), persons oriented to the pre-existing subgroup (called Subgroupistas), and persons oriented to the entire group (called Groupistas)

Because all the pre-existing subgroups may contain individuals in any of the emergent subgroups, the stage is set for analysis of boundary permeability and of bonding and bridging phenomena (briefly discussed below in Unification Surprise 21).

4. THE WORLD BEYOND JUSTICE

To this point the unification surprises have all been within the world of justice. Now we move beyond justice. We begin with the partial unification of justice and the other comparison processes (also known as reference-point processes), and then continue to unification of the theories of comparison, status, and power, going on to a unification with identity theory and finally with happiness. In preparation for presentation of the unification surprises, we review briefly three theories – comparison theory, status theory, and identity theory.

As will be seen, a key insight is that all the theories have at their heart a bundle of three elements, one from each of three sets:

- personal quantitative characteristics
- personal qualitative characteristics
- primordial sociobehavioral outcomes

Personal quantitative and qualitative characteristics have already been introduced (Unification Surprise 2). The primordial sociobehavioral outcomes (PSOs) are generated from quantitative characteristics within the groups formed by categories of qualitative characteristics. This is the fundamental template for a sociobehavioral force. The global process, including all three elements, is called by the name of the PSO and characterized variously as a behavioral engine, a driver, a mechanism, or a motivational process. For example, the sociobehavioral force “status” subsumes the status PSO, the distinctive mechanism associated with the status PSO, the quantitative characteristics from which the status PSO is generated, and the qualitative characteristics within whose categories the status PSO is generated.⁹ Importantly, each force has

⁹ In mathematical vocabulary, the status variable is the dependent variable in the status function whose arguments are quantitative characteristics within a group defined by qualitative

a long reach and yields implications for farflung phenomena and associations.

4.1. Comparison Theory

Comparison theory begins with the classic idea that humans compare their holdings of goods and bads (levels of ordinal characteristics or amounts of cardinal characteristics) to the levels or amounts they think just or appropriate for themselves, and thereby experience well-being, self-esteem, the sense of justice, and a variety of other outcomes. The key characteristic of comparison processes (also known as reference-point processes) is that the outcome depends on two inputs – an actual holding and a comparison holding – and that the two inputs have opposite effects. In the case of goods, the larger the actual holding of a good, holding constant the comparison holding (the just amount, say), the greater the self-esteem or other comparison outcome; and the larger the comparison holding, holding constant the actual holding, the lower the self-esteem or other comparison outcome. Early formulations of the comparison family are found in William James ([1891]1952:200), Marx ([1849]1968:84-85), and Durkheim ([1893]1964).

For example, William James, in the famous tenth chapter of Principles of Psychology, titled "The Consciousness of the Self," analyzes the production of self-esteem ([1891]1952:200) as follows:

[Our self-feeling] is determined by the ratio of our actualities to our supposed potentialities; a fraction of which our pretensions are the denominator and the numerator our success; thus, Self-esteem = Success/Pretensions. Such a fraction may be increased as well by

characteristics.

diminishing the denominator as by increasing the numerator. To give up pretensions is as blessed a relief as to get them gratified. . . .

In this passage, James isolates the effects of an individual's actual holding and comparison holding on self-esteem, thus arriving at the key characteristic of comparison processes, namely, that the comparison outcome – in this case, self-esteem – depends on two inputs, the actual holding and the comparison holding, and the two inputs have opposite effects, the actual holding increasing the comparison outcome and the comparison holding decreasing the comparison outcome.

The early formulations were followed by progressively sharper and more precise analyses in the twentieth century.¹⁰ The basic comparison idea is now expressed mathematically:

$$Z = \theta \ln \left(\frac{A}{C} \right), \quad (16)$$

where Z denotes the comparison outcome (say, self-esteem or the justice evaluation) and, as in the justice evaluation function from which the comparison function developed, A denotes the actual holding of a good or bad, C denotes the comparison holding, and θ is the Signature Constant, whose sign is positive for goods and negative for bads and whose absolute value measures the observer's expressiveness. As discussed earlier, Jasso (1978) introduced the log-ratio function as a specification of the justice evaluation function, and, as will be discussed in Unification Surprise 16, subsequently generalized it to the larger set of comparison processes

¹⁰ Notable contributions include Baldwin (1899-1891), Stouffer et al. (1949), Merton and Rossi (1950), Festinger (1954), Thibaut and Kelley (1959), Merton ([1949, 1957] 1968), Runciman (1961), Homans ([1961]1974), Wright (1963), Blau (1964), Hyman (1968), Lipset (1968), Sherif (1968), Zelditch (1968), and Berger, Zelditch, Anderson, and Cohen (1972). A brief history of comparison ideas is found in Jasso (1990) and a summary in Jasso (2001a).

(Jasso 1990).

The log-ratio comparison function inherits all the properties of the justice evaluation function. First, it provides an exact mapping from combinations of A and C to the comparison outcome Z , with zero representing a neutral point, positive numbers representing positive self-esteem or overreward in the justice case, and negative numbers representing negative self-esteem or underreward in the justice case. Second, it embodies the property that deficiency is felt more keenly than comparable excess, the vaunted deficiency aversion and loss aversion. Third, the function is the only function which satisfies two other desirable conditions, additivity (the effect of A on Z is independent of the magnitude of C , and the effect of C on Z is independent of the magnitude of A) and scale invariance (expressing A and C in different units – say, yen instead of dollars – does not alter Z). Fourth, the function is symmetric; that is, if the actual holding A and the comparison holding C trade places, the outcome is the negative of Z . Fifth, the function integrates rival conceptions of comparison processes as a difference and as a ratio (Unification Surprise 8). Sixth, the log-ratio form is the limiting form of the difference between two power functions, integrating log and power approaches and further strengthening integration of difference and ratio approaches (Unification Surprise 9). Recently, as noted above, another (almost magical) property has come to light, linking the comparison function and the Golden Number, $(\sqrt{5}-1)/2$. Further detail on these properties is found in Jasso (1978, 1990, 2006c).

Both quantitative and qualitative characteristics operate in comparison theory. Personal quantitative characteristics provide the holdings of goods and bads about which comparison processes are experienced. For example, self-esteem may be derived from beauty, or from wealth, or from bravery, or from athletic skill. Cardinal characteristics are measured in their own

units, and ordinal characteristics are measured as relative ranks within a group. To illustrate, a given individual may regard skill in a musical instrument as a good and experience self-esteem about it; in this case, skill is an ordinal good and measured as a relative rank within a group. The same individual may regard taxes as a bad and experience a justice evaluation about it; in this case, taxes are a cardinal bad and measured in a monetary currency.

Qualitative characteristics operate in comparison theory in two major ways. First, qualitative characteristics provide the group within which a comparison process takes place. The group in turn is used in two ways: (a) to measure relative rank when the good (or bad) is an ordinal characteristic; and (b) to measure the comparison holding when it is specified as a parameter of a distribution. Second, qualitative characteristics provide the subgroups within the main group or population.

Note that there is one case in comparison theory when a qualitative characteristic is not required – the case in which the good (or bad) is cardinal and the comparison holding is a directly selected amount. For example, in the illustration above in which taxes are the subject of the comparison, if the amount of taxes thought just is a particular amount of money, no group is required; however, if the amount of taxes thought just is a parameter of the tax distribution (such as the mean or the 25th percentile), then a group is required to provide the context for the tax distribution.

Thus, comparison theory has at its core the three elements of a sociobehavioral force: (1) personal quantitative characteristics, about which comparison processes are experienced; (2) personal qualitative characteristics, which provide the group within which comparison processes occur (required in every case save one) and give rise to subgroups within groups; and (3) primordial sociobehavioral outcomes, such as self-esteem and the sense of justice. Moreover,

because comparison theory focuses exclusively on one PSO – comparison, which gives the theory its name – it is in fact a theory of one sociobehavioral force.

Comparison theory also generates several new quantities and sets in motion a train of new processes. These include: (1) a repertoire of goods and bads about which comparison processes are experienced; (2) a repertoire of comparison holdings; (3) a repertoire of groups for measuring ordinal goods and bads and, in some cases, for measuring comparison holdings of cardinal goods and bads; (4) relative importance of goods and bads; (5) the individual's comparison profile (that is, a person's time series of comparison outcomes); (6) the cross-sectional distribution of a comparison outcome in a group; and (7) subdistributions of a comparison outcome in subgroups, together with subgroup-specific parameters of the subdistributions as well as gaps across subgroups.

4.2. Status Theory

In status theory, persons accord to each other, and expect from each other, a given measure of status – or, as it is variously called, prestige, respect, deference, esteem, honor (Zelditch 1968; Sennett 2003). Status is represented by positive numbers (the higher the number, the greater the status), and is thought to arise from individuals' personal quantitative characteristics, such as beauty, intelligence, or wealth, where the individual's standing on these quantitative characteristics is represented by his or her relative rank within a group or population defined by a qualitative characteristic.

The mathematical foundation for studying status was laid by Berger, Cohen, and Zelditch (1966), Berger, Fisek, Norman, and Zelditch (1977), Goode (1978), and Sørensen (1979). Goode (1978) observed that status increases at an increasing rate, and Sørensen (1979) proposed a specific mathematical function for studying the status of occupations. Noting that the function

proposed by Sørensen (1979) satisfies Goode's (1978) convexity condition, Jasso (2001c) applied it to the status of individuals:

$$S = \ln\left(\frac{1}{1-r}\right), \quad 0 < r < 1, \quad (18)$$

where S denotes status and r denotes the relative rank.¹¹

Ridgeway (1991, 1997b, 2001) introduced the distinction between cardinal characteristics and qualitative characteristics into the study of status – paralleling the Unification Surprise 2 in the study of justice -- and Webster and Hysom (1998) extended her reasonings about cardinal characteristics to all quantitative characteristics, including ordinal characteristics – paralleling the Unification Surprise 1 in the study of justice.

As in justice and comparison, status may be produced by two or more characteristics simultaneously, and Jasso (2001c:101-102) theorized that in this case the multiple-good status function is a weighted average of the single-good status functions, where the weights represent the importance of each good. Earlier, Berger, Cohen, and Zelditch (1966:44), had noted that negatively associated characteristics would reduce status inequality (a relation subsequently established for small groups by Humphreys and Berger (1981)), and Berger, Fisek, Norman, and Zelditch (1977:126-127) had proposed the principle of organized subsets for dealing with multiple negatively associated characteristics. As in justice theory, the form of the status

¹¹ Relative rank is represented by the open interval between zero and one. Thus, the lowest-ranking person has a relative rank which approaches zero from the right, and the highest-ranking person has a relative rank which approaches unity from the left. In small groups, relative rank is approximated by $[i/(N+1)]$, where i denotes the absolute rank in ascending order from 1 to the group size N . These approximated relative ranks have the property that the lowest and highest relative ranks are equidistant from .5 and that the distance between the lowest relative rank and zero equals the distance between the highest relative rank and 1.

distribution has been obtained for the case of perfectly positively associated goods, perfectly negatively associated goods, and independent goods (Jasso 2001c; Jasso and Kotz 2007).¹²

It is evident that status theory, like comparison theory, has at its core the three elements of a sociobehavioral force: (1) personal quantitative characteristics, which form the basis for according (or receiving) status; (2) personal qualitative characteristics, which provide the group within which status processes occur (and are required for calculating the relative ranks) and give rise to subgroups within groups; and (3) the primordial sociobehavioral outcome, status. Moreover, because status theory focuses exclusively on one PSO – status, which gives the theory its name – it is in fact a theory of one sociobehavioral force.

4.3. Identity Theory

The concept of identity appears in all the sociobehavioral sciences, providing an appealing way to organize thinking about the self and about important social affiliations. Social psychologists working in psychology pioneered what is called “social identity theory,” and social psychologists working in sociology pioneered what is called “identity theory,” which here we refer to as “sociological identity theory.” The simple phrase “identity theory” will be used to refer to all theories of identity.

4.3.1. Sociological Identity Theory

Sociological identity theory consists of a set of general ideas about self and society and two main variant theories (Stryker and Burke 2000). Sociological identity theory, in both variants, conceptualizes the self as a collection of identities. The identities each consist of a

¹² Other notable contributions to status theory include Sampson and Rossi 1975; Nock and Rossi 1978; Bose and Rossi 1983; Turner 1984, 1995; Ridgeway and Balkwell 1997; Sennett 2003. See Jasso 2001c for a brief overview of the several status literatures.

complex of role-related phenomena, including expectations, performance, competence, enactment, behavior, and meanings. The identities are situated in networks of relationships among actors, for example, father and daughter, or teacher and student. Each identity generates some of what is variously called self-evaluation, self-esteem, self-worth, self-efficacy, and so on.

In the variant associated with Stryker (Stryker 1968, 1980, 2001; Stryker and Serpe 1982), the identities are arranged in a saliency hierarchy, such that the greater the saliency, “the greater the probability of behavioral choices in accord with the expectations attached to that identity” (Stryker and Burke 2000:286). Further, an identity’s saliency is itself shaped by “commitment to the role relationships requiring that identity” (Stryker and Burke 2000:286). Saliency in identity theory parallels development of the relative importance of goods and the individual’s choice of valued goods in justice theory and status theory (Jasso 1980, 1981, 1987, 2001c).

In the variant associated with Burke (Burke 1991; Burke and Reitzes 1991; Burke and Stets 1999), each identity is internalized, becoming a standard against which perceived self-meanings are compared; the outcome of the comparison process is “self-verification” and, depending on the sign and magnitude of the discrepancy between the identity standard and perceived self-meanings, leads both to emotion, which signals a discrepancy, and to behavior aimed at eliminating the discrepancy (Stryker and Burke 2000:288). In this way, behavior is “goal-directed”, and the individual has agency (Stryker and Burke 2000:288).¹³

Both quantitative and qualitative characteristics operate in sociological identity theory.

¹³ The variant associated with Stryker highlights external aspects of a collection of identities, such as their relation to the social structure, while the variant associated with Burke highlights internal dynamics of a single identity (Stryker 2001:228; Stets and Burke 2002:136).

Personal quantitative characteristics operate in two ways. First, some of the role-related phenomena at the heart of an identity – competence, skill, performance – are themselves personal quantitative characteristics. Second, though the identities are largely role-related, sociological identity theory also accommodates the possibility that identities are based on more generalized quantitative characteristics, including both ordinal characteristics like “honesty” (Stryker and Burke 2000:293) and cardinal characteristics like income, wealth, and other material resources (Burke 1997; Stets and Burke 2000).

Personal qualitative characteristics operate in sociological identity theory in a variety of ways – for example, when a role is based on occupation, when an identity process is investigated in a particular group, or when in a commitment process individuals label themselves as belonging to a particular group or subgroup.

Finally, as noted, each identity generates some of what is variously called self-evaluation, self-esteem, self-worth, self-efficacy, etc. (Stryker 1980, 2001; Stets and Burke 2000).

Thus, sociological identity theory, in both its major variants, has at its core the three elements of a sociobehavioral force: (1) personal quantitative characteristics, in the form of role-related skills, competence, performance, as well as other ordinal and cardinal characteristics such as honesty and wealth; (2) personal qualitative characteristics, such as membership in groups or networks within which identity processes occur; and (3) primordial sociobehavioral outcomes, such as self-esteem, self-efficacy, self-verification, self-worth, and status.

Stryker and Burke (2000:291-292), building on Stets and Burke (1996) and Stets (1997), also take several steps to explicitly link sociological identity theory to status theory. First, they observe that receiving status aids in self-verification, prompting the reciprocal according of status. Second, they note that, absent information about particular individuals’ skills and

competence (i.e., their identities), information about previous status allocations will be used, paralleling the inter-subgroup conflict mechanism proposed by Jasso (1983b, 1993a), the status construction process proposed by Ridgeway (1991, 1997b, 2001), the S3 status function proposed by Jasso (2001c), and the depersonalization mechanism of social identity theory (Hogg, Terry, and White 1995), which impute to individuals the characteristics of their subgroups.

Note that sociological identity theory, because it accommodates several PSOs, is compatible with operation of all three of the sociobehavioral forces.

4.3.2. Social Identity Theory

Social identity theory, which here we take as encompassing the more recent development known as social categorization theory, focuses on group and intergroup processes and relations (Tajfel 1974; Tajfel and Turner 1979, 1986; Turner 1985, 1999; Turner et al. 1987). As in sociological identity theory, the self is conceptualized as a collection of identities; however, in this case, the identities highlight membership in a social category: “The basic idea is that a social category (e.g., nationality, political affiliation, sports team) into which one falls, and to which one feels one belongs, provides a definition of who one is in terms of the defining characteristics of the category – a self-definition that is a part of the self-concept” (Hogg et al. 1995:259). Each of these social identities confers self-enhancement (Hogg et al. 1995:260), contributes to self-conceptualization (Hogg et al. 1995:262), and generates self-esteem (Hogg et al. 1995:263), self-image (Brown 1986:551), and status (Hornsey and Hogg 2002). These social identities crucially shape a variety of further behavioral phenomena, in particular, intergroup behavior (Hogg et al. 1995; Hornsey and Hogg 2002; Ellemers et al. 2002)

Though the emphasis is on the qualitative characteristics which generate the subgroups or social categories with which social identities are associated – gender, race, religion, language,

etc. – quantitative characteristics also play a part. Quantitative characteristics are the characteristics with respect to which the subgroups or categories differ. For example, Hogg et al. (1995:260) provide an example in which men and women differ on aggressiveness; and Spears et al. (1997) discuss intelligence and creativity.

When two or more categories of a qualitative characteristic differ on a quantitative characteristic, several further processes are set in motion. The first is depersonalization (Hogg et al. 1995); here an individual comes to be seen as a member of a subgroup rather than as an individual -- that is, he or she is characterized by the subgroup average rather than by his/her own magnitude of a quantitative characteristic – paralleling, as already noted, the inter-subgroup conflict mechanism proposed by Jasso (1983b, 1993a), the status construction process proposed by Ridgeway (1991, 1997b, 2001), and the S3 status function proposed by Jasso (2001c). A man may be seen as aggressive to the same magnitude as the average for all men, even though he may actually be a Gandhi.

Closely related to depersonalization is a train of further behaviors, including the individual's decision whether to seek to be seen as an individual or instead accept the subgroup-based characterization. There is a contest between personal identity and social identity (Brown 1986; Stets and Burke 2000; Ellemers, Spears, and Doosje 2002), paralleling the contest between personal status and subgroup status in Jasso (2001c) and the contest between the Selfista, Subgroupista, and Groupista orientations in Jasso (2005, in press).

Even when the correlation between a quantitative characteristic and a qualitative characteristic is not perfect, the subgroups or categories come to be seen as disjoint, partly as a result of a new process, termed accentuation. As Hogg et al. (1995:261) put it, “the category-accentuation process . . . highlights intergroup discontinuities.” The accentuation mechanism of

identity theory appears throughout the sociobehavioral sciences in a variety of guises – split labor markets (Bonacich 1972), consolidation (Blau1974:632), hierarchy and segmentation (Hechter 1978), cleavage (Jasso 1983b, 1993a), bifurcation (Ridgeway 1996, 1997, 2001), nonoverlapping subgroups (Jasso 2001a, 2005; Jasso and Kotz unpubl), complete disjuncture (Jasso 2005), as well as under the rubric of the associated mathematical and statistical operations, such as perfect association between a quantitative characteristic and a qualitative characteristic (Jasso 2001c) and censored subdistributions (Jasso 2005; Jasso and Kotz unpubl). Note that some terms are intimately linked with particular substantive topics; for example, “nonoverlapping subgroups” is the classical term in the decomposition operations of inequality analysis. Note also that even when the association between the quantitative characteristic and the qualitative characteristic is not perfect, by the Thomas Theorem (1928) the sociobehavioral effects of the complete-disjuncture case are set in motion.

When two or more categories of a qualitative characteristic differ on several quantitative characteristics, each category or subgroup comes to be characterized by the representative (say, average) magnitude on each characteristic. The category’s configuration of representative magnitudes on several quantitative characteristics is known as the prototype.

There are important dynamics in social identity theory, including intertemporal change in the representative magnitudes of quantitative characteristics in subgroups as well as individuals negotiating the processes of depersonalization and self-categorization (Hogg et al. 1995:261-262).

Meanwhile, the larger group also provides a social identity, sometimes termed the superordinate-level identity (Hornsey and Hogg 2002). Accordingly, there can be a three-way contest between personal identity, subgroup-level social identity, and superordinate-level social

identity, paralleling the contest between the Selfista, Subgroupista, and Groupista orientations and emergent subgroups examined in Jasso (2005, in press).

Thus, social identity theory, like sociological identity theory, has at its core the three elements of a sociobehavioral force: (1) personal quantitative characteristics, observed in subgroups and at the superordinate level; (2) personal qualitative characteristics, which give rise to the subgroups or social categories which are the explicit focus; and (3) primordial sociobehavioral outcomes, such as self-enhancement, self-conceptualization, and self-esteem.

Hogg et al. (1995) take several steps to explicitly link social identity theory to sociological identity theory, and below we build on their work and that of Stets and Burke (2000). They suggest, for example, the usefulness of confronting “self-categorization with social comparison processes specified by social identity theory and self-categorization with the cybernetic mechanism suggested by Burke” (Hogg et al. 1995:266). Moreover, they consider the links to status theory. Finally, as already noted, depersonalization and accentuation parallel mechanisms in both justice theory and status theory, and the contest between personal identity and subgroup identity closely parallels the contest between personal status and subgroup status analyzed in Jasso (2001c) and the more general three-way contest between Selfista, Subgroupista, and Groupista analyzed in Jasso (2005, in press).

Note that, like sociological identity theory, social identity theory, because it accommodates several PSOs, is compatible with operation of all three sociobehavioral forces.

* * *

The foregoing summaries of identity, comparison, and status theories suggest that they share a common core of three elements, the elements of a sociobehavioral force: First, each theory involves a primordial sociobehavioral outcome – such as self-esteem, status, or the sense

of justice. Second, in each theory the PSO is generated with respect to personal quantitative characteristics – such as beauty, bravery, competence, or wealth. Third, in each theory personal qualitative characteristics provide both the groups within which the PSOs are generated and the subgroups that become important when quantitative characteristics differ across categories of a qualitative characteristic. Further, the summaries indicate that comparison theory and status theory are each theories of a sociobehavioral force, while identity theory is compatible with operation of all three sociobehavioral forces (comparison, status, power).

To be sure, each theory emphasizes a different element or a different realization of an element. Yet none of the theories could survive without all three elements. The processes they describe require all three elements (except in the special case of comparison theory mentioned above in which a qualitative characteristic is not required).

Of course, each theory may have a distinctive vocabulary, so that the elements and their realizations and the further processes go by different names. Table I provides a partial list of the terms used in the theories, classified by the element to which they correspond. Specificity varies across the cells of the table. For example, in some cells a generic term equivalent to the general element is provided – say, goods in the cells describing quantitative characteristics in comparison theory and status theory; other cells, however, contain the term for a realization of the general element – say, role competence in the cell describing quantitative characteristics in sociological identity theory.

– Table I about here –

We emphasize that the list is partial. A complete list would require inclusion of every single term used in every single article based on each theory. Nonetheless, the table makes vivid the presence of all three elements in all the theories.

Note that the cells corresponding to qualitative characteristics distinguish between subgroups, on the one hand, and groups, on the other hand, labeling groups "1" and subgroups "2". This is an area where terminology has not settled; for example, what we call group and subgroup correspond to what some authors call superordinate group and group, respectively.

Finally, each of the theories generates new quantities and processes which can be seen to parallel each other. Here we highlight five: First, the salience hierarchy in sociological identity theory echoes the relative importance of goods and bads and the individual's choice of goods and bads in justice and comparison theory and in status theory. Second, depersonalization in social identity theory parallels mechanisms in justice and comparison theory and in status theory which impute to individuals the characteristics of their subgroups (and groups, too, as in the Groupista orientation). Third, accentuation in social identity theory echoes similar processes in sociobehavioral theories, such as consolidation in Blau (1974:632), hierarchy and segmentation in Hechter (1978), cleavage in Jasso's (1983b, 1993a) conflict model, and bifurcation in Ridgeway's (1996, 1997, 2001) status construction theory, complete disjuncture in Jasso's (2005) analysis of Selfistas, Subgroupistas, and Groupistas, and censoring in Jasso and Kotz' (unpubl) analysis of personal inequality and subgroup inequality. Fourth, the ingroup-outgroup differential in social identity theory echoes the gap and distance between subgroups in comparison theory and status theory. Fifth, in all the theories, a new competition arises between characterizing a person by individual characteristics or by subgroup representative characteristics or by whole-group representative characteristics.

5. UNIFICATION SURPRISES IN THE WORLD BEYOND JUSTICE

Unification Surprise 17

Partial Unification of Justice and Other Comparison Processes

The examination of the foundations of justice, mentioned briefly above (Unification Surprise 9), led to the realization that justice is a special case of a larger set of comparison processes (Jasso 1990). As noted in Section 4.1, the hallmark of a comparison process is that the outcome is produced by the comparison of an actual holding of a good or bad to a comparison holding of that good or bad – a holding expected, desired, envisioned, or thought just – and that the actual and comparison holdings have opposite effects on the outcome. In a comparison process involving a good, as the actual holding increases, holding constant the comparison holding, the outcome increases; and as the comparison holding increases, holding constant the actual holding, the outcome decreases. In a comparison process involving a bad, as the actual holding increases, holding constant the comparison holding, the outcome decreases; and as the comparison holding increases, holding constant the actual holding, the outcome increases. Besides justice, other members of the class of comparison processes include self-esteem and relative deprivation.

Examples of pairs of actual and comparison holdings include: actual and just earnings; actual and desired wealth; actual and envisioned knowledge of Greek. And an example of a comparison function, inspired by William James' (1891) famous formulation of self-esteem, quoted above, and his reflections on learning Greek, would be: Self-esteem increases with knowledge of Greek, and decreases with desired knowledge of Greek.

The unification is partial because justice extends to both self and other – ideas of justice and justice evaluations both about one's own situation and the situation of others – while

processes like self-esteem cover only self. Figure 3 depicts the partial unification. Fuller exposition is found in Frequently Asked Question 12.1 in Jasso (2001a).

– Figure 3 about here --

Unification Surprise 18

Partial Unification of Justice, Status, and Power

This partial unification is achieved via two insights (Jasso in press): First, in the operation of justice, status, and power, the key function is a function of a quantitative variable; in the case of goods, the function is always an increasing function – for example, status increases with wealth, and so does power, and so does the justice evaluation. Second, there are in nature only three possible rates of change – increasing, decreasing, and constant. Thus, what gives each of these primordial sociobehavioral forces their uniqueness and character is the magical second derivative, and if the three forces are really distinct (and not merely the same force with different names), then they must each have a distinctive rate of change. The literature suggests that the justice evaluation increases at a decreasing rate with the actual reward of a good and that status increases at an increasing rate. Power, if truly distinct from justice and status, must therefore increase at a constant rate. In this unification, the three forces are members of a class in which a force increases with a good and decreases with a bad.¹⁴

Figure 4 provides diagrammatic representation of the new world of justice and beyond.

– Figure 4 about here –

A major payoff from this unification is that it enables assessment of the effects of

¹⁴ By symmetry, a PSO which increases at a decreasing rate with a good will decrease at an increasing rate with a bad; a PSO which increases at an increasing rate with a good will decrease at a decreasing rate with a bad; and a PSO which increases at a constant rate with a good will decrease at a constant rate with a bad.

embracing one or another of the primordial sociobehavioral forces – comparison, status, power – thus generating a large new set of predictions not derivable from within any of the component theories. For example, within the component theories the key questions pertain to the individual’s choice of goods and groups (as in Jasso 1980, 1987), but now in the unified theory there is a third key question, concerning the individual’s choice of sociobehavioral force.

To illustrate, in Unification Surprise 1 we saw the prediction that in a nonmaterialistic society conflict between warring subgroups is a decreasing function of the proportion in the disadvantaged subgroup, while in a materialistic society the relation between subgroup conflict and the proportion in the bottom subgroup can be increasing, decreasing, or nonmonotonic, depending on the form of the distribution of the valued material goods. That prediction can now be understood as a prediction for a society dominated by justice and comparison concerns. If the society is dominated by status concerns, the derived prediction is quite different, namely, that, regardless of the valued good, conflict between warring subgroups is always an increasing function of the proportion in the disadvantaged subgroup.¹⁵

Unification Surprise 19

Partial Unification of the Three Sociobehavioral Forces and Identity

This unification arises from the insight that an identity contains the same three elements as each sociobehavioral force: a personal quantitative characteristic, a personal qualitative characteristic (such as race, gender, or nativity), and one of the three primordial sociobehavioral

¹⁵ Note that the distinction between ideas of justice and judgments of injustice, embedded in the four central questions of justice analysis and in the two fundamental quantities – the just reward and the justice evaluation -- paves the way to precise understanding of the components of the human sense of justice and thus of individuals with limited fairness faculties, including the fully justice-insensitive, who may be attuned to status and power but deaf to justice.

outcomes which give each force its name (Jasso in press). Thus, the operation of each sociobehavioral force produces an identity; and the individual's profile with the configuration of goods and groups and primordial sociobehavioral outcomes generates the collection of identities which gives each person a unique and distinctive personality. At group level, the configuration of the personal collections of identities gives the group its unique and distinctive culture.

Two payoffs of this unification are (1) that it makes the component theories richer – to the theories of each of the three sociobehavioral forces, it gives the vocabulary and imagery of identity theory; and to identity theory it gives the mathematical structure of the theories of the sociobehavioral forces – and (2) that it provides a new, theory-derived way to precisely conceptualize and measure identities, something previously lacking (Brown 1986:551).

Unification Surprise 20

Partial Unification of Three-Sociobehavioral-Forces-cum-Identity and Happiness

This unification is achieved because the operation of each sociobehavioral force also produces a magnitude of happiness or unhappiness (Jasso in press). The new unified theory thus brings to life a key insight of Plato and Aristotle, in Aristotle's (Politics, Book 7, Chapter 8) words: "Different men seek after happiness in different ways and by different means, and so make for themselves different modes of life and forms of government."¹⁶ The new theory formalizes the "different ways and ... different means" of seeking happiness by the operation of three sociobehavioral forces, in which the primordial sociobehavioral outcomes which give each force its name (status, power, or justice) are generated by distinctive mechanisms from personal quantitative characteristics (such as beauty and wealth) within groups formed by categories of

¹⁶ Aristotle's incisive formulation can be traced to Plato's (Republic, Book VIII) insight that "governments vary as the dispositions of men vary."

personal qualitative characteristics (such as nativity, race, and gender).

A payoff of this unification is that it clarifies previous discrepancies in specifications of happiness: all the specifications (as a comparison process or not; as concave, convex, or linear) are correct, each corresponding to one of the component PSOs, each with its own periods of salience and latency.

The unification is partial because happiness is also produced outside the sociobehavioral world, for example, by a sunset or the nuts and figs on a tree.

Unification Surprise 21

Partial Unification of Three-Sociobehavioral-Forces/Identity/Happiness and Other Terms and Ideas

This is an ongoing unification. With every passing week, new terms and ideas are brought under the umbrella of the new unified theory. To illustrate:

1. All the unification surprises display unification of classical and contemporary ideas, classical and contemporary theories. Unification of justice and the other comparison processes would not have been possible without the work of Marx, Durkheim, and James. Unification of the three sociobehavioral forces and happiness would not have been possible without the fundamental reasonings of Plato and Aristotle.

2. Every process discussed in this paper, from the tiny elements embedded in subscripts to the large operation of the sociobehavioral forces, triggers emotion. The coming years will see links far more systematic than the ones currently visible. But already there are some challenges on the horizon. Jasso (2006a) argues that the valence of the triggered emotion must be the same as the sign of the PSO or the change-in-PSO – implying that, among other things, status alone never produces a negative emotion (only change in status can produce a negative emotion) and a

justice evaluation of perfect justice is accompanied by completely neutral affect (rather than the positive affect often conjectured). Turner (2007) seeks to find correspondence between exact, particular emotions and the source of each just reward – for example, plucked from a previous or envisioned self, or from a neighbor, or from a distribution.

3. The new unified theory enables explicit contrast between the three fundamental sociobehavioral forces – what each requires and what each forbids. For example, it can be shown that loss aversion is an exclusive property of the justice and comparison force; loss aversion arises only when the sociobehavioral force has a negative second derivative (with respect to the good which generates it) and thus individuals and societies motivated only by status or power will not experience loss aversion. Similarly, inequality aversion (Unification Surprise 11) may also be an exclusive property of the fairness force; in this case there is not yet a proof but every sign points in that direction. It is straightforward to establish that inequality aversion cannot arise in status processes, given that status is a function of relative ranks alone and hence blind to inequality in the good's distribution (while generating its own new inequality of status (Jasso and Kotz in press)). Further, it appears that power also cannot lead to inequality aversion, though there is not yet conclusive proof. If inequality aversion joins loss aversion as an exclusive property of the justice force, then the presence of loss aversion can be taken as evidence that the justice sociobehavioral force is at work.

4. The intriguing recent work on internalized oppression (Bourdieu 1997; Ridgeway 1997a:222; Stanton-Salazar 1997) finds precise expression in the new unified theory – via developments in status theory (Jasso 2001c) -- and so does the equally intriguing recent work on group boundaries and their permeability (Brubaker and Cooper 2000; Eder and Giesen 2001; Eisenstadt and Giesen (1995); Ellemers, Spears, and Doosje 2002; Giesen ([1993] 1998); Lamont

and Molnár 2002) and on bonding and bridging phenomena (Putnam 2000) – via the new distinction between pre-existing subgroups and emergent subgroups (Unification Surprise 16) and the contest between Selfista, Subgroupista, and Groupista orientations (Jasso 2005, in press).

The hallmark of the new unified theory is, in the words of Samuel Smiles (1875): “A place for everything, and everything in its place.”

In the years ahead, unimaginable new surprises – not only in theoretical unification but also in empirical verification – will bring rich new understanding of the worlds of justice and beyond.

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Table I. Partial List of Terms Used in Three Sociobehavioral Theories for Elements in the Common Core

Elements in the Common Core	Theories			
	Identity		Comparison	Status
	Sociological Identity Theory	Social Identity Theory		
Quantitative Characteristics	resources role competence role enactment role performance	attribute characteristic dimension	goods cardinal ordinal	goods cardinal ordinal
Qualitative Characteristics	1. society 2. attribute group master status network social category	1. superordinate category/group 2. group social category subgroup	1. comparison aggregate group social aggregate 2. subgroup	1. group 2. subgroup
Primordial Sociobehavioral Outcomes (PSO)	self-concept self-efficacy self-esteem self-evaluation self-meaning self-verification self-worth status	self-conceptualization self-enhancement self-esteem status	justice evaluation self-esteem self-worth	deference esteem honor prestige respect status

Notes: Cell entries include some of the terms used in the theories to refer to the three elements in the common core. Cell entries corresponding to qualitative characteristics include terms referring to both characteristics and subgroups and are subdivided into terms used to refer to the group (listed under “1”) and terms used to refer to the subgroups (listed under “2”). Happiness terms – such as happiness, satisfaction, well-being – sometimes appear in the role of PSO, consistent with the view in the unified theory that the three sets of PSOs – comparison, status, power – generate happiness.

Figure 1. Unification Links Between Theories

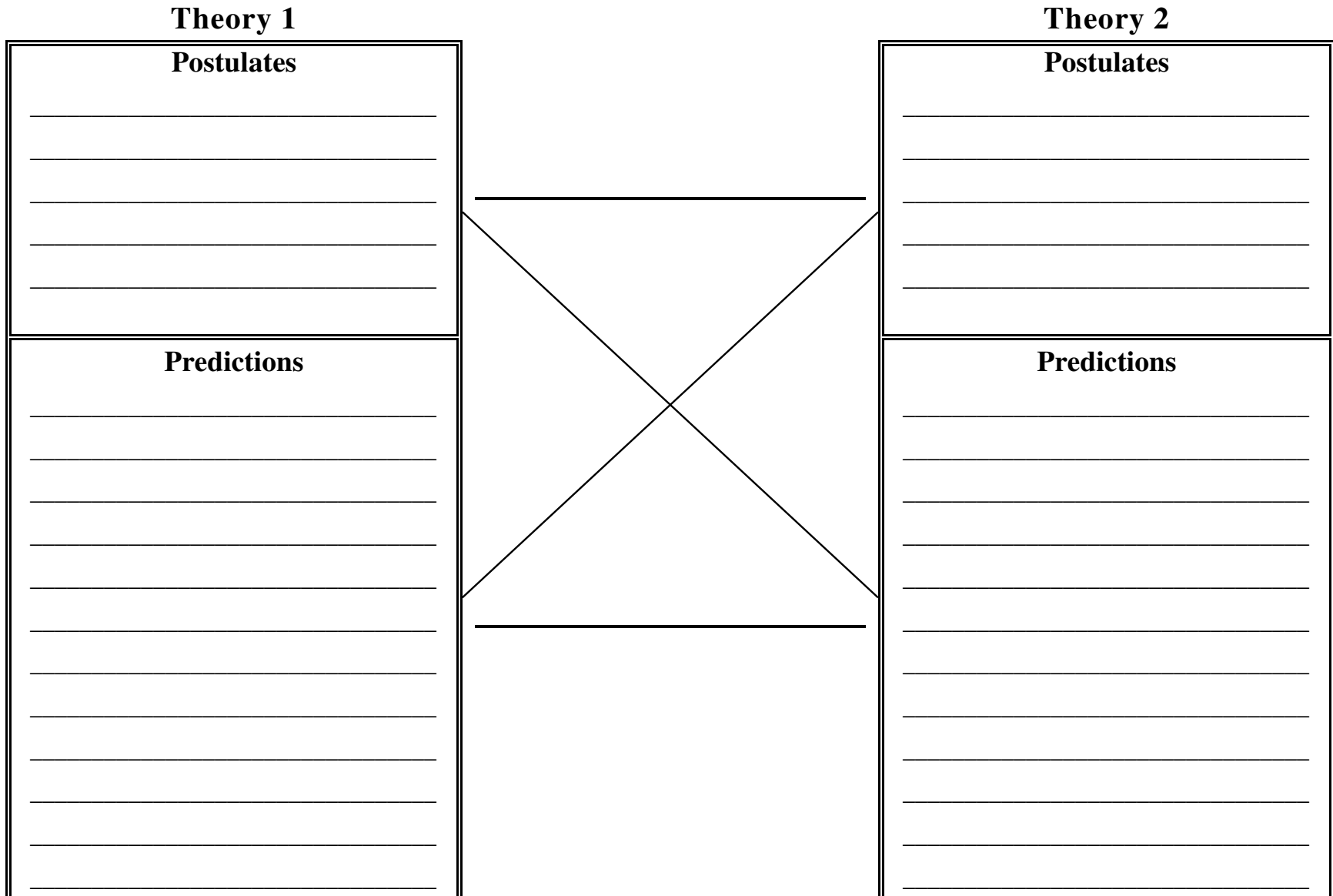
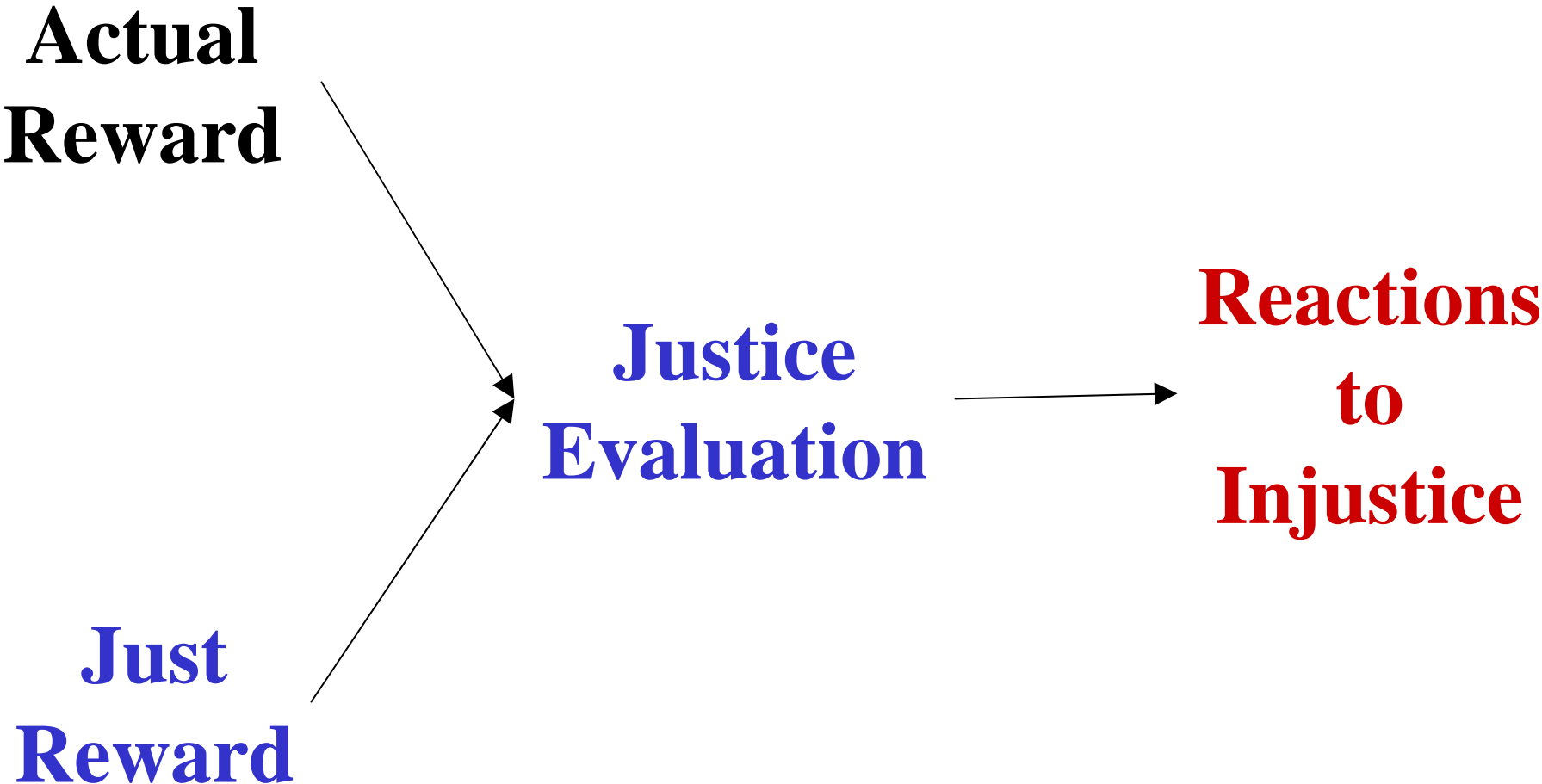


Fig 2. The World of Distributive Justice



**Figure 3. Justice Is a Special Case of Comparison Processes,
But, Unlike the Sibling Comparison Processes, It Covers Other as Well as Self**

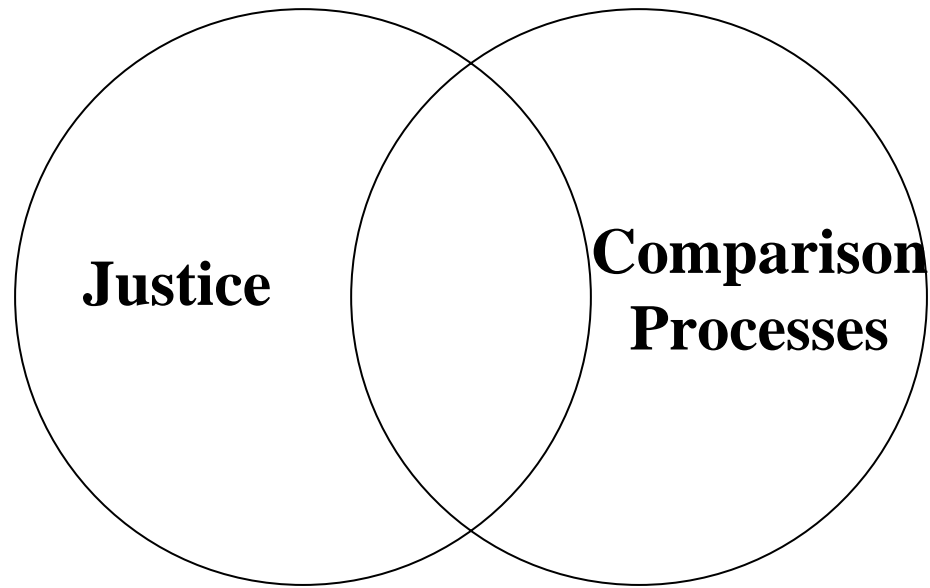


Figure 4. The New World of Justice and Beyond

Justice

Status

Power

**All
Domains of
Behavior**



```
graph LR; Justice --> AllDomains[All Domains of Behavior]; Status --> AllDomains; Power --> AllDomains;
```

The diagram consists of three text labels on the left: 'Justice' in blue, 'Status' in red, and 'Power' in green. Three black arrows originate from the right side of each label and converge on a single black arrowhead pointing to the text 'All Domains of Behavior' on the right. The text 'All Domains of Behavior' is in orange and is arranged in three lines: 'All', 'Domains of', and 'Behavior'.