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Authors

Gallus, Jana
Reiff, Joseph
Kamenica, Emir
[et al.](#)

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Relational Incentives Theory

Jana Gallus*, Joseph Reiff, Emir Kamenica, Alan Page Fiske

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Our life is built around coordinating efforts with others. This usually involves incentivizing others to do things, and sustaining our relationship with them. Using the wrong incentives backfires: it lowers effort and tarnishes our relationships. But what constitutes a ‘wrong’ incentive? And can incentives be used to shape relationships in a desired manner? To address these and other questions, we introduce relational incentives theory, which distinguishes between two aspects of incentives: schemes (how the incentive is used) and means (what is used as an incentive). Prior research has focused on means (e.g., monetary vs. non-monetary incentives). Our theory highlights the importance of schemes, with a focus on how they interact with social relationships. It posits that the efficacy of incentives depends largely on whether the scheme fits the relational structure of the persons involved in the activity: participation incentive schemes for communal sharing relations, hierarchy for authority ranking relations, balancing for equality matching relations, and proportional incentive schemes for market pricing relations. We show that these four schemes comprise some of the most prevalent variants of incentives. We then discuss the antecedents and consequences of the use of congruent and incongruent incentive schemes. We argue that congruent incentives can reinforce the relationship. Incongruent incentives disrupt relational motives, which undermines the coordinating relationship and reduces effort. But, importantly, incongruent incentives can also be used intentionally to shift to a new

relational model. The theory thus contributes to research on relational models by showing how people constitute and modulate relationships. It adds to the incentives and contracting literatures by offering a framework for analyzing the structural congruence between incentives and relationships, yielding predictions about the effects of incentives across different organizational and individual-level contexts.

Keywords: incentives, relational models, congruence, incentive schemes

Jana Gallus, UCLA Anderson School of Management, University of California, Los Angeles; Joseph Reiff, UCLA Anderson School of Management, University of California, Los Angeles; Emir Kamenica, Booth School of Business, University of Chicago; Alan Page Fiske, Department of Anthropology, University of California, Los Angeles.

* Corresponding author: jana.gallus@anderson.ucla.edu; UCLA Anderson School of Management, 110 Westwood Plaza, Los Angeles CA 90095.

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Imagine that you play in a band and have an important performance coming up. One of the band members has fallen ill and you urgently need to find a replacement. How do you motivate another person to fill in? You could offer to pay her per hour of practice and performance. Alternatively, you could give her a gift such as a record of your band's music. Which incentive is best? The answer depends on the relationship you have with the person. The gift makes no sense if the person is a stranger who is a professional musician. The proportional payment is likely to backfire if the person is your friend; she would probably be offended. The point is simple: the existing relationship determines which incentive works best.

Incongruence between the incentive and the underlying relationship is usually counterproductive: it is likely to lead to reduced effort, and it may tarnish the relationship. However, incongruent incentivizing can also be used to shift the relationship to a new mode. Suppose your band permanently onboarded a new member. Initially you offered the new hire the smallest share of the proceeds, reflecting her junior position in the group hierarchy. After a year, you decide to change the incentive scheme. You might decide to split the proceeds evenly among all band members, thus initiating a shift to a 'peer-based' group structure. Or you might offer to pool the proceeds in a fund from which you will pay for joint activities, thus shifting towards a communal relationship. Alternatively, you could decide that everyone gets paid in proportion to the number of pieces they play in, thus creating a market-like exchange. These examples illustrate that the choice of the incentive scheme shapes people's relationships, and that a switch in incentive schemes can induce a shift to a new relational model.

We introduce a mapping between incentives and social relationships that makes it possible to study their interactions in a systematic and straightforward way. There are four relational models that characterize the structures of social coordination across cultures and contexts: communal sharing, authority ranking, equality matching, and

market pricing (Fiske 1991, 1992). Since incentivizing is part of a relationship, we propose that each relational model has a congruent incentive scheme: participation, hierarchy, balancing, and proportionality incentives, respectively. These four schemes encompass the most prevalent variants of incentives (e.g., long-term employment, discretionary incentives, revenue sharing, and piece rates).

With this theory of congruence of incentive schemes to relational models, we also propose to re-conceptualize incentives, distinguishing between schemes (*how* the incentive is used) and means (*what* is being used as an incentive). Much of the prior research on incentives has focused on the effects of different means, particularly the distinction between monetary and non-monetary means. In contrast, we argue that the schemes may be even more important for determining when incentives function well, and when they have unintended effects on effort and the relationship. If you give volunteers money (e.g., a gift card), it is not the use of money per se that backfires; what offends the volunteers is if they perceive that you are using a proportional scheme (e.g., \$12 per 30 minutes of help) in a communal sharing relationship – where proportional incentives are incongruent. In the introductory example, your friend may well accept getting a few extra dollars as a ‘gift’ for her participation, without an adverse effect on her relational or task motivation. Conversely, even the non-monetary ‘gift’ of a record for your friend would probably backfire if you used it in an explicitly proportional scheme, say, five records per day of work. It is the schemes, not the means, that determine congruence with social relationships.

Our theory contributes to research on incentives by offering a clear framework for studying incentives in social context, focusing on the interactions between incentives and relationships. We consider how congruence vs. incongruence of incentive schemes mediates the effects of incentives on effort, engagement, and commitment to the social relationship. Our theory contributes to relational models theory by showing how people sustain, reject, change, or resist changing the relational model with which they

coordinate a given activity. This adds an important account of agentic dynamic process that research on relational models theory has heretofore lacked.

Our paper proceeds as follows: Part 1 introduces the four incentive schemes and lays out how they respectively correspond to the four relational models. It also covers prior literature on incentives, showing that researchers in different fields of the social sciences have repeatedly and independently observed variants of these four fundamental incentive schemes. Part 2 describes the conditions under which people use congruent or incongruent incentives, explains when others accept or reject them, and with what effects. It discusses empirical evidence for these antecedents and consequences, and it sets out testable propositions. Part 3 presents the potential of relational incentives theory to illuminate questions as wide-ranging as how persons sort into activities, organizations, and occupations; why entrepreneurs often choose even equity splits; why contracts are often incomplete; and the limiting case of our theory, which is when the relationship itself becomes a sufficient incentive. We end with a brief discussion of the long-term consequences of incentive schemes.

1. Incentives: Schemes and Means

We use the terms “incentives” and “incentivizing” to designate a person’s or group’s attempt to induce another person to do something by modifying the target’s motives or sentiments. This includes the use of resources (e.g., money), or language, gestures and other forms of communication (e.g., a form of address or a hug symbolizing inclusion in the group). We theorize that the crucial aspect of incentivizing is *how* it is done: the scheme. The scheme refers to the structure of the incentive, as perceived by the people involved. The scheme determines if an incentive is congruent with the predominant relationship structure, that is, the relational model. Thus, we use the term “relationship” or “relation” not in the colloquial sense of friendship or loving relations, but in the technical sense of socially coordinated activity in which the participants are generating action, interpreting and evaluating action, encoding and processing action, shaping

goals, and experiencing emotions with reference to the same culturally implemented cognitive model.

1.1 The four fundamental incentive schemes

There are four relational models that humans use to structure their coordination in virtually all domains and cultures, throughout history: communal sharing, authority ranking, equality matching, and market pricing (Fiske, 1991, 1992; Haslam, 2004a).

Incentivizing is a central aspect of social coordination. We therefore argue that it, too, is structured according to the four fundamental relational models that are used for all human coordination. To show this mapping between incentives and relationships, we first describe each relational model and then introduce the incentive scheme that is congruent with it.

Participation incentive schemes in communal sharing relations

Communal sharing relationships are ones in which people feel that in respect to what they are coordinating, they are the same. They are socially equivalent in the sense that what they do and what they get is not individually differentiated. People belong to many communal sharing relationships, being equivalent in some respects to fellow members in a work group, in other respects to members of the same family, hometown, or gender. The relational motive generating communal sharing is the need for unity (also called the 'need to belong,' 'affiliation motivation,' or 'intimacy motivation').

The incentive schemes that are congruent with communal sharing relationships are what we call *participation incentives*. These consist of acts and expressions of inclusion in the group, given for *making a sincere effort to participate, regardless of the amount or quality of the contribution*. Participation incentives establish an equivalence relation, indicating that what the person did makes them a member of the group – they are just the same as us (in this respect and context, at least). This may entitle them to take any resources from the common pool, or it may simply give them the feeling that the others

in the relationship will look out for them – without any actual rights to take resources, or without involving any resources at all. Examples are offering free food to everyone who shows up to donate blood, regardless of the quantity of blood donated and irrespective of whether the donation attempt is successful; a hug that greets family members arriving at a reunion; or a particular form of address like the custom of Communist Party members to address each other as “comrade” – each of which makes the recipient ‘one’ with the others.

Hierarchy incentive schemes in authority ranking relations

Authority ranking relationships consist of asymmetrical relations in which persons are ordered in a hierarchy. Subordinates owe deference, respect, and sometimes obedience to their superiors, who have a pastoral responsibility to guide, lead, and stand up for their subordinates. Authority ranking is created and sustained by the need for hierarchy (also called ‘power motivation’).

The congruent incentive schemes are what we call *hierarchy incentives*, which consist of *discretionary rewards bestowed by the incentivizer in a way that symbolizes the superior’s legitimate authority*.¹ Hierarchy schemes also consist of acts and expressions of rank that place the incentivized in a linear ordering. Examples of hierarchy incentives are discretionary promotions and awards or insignia and accoutrements of ordinal status (e.g., getting an office on the executive floor, being crowned).

Balancing incentive schemes in equality matching relations

Equality matching relationships consist of keeping track of what one gives and gets, with even balance as the reference point. A specific equality motivation undergirds these relationships (Rai & Fiske, 2011).

¹ While all incentive schemes may involve ‘discretion’, we use the term to indicate that the superior has legitimate authority to decide on the reward.

Balancing incentives are the congruent incentive schemes. These consist of acts and expressions that make the recipient even with others in the group. To balance is not to be equivalent, not to be the same. It is to be on the same *level*, to be equal in the sense of being *evenly matched*. Examples include egalitarian wages where everyone is paid the same, office rotations, or random allocations of parking spots, giving everyone the same chance of getting the most coveted reward. In contrast to participation incentives, a balancing scheme gives each person a discrete reward that exactly matches what each other person is getting (simultaneously, in turn, or in expectation if a lottery is used). In a participation scheme, the reward is not divided into assigned portions; it is treated as if it belonged to all; no one keeps track of who gets or takes how much. If food is the means used, a participation incentive is an open buffet, or a family dinner where one person dishes out food in a way that signals that everyone is part of the family and that the food is for all (even if it is limited); while in a balancing scheme everyone gets, for example, exactly one sandwich and one drink.

Proportional incentive schemes in market pricing relations

Market pricing relationships consist of coordination with respect to some socially constituted ratio, rate, or proportion. Proportionality motivation, closely resembling need for achievement, is behind market pricing. It need not involve selfish utility maximization.

Proportional incentives are the congruent schemes. They consist of acts and expressions that are given *in a ratio according to the amount that the recipient contributed* to the coordinated activity – whether measured in time, pieces, effort, efficiency, impact, or on some other dimension denominated in rational numbers. A proportional incentivizer can multiply the value of each different kind of contribution by its magnitude, then add them together to compute the total – and then calculate the amount of an incentive that is qualitatively distinct from the incentivized contribution, but fungible with it. So everything being coordinated is measured in the common currency of the utility of what the person did, which also measures the value of the proportional

incentive. An example of proportional incentives is piece rate pay, where the person is paid in proportion to his productivity.

1.3 Practices and constructs corresponding to the four incentive schemes

A look at the empirical and theoretical literatures shows that the principal ways of incentivizing indeed correspond to the four incentive schemes we just introduced. Table 1 shows that the four schemes help us classify the major incentive ‘types’ in formal organizational life, such as, respectively, long-term or even ‘lifetime’ employment, (one kind of participation incentive), discretionary bonuses and promotions (one kind of hierarchy incentive scheme), profit sharing (where equal splits are a balancing scheme), and piece rates (one kind of proportional scheme). It also indicates in informal coordination efforts some of the main ways of incentivizing that respectively correspond to each of the four schemes.

[Insert Table 1]

Several major social psychological theories have conceptualized phenomena that approximately correspond to the four schemes of relational incentives theory.

In their classic theory, French and Raven (1959; Raven, 1993) use the term “power” to encompass all kinds of social influence. One mechanism is “referent” power, in which a person seeks to conform to a group that they belong to, or wish to join; this corresponds closely to our participation scheme. Using behaviorist concepts, French and Raven also identify legitimate “reward” and “coercive” processes in which a person exerts influence by providing reinforcements such as piece rate payments; this corresponds to our proportionality scheme, in which the rate and intensity of behavior that an incentive yields depend on the rate of reinforcement, positive or negative (this later became known as Herrnstein’s [1970] matching law, or the law of effect). Raven (1993) also describes influence based on legitimate expectations of reciprocity (more or less corresponding to our balancing scheme), as well as influence through formal position,

based on Weber's (1978) conceptualization of obedience to the will of a legitimate authority (our hierarchy scheme).

Social and organizational justice researchers have also identified at least three of the four incentive schemes, if one grants that resource allocations often involve decisions about incentives to motivate potential recipients. Equity theory posits that people generally feel that certain resources ought to be distributed in proportion to what each person contributed (our proportional scheme). Social and organizational justice researchers have also shown that, depending on the circumstances, people may judge that it is just to make an even distribution of certain resources, giving each member of a group the same (the balancing scheme). They have moreover shown that sometimes people judge that it is just to distribute certain resources according to need. This is close to the participation scheme. (The difference is that participation incentives do not involve metering and tracking the incentive use at all. But from the observer's point of view, participation incentives are often actually 'consumed' according to 'need'.) These are the three distributions that have been the focus of most social and organizational justice researchers, though some researchers have listed others (see Cropanzano et al.'s 2007 review). It is somewhat surprising that they have given comparatively little consideration to the ubiquitous distributions based on authority and rank – though in many circumstances people consider hierarchical schemes the most just. Table 2 is a summary of how these and other social psychological concepts correspond to the four incentive schemes.

[Insert Table 2]

Researchers studying individual differences in trait motivation have also indirectly dealt with three of the four schemes. Although nearly everyone is inherently motivated to engage in all four fundamental types of social relationships, and hence is sensitive to all four incentive schemes, there are individual differences in proclivities to engage in each

type of relationship (Caralis & Haslam, 2004; Haslam, 2004b; Haslam & Fiske, 1999; Haslam, Reichert, & Fiske, 2002; for a comprehensive overview, see Strasser, 2013). We posit that the constructs of intimacy motivation (McAdams, 1988, 1989), need for affiliation (Hill, 1987), and need to belong (Leary et al., 2013), correspond to increased sensitivity to participation schemes (with different needs operative in more or less different contexts). Individual motivation to respond to hierarchy incentives is closely related to the constructs for need for power, authoritarian personality, and social dominance orientation (Winter, 1973; McClelland, 1975; McAdams, 1988; Adorno et al, 1950; Pratto et al, 1994). Sensitivity to proportional incentives resembles need for achievement – the need to rationally calculate the expected utilities of the options for social coordination, using a single comprehensive fungible metric (Atkinson & Feather, 1966; McClelland, 1976; McClelland et al., 1953). Table 3 summarizes how these individual differences in trait motivation align with sensitivity to the three respective schemes.

[Insert Table 3]

Scholars studying incentives in economics, management, and organizational behavior have also repeatedly and independently observed the four incentive schemes of our theory. They have usually considered incentives in one specific field (e.g., the labor market or education), often without discussing the generality of the underlying incentive structure. A few scientists have recognized all four schemes in one domain of sociality, but without appreciating that they all operate to enable coordination across all domains. Many researchers have identified one incentive scheme, or contrasted a pair of schemes – without considering all four. Other researchers have made binary distinctions that conflate schemes that are differently structured and hence are effective in different kinds of relationships; they may treat all ‘social’ incentives as functionally identical, or group all ‘economic’ or ‘monetary’ incentives together. Many of the parallels among the constructs only become visible when incentivizing is analyzed in terms of the

four schemes. In management, for example, Ouchi (1979) discussed three fundamentally different mechanisms by which teams and organizations distribute rewards emanating from joint work: markets where individual contributions are precisely measured and rewarded (in our terms, proportional incentive schemes); Weberian bureaucracies where ‘superiors’ evaluate, direct, and, we conjecture, reward ‘subordinates’ (related to hierarchy schemes); and clans where ‘socialization practices’ make ‘members’ adopt and value a shared mindset and identity. (While Ouchi did not study incentives, we can identify the rites and ceremonies he mentions as practices that create participation incentives). Similar parallels can be seen in the work done by organizational behavior scholars Trice and Beyer (1984), who described rites of integration to “encourage and revive common feelings” (p. 657; in our terms, participation schemes), rites of enhancement that “enhance social identities and their power” (p. 657; hierarchy incentives), and conflict reduction rites that are meant to “assure equal turns” and “minimize symbols of status differences” (p. 662; balancing schemes). In economics, Prendergast’s (1999) analysis of the provision of incentives in firms discusses proportional schemes such as piece rates, balancing schemes such as even splits of profits, hierarchy schemes such as discretionary incentives awarded by the supervisor, and participation schemes such as company-wide profit-sharing schemes “where the benefits of increased effort are shared with often thousands of others” (p. 10). Table 4 summarizes this research and identifies some other instances where scholars have independently discovered subsets of our four schemes.

[Table 4 about here]

Beyond all of the correspondences between the four incentive schemes and constructs in the fields of research discussed above, there are even broader connections across entire literature streams and recurrent topics in the social sciences, as Table 5 displays (e.g., showing connections to research on loyalty, identity, and organizational

citizenship). This shows the fundamental importance of the four schemes and their relevance for any social scientist studying incentives.

[Insert Table 5]

By displaying the four distinct incentive schemes as they are used in different spheres of social life and studied in different literatures, all of these tables make the fundamental point that schemes matter – and that they can and should be analyzed separately from the means.

1.4 Incentive means

Previous research has strongly focused on the *means* that people use to incentivize: the medium of the incentivizing act, and money in particular (e.g., Deci, 1971; Frey, 1997; Deci et al., 1999; Gneezy & Rustichini, 2000a; Cameron et al., 2001; Prendergast & Stole, 2001; Heyman & Ariely, 2004; Vohs et al., 2006; DeVoe & Iyengar, 2010; Lacetera et al., 2013; Frey & Gallus, 2017). We argue that the entity that is given to the incentivized person is not in itself crucial to its effectiveness or backfiring. What ultimately matters is the incentivizing scheme. Any means can be used in any scheme.

For example, when Fiske lived in Africa, when he visited a village family for the first time, his host often presented him with a live chicken. Looking back on this, we can identify the chicken as an incentive. Before he knew the cultures, Fiske did not know if the chicken was a participation incentive intended to make him want to join the community. Or was it a hierarchy incentive, showing deference and offering him a superior position in the hierarchy – or, conversely, an act of largesse from the host, asserting superiority over Fiske? It could have been a balancing incentive, inviting an equality matching relationship in which he should (after some culturally apt interval of time) return a chicken of the same kind. Or it might have been an offer of sale, for which proportional payment was expected (in currency or in barter goods), offered in the hope of establishing some sort of trade relationship. A chicken can incentivize in any of these

schemes. Until you identify the scheme – which requires knowledge of the culture – you do not know how the means (the chicken) is intended.

Certain means may be cues of one relational model or another – e.g., money for market pricing, trophies and titles for authority ranking, lottery tickets for equality matching, flowers for communal sharing. This is in line with previous work that suggests that ‘economic incentives’ (money) may backfire by signaling that the relational coordination is a market pricing transaction and not a ‘social exchange’, and by reducing the giver’s ability to signal her knowledge of the recipient’s preferences (e.g., Kreps, 1997; Prendergast & Stole, 2001; Fehr & Falk, 2002; Heyman & Ariely, 2004; Bowles, 2016).

But it is important to note that people also use other cues to identify the predominant relational model in a given coordination, such as other artifacts in use, surrounding architecture, and role terms (e.g., ‘boss’ and ‘subordinate’). The means are just one of the cues, and they vary according to activity and culture. Even money, the canonical market pricing means, is fruitfully used in communal sharing relationships. This is powerfully shown by Zelizer’s (1994) research about ‘gift money’, which describes how “families, intimate friends, and businesses likewise reshaped money into its supposedly most alien form: a sentimental gift, expressing care and affection. ... [G]ift money circulated as a meaningful, deeply subjective, nonfungible currency, closely regulated by social conventions. At Christmas, weddings, christenings, or other ritual and secular events, cash turned into a dignified, welcome gift almost unrecognizable as market money” (p.139). Likewise, awards, the canonical authority ranking means, can foster communal sharing relationships – and thus motivate greater effort on behalf of the group. This is supported by evidence from a field experiment conducted on Wikipedia (Gallus, 2017), which found that symbolic awards had significant and long-lasting effects, motivating new editors to remain active contributors. Evidence from recipients’ written reactions to the awards shows that one mechanism behind the effects was an increased feeling of belonging to the community of ‘Wikipedians’.

These examples illustrate that the means are only one among many cues of the relationship. It is the way in which the means are used (the scheme), in conjunction with the relational model underlying the activity, that determines the effects of incentivizing. Whatever the activity or the culture, this structural congruence is the determining factor.

2. Congruence and Incongruence

2.1 The importance of congruence between incentive schemes and relational models

What is crucial for coordination is that the people interacting do so with reference to the same relational model, implemented in the same manner (Fiske & Haslam, 2005). Relational models generate expectations about others' behaviors and motives. But there is often some uncertainty about the relational model that different persons who are coordinating an activity are willing to have, or that they believe they do have. Using and responding to incentives is an important way for people to signal their relational beliefs and preferences.

To see why congruence and incongruence of incentives and relationships matter, we need to start from the premise that people care strongly about social relationships. Relationships can be powerfully motivating ends in themselves (Fiske, 1991, 1992). This is consonant with a major theme in the social sciences, such as Adam Smith's (1759) writing about man's "natural" desire to be loved; Harsanyi's proposition that "social acceptance" is one of the two dominant interests explaining people's behavior, besides economic gain (1969:524); the research on social identity theory and identity economics that shows the importance of group memberships and identities (Tajfel et al., 1971; Tajfel & Turner, 1979; Akerlof & Kranton, 2000); or Baumeister and Leary's argument that "the need to belong is a powerful, fundamental, and extremely pervasive motivation" (1995:497). So, unlike previous work in relational contracting and theories of

social exchange that consider 'relationships' instrumentally, as a means to an end (e.g., Baker et al., 2002), we consider social relationships as ends in themselves.

Congruent incentives generally motivate greater effort and commitment by reinforcing and evoking congruous relational motives, and thus reinforcing the relationship.

Participation incentive schemes reinforce the unity motives undergirding communal sharing relations, hierarchy incentives reinforce the hierarchy motives in authority ranking relations, balancing incentives reinforce the equality motives in equality matching relations, and proportional incentives reinforce the proportionality motives in market pricing relations. When people behave in ways that reinforce the predominant relational model, mutual commitment to the relationship increases, resulting in greater effort and commitment to the joint activity.

Incongruence in the use of and response to incentives is one important way that relational motives are violated and coordination breaks down. The mechanisms behind such breakdowns are both cognitive and emotional. They are fundamentally different from those in some prominent earlier theories about incentives, which focus on how the incentivized person perceives a task or how she perceives herself, asocially (e.g., Deci, 1971; Bénabou & Tirole, 2003). Relational incentives theory is not concerned with cases where people lose interest in the task (although that may be a result of the decreased or changed relational motivation underlying task engagement). Nor does our theory concern the inferences that people draw about their own abilities or motivations, or about the incentivizer's beliefs about those. Instead, the mechanisms we are theorizing concern relational motives that depend on the form of *relationship* that the incentivizer and the incentivized person perceive or prefer.

If we accept that incentives and the responses to them signal the involved persons' beliefs and preferences about relational models, we begin to see an important exception to the principle that incongruent incentives backfire: Incongruence can be used as an

invitation to shift to a new and mutually preferred mode of relating. To understand when incongruent incentive schemes successfully facilitate a shift to a different relational model, we need to understand what leads to congruent and incongruent incentivizing.

2.2 Antecedents of congruent and incongruent incentivizing

People commonly offer congruent incentive schemes, doing so because they intuitively and correctly perceive incentivizing as an aspect of the social relationship that coordinates the incentivized activity.

Yet there are many conditions under which people offer incongruent incentive schemes. What are the factors that lead to incongruent incentivizing? These antecedents affect the response we may expect from the incentivized person.

An incentivizer may offer an incongruent scheme primarily because of their explicit or implicit beliefs: perceptions of the incentive and the activity, together with wider understandings of the social world. If their beliefs are correct, such that they recognize when a scheme is congruent or when it is incongruent, we will say that they offer the congruent or incongruent scheme “knowingly.”² If the beliefs are incorrect, in the sense that their beliefs conflict with the beliefs of more knowledgeable participants or observers, we will say that they offer the congruent or incongruent scheme “unknowingly”. The person may also offer the scheme primarily because of their narrowly defined individual preferences or motives; we will call this “voluntary.” Or they may offer the scheme primarily because of the constraints they face, and hence, “involuntarily.” To simplify, we categorize as “involuntary” all actions resulting from factors outside the incentivized activity or apart from the person’s selfish individual

² By “correct” we mean only that their beliefs accord with the beliefs of knowledgeable people. There is no objective truth about these matters, so we could also describe beliefs of different persons as concordant or discordant. But usually there is a consensus among participants (along with observers; Caralis & Haslam, 2004; Haslam, 2004b).

preferences, despite the fact that such factors may be internalized so that they do not subjectively feel like ‘external’ constraints.

For clarity of exposition, we present these factors as dichotomies, while acknowledging that there may be intermediate cases. We also put aside the complexities of interactions among beliefs, preferences, and constraints. Also, although cognitive scientists have identified many ways of knowing, for present purposes we ignore those distinctions, and we will not consider partial knowledge.

Considering incentive scheme choices as a result of knowing or unknowing, and voluntary or involuntary processes, allows us to recognize that there are many possible reasons for incongruent incentivizing. These include ideological stances that lead to misperceptions of the predominant relational model or incentive, and third-party relationships that act as constraints on the incentivizer (see the Supplemental Online Material for a comprehensive list of conditions that we propose can lead to incongruent incentivizing).

For our purposes, the most interesting case of offering *incongruent* incentives is when the incentivizer intends to shift to another relational model. We posit that this intent will lead her to use an incentive scheme that is congruent with the desired relational model.

Empirical evidence on factors affecting the choice of incentive schemes

Empirically, the question of how individuals choose incentives is not widely researched. Even at the organizational level, firms’ incentive and contract design choices continue to pose major puzzles for researchers (we will return to some of these in section 3). While most of our theory’s predictions remain to be tested, below we present empirical evidence from anecdotes, experiments and observational data analyses, which support our premise that people use incentive schemes to effectuate specific relationship structures.

Examples of participation incentives used in an apparent effort to shift a relationship to communal sharing include the provision of free food and beverages to be festively consumed by all members of an organization. This uses a participation scheme in which the commensal eating signals that “we are a ‘family’, we did this together, and we will go on to succeed together.” Such incentives appear prominently in contemporary technology companies and co-working spaces (e.g., see Google’s statement of “How we care for Googlers”; or Segel et al., 2016, for details on co-working spaces.)

Experimental evidence indicating that people use participation schemes to create communal sharing relations comes from Clark (1984), in whose study participants were asked to complete a number circling task with a confederate. They were unobtrusively given the choice to use pens of the same color, thereby obscuring individual contributions and credit, or pens of a different color. She found that male participants who may have hoped for communal relationships – potentially dating an attractive female confederate – were more likely to choose pens with the same color, compared to men working with an unavailable female partner. This may indicate that individuals who seek a communal sharing relationship forego tracking their relative contributions, preferring instead to share jointly in the credit and the reward, as a team. Further research by Clark and associates shows that when people want to become closer friends with someone, they offer help (Beck et al., 2017; Beck & Clark, 2009). This may be intended as a participation incentive to facilitate shifts from what are possibly equality matching relationships to communal sharing.

For an example of balancing incentives used with an intent to shift to equality matching, consider companies where managers’ offices are brought to the same floor as those of employees, presumably to signal the desired change. Levine (1991) presented ample evidence of such measures that are used to “reduce the status differentials between workers and managers” in an effort to increase “group cohesiveness”. He cited Andrew Grove, co-founder of Intel, for noting that it is much easier for low-level members “of the

organization to participate in decisions if the organization doesn't separate its senior and junior people with limousines, plush offices and private dining rooms. Status symbols do not promote the flow of ideas, facts and points of view. So while our egalitarian environment may appear to be a matter of style, it is really a matter of necessity, a matter of long-term survival" (1983, p. 23). As argued by Levine and others, it is "cohesiveness considerations" that *lead* to the adoption of balancing schemes such as "egalitarian wages" and symbolic policies to reduce or eliminate status differentials.

In contrast, hierarchy incentives are used if the goal is to shift a relationship to authority ranking. This is supported by research by sociologists who showed that award ceremonies such as the Grammy Awards are used to 'shape a field' by distributing prestige and channeling attention to create and foster authority ranking relationships (Anand and Watson, 2004, Anand and Jones, 2008). This is particularly interesting to observe in the arts, where many activities are *not* coordinated according to authority ranking. In the voluntary sector, organizations may introduce hierarchy incentives to reap the presumed benefits of greater control; so they create 'managerial' roles with the right to decide over others' rewards, possibly symbolized by job titles and other status symbols, as an attempt to shift certain relations among members of the organization towards authority ranking.

Proportional incentives are used if the intent is to shift to market pricing, such as when a person insists on paying a former classmate in proportion to the time he spends repairing the person's automobile. This can be particularly relevant in contexts where artifacts and architecture otherwise risk cuing a relational model that is not desired by one of the persons; consider sex workers or psychotherapists. In these cases, proportional incentive schemes such as time accorded to the client in proportion to payment may be used to maintain and emphasize a market pricing relationship when the client may prefer a communal sharing relationship.

2.3 Responses to congruent and incongruent incentive schemes

The consequences of congruent and incongruent incentive scheme use depend on the recipient's beliefs, relational preferences, and the constraints they face. We adopt the same lens as above, considering knowing or unknowing, and voluntary or involuntary reactions. This draws attention to the fact that, besides intentional reactions (i.e., knowing and voluntary), which tend to be the focus of many researchers, there are cases where aspects such as constraints imposed by third parties or by institutions determine the response to the incentive. For instance, someone may accept an incongruent incentive if they believe important others want them to do so, even if they would personally prefer not to.

We apply these three factors – beliefs, preferences, and constraints – to both the response to congruent incentive schemes and the response to incongruent schemes. The Supplemental Online Material (SOM) offers a compendium of the various possible and testable conditions.

Accepting a congruent scheme is the default, typical response. However, a person can also reject a *congruent* scheme. This can be done intentionally (knowingly and voluntarily) to end a relationship or to shift to a new relational model (see SOM IV. A). Whether the shift to the new relational model succeeds depends on the reaction from the incentivizer. Consider a person who moves to a new neighborhood, hires a handyman living down the street, and that handyman rejects the proportional incentive scheme in an effort to shift the default, market pricing relationship to one of equality matching (“You can help me out next time”), or communal sharing (“Let’s just have dinner with the families”). If the incentivizer accepts the offer, further actions will follow that reinforce the new relational model.

When offered an *incongruent* scheme, the incentivized person may reject it for several reasons (SOM section V). The case of intentional rejections (i.e., knowing and

voluntary) is the most relevant for our purposes. The most common reason for such rejections is that the incentivized person perceives the incongruent scheme as a violation of the existing relational model, which hurts their relational motives and emotions. This, we posit, weakens or even terminates the existing relationship, leading to a coordination failure. Another, subtly different reason that can lead to the same outcome is that the incentivized person regards the newly proposed relational model to be improper, or that they otherwise strongly dislike it. Weaker negative responses may be expected if the incentivized person believes that the incongruent incentive was offered because of constraints acting on the incentivizer (i.e., involuntarily), or because of the incentivizer's erroneous beliefs (unknowingly). If the incentivized person does not prefer the newly offered relational model, they will reject the offer. If they do prefer it, however, they may act to reinforce the shift by accepting the incongruent incentive and exerting effort in the activity.

This is an instance of one of the most intriguing scenarios: the incentivized person accepts the incongruent incentive scheme (SOM section VI). As before, we focus on the intentional cases. The most important case is where the incentivized person also prefers the new relational model. If so, he will respond by accepting the incongruent incentive and exerting effort to signal his preference and foster the shift. Consider a worker who is offered the possibility to shift his contract from a proportional, hourly wage to a long-term employment contract with free family health insurance. He may perceive this as a participation incentive – a sign that he is now truly an integral part of the organization – and consequently exert greater effort to signal his commitment to the shift. This may also include effort on dimensions that are impossible for managers or others to observe.

Other cases where an incongruent scheme is intentionally accepted include those where the incentivized person infers that the scheme was the result of constraints or erroneous beliefs, and the person prefers the new scheme, as discussed above; or

where the incentivized person is able to transform the incentive scheme into a congruent one. For example, a soldier who fought in a communal sharing manner with his platoon is offered a distinction that would put him above the others. If the soldier prefers the old relational model of communal sharing, he may accept the reward 'on behalf of his platoon' and emphasize how they all 'won together'.

As we argue in this section, there are two cases where incentivizing can prompt a shift to a new relational model: when congruent incentive schemes are rejected (or modulated by the recipient), and when incongruent incentive schemes are accepted. So, it is both the incentivizer and the person being incentivized who can prompt a shift.

The above discussion shows that incentivizing can lead to one of four main outcomes: (1) acceptance of a congruent incentive, resulting in a reinforcement of the relationship; (2) rejection (or modulation) of a congruent incentive in a manner or with a communication that invites a shift to a different relational model, or that provokes termination of the old relational model; (3) rejection (or modulation) of an incongruent incentive, in a manner or with a communication intended to weaken or terminate the existing relationship; (4) acceptance of the incongruent incentive, leading to a shift to a new relational model.

In all instances, effects on effort in the coordinated activity, along with overall devotion and commitment to the group or organization, are to a considerable degree mediated by the incentivized persons' engagement in the social relationship that organizes their coordination. The motivating effect of incentives is not simply a function of the material value or ultimate utility of the means used to incentivize. Indeed, the means that is given may have little effect in itself. Conversely, means with little material value may have great effects. What often matters is the social relational meaning of the incentive. If the incentivizing scheme reinforces an important, satisfying social relationship, old or new, then people will be more engaged in whatever they are doing in that relationship. If the

incentivizing scheme undermines the relationship in which people are coordinating, they will become less engaged in the activity, work less hard, care less about the quality of their work, and be less concerned with the welfare of the group or organization, which they may even seek to leave.

Empirical evidence on responses to incentives

While most of our propositions about the response to incentive offers still need to be tested, below we present some of the empirical research that is in line with our theory, and that our theory newly illuminates. We begin with studies related to the negative and positive effects of incongruence and congruence, respectively. We end with studies suggesting that incentive schemes may indeed shift relational models.

The social and organizational justice literature supports our arguments that congruence between incentive schemes and relationships is important, and that incongruence can backfire. (As discussed above, this holds insofar as resource allocations are intended to motivate people; though note that in many cases dealt with by organizational justice researchers, the incentivizer is the organization and the relations concerned are those among employees.) Deutsch (1985) prominently argued that pay dispersion reduces cooperation and that it can backfire when work is ‘interdependent’. This is consonant with our proposition that proportional or hierarchy schemes can be harmful if the appropriate relational model is equality matching or communal sharing. Subsequent empirical research provides substantial support for this (see Cook & Hegtvedt, 1983, for a review). For instance, Bloom (1999) showed a negative relationship between pay dispersion and performance among professional baseball teams, where we can expect that play (and some aspects of training) are coordinated through communal sharing and equality matching relationships.

While this shows the backfiring effects of incongruence, other work in the justice literature supports our argument about the positive effects of congruence. Deutsch and others have argued and shown that under circumstances where task interdependence

requires cooperation (i.e., under conditions often governed by equality matching), *compression* of incentives (applying balancing schemes) tends to increase performance (e.g., Deutsch, 1988, Levine, 1991, Pfeffer, 1995, Shaw et al., 2002).

The above evidence supports the conjecture that balancing schemes work and hierarchy schemes backfire in equality matching relations. More recent evidence shines light on other relational contexts, showing, for instance, that balancing incentives are not always the preferred incentive scheme: DeVoe and Iyengar (2010) provide evidence that people view it as less fair to distribute resources equally (applying a balancing scheme) when the predominant relational model is market pricing than when a different relational model may predominate. Their study suggests that people expect and prefer proportional schemes in market pricing relationships, where balancing schemes are deemed unfair. A recent field experiment in the trucking industry was able to study the effects of the same incentive scheme under different relational models in the same organizational context: Blader et al. (2020) showed that increasing the salience of proportional incentives (detailed performance statistics) backfired, but only in sites that had already started a process of culture change as part of a ten-year program that sought to create a “cooperation-based relational contract”. This program applied many practices that might have made equality matching or communal sharing the predominant relational model for coordinating many activities. Interestingly, the effects of the proportional scheme were positive in sites where people were still coordinating according to the old relational model, which we may presume to have mostly been market pricing.

Outside of work contexts but still in the domain of resource exchange, Kim et al. (2018) showed that exact repayments harm communal sharing relationships (liking of a potential friend). In line with our theory, the authors argued that such petty behavior (in our terms, applying a proportional scheme) signals the person’s relational intention.

Interestingly, and supporting our conjecture that means matter less than schemes, the negative effects obtained for both money and time.

Further support for our theory comes from research in economics and adjacent fields, which has shown that the use of performance-based pay can backfire. Such backfiring has largely been attributed to using the wrong means, and money in particular (e.g., Heyman and Ariely, 2004). Our theory suggests that it might have been the proportional incentive schemes that caused backfiring when used in the wrong relational context. Non-profit and academic contexts typically rely on communal sharing or equality matching (Aggarwal, 2004; McGraw et al., 2012), where proportional incentives are relationship-incongruent. Indeed, some of the seminal papers in this literature showed that proportional incentives backfired when used to motivate volunteer fundraising (Gneezy & Rustichini, 2000a), academic testing (Gneezy & Rustichini, 2000a), and child-care pick-up (Gneezy & Rustichini, 2000b; for a review see Gneezy et al., 2011). Conversely, in market-pricing contexts, where proportional incentives are relationship-congruent, proportional incentives typically motivate more effort than participation incentives (e.g., DellaVigna & Pope, 2018). This provides further support for our thesis that incentive schemes can backfire in contexts in which they are incongruent with the predominant relational model but that they are effective where they are congruent.

Finally, we turn to our conjecture that incentive schemes can be employed to shift to a new relational model. One of the most well-known studies that can be reinterpreted in that light is the robbers' cave experiment (Sherif, 1961). Initially, two groups of boys were in a "state of friction", competing with members of the other group. Then the experimenters introduced "superordinate goals", which effectively created participation incentives (e.g., jointly getting to watch a movie). These incentives shifted the relational model used to coordinate several activities from authority ranking (the ranking of the two groups resulting from winning vs. losing the contests) towards communal sharing. One of the first "signs of integration" was that the two groups spontaneously chose to

prepare food together. “One camper said, ‘You never thought we'd be eating together?’ The reply was laughter” (p. 173).

Further, anecdotal evidence of ‘steering and counter steering’ of relational models through incentive schemes comes from Wikipedia. The online volunteer community is often seen as a canonical example of the ‘peer production’ model, which is minimally hierarchical or even anti-hierarchical. But given the growing number of contributors, some had to be given greater decision rights, and so the role of “administrator” was created (Gallus & Bhatia, 2020). Yet, as is still highlighted in Wikipedia’s policy documentation, “Administrators were not intended to develop into a special subgroup. Rather, administrators should be a part of the community like other editors” (Wikipedia, 2020). In an effort to maintain the communal mode while introducing the new position, founder Jimmy Wales announced his possible recourse to a balancing scheme: “I just wanted to say that becoming [an administrator] is **not a big deal**. I think perhaps I'll go through *semi-willy-nilly* [randomly] and make a bunch of people who have been around for a while [administrators]. I want to dispel the aura of "authority" around the position. It's merely a technical matter that the powers given to [administrators] are not given out to everyone” (Jimmy Wales in 2003, as cited in Wikipedia, 2020; emphasis added).

We have argued that recipients, too, can use incentive schemes to steer relational models with the giver, but also their relations with third parties. In support of this, researchers have recounted many instances where individuals refused awards, or where they returned them in order to shape their relation to the giver (see Goode, 1978; Frey & Gallus, 2017; or Emerson’s “balancing operations” in power relations). In many instances, this rejection of a hierarchy incentive signals a refusal to enter an authority ranking relation with the giver (e.g., a head of state whose policy one objects to) and others in the activity. Thus, artists regularly protest the seeming imposition of rank by award-giving bodies (e.g., Kehlmann, 2008).

3. Some Implications and Applications

Relational incentives theory draws on relational models theory, but it also goes far beyond it. Relational models theory has never explained just how people deploy relational models and maneuver within them to reach their goals (Fiske, 1991). That is, relational models theory does not have any theory of the intentional agent selecting, resisting, or being constrained to accept a given relational model, or seeking to change to another relational model. Relational models theory has long noted that when people aiming to coordinate use different relational models, they get confused, disappointed and hurt, angry, and condemn each other's actions as transgressions of the respective relational models that they themselves are using to judge their coordination (Fiske, 1991; Rai and Fiske, 2011). Taking offense because of this, the participants may terminate the relationship. But that is *all* that relational models theory says about these important cases; it has never shed light on what people *do* to resolve the clash of inconsistent relational models. Nor has it said much about when and why such inconsistencies occur. More broadly, relational models theory says next to nothing about process. Relational incentives theory addresses that gap, opening many new frontiers.

Furthermore, relational incentives theory provides new explanations for several puzzles in different literatures of the social sciences, and it suggests new avenues for empirical work. To illustrate the breadth of puzzles and new questions the theory sheds light on, in what follows we cover issues of incentive design at the organizational level, as well as the more informal use of incentives by individuals, such as employees in self-managed teams and private individuals in 'peer production' models such as Wikipedia (Benkler, 2006). Further streams of literature that our theory may help elucidate have been discussed above, for instance regarding the backfiring effects of monetary incentives.

Puzzle 1: Why are contracts often incomplete?

One long-standing puzzle, particularly prominent in law and economics and in the incentives literature, has been the prevalence of “incomplete” and simple contracts (e.g., Macaulay, 1963; Rousseau & McLean Parks, 1993; Eggleston, Posner, & Zeckhauser, 2000). Why is it that “most workers face simple compensation schemes in which rewards are insensitive to performance, at least over short periods” (Prendergast & Topel, 1993)? Why is it that “a traditional piece-rate system is rarely used” (Lazear, 2018)? Why do organizations “frequently ... reward people for membership (through pay tied to seniority, for example) rather than for performance” (Nadler & Lawler, 1989:11)? Previously proposed answers include issues of measurability and verifiability of outcomes, uncertain future requirements, contracting costs, and bounded rationality (see Hart, 1995, and Tirole, 1999, for reviews).

Our theory offers an additional reason for why contracts can be less complete and much simpler than standard theory would predict: “Incomplete” contracts that do not specify a proportional incentive scheme often serve to reinforce existing *non*-market-pricing modes of coordination, or they may invite a shift to non-market-pricing modes. Further, relational incentives theory also predicts the specific structure of the (simple, incomplete, non-proportional) incentive contracts we expect to be used instead. We predict that the alternative types depend on the incentivizer’s preferred relational model – the one they are trying to create. Thus, for example, paying employees “for membership” (Nadler & Lawler, 1989) can be a participation scheme that initiates a communal sharing relationship in the organization. But it only does so if employees perceive that the scheme indexes and effectuates their being a part of the whole. That is, it moves the relationship toward communal sharing only if they see that, rather than making hourly or performance-contingent payments in a proportional scheme that supports market pricing, the organization is assuring their needs with a long-term income. (Ouchi [1981] describes a salient example of a set of participation schemes that was once pervasive in Japanese corporations – but not spelled out in any contract:

mutual responsibilities of employees to their corporation and the corporation to its employees, corporate concerned involvement in employees' personal lives, and lifetime employment.)

Puzzle 2: Why do entrepreneurs so often opt for even equity splits?

Another puzzle comes from the entrepreneurship literature (e.g., Wasserman, 2008; Kagan et al., 2020): Much attention has been put on the observation that founders frequently use balancing incentives (even splits) to allocate equity, despite the founders' disparate added-value and opportunity costs. Previous research explains the prevalence of even splits as the result of widespread inequity aversion (Wasserman & Hellman, 2016). Our theory suggests alternative explanations that can be tested: (1) founders prefer even splits if they are friends or classmates guided by equality matching (in line with the results in Polcz, 2020, for music bands' royalty contracts); (2) when co-founders do not have an established relationship, they may use even splits if they aspire to form an equality matching relationship; and (3) in contrast to warnings that even splits are usually mistakes (e.g., Wasserman & Hellman, 2016), equality matching relationship-congruent incentives may result in high motivation, satisfaction, and commitment. In short, our theory implies that founders may use even equity splits because these are congruent with the type of existing relational model among them, or the one they would like to have. (A similar argument can be made for decisions about credit allocation among scientists, such as alternating the authorship order as Daniel Kahneman and Amos Tversky apparently did.)

In this case as in others, the 'right' incentive scheme cannot be specified independent of the relational model that people are using to coordinate. And again, it appears that incentives work when they evoke, strengthen, or shift and align relational motives.

Besides suggesting answers to unanswered existing questions, relational incentives theory sets the stage for exploring a number of interesting new questions. Here we mention three.

Question 1: How do relational preferences and incentive schemes affect how individuals sort into activities, organizations, and occupations?

Besides influencing existing relationships among employees and others, incentives play an important role in attracting people who are a good fit for the organization (e.g., O'Reilly et al., 1991; Lazear, 2018). As discussed above, it has been shown that people vary in their predominant relational motives: Some people may seek to coordinate in hierarchies, others may tend to quantify proportional contributions, while other people typically see the world as composed of in-groups and outgroups, needing to belong to their focal in-group (e.g., McClelland, 1975, 1976; Pratto et al., 1994; Haslam & Fiske, 1999; Caralis & Haslam, 2004; Strasser, 2013). Thus, if homogeneity, or at least prevalence of a given proclivity, is recognized as favorable for the operations of the organization, regardless of the incentive means the organization uses, we would expect the organization to use congruent incentive schemes to attract suitable candidates. For example, we might expect participation schemes to be used by a service organization that needs employees who affiliate or closely identify with service recipients and fellow members of the organization. For the understanding of individual self-selection into organizations and occupations, this adds a heretofore unstudied dimension: people's relational motives, such as need for affiliation or belonging, power motivation, and achievement motivation.

Question 2: When are separable incentives needed, and when is the relationship itself a sufficient incentive?

When one wants someone to do something, often an incentive is needed. But sometimes no incentive is needed – and the other person would be confused or offended if an incentive *were* offered. When the relationship itself is sufficiently important for its own sake, people often do what the other(s) want(s) without even being asked, let alone offered an incentive. The relationship is its own reward, or it is felt to be morally binding (see Weber, 1978, on legitimacy). Congruence in this limiting case consists of the participants' perceiving that the type of relationship that they intend –

and that motivates action to conduct and sustain the relationship – is the same as the type of relationship that the other(s) are engaged in and committed to.

In an inherently highly motivating relationship, a person will often do what the other wishes without any need for that wish to be expressed. Indeed, it is a salient sign of devotion to know what the other wishes without being told, and to do it without being asked. When the battle situation suddenly changes, a soldier who is devoted to his commander might risk his life to acquire intelligence that the soldier knows his commander will want, even before the commander knows that he needs the intelligence. In doing what his duty demands, the soldier may risk his life without even any consideration of future reward, simply to do what a subordinate should, or to please his commander and protect his comrades. So the question is, when should an explicit incentive be offered, and when should one show that one trusts that the relationship alone is sufficient, and believes that the other is fully engaged and committed to it?

Question 3: What goes on between the end points of the dimensions we treat as if they were dichotomies?

Finally, relational incentives theory raises a great many questions about the subtleties of what we have, for the sake of parsimony, presented as if they were dichotomies: accepting and rejecting incentives, knowing and not knowing whether they are congruent, and selecting a response voluntarily or involuntarily. As indicated in section 2, there are innumerable intermediate cases and ways of appearing to do one thing while actually doing something else, or being intentionally ambiguous about what one is doing, such as using indirect speech (Lee and Pinker, 2010). Cognitive scientists have shown that knowledge is not unitary: There are two ways of explicitly knowing (semantic and episodic), and several ways of implicitly knowing (including procedural competence, perceptual competence, classical conditioning, and operant conditioning). What are the consequences of knowing congruence/incongruence in different ways? Likewise, a person often has conflicting motives, including motives concerning morality, social relationships, and the welfare of others that may define the self in ways that make it

unclear just what ‘individual (selfish) preferences’ are, and hence what ‘voluntary’ and ‘involuntary’ are. So as the next frontier, relational incentives theory needs to go beyond any dichotomy between voluntary and involuntary. In addition, because of the nuances of realizing any relational model in any social interaction, sometimes there may be ambiguity or disagreement about whether a scheme is congruent with the relational model organizing the coordinated activity. What causes such ambiguity, and what are the consequences? These questions will be important and exciting to study.

4. Incentives Sustain, Modulate, or Change Relationships

Much of social life consists of maintaining or modulating social relationships, all the while trying to get others to do something. Incentivizing is central to both processes. People’s use of a particular incentive scheme not only signals the kind of social relationship that they expect, but in the long run partly determines the kind of relationship that they will have. The manner in which parents and teachers choose to incentivize children, how employers decide to incentivize workers, and the ways that governments select to incentivize citizens will shape our future social relationships and our society as a whole.

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Table 1. Examples of Common Phenomena Corresponding to the Four Incentive Schemes

	Participation	Hierarchy	Balancing	Proportional
Within firms, with money as means	Long-term employment and rare layoffs – when employees perceive themselves as a truly integral part of the organization. E.g., Japanese "Theory Z" business model where the firm takes care of its employees for life (Ouchi 1981)	Discretionary promotions and bonuses handed out by a 'boss'	Profit sharing schemes with even division. Partnerships with even payouts (as, e.g., in many law firms)	"Pay for performance" (e.g., piece rates). Hourly wage
Within firms, non-monetary means	Free family health insurance for all employees. Free drinks, food, and events. Free use of lounge, kitchen, gym, or other facilities. E.g., Hewlett-Packard's practices conveying the message of "being part of a family" (Baron & Kreps, 1999: 38)	Discretionary non-monetary rewards (e.g., job titles and offices carrying prestige) conferred by a superior	Equal vacation length and equal number of paid 'personal days' off	Sabbatical for every seven years of teaching, fractionally divisible
Incentives for extreme self-sacrifice: soldiers (e.g., Stouffer et al 1949; Moore & Galloway 1992; Costa & Kahn 2003)	Belonging to the group of comrades in arms. "We discovered in that depressing, hellish place, where death was our constant companion, that we loved each other. We killed for each other, we died for each other, and we wept for each other." (M & G 1992 p. xviii)	Discretionary promotions with honors and privileges of rank	Equal number of rest and recreation days out of the war zone. Turn-taking rotations to safe locations away from front lines	Combat pay
Beyond organizations (e.g., within family)	Joint experiential incentives (e.g., barbecue for a day of joint work). Free access to a cabin one helped build	Many instances of rewarding in families, where parents decide on which behaviors to reinforce	Turn-taking, random draws, even resource splits	Screen minutes per time spent cleaning up

Table 2. How Social Psychological Conceptualizations of Incentives Align with The Four Schemes

	Participation	Hierarchy	Balancing	Proportional
French & Raven 1959: The bases of social power	Referent power (being the same or wanting to be)			Reward and coercive power (response in proportion to positive or negative reinforcement, respectively)
Raven 1993 (additions to French & Raven 1959): The bases of power: Origins and recent developments	Legitimate power from responsibility or dependence	Legitimacy from formal position	Legitimacy from reciprocity	Legitimacy from equity
Schwartz 1967: The social psychology of the gift	Gift as origin and imposition of group identity	Gift as acceptance of social inferiority	Gift return following "rule of approximate reciprocity"	
Cialdini & Goldstein 2004: Social influence: Compliance and conformity. Cialdini 2008: Influence: Science and practice	Conformity with one's group or the group that one wants to join	Compliance with legitimate authority figures, as in Milgram (1974)	Reciprocity, including reciprocal concessions	
Deutsch 1975, Leventhal 1976, Lerner 1977, Cropanzano et al. 2007: Social and organizational justice	Need	Status, rank [infrequently and only cursorily considered by most justice researchers]	Equality	Equity

Table 3. How Individual Difference Traits Align with The Four Schemes

Participation	Hierarchy	Balancing	Proportional
<p>Intimacy motivation (McAdams 1988, 1989).</p> <p>Affiliation motivation (Hill 1987).</p> <p>Need to belong (Leary et al. 2013)</p>	<p>Power motivation (Winter 1973; McClelland 1975; McAdams 1988, 1989).</p> <p>Authoritarian personality F scale (Adorno et al 1950).</p> <p>Social dominance orientation (Pratto et al. 1994)</p>		<p>Achievement motivation (need to act in a rationally calculative, efficient manner when coordinating; Atkinson & Feather 1966, McClelland 1976, McClelland et al. 1953)</p>

Table 4. Research and Theory Relating to the Four Incentive Schemes In Economics, Management, and Organizational Behavior

	Participation	Hierarchy	Balancing	Proportional
Ouchi 1979: A conceptual framework for the design of organizational control mechanisms. Ouchi 1980: Markets, bureaucracies, and clans	Incentives in "clans", such as "rituals and ceremonies rewarding those who display the 'right' attitudes and values"	Incentives in "bureaucracies", where superiors evaluate and reward subordinates		"Market" incentives that "precisely measure and reward individual contributions"
Trice & Beyer 1984: Studying organizational cultures through rites and ceremonials	"Rites of integration" (e.g., office Christmas parties to "encourage and revive common feelings...", p. 657); several of the other rites	"Rites of enhancement" to "enhance social identities and their power" (p. 657)	"Conflict reduction rites" ("most of them use some method to assure equal turns at participation and use settings that minimize symbols of status differences", p. 662)	
Ostrom 1990: Governing the Commons: The Evolution of Institutions for Collective Action. Ostrom et al. 1992: Covenants with and without a sword: Self-governance is possible	Free use of a resource held in common by members of a community	Allocations and penalties managed by a government authority	Harvesting turns or equal allocations managed by an organization of peer harvesters	Proceeds from sale of harvest from privatized resources
Prendergast 1999: The provision of incentives in firms	Company-wide profit-sharing schemes, "where the benefits of increased effort are shared with often thousands of others" (p. 10) – when employees perceive the scheme as a joint pool of resources from which they are paid simply for having been a part of the enterprise	Discretionary incentives awarded by the supervisor	Even splits of profits	Piece-rate
Deci et al. 2001: Extrinsic rewards and intrinsic motivation in education: Reconsidered once again	Rewards not contingent on task completion or performance, given simply for participation or engagement, when the task is the responsibility of a team	Verbal rewards given with a controlling interpersonal style		Most other performance-contingent rewards
Rynes et al. 2005: Personnel psychology: Performance evaluation and pay for performance		Differentiated rewards, pay dispersion, especially where not based on "true performance differences or other acceptable equity considerations" (p. 586)	Even splits of profits	Individual merit pay when based on measured performance
Kerr & Slocum 2005: Managing corporate culture through reward systems		"Hierarchy based" reward systems		"Performance based" systems
Lazear & Shaw 2007: Personnel economics: The economist's view of human resources		The "hope of promotion" (p.95), where it involves discretion on the part of the superior	"Gainsharing", where payouts are even; pay compression aiming at equality	Individual performance bonuses
Lazear 2018: Compensation and incentives in the workplace	"Team-based incentives" (though allocation mechanism among team members is not considered)	Promotions and rewards based on subjective relative effort evaluation by a superior	"Team-based incentives" if evenly split	"Continuous" incentives: piece-rate pay and time-based pay
Dohmen & Falk 2011: Performance pay and multidimensional sorting: Productivity, preferences, and gender	Fixed payment scheme (400 points guaranteed)		Revenue sharing in which the dyad's earnings are divided evenly	Piece rate (10 points per correct answer)
DellaVigna & Pope 2018: What motivates effort? Evidence and expert forecasts	Gift exchange treatment ("In appreciation to you for performing this task, you will be paid a bonus of 40 cents. Your score will not affect your payment in any way"); Task significance treatment ("Your score will not affect your payment in any way. . . please try as hard as you can")		Treatments in which some participants are entered into a lottery where each has an equal chance of winning a payment	Piece rate treatments (e.g., "You will be paid an extra 1 cent for every 100 points that you score")
Kagan et al. 2020. Equity contracts and incentive design in start-up teams [four "contract archetypes" for co-founder equity divisions emerged in these experiments]	Threshold vesting	Difference vesting	Equal-split contracts	Proportional division

Table 5. Connections to Other Constructs and Literatures

	Participation	Hierarchy	Balancing	Proportional
Loyalty, identification with the organization (e.g., Simon 1991, Akerlof & Kranton 2005)	X			
Organizational citizenship (Organ 1990)	X			
Awards (e.g., Gallus & Frey 2016), prestige (Goode 1978)	X	X		
Leadership (e.g., Hermalin 2012)		X		
Principal-agent theory (e.g., Alchian & Demsetz 1972), transaction cost economics (Williamson 1975)		X		X
Team incentives, partnerships (e.g., Kandel & Lazear 1992)			X	
Exchange theory (Ekeh 1974, Befu 1977, Cook et al. 2013, Cropanzano et al, 2017)			X	
Adverse effects of monetary incentives (e.g., Gneezy & Rustichini 2000a,b)				X

Supplemental Online Material

How beliefs, constraints, and preferences influence the choice of congruent and incongruent incentive schemes and responses to them

This compendium offers a list of testable propositions about factors influencing how people choose and respond to incentive schemes. The underlined parts denote the most important and novel cases.

Offering incentives

I. When will people be likely to offer congruent incentive schemes?

Most of the time. This is the typical, unproblematic, default way to incentivize.

People offer congruent schemes because incentive schemes are one aspect of social coordination of an activity, and in a given activity among a given set of people, it is simpler and generally expected to use one and the same relational model for as many aspects as possible.

II. When will people be likely to offer incongruent incentive schemes?

A. *Knowingly and voluntarily*¹

1. Desire to shift: When the incentivizer wants to shift to another relational model.
2. Second-order normative beliefs: When the incentivizer believes (correctly or incorrectly) that others in the activity, in her role, or in her reference group, would offer it, and she does not want to be regarded as odd or different.

¹ We assume conscious intentionality. Because we imagine that people rarely offer an incongruent scheme unknowingly and involuntarily, we ignore that case.

3. Relationships with third parties: When the result of the incentive scheme is expected to create an especially pleasing social relationship with others (incentivized persons or people not engaged in the activity).

B. *Unknowingly and voluntarily*

4. Incorrect beliefs about the world: When the incentivizer has a strong monolithic ideological stance about how society works, strong folk psychological beliefs about basic human motives ('everyone only does what they get paid for'), or a distorted stereotype of what motivates the people of a given culture, race, ethnic group, generation, profession, or other set of people. Or when the incentivizer over-generalizes from a previous, apparently successful incentivizing experience of her own, or that of a referent other.
5. Idiosyncratic preferences and personality: When the personality of the incentivizer makes her especially motivated by one scheme, so she assumes that everyone finds that one scheme especially motivating, and she sees the social world through that lens. (Cf. social dominance orientation, achievement motivation, intimacy motivation, authoritarianism, and personality disorders.)
6. Uncertainty: When the incentivizer is new to a particular activity or organization, or she otherwise lacks specific information about how this activity is coordinated in that context.
7. Misperception of the incentive: When the incentivizer perceives the scheme differently than those whom she offers it to. That is, although informed participants or observers judge the scheme that the incentivizer is using to be incongruent with the relational model of the activity, the incentivizer misperceives the scheme as a congruent one.

C. *Knowing the incongruence, but involuntarily offering the scheme*

8. Third party constraints: When a third party, such as a boss, stockholders, voters, or others whom the incentivizer has to accommodate, imposes the use of a

specific incentive scheme, without regard for how the people are actually coordinating this particular activity.

9. Institutional constraints: When the law, regulations, collective bargaining contracts, or religion require a specific incentive scheme.
10. Resource availability: When the incentivizer has only one obvious or available means (e.g., money or a meal) and takes it for granted that the use of that means implies using a particular incentive scheme. This can be because of past practice, or because the means seems to lend itself more readily to one scheme than another (e.g., when it is difficult to share a meal in a proportional manner).

Responding to incentives

III. When will people be likely to accept congruent incentive schemes?

Most of the time. This is the typical, unproblematic response to congruence.

IV. When will people be likely to reject congruent incentive schemes?

A. *Knowingly and voluntarily*

1. Desire to shift: When the incentivized person intends to propose a change in the relational model organizing the activity, rejecting the incentive in a manner that shows their intent to shift.
2. Desire to weaken or terminate the relationship: When the incentivized person prefers to pull back from or end the existing relationship with the incentivizer.
3. Second-order normative beliefs: When they believe (correctly or incorrectly) that others in the activity, their role, or their reference group, would reject it.
4. Relationships with third parties: When the result of the rejection is expected to create a pleasing social relationship with others.
5. Unattractive or offensive means: When the incentivized person is offended because they perceive the offer of an incentive as a sign of distrust in their current devotion and commitment to the relationship and activity. When other

factors, unrelated to relationship structures, make the incentive offer unattractive (e.g., the level of the proportional payment is deemed insufficient).

B. *Knowingly but involuntarily*²

6. Third party constraints: When a person or persons with whom they have an important social relationship regards the scheme and/or the relational model organizing the activity as wrong and wants them to reject it (or would want it if they knew.) Or when the incentive scheme risks creating an unwanted relationship with other persons.
7. Institutional constraints: When the law, regulations, collective bargaining contracts, or religion require a different incentive scheme, or disallow use of the means.

V. When will people be likely to reject incongruent incentive schemes?

A. *Knowingly and voluntarily*

1. Preference for the existing relational model: When the incentivized person(s) feel that the incongruent incentive scheme violates the relational model they are using and should be using to coordinate the incentivized activity, so the incentive scheme is a transgression of that relational model.
2. Aversion to the proposed relational model: When they perceive the incongruent incentive scheme as an invitation to change the relational model coordinating the activity to a new relational model that they feel to be improper or illegitimate, or otherwise strongly disprefer.
3. Inference about the incentivizer's erroneous beliefs or constraints: When they infer that the incongruent incentive was offered because of erroneous beliefs (unknowingly) or because of constraints (involuntarily), and they prefer not to shift.

² The *unknowing* rejection of a congruent incentive seems to be a rare case; when it does occur, we suggest that its antecedents correspond to the reasons why an incentivizer may unknowingly offer an incongruent incentive.

4. Inference about the incentivizer's type: When they regard the incentivizer as unpredictable, crazy, or otherwise untrustworthy.
5. Second-order normative beliefs: When the incentivized person(s) believe (correctly or incorrectly) that others in the activity, their role, or their reference group, would reject it.
6. Relationships with third parties: When the result of the rejection is expected to create a pleasing social relationship with others.

B. *Knowingly but involuntarily*³

7. Under the same circumstances as when someone knowingly rejects a congruent incentive scheme: due to constraints imposed by third parties or institutions.

VI. When will people be likely to accept incongruent incentive schemes?

A. *Knowingly and voluntarily*

1. Desire to shift or acceptance of shift: When the incentivized person(s) prefer or accept the new relational model.
2. Inference about the incentivizer's erroneous beliefs or constraints: When the incentivized person(s) infer that the incongruent incentive was offered because of erroneous beliefs (unknowingly) or because of constraints (involuntarily). If they merely accept the new relational model, this need not lead to a long-term shift in the predominant relational model. But if they prefer the new relational model, they can subsequently take action to signal their preference and reinforce the shift.
3. Transformation of incentive: When they have the capacity to transform the incentive scheme into a congruent one. (See soldier example in text.)
4. Second-order normative beliefs: When they believe that others in the activity, their role, or their reference group, would accept it.

³ We ignore the seemingly unlikely case of unknowing rejection of incongruent schemes.

5. Relationships with third parties: When the result of the acceptance is expected to create a pleasing social relationship with others.
6. Attractive means: When other factors, unrelated to relationship structures, make the incentive offer attractive (e.g., a high level of payment).

B. *Unknowingly but voluntarily*⁴

7. Under the same circumstances as when someone unknowingly offers an incongruent incentive scheme: due to incorrect beliefs about the world, idiosyncratic preferences and personality, uncertainty in a novel activity or organization, or misperceptions of the incentive scheme.

C. *Knowingly but involuntarily*

8. Under the same circumstances as when someone involuntarily rejects a congruent incentive scheme: constraints imposed by third parties and institutions.
9. Dependence: When they perceive themselves to be dependent on the incentive means or the continued relationship.

⁴ With respect to consciously directed action, we do not think that it makes sense to describe accepting an incentive unknowingly and involuntarily, so we ignore this combination.