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Self-Regulation as a Transactive Process:

Reconceptualizing the Unit of Analysis for Goal Setting, Pursuit, and Outcomes

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Pity poor Linus, the solitary ostrich foraging in Kenya's Tsavo West National Park. He is hungry, but he knows that eating, with his head buried in the grass and other low vegetation, makes him especially vulnerable to predation. He must take regular breaks to raise his head so he can scan his surroundings for lions and other predators. Contrast his situation with that of Schroeder, an ostrich in the Park who is foraging in the company of Charlie, a conspecific. Schroeder, too, is hungry and wishes to avoid predation, but the presence of Charlie, with whom he can share the task of scanning for predators, means that he can spent more of his feeding time actually eating. Indeed, if Linus and Schroeder are typical of ostriches foraging alone versus in pairs, Linus will spend 35% of his feeding time with his head in the air rather than eating, whereas for Schroeder, it will be only 23%. More importantly, Schroeder's diminished vigilance does not make him more vulnerable because the total amount of time that at least one ostrich head, either Schroeder's or Charlie's, is raised is slightly higher when feeding in pairs than when feeding alone—37% versus Linus's 35% (Bertram, 1980; for a broad review, see Coan & Maresh, 2014).

Parallel findings pervade vast swaths of the animal kingdom. Consider the regulation of body temperature among rodents. Such thermoregulation, which is a prerequisite for survival, is bioenergetically costly, but how much bioenergetic resource investment it requires is lower when the rodents are in small social groups rather than by themselves. In a recent experiment, for example, *Octodon Degus* (a Chilean rodent) were housed either by themselves or in groups of three or five (Nuñez-Villegas, Bozinovic, & Sabat, 2014). The basal metabolic rate—the minimum rate of energy expenditure necessary to maintain homeostasis—of degus housed alone was 25% higher than that of degus housed in groups (2.16 vs. 2.69 kJ h^{-1}), which left them with fewer bioenergetic resources available for others tasks (for a broad review, see IJzerman et al., in press).

We suggest that the feeding behavior of Kenyan ostriches and the thermoregulation tendencies of Chilean rodents speak to a crucial but widely neglected truth about self-regulation: that goal

dynamics—goal setting, pursuit, and outcomes—are fundamentally social processes. Indeed, the central thesis of this chapter is that the most accurate unit of analysis for understanding human goal dynamics is not the individual person, but rather the interdependent social group.

On first blush, this thesis might seem preposterous. As this *Handbook* illustrates, research on self-regulation has been hugely innovative and influential in recent decades, and the rate of progress remains robust. Why must we consider a challenge to the pervasive (if implicit) assumption that goal-related processes predominantly reside within a single individual?

If the goal of self-regulation research is to develop models of goal-relevant processes that emerge within prototypical laboratory experiments—those in which individuals are, for example, seated alone at a table with a marshmallow on it or at a computer screen with tempting images on it—then the individual unit of analysis may well be optimal. If, in contrast, self-regulation researchers want to understand how people set, pursue, and achieve goals in their everyday lives, then a predominant focus on individual-level processes is likely to yield an incomplete, perhaps even inaccurate, understanding of goal dynamics. Consequently, we argue, any conceptual model seeking to capture such dynamics must address topics like how pervasively people set and pursue goals for others and have those others set and pursue goals for them, and the circumstances under which social processes promote versus undermine goal achievement.

To be clear, this thesis is not simply an argument about external validity. Of course, the pursuit of empirical paradigms that more closely approximate typical goal-relevant experiences from people's everyday lives is a worthwhile goal in itself, but that issue is secondary in this chapter. The primary issue is that the field's conceptualization of goal dynamics predominantly as within-individual processes, as implied by the term "self-regulation," has yielded theoretical models that, we argue, do not approximate the true nature of goal setting and pursuit as these processes function in people's everyday lives.

Transactive Goal Dynamics Theory

The self-regulation literature is replete with theoretical models and empirical paradigms that treat the individual as the unit of analysis, and many of these models have produced groundbreaking insights. However, a broad range of 21st-century findings has begun to suggest that this individual level of analysis is oversimplified. For example, scholars interested in public health have demonstrated that important variables related to self-regulation—such as health behaviors and outcomes—can spread through social networks (Christakis & Fowler, 2008). One 32-year study of over 12,000 participants revealed that the odds of becoming obese increased by 37% if one's spouse had become obese and that the odds of quitting smoking increase by 25-67% if a friend, family member, coworker or spouse had quit smoking (Christakis & Fowler, 2007, 2008). Likewise, a large-scale study of a team-based weight loss competition demonstrated that team members, all of whom were clinically overweight or obese, lost more weight to the extent that their teammates reported greater social influence in the weight-loss domain (Leahey, Kumar, Weinberg, & Wing, 2012).

Such studies illustrate the influence of social factors on consequential outcomes. What they lack is clarity about the psychological mechanisms driving the effects. Although psychologists have increasingly recognized the importance of integrating social processes into the study of self-regulation (e.g., Aarts, Gollwitzer, & Hassin, 2004; Baumeister, DeWall, Ciarocco, & Twenge, 2005; Feeney, 2004, 2007; Finkel et al., 2006; Fitzsimons & Bargh, 2003; Gollwitzer, Sheeran, Michalski, & Seifert, 2009; Karremans, Verwijmerin, Pronk, & Reitsma, 2009; Richeson & Shelton, 2003; Shah, 2003; vanDellen & Baker, 2009; Vohs, Baumeister, & Ciarocco, 2005; Walton & Cohen, 2007; for reviews, see Finkel & Fitzsimons, 2011; Fitzsimons, & Finkel, 2010), little effort has been made to provide theoretical integration, which means that the emerging literature is a collection of largely disconnected effects.

In a recent review article, we offered a first attempt to provide an integrative theory, which we call *transactive goal dynamics theory*, or TGD theory (Fitzsimons, Finkel, & vanDellen, in press). Rather than characterizing a given pair of people as two independent self-regulating agents with largely independent goals and pursuits, TGD theory builds on the central insight behind research on transactive memory (Wegner, Erber, & Raymond, 1991) to characterize the social group as one self-regulating unit, with each member as a sub-unit in a single system of goal dynamics. It asks three questions about each goal that exists within a transactive system—for example, the system created by a young married couple, John and Alice, who both work full time and who are raising their two year-old son: (a) who *sets* the goal (John, Alice, or both), (b) who is the *target* of the goal (John, Alice, or both), and who *pursues* the goal (John, Alice, or both)?

The emphasis emerging from this transactive approach diverges sharply from the emphasis that emerges from prevailing approaches in the self-regulation literature, in which John and Alice are independent agents who set and pursue their own goals independently. John wants to lose weight (goal setting), cuts back his carbohydrate consumption (goal pursuit), and drops 10 lbs. (goal outcome); Alice wants to get a promotion (goal setting), spends more hours at the office (goal pursuit), and gets promoted (goal outcome). These cases are undeniably important, but, we suggest, they represent a small subset of the goal-relevant dynamics that characterize people's everyday lives. In this sense, the field of self-regulation research is much deeper than it is broad.

Figure 1 reproduces from Fitzsimons et al. (in press) the figure illustrating TGD theory. The first tenet is simply that relationship partners combine to form a single self-regulating unit, which consists of a complex web of goals, pursuits, and outcomes. The second tenet suggests that the *transactive density* of a given relationship—the complexity of the web of goal-related interdependence—is especially high when the partners have both the opportunity (e.g., circumstances that afford or require frequent interaction) and the motivation (e.g., mutual liking)

for high levels of goal-relevant interdependence. The third tenet suggests that high transactive density interacts with *goal coordination*—the efficient use of pooled goal-relevant resources—to predict goal outcomes. Specifically, transactive density improves outcomes when coordination is strong (when goal facilitation is robust, role specialization is strategic, and goal conflict is minimal), but it undermines outcomes when coordination is weak. The fourth tenet is that strong goal coordination emerges from shared goal representations (e.g., both John and Alice want John to lose weight) and the partners' relationship orientation and skills (e.g., Alice is highly committed to John's well-being). The fifth tenet is that partners who experience *transactive gain*, or strong goal outcomes as a result of involvement in the relationship (stronger outcomes than they would have experienced on their own, for example), are especially likely to persist in the relationship over time. The sixth tenet is that transactive density and goal coordination *during the relationship* interact to predict poor goal outcomes for the partners after the relationship ends. In a sense, this tenet is a post-breakup mirror image of the third tenet (in Figure 2, contrast the negative sign associated with the T6 arrow with the positive sign associated with the T3 arrow): To the extent that John and Alice facilitated each other's goal outcomes, specialized effectively, and had minimal goal conflict during the relationship, the harder it will be for each of them to develop effective goal dynamics following the termination of the relationship.[1]

The Transactive Goal Dynamics Process Framework

In this chapter, we use the transactive perspective afforded by TGD theory to construct a descriptive, process-oriented framework of how two people's goals, pursuit, and outcomes shape one another. This framework, which we call the *TGD process framework*, articulates basic

[1] Tenet 6—that high density and strong goal coordination during the relationship can undermine goal outcomes after relationship dissolution—focuses on the challenges of extricating oneself from a dense and productive transactive system. It is also plausible, however, that some of the goal coordination skills one learned in the now-defunct relationship will transfer to a new relationship, which can facilitate the development of a well-coordinated transactive system with this new partner. Such an effect presumably is especially likely to the extent that the new partner is similar to the old partner on major goal-related and interpersonal tendencies.

pathways through which two people's goals can affect each other, exploring how both partners' possession and pursuit of goals targeted toward the self, partner, and system influence both partners' goals, pursuits, and outcomes. The framework explores how established constructs from the self-regulation and goal pursuit literatures interact across members of a dyad to produce new patterns of behavior and outcomes.

Figure 2 provides a graphical depiction of the TGD process framework. Goal qualities appear at the left in a 2 (possessor: John's or Alice's goal) × 2 (target: John's or Alice's outcomes) structure. Goal pursuit appears in the middle in a 2 (pursuit: John's or Alice's pursuit) × 2 (goal target: John's or Alice's outcomes) structure. Goal outcomes appear at the right in a 2 (possessor: John's or Alice's goal) × 2 (target: John's or Alice's outcomes) structure. Goal-general constructs—goal-relevant resources, goal-relevant orientations, and relationship qualities—appear at the bottom.

Goal Qualities

Goal qualities describe characteristics of the goals within a transactive system (content, standard, value, and efficacy; see left of Figure 2). These qualities can be oriented toward the self, the partner, or both, and they are independent of the process of pursing the goal. *Self-oriented* goal qualities are those oriented toward one's own goal-relevant outcome, *partner-oriented* goal qualities are those oriented toward the partner's goal-relevant outcome, and *system-oriented* goal qualities are those oriented toward both partners' goal-relevant outcomes. Knowing that a goal is self-oriented, partner-oriented, or system-oriented does not tell us who, if anybody, is pursuing the goal. For example, Alice might set a partner-oriented goal for John to lose weight, and that goal can be pursued by Alice, John, both, or neither. Goal content is the requisite goal quality, which we underscore by bolding "content" in Figure 2: If either partner (or both) wants either the self or

the partner (or both) to lose weight, that goal content is relevant, and it becomes sensible to discuss the goal qualities of both partners associated with that content.

Content. Goal content refers to the mental representation of a desired end-state. Content reflects a discrepancy either between the current goal-relevant state and a desired goal-relevant state, such as to weigh less than one currently does, or between the expected future goal-relevant state and a desired future goal-relevant state, such as to maintain one's current body weight rather than gaining weight (Carver & Scheier, 1998). *Personal goal content* refers to a goal relevant to a person's individual-level outcomes (e.g., to run a marathon), whereas *relational goal content* refers to a goal relevant to a person's relationship outcomes within the transactive unit (e.g., to be more sexually responsive). This distinction between personal and relational goal content cross-cuts the (previously defined) distinction among self-oriented, partner-oriented, and system-oriented goal content. For example, for personal goal content, Alice might want to run a marathon or she might want John to run a marathon. For relational goal content, Alice might want to be more sexually responsive to John or for John to be more sexually responsive to her.

Parallel self-oriented goals are cases in which both partners have set the same self-oriented goal (e.g., John wants to lose weight and Alice wants to lose weight), and *parallel partner-oriented goals* are cases in which both partners have set the same partner-oriented goal (e.g., John wants Alice to lose weight and Alice wants John to lose weight). *Shared target-oriented goals* are cases in which both partners have a goal oriented toward the same partner's outcomes (e.g., John and Alice both want John to lose weight), and *shared system-oriented goals* are cases in which both partners have a goal oriented toward both partners' outcomes (e.g., John and Alice both want John and Alice to lose weight).

Standard. The goal standard refers to the desired level of performance, a reference point or threshold at which an individual considers a goal to have been attained or a rate of progress to

have been met (Carver & Scheier, 1998). Even when members of a transactive system share a goal for a target, they may not share a standard for that goal. Consider what happens when John and Alice share the goal that he lose weight, but he thinks 5 lbs. is sufficient whereas she believes 25 lbs. is required. They are likely to pursue the weight loss goal similarly at first, but their pursuits might be at odds once he loses 5 lbs. and wants to start indulging now and again. For example, he might want to start indulging a bit more at dinnertime, but she might continue exerting herself to ensure that he eats plenty of vegetables and few carbohydrates.

Value. Goal value refers to the extent to which the individual evaluates the goal-directed end-state positively. It encompasses constructs like goal commitment, goal importance, and goal strength, as well as temporary fluctuations in motivational priority. Even if John and Alice agree that John should lose weight, and that his target weight loss standard should be 5 lbs., their goal coordination and interpersonal functioning might suffer (e.g., when shopping together at the grocery store) if Alice views the goal as more important than John does.

Efficacy. Goal efficacy refers to the individual's belief that a particular goal is attainable. It encompasses constructs related both to expectancies regarding the likelihood of achieving a specific goal and to subjective assessments of self-efficacy regarding the achievement of that goal. Even if John and Alice agree that John should lose weight, that his target weight loss standard should be 5 lbs., and value that goal equally, they might differ in their sense of efficacy regarding his potential success, which can cause conflict and coordination problems.

Considering the role of efficacy in this example highlights the sorts of questions that emerge once when adopting a transactive perspective on self-regulation. We know from decades of research on self-regulation that high self-efficacy promotes goal pursuit (Bandura, 1977), but does that mean that high *partner efficacy* promotes pursuit? The translation into action of Alice's strong efficacy in John's ability to lose the weight is far more complex than the translation of self-

oriented efficacy to self-oriented action. On one hand, Alice's efficacy about John's abilities could make her feel confident that effort would not be wasted, and thus increase her exertions on his behalf. On the other hand, her efficacy could make her pursuit seem superfluous, which could decrease her exertions on his behalf. Given the early state of research on interpersonal influences in goal pursuit, deriving specific hypotheses about when Alice's efficacy will cause her to exert herself more versus less in pursuit of John's weight loss is premature. But developing novel hypotheses about such issues allows scholars to enter largely uncharted, but fertile, territory regarding how people set, pursue, and achieve their goals.

Goal pursuit

Goal pursuit describes action (means and effort) implemented by a member of a transactive system that can reduce the discrepancy between current and desired goal-relevant states or enlarge the discrepancy between current and undesired goal-relevant states, or that is intended to have such an effect (see middle of Figure 2). Like goal qualities, goal pursuit can be oriented toward the self's outcomes, the partner's outcomes, or both. Goal pursuit is also transactive, meaning that it dynamically responds to the goals of others in the system. John may need to expend less effort on healthy eating once Alice has chipped in to help, and he may reallocate this conserved effort to pursue a different goal.

Goal pursuit can apply to goals that were set by the self, the partner, or both. Regardless of which of them wants John to lose weight, Alice can pursue this goal by purchasing more carrots and fewer Doritos on her trips to the supermarket. However, there are important psychological and interpersonal consequences of the pursuit as a function of who had set the goal. If John had set the weight-loss goal for himself, then Alice's decision to buy lower-calorie snack foods functions as a proxy for his pursuit of his own goal. In contrast, if she had set the weight-loss goal for him, then

her decision to buy lower-calorie snack foods serves her own goal, not his. He will likely react to her pursuit behavior differently depending upon which of them had set the goal.

Just as an individual may possess a goal and do nothing to realize it, so too can members of TGD systems fail to act in any way that has an influence on the individual's standing relevant to the goal. When the unit of analysis is the dyad rather than the individual, however, there are some additional implications of these non-pursued goals. When an individual possesses a partner-oriented goal that the partner fails to pursue, the individual can feel annoyed or resentful, and the partner can feel pressured or disrespected (Simpson, Overall, Farrell, & Girme, in press, this volume). When both partners possess a goal that neither pursues, a pattern of blame and negative attributions can ensue. These effects may in turn reduce the likelihood of future goal pursuit or increase the likelihood of relationship dissolution.

Transactive goal conflicts emerge when the two partners' pursuits are incompatible. For example, John's pursuit of his weight-loss goal might conflict with Alice's goal to become a master baker. Alice's pursuit of her goal to get a promotion at work might conflict with John's goal for the two of them to take a romantic getaway. Conflict in a transactive system can occur because of either the means used or the amount of effort invested by the partners.

Means. Means refers to a specific action performed by one or both partners that has the potential (or is intended) to move the target individual—or, in the case of system-oriented goals, both partners—closer to a desired goal-relevant state or further from an undesired goal-relevant state. Means refers to the manner in which one pursues a goal. Alice may highly value John's weight loss goal, but the means she pursues to support the goal (e.g., giving him nutrition advice) may be ineffective. If she switched to an alternate means (e.g., eliminating tempting snacks from the house), she could be more effective. By distinguishing goal content from means used to pursue the goal, the TGD process framework highlights the different ways in which partners may seek to

pursue the same goal and how coordination between both partners' means can predict goal outcomes, even when partners agree about what goals to pursue.

Effort. Effort refers to energy expended by one or both partners that has the potential (or is intended) to move the target individual—or, in the case of system-oriented goals, both partners—closer to a desired goal-relevant state or further from an undesired goal-relevant state. If Alice recognizes that John seeks to gain social confidence, or if she sets that goal for him, she might exert herself to organize fun social events for them and their friends. If John recognizes that Alice seeks a promotion, or if he sets that goal for her, he might do a lot of solo parenting so she has more time for work.

Goal outcomes

Goal pursuit yields some kind of objective goal outcome, which can apply to goals that were (a) set by the self, the partner, or both, and (b) pursued by the self, the partner, both, or neither. Whereas goal content refers to mental representations of an end state, the goal outcome refers to the actual state that exists following goal pursuit, regardless of who set or pursued those goals (see right of Figure 2). John has a certain weight, and Alice did or did not get promoted. As with goal qualities, the process framework conceptualizes the goal outcome within a 2 (possessor) × 2 (target) structure that captures the outcomes of both self-oriented and partner-oriented goals.

TGD theory suggests a novel approach to conceptualizing goal outcomes, called *transactive gain/loss*. This approach conceptualizes goal outcomes as a comparison of an individual's outcome to the individual's alternative outcome as it might exist if the individual were pursuing that goal on one's own. John may eat seven servings of vegetables a day and no Doritos while married to Alice, but would subsist almost exclusively on Doritos if he were still single. Such discrepancies represent transactive gains or losses, and they reflect the extent to which an individual has a better or worse goal outcome in this relationship versus in no relationship.

Goal-General Constructs

Goal qualities, pursuit, and outcomes refer to a specific goal. However, when individuals pursue goals, they are also affected by goal-general constructs—variables that influence the dynamics surrounding the setting, pursuit, and outcomes of a given goal without being inherently linked to that particular goal (see bottom of Figure 2). The TGD process framework identifies three categories of such variables: goal-relevant resources, goal-relevant orientations, and relationship qualities. Such goal-general constructs influence goal setting, pursuit, and outcomes within the transactive system. If Alice is strongly committed to her relationship with John (a quality of the relationship), she may be especially likely to pursue his self-oriented goals and to exert effort in response to his partner-oriented goals (e.g., if he wants her to earn more money).

Goal-general constructs encompass both stable variables, like an individual's trait conscientiousness, and situational variables, like a noisy environment. They affect the pursuit of self- and partner-oriented goals by directly affecting qualities and pursuit as well as by mediating and moderating links among qualities, pursuit, and outcomes. When the weather is hot and humid, even the most highly committed runner is likely to run at a relatively slow pace. Goal-general constructs can differ across members of the system. John and Alice may vary in the degree to which they are currently committed with their relationship, and, consequently, how much they are willing to make sacrifices to support goals set by the partner (Van Lange et al., 1997).

Goal-relevant resources. Goal-relevant resources in the process framework are variables that influence individuals' ability to engage in effective goal pursuit. They include psychological variables such as trait self-control, state self-regulatory depletion, and attention (Baumeister, Vohs, & Tice, 2007; Hofmann et al., 2008; Tangney, Baumeister, & Boone, 2004), as well as cognitive, physical, and structural resources such as intelligence, stamina, time, and money.

These resources affect goal qualities, pursuit, and outcomes through main effects and interactions. For example, as resources decline, competition among goals for the remaining resources increases, which may reverberate throughout the TGD goal network. When resources are abundant, individuals can work toward both their own and their partner's outcomes. In contrast, when resources are more limited, goal conflicts are inevitable, not only within each partner, but also across them. Thus, interactions of resources with goal qualities like goal value and standards, as well as with relationship qualities like closeness and power, predict how much effort individuals put toward self- and partner-oriented pursuits, such as when self-regulatory depletion increases the tendency to outsource effort to a partner (Fitzsimons & Finkel, 2011).

Skills are another example of a goal-relevant resource. One hypothesis that emerges from a TGD perspective is that increasing interdependence in goal pursuit should promote goal outcomes when partners have complementary skills and are effective in allocating tasks between partners. If partners have redundant skills—e.g., if both of them are good at goal-relevant planning but bad at monitoring goal-relevant progress—their pool of shared skill-related resources is no larger than the addition of their efforts divided by the demands on their efforts. If, in contrast, partners have unique skills, their pool of shared skill-related resources can potentially be much larger.

Goal-relevant orientations. Goal-relevant orientations are psychological tendencies toward goals in general. This category includes a wide variety of constructs, including strategic orientations like regulatory focus (Higgins, 1997), as well as other goal-related mindsets, beliefs, or orientations (e.g., Dweck & Leggett, 1998; Fujita, Trope, Liberman, & Levin-Sagi, 2006; Gollwitzer, 1996). It also includes general psychological orientations that affect goal pursuit, such as cultural differences, gender differences, personality variables, or differences in self-esteem.

Many of these orientations have important effects—direct, mediating, or moderating—on TGD processes. For example, regulatory mode affects the likelihood of both offering and

accepting partner sculpting in research on the Michelangelo phenomenon (Kumashiro, Rusbult, Finkenauer, & Stocker, 2007), with a strong orientation toward locomotion (movement from one goal state to another) promoting the tendency for one's ideal-self goal pursuits to be shaped by one's partner, as well as the tendency for one to shape one's partner's ideal-self goal pursuits. The goal-relevant orientations of the partners in a transactive system can themselves interact, such as when students learn better when their regulatory mode matches that of their educators (Pierro, Presaghi, Higgins, & Kruglanski, 2012).

Relationship qualities. Because TGD systems consists of two (or more) individuals who come together to form a single self-regulating unit, it is also important to understand the features and qualities of the relationship between (or among) these individuals. According to the TGD process framework, different types of relationships, or different experiences of partners within those relationships, will produce different TGD processes and thus different goal outcomes for the individuals. Our categorization of such relationship qualities includes variables that describe the nature or quality of the relationship between (or among) the transactive system members (e.g., Mikulincer & Shaver, 2007; Reis & Shaver, 1988; Rusbult, 1983).

As with goal-relevant resources and orientations, relationship qualities have important effects—direct, mediating, or moderating—on TGD processes. For example, fear that a partner may reject the self moderates the balance people strike between self-protective goals and relationship-enhancing goals (Murray, Holmes, & Griffin, 2006). Individuals who understand and value their partners lead their partners to react less defensively to failure (Caprariello & Reis, 2011), and individuals who encourage dependence lead their partners to pursue more exploratory goals (Feeney, 2007).

Connecting Goal Qualities, Goal Pursuit, and Goal Outcomes

Thus far, we have focused on specific goal qualities (content, standard, value, and efficacy), specific goal pursuit (means and effort), and goal outcomes as independent from one another. In truth, they influence one another in complex and interesting ways. There are many such pathways, so rather than elaborate upon all of them, we briefly illustrative some of them. Subsequently, and then we provide three detailed examples.

Goal Qualities → Goal Pursuit. We begin by discussing how qualities shape pursuit. This influence can be direct, such as when higher efficacy leads to increased effort, or it can be mediated through other goal qualities, such as when higher standards leads to a decrease in efficacy and a resulting decrease in effort. Goal qualities can also moderate the influence of other goal qualities on pursuit, such as when high value can overcome the negative effects of low efficacy on effort. All of these processes occur transactively—Alice's goal qualities influence not only her own pursuit, but also John's pursuit. The higher standard she has for his weight loss (25 lbs. rather than 5 lbs.), the more he might pursue high-risk means like weight-loss drugs rather than low-risk means like exercise. The higher efficacy she has for his weight loss, the more effort he might exert to achieve this goal. In addition, goal qualities within the transactive system can interact to predict pursuit, such as if John were to only exert effort if *both partners* strongly value his weight loss or if Alice's high efficacy in John's weight loss interacted with his own low efficacy to predict her high levels of exertion and his own low levels of exertion.

Goal Qualities → Goal Outcomes. According to TGD theory, both self- and partner-directed pursuits influence outcomes. That being said, self- and partner-directed pursuit may differ in how each affects outcomes, and the two types of pursuit (means and effort) may also interact to influence outcomes. When Alice engages in behavior to promote John's weight loss, he might exert less effort in pursuit of his own weight loss (Fitzsimons & Finkel, 2011). If she chooses a means that interferes with his own pursuit, that might also undermine outcomes.

Goal Pursuit → Goal Qualities. The link between pursuit and qualities is bidirectional. Both self- and partner-directed pursuits affect the goal qualities of both partners. Most straightforwardly, merely engaging in goal pursuit shapes goal qualities. Driven by basic perception and rationalization processes (Bem, 1965; Fishbach, Zhang, & Koo, 2009), individuals who pursue a given goal tend to value that goal more. We suggest that such effects can emerge transactively as well. Alice's decision to give up baking to help John lose weight might, through similar processes, cause her to value his weight-loss more highly. John, in turn, might become more committed to his weight loss as a result of having witnessed Alice's sacrifice. Alternatively, John might interpret her dedication to his weight loss as evidence that she doubts his ability to achieve it on his own, which could undermine his sense of efficacy.

Goal Outcomes → Goal Qualities and Pursuit. In a transactive system, specific goal outcomes can feed back to alter the goal qualities of both partners, which in turn shapes subsequent pursuit. If Alice has dieted successfully in the past, that success has the potential to increase the extent to which John values is own weight loss (Lockwood & Kunda, 1997), which can inspire him to work especially hard at his diet. Or perhaps Alice's promotion at work increases John's standard for how much money he would like Alice to earn.

The interplay of goal outcomes with goal qualities and goal pursuit is also relevant to Carver and Scheier's (1998) well-known test-operate-test-exit (TOTE) feedback loop analysis of self-regulation, especially in terms of monitoring goal progress, and adopting a transactive perspective yields new insights into the nature of monitoring. Alice might be the one who tracks John's weight over time, and this monitoring might influence John's and Alice's sense of efficacy about his ability to lose weight or what the optimal means for doing so should be.

The two partners' goal outcomes can interact to influence their subsequent goal qualities and pursuit. For example, imagine that John and Alice both resolve on January 1st to lose 2 lbs. per

month over the next 12 months. Imagine further that Alice has stayed on target through June, losing 12 lbs., whereas John has fallen behind his goal standard, losing only 6 lbs. If John had been pursuing this goal in a social vacuum, his modest success might have caused him to lower his standards from to, say, 1.5 lbs. per month. However, witnessing Alice's success might moderate this tendency by steeling his resolve that 2 lbs. per month is indeed an appropriate goal standard.

Goal-General Constructs → Goal Qualities, Pursuit, and Outcomes. Goal-general constructs affect both partners' goal qualities, pursuit, and outcomes, again for all goals in the TGD system. Such effects can be direct, as when John's poor self-regulatory skills weaken the effectiveness of his pursuit of Alice's goal outcomes, or indirect, as when John and Alice have better relationship outcomes when they have complementary tendencies to pursue goals in an eager versus a vigilant fashion (Bohns et al., 2013).

Using the TGD Process Framework to Integrate Distinct Research Programs

Of course, the examples in the preceding section merely skim the surface of the links that emerge among two goal-pursuing partners. All links can interact, can be mediated and moderated by other transactive processes, and can lead to cycles of cross-partner effects and feedback loops. These complex patterns of effects across partners ultimately lead to the emergence of so much overlap and so much mutual influence, that the two partners form one self-regulating system.

In the present section, we provide three detailed examples to illustrate how the TGD process framework can serve as an integrative model for conceptualizing seemingly disparate findings. Adopting this framework allows scholars to clarify the processes through which an individual phenomenon likely occurs, recognize conceptual distinctions among processes hypothesized in the literature, and make connections among distinct phenomena and disparate literatures.

The Michelangelo Phenomenon

The Michelangelo phenomenon refers to "a congenial pattern of interdependence in which close partners sculpt one another in such a manner as to bring each person closer to his or her ideal self" (Drigotas, Rusbult, Wieselquist, & Whitton, 1999, p. 293). Research has shown that individuals who *affirm* their partner—who perceive the partner's current self as consistent with the partner's ideal-self goals (and behave as such)—help the partner approach those goals over time, bolstering both partners' well-being (Rusbult, Finkel, & Kumashiro, 2009).

As illustrated in the black pathway in Figure 3, in the Michelangelo phenomenon, Alice's high efficacy regarding John's ideal-self goals causes him to internalize this perception (Path A), which in turn increases his effort toward those goals (Path B), and, ultimately brings him closer to achieving those goals (Path C). As illustrated in the purple pathway, Alice's or John's self-regulatory orientation toward assessment (critically evaluating goal-relevant options) and locomotion (movement from one goal state to another) reliably predict Michelangelo processes (Kumashiro et al., 2007). Specifically, the positive association of Alice's efficacy with John's efficacy in Path A is strengthened by strong locomotion tendencies and weakened by strong assessment tendencies from either partner (Paths D and E). In addition, as illustrated in the orange pathway (Path F), Path A is also moderated by Alice's previous self-oriented goal success, such that partners who are successful in achieving such goals better facilitate the individual's growth (Rusbult, Kumashiro, Kubacka, & Finkel, 2009).

Self-Evaluation Maintenance

Tesser's (1988) self-evaluation maintenance model suggests that people sometimes seek to undermine others' goal pursuits when those pursuits have negative implications for people's self-image. For example, in one early study (Tesser & Smith, 1980), participants given negative feedback about their own task performance in a self-relevant domain gave less helpful clues to another person doing the same task if that person was a friend rather than a stranger, suggesting

that they were seeking to undermine the friend's outcomes more than the stranger's. From a TGD perspective, as illustrated in the red pathway in Figure 4, John's poor performance on the task leads him to adopt a new goal for Alice to perform poorly in this domain (Path A), which causes him to pursue her goal to perform well in undermining manner by giving less helpful clues (Path B), which in turn causes her to perform poorly (Path C). As illustrated in the green pathway, the Path A association of the John's outcome on the initial goal with his setting of a new goal for Alice to do poorly is moderated by John's assessment of the importance/self-relevance of the goal (Path D), which is in turn moderated by whether the other person in the experimental session is Alice rather than a stranger (Path E).

Another self-evaluation maintenance model prediction is that a partner's performance can alter an individual's self-oriented goal value. In one study (Tesser & Paulhus, 1983), relative to participants led to believe that they had outperformed another person on a measure of "cognitive perceptual integration," participants led to believe that the other person had outperformed them subsequently reported that this cognitive skill was less important to them. From a TGD perspective, as illustrated in the blue pathway, John's performance predicts how much he values the goal (Path F), an effect that is moderated by Alice's performance (Path G), an effect that is further moderated by the extent to which he believes that Alice is similar to him (Path H).

Goal Support

A large scholarly literature has investigated the effects of social support on health and well-being outcomes (Uchino, 2009). However, even in those cases in which social support exerts robust positive effects, there is no consensus regarding the mechanisms through which it does so (Thoits, 2011). Among the dozens of proposed mechanisms are several related to efficacy and goal achievement, which are particularly relevant to the TGD process framework. Here, we present examples from one article that is particularly clear in terms of measurement of processes. In this

paper, Brunstein, Dangelmayer, and Schultheiss (1996) operationalized support as that given by a romantic partner regarding ongoing goals. They measured three types of support: *assistance* (e.g., "my partner reliably assists my attempts to accomplish this goal"), *opportunity* (e.g., "my partner gives me many opportunities to work on this goal"), and *responsiveness* (e.g., "my partner is enthusiastic about my goal"). All three forms of goal support predicted successful goal outcomes.

From the perspective of the process framework, as illustrated in the dark blue pathway in Figure 5, *assistance effects* ("practical" or "instrumental" support) are captured by a direct effect of Alice's pursuit—both means and effort—on John's self-oriented goal outcome (Path A). As illustrated in the beige pathway, *opportunity effects* operate through the moderating influence of the means Alice employs in her self-oriented goal pursuit (Path C) on the association of John's self-oriented goal pursuit with his goal outcomes (Path B). For example, if Alice pursues her mommy-daughter bonding goal by taking their daughter to the zoo, John has extra time to work on the manuscript due next week. Finally, as illustrated in the yellow pathway, *responsiveness effects* (the support provider's enthusiasm for the goal) emerge when Alice's partner-oriented goal value influences John's self-oriented goal value (Path D), which in turn increase his effort exertion (Path E) and, ultimately, his goal outcomes (Path F).

Transactive Density, Illustrated

In Figure 6, we have integrated the pathways from Figures 2–4 into one figure to underscore the central insight of the TGD process framework: Within a relationship, the goals that two partners possess and pursue are tightly and multiply linked in a complex network of connective tissue across partners. In applying the process framework to the examples in Figures 2–4, we seek to illustrate how the framework can capture a diverse set of existing effects from different social psychological literatures using a common language—and to offer clarity about the processes through which these effects arise. By depicting even just three examples of interpersonal goal

pursuit phenomena, Figure 6 reveals a dense, almost overwhelming, pattern of associations. Imagine the density of the system depicted if the figure were intended to encompass all goal pursuits within a given dyadic system. This figure underscores that thinking of the two partners as separate goal pursuers means artificially splitting the TGD system—tearing apart the countless connective sinews—and thus losing sight of this dense transactivity. In contrast, conceptualizing the two partners as sub-units within a system sheds bright light on this crucial connective tissue.

Conclusion

From the perspective of the most well-known and well-established models in the psychological literature, people either succeed or fail at self-regulation as individuals, toiling in isolation toward goal achievement. From the four year-olds in the famous delay of gratification studies (Mischel, 1974) who sit by themselves trying not to eat a marshmallow to the hungry participants in the seminal study of self-regulatory depletion who sit by themselves eating radishes instead of cookies (Baumeister, Bratslavsky, Muraven, & Tice, 1998), psychological studies of self-regulation, and the theories that have inspired those studies, have predominantly focused on individuals pursing their goals alone. Although studies of goal pursuit that ignore the complex and dynamic web of transactive sinews are tidier than studies of goal pursuit that examine that web, such studies neglect a great deal about how goal dynamics play out in people's everyday life.

As the first author of this chapter is writing this concluding text, his wife and daughter are at the grocery store while his son naps upstairs. If his wife had been out of town instead, this text would have remained unwritten and the groceries would have remained unpurchased. At this moment, two American robins are building a nest outside the window. Both of them—the male and the female—are gathering twigs, grass, and mud, and the female is doing the construction. If all goes well, the female will lay her eggs as soon as the nest is ready, and, with protective help

from the male, she will hatch new chicks in about a fortnight. At that point, both parents will spend several days feeding and tending to the chicks.

This is how goal dynamics work in people and most animals—not as individuals who set and pursue goals in isolation, but rather as members of transactive systems whose goal dynamics are inextricably linked. *This* is how scholarly papers get written and how offspring get raised—indeed, how virtually all social species set, pursue, and achieve virtually all goals. For this reason, we believe that it is time for scholars to consider a new unit of analysis for understanding goal dynamics—the interdependent social unit rather than the individual.

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Figure 1. An overview of Transactive Goal Dynamics Theory (Reproduced from Fitzsimons et al., in press). The Tenet 1 (T1) box represents the structure of transactive density. Tenet 2 (T2) indicates that opportunity and motivation are the key antecedents of transactive density. Tenet 3 (T3) indicates that goal coordination moderates the effect of transactive density on transactive gain/loss (goal outcomes during the relationship). Tenet 4 (T4) indicates that shared goal representations and relationship orientation/skills are the key antecedents of goal coordination. Tenet 5 (T5) indicates that transactive gain/loss predicts relationship persistence. Tenet 6 (T6) indicates that goal coordination moderates the effect of transactive density on goal recovery (goal outcomes after the relationship ends).

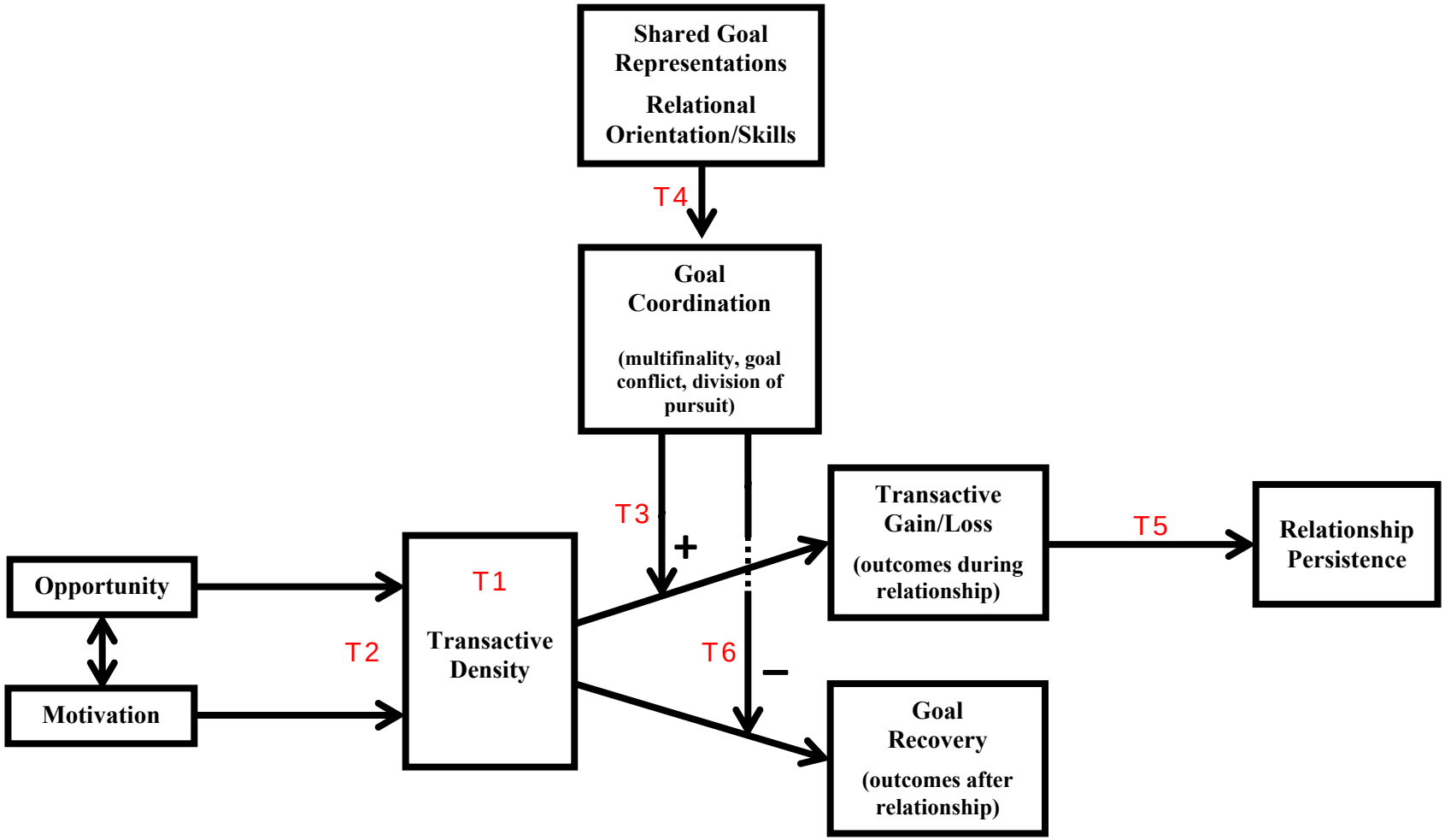


Figure 2. A transactive goal dynamics (TGD) process framework for conceptualizing major constructs in the self-regulation literature from a transactive perspective.

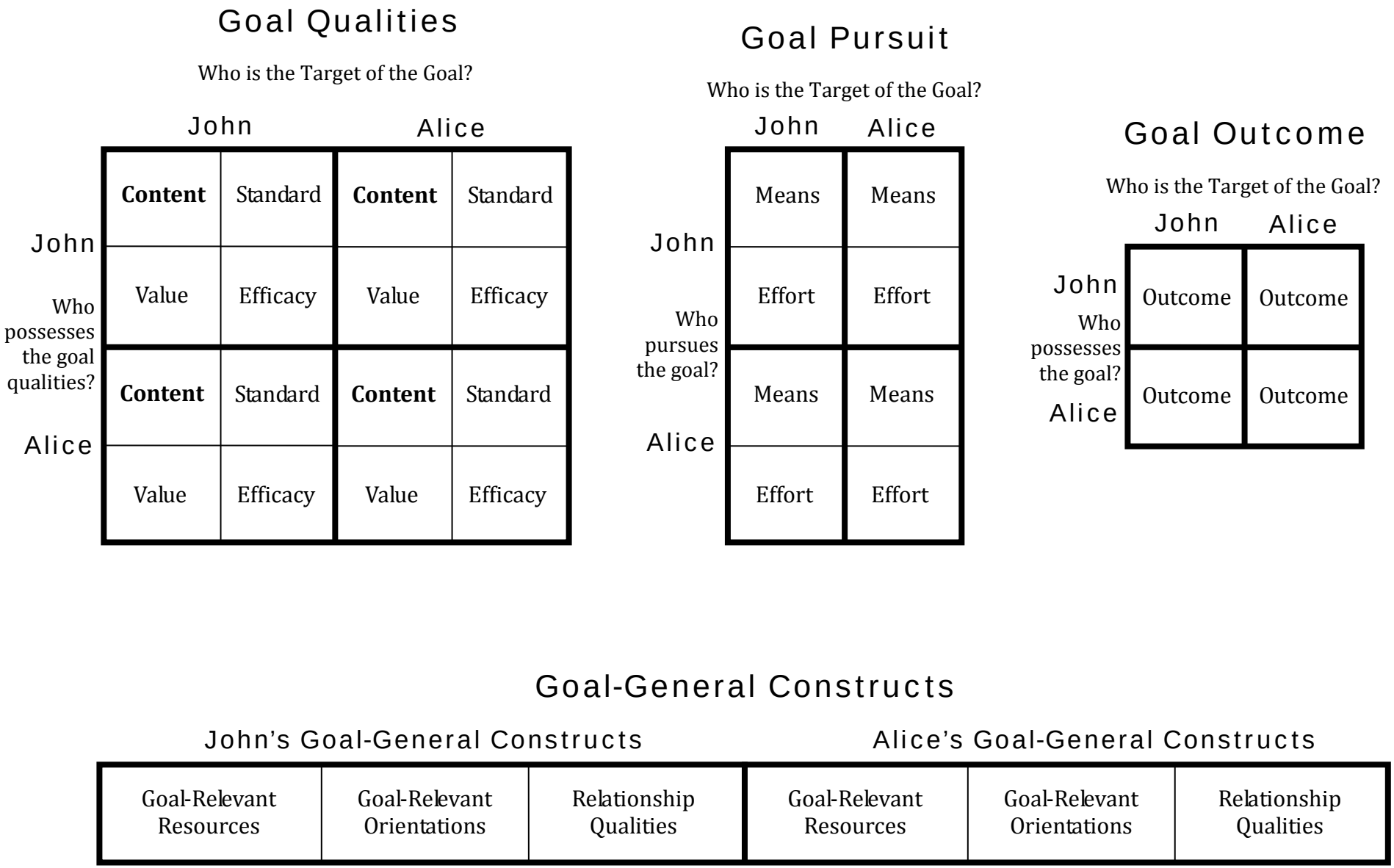


Figure 3. Application of the transactive goal dynamics (TGD) process framework: The Michelangelo phenomenon.

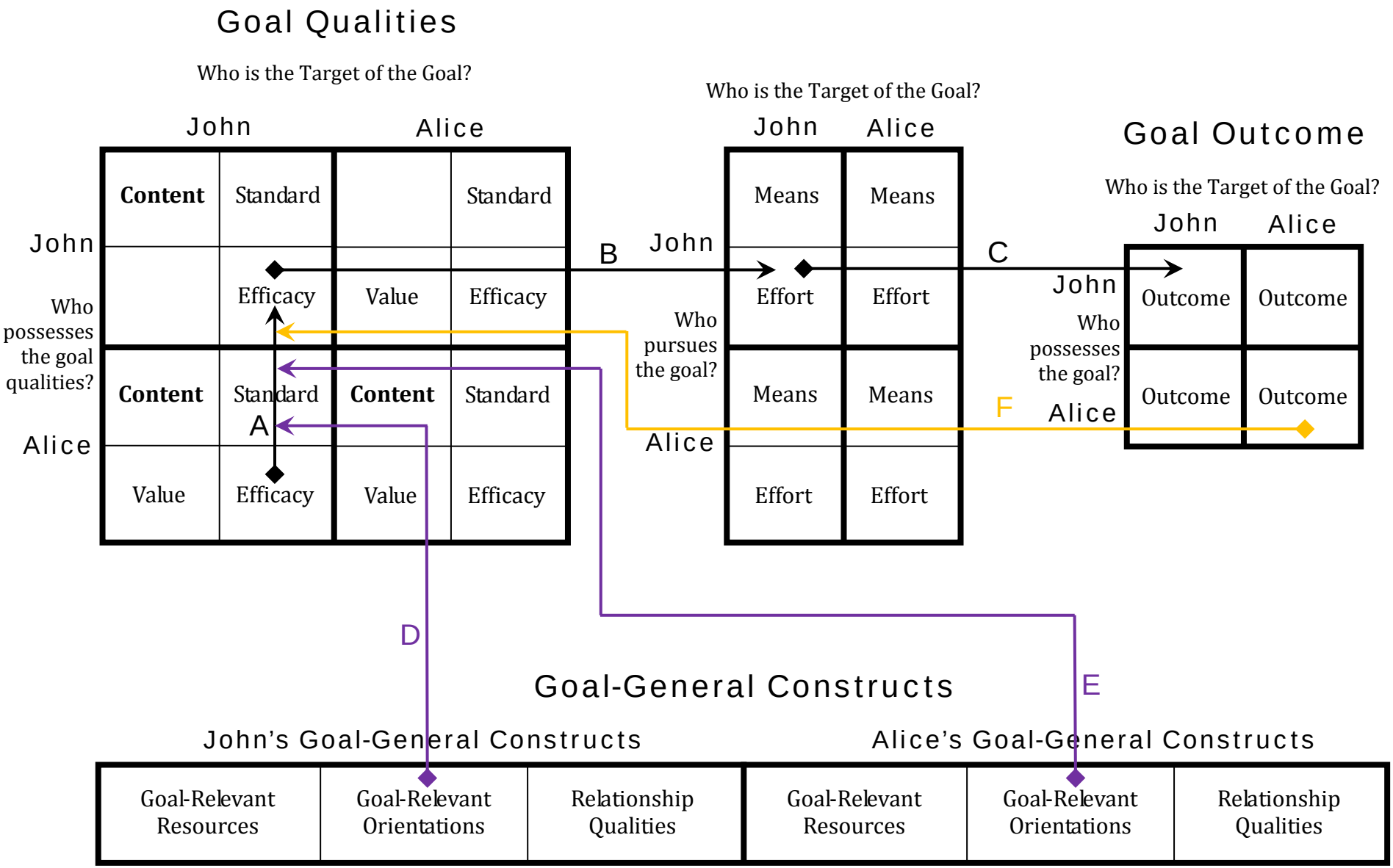


Figure 4. Application of the transactive goal dynamics (TGD) process framework: Self-evaluation maintenance.

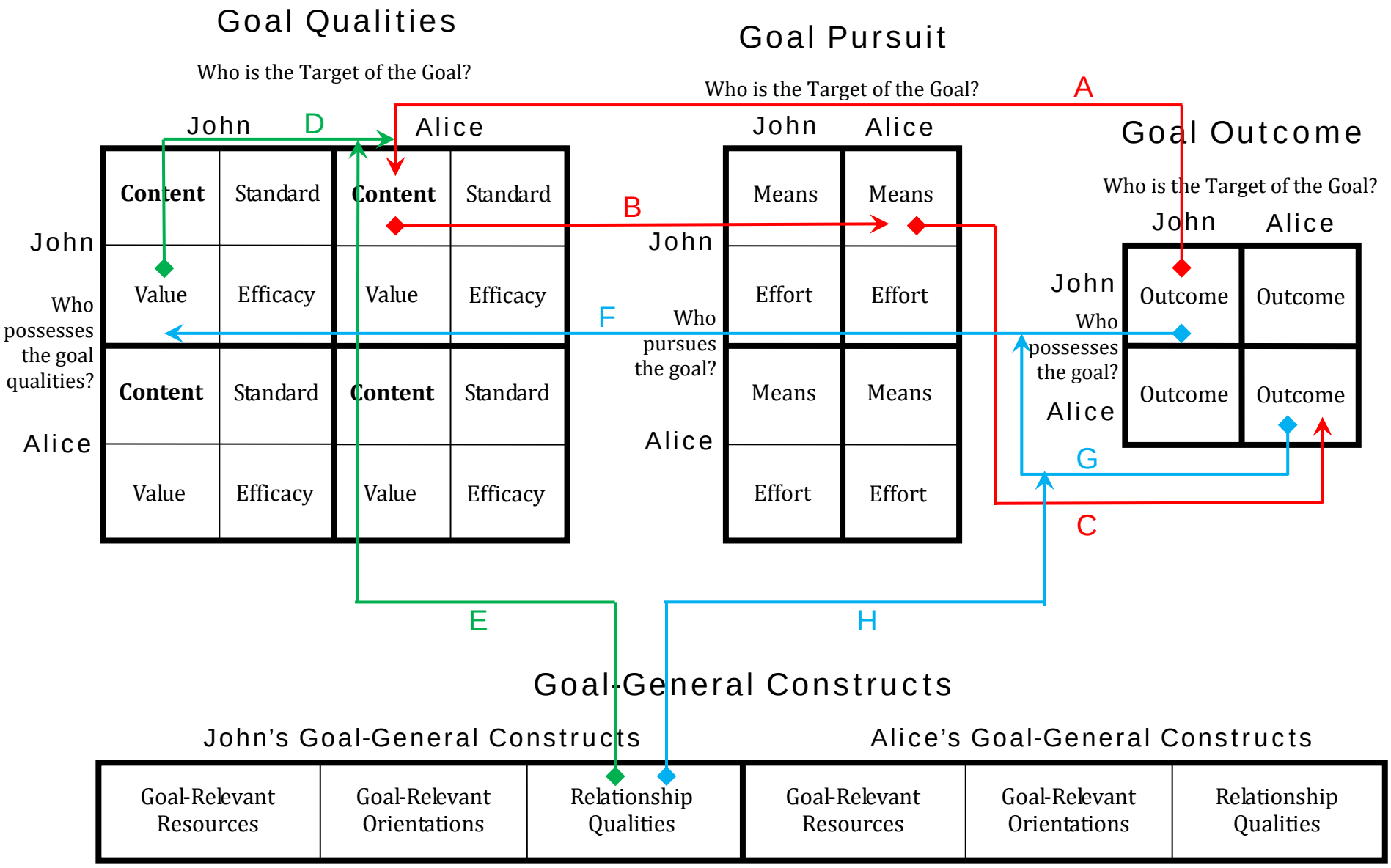
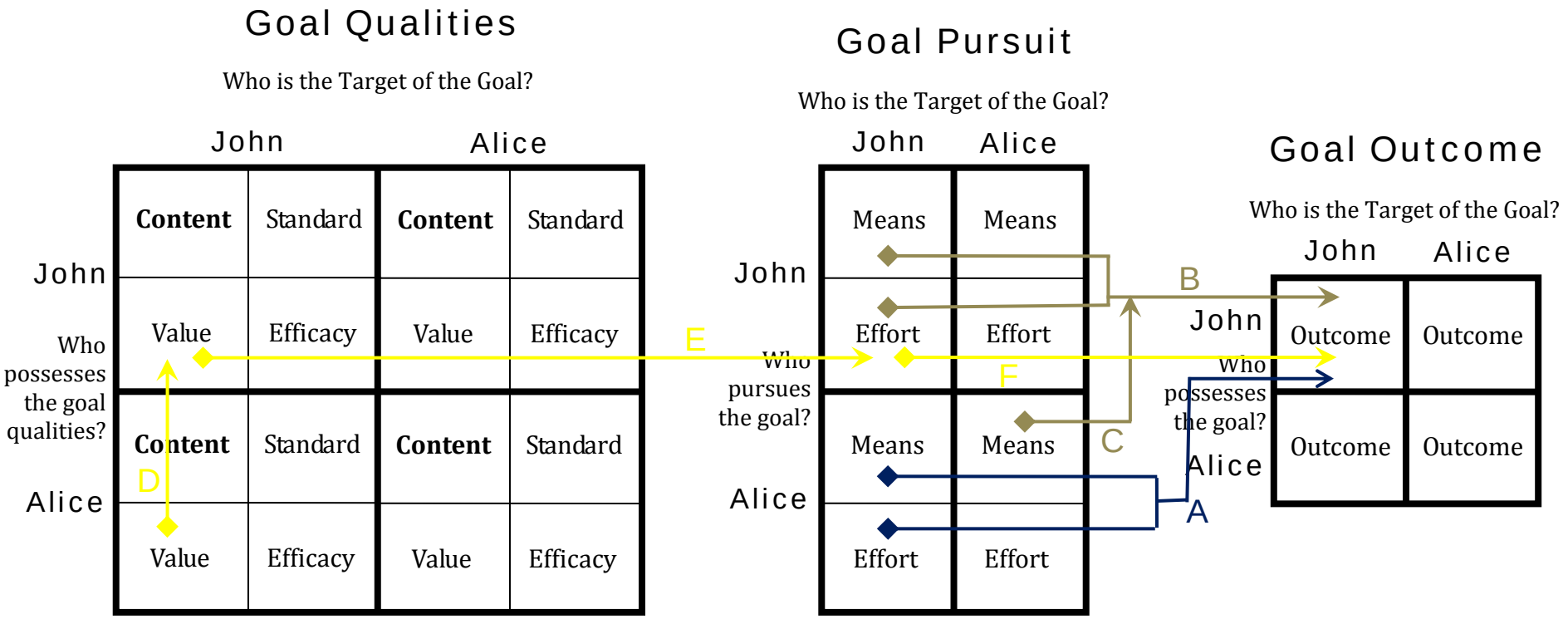


Figure 5. Application of the transactive goal dynamics (TGD) process framework: Goal support.



Goal-General Constructs

John's Goal-General Constructs			Alice's Goal-General Constructs		
Goal-Relevant Resources	Goal-Relevant Orientations	Relationship Qualities	Goal-Relevant Resources	Goal-Relevant Orientations	Relationship Qualities

Figure 6. Integrating three application of the transactive goal dynamics (TGD) process framework: Superimposing the effects from Figures 2, 3, and 4 to illustrate the transactive density construct.