CHAPTER 18

Action Identification

DANIEL M. WEGNER
Trinity University

ROBIN R. VALLACHER
Florida Atlantic University

People do what they think they are doing. Ordinarily, they would prefer to think about their acts in the most encompassing way possible. But when they cannot perform an act so broadly conceptualized, they concern themselves with thinking of a detail of the act. These three statements capture the essence of the theory of action identification (Vallacher & Wegner, 1985). Through them, it is possible to envision how people "intend" to act, how they are "motivated," how they act "on impulse," how they "regulate" their action, how they appear to respond to "unconscious drives," how they "learn," and how they "create" new courses of action. All of these implications are not immediately apparent of course. The purpose of this chapter is to show how these various human tendencies, long documented and studied by psychologists, can be understood within a unified system prescribed by the three principles of the theory.

THE REIFICATION OF ACTION

Psychologists, like people in general, regularly assume that actions are real. After all, an act such as "throwing a brick through a window" seems real enough. Like an umbrella or a Buick, it seems to be a "thing." It has qualities that can be described (e.g., "nice arch, good follow-through"); people can distinguish it from other things (i.e., no one thinks it is "graduating from barber college"); and it can have very real consequences for the actor (e.g., a stay in jail). Any action seems to be real in these senses. Thus, it is hard to grasp, at first, that this action, like all others, is a reification—a mental construction that imposes a presumed reality on experience. The theory trades on the idea, however, that actions have a certain unreality in that their nature depends on how they are identified.

Fallible Distinction

Psychologists have often noted that people may identify one thing in different ways (Brown, 1958; Rosch, 1973). The *identities* of things, therefore, do not inhere in the things themselves but rather are the products of human thought. This observation makes sense, also, when it is applied to action. As philosophers have long recognized (e.g., Anscombe, 1957; Austin, 1961; Danto, 1963; Goldman, 1970; Wittgenstein, 1953) and psychologists have more recently discovered (e.g., Kruglanski, 1975; Newtson, 1976), any action can be identified in multiple ways. "Throwing a brick through a window," for instance, might also be identified as "creating a nuisance," "scaring people in the building," "moving one's arm," "getting rid of a brick," "breaking glass," and so on. These identifications are not simple synonyms, so the person who performs this act would seem to be doing many different things. Any one action identification, in this light, is a seemingly arbitrary choice from numerous possibilities. And every action, in turn, is less than exactly real, for it is only an act *under one identity*—one that is chosen somehow from many.

This realization seems damaging to many of the typical assumptions psychologists make about human behavior. It makes some commentators wonder, for instance, whether textbook chapters on "aggressive behavior," "cooperation," "obedience," and so on, might represent nothing but senseless fabrications (cf. Gergen, 1982). If the action of a participant in a psychological experiment can be identified in more than one way, who is to say that the psychologist has discovered the right identity to use as the basis for classification? Perhaps Milgram's (1963) subjects weren't "obeying" but were merely "pushing buttons." All psychologists can say about the behaviors they classify as instances of "obedience"—or any other grouping—is that at least one identity of each act is classifiable. Even when psychologists take pains to establish operational definitions of actions, all they really do is define an act by pointing to its reified identity—and then note a few other identities as well. An operational definition of "aggression," for instance, may include mention of "giving another person an electric shock," "pushing buttons," or the like. It is unclear that just because one or a few identities of an act are classified for study, all the other identities of the act should be understood as unreal accompaniments of the real act.

Nevertheless, this leap is commonly made. On assuming that one identification of an action is the correct one, it is common practice to suggest that the other, unreal identifications are not action names but something else entirely. Once the reified identity is accorded status as the *act*, some other identities may be called *means* or *subacts* (when they indicate how the act is achieved). Still others may be called *intentions, purposes, goals, consequences, reasons,* or *side effects* of the act (when they indicate why or with what effect the act is done). Should these consequences seem more moving or important than the reified act itself, they may then be accorded the label of *motives*. And when such identities are unknown to the actor,

they may be given positions as *unconscious drives*. Finally, when act identities signify states of being of the actor (e.g., "being aggressive"), they may be taken as indicants of the actor's *personality traits*. In short, once an act is reified in terms of one identity, many of its other identities fall into place as relevant adjuncts to the action. Each of these other identities is thus reified in its own position as a member of the constellation of psychological baggage that comes with the reified action.

All of these labels are jarred loose, perhaps permanently, when we recognize that the reified identity of the act is no more real than any other. It is conceivable, for example, that one might perform an action that could be variously identified as "drinking coffee," "becoming alert," "bringing a cup to one's lips," "moving one's arm and mouth," "satisfying a caffeine habit," "getting nervous," and "quenching one's thirst." If "bringing a cup to one's lips" were reified as the *act*, then "moving one's arm and mouth" might be a *means*, "drinking coffee" a *goal*, "getting nervous" an unintended *side effect*, and perhaps "becoming alert" a *conscious motive* and "satisfying a caffeine habit" an *unconscious drive*. Perhaps, however, the real act is "getting nervous"—as one might well attest after too many cups. If this is the case, one must soak the labels off the various identities and redistribute them—noting now that "bringing a cup to one's lips," "moving one's arm and mouth," and "drinking coffee" all serve as *means*, "satisfying a caffeine habit" might be the *motive*, and so on—in a juggling act that profoundly disturbs one's theoretical sensibilities. Because all these terms are defined in relation to the identity that is assumed to mark the real act, they represent but fallible distinctions, subject to chaotic reordering whenever a different reification is imposed. In the end, all are just different ways of identifying what was done.

Action identification theory thus has no room for these terms. Instead, it supposes only two "kinds" of action identification. First, the theory assumes that a person who is asked "What are you doing?" will have an immediate answer. This identification of action, which is the one most accessible to the person at the time, is termed the person's *prepotent identity*. Second, the theory assumes that the person, on probing, could very well identify the act in many other ways. These additional identifications are components of the person's organized knowledge about the action—the person's *act identity structure*. In a way, then, the theory appreciates the reification tendency we have noted in both laypersons and psychologists; it assumes that people will hold one identity of an action, the prepotent one, to be the real act, and that they will view other identities as lesser claimants to this status. However, the theory makes a more crucial suggestion: It holds that since actions are *not* real, but instead are only identified parcels of behavior, the prepotent identity of an act is a psychological matter. Quite simply, the person's preferred understanding of an act could change, moving at different times and settings to any of the identities in the person's act identity structure.

The principles of the theory that were iterated at the outset now can begin to make sense. The first principle—that people do what they think they are doing—says that people *do* the act that is described by their prepotent act identity. The second and third principles, in turn, indicate how that prepotent identity may change, moving about the act identity structure to settle in sequence on more

"encompassing" or more "detailed" understandings of the act. To grasp more clearly how this movement occurs, it is important to consider how act identities may be related in a person's structure of knowledge about action.

Act Identity Structures

When people talk about act identities, they commonly reveal an implicit *ordering* of identities. They may say that one "prevents cavities" *by* "brushing one's teeth," for example, or that one "brushes" *by* "moving one's hand." This ordering is not seen as reversible: One does not "brush" *by* "preventing cavities" or "move one's hand" *by* "brushing." Psychologists and philosophers who have observed this phenomenon (Danto, 1963; Goldman, 1970; Lichtenstein & Brewer, 1980; G. A. Miller, Galanter, & Pribram, 1960; Schank & Abelson, 1977) have suggested that the structure of act descriptions corresponds to the structure of action itself and that relational terms such as *by* prescribe a simple hierarchy of action, subaction, sub-subaction, and so on. In this view, "preventing cavities" might be accorded the highest position in an act hierarchy, with "brushing one's teeth" and other subacts (e.g., "visiting the dentist," "avoiding sweets") taking up subordinate positions. One "prevents cavities" *by* doing each of these subacts. Each of the subacts, it follows, may have its own array of components.

This interpretation makes good sense, and it has served as the basis for a wide range of research on the "script" as the fundamental organizational unit of action understanding (Abelson, 1981). A script is typically represented as a simple hierarchy with one overarching act identity at the top and subordinate identities arranged hierarchically below it (Bower, Black, & Turner, 1979). When people are asked to indicate the alternative identities for an action, however, they seldom produce just the names of subacts. On describing what one does in "robbing a store," for example, subjects in one study (Vallacher, Wegner, Bordieri, & Wenzlaff, 1981) went beyond the specification of details (e.g., "holding a gun") to recount multiple consequences of the action (e.g., "getting the police after you," "obtaining money," "breaking the law"). They indicated what one does *by* "robbing a store" in five of the nine most frequently mentioned identities of the act. Thus, instead of seeing the act in terms of a simple hierarchy of identities, they portrayed it in terms of multiple, overlapping hierarchies. Such an act identity structure for nine identities of "robbing a store" is shown in Figure 18.1. This structure was mapped by having subjects judge the sensibleness of each possible *by* relation and its inverse (e.g., would one "rob a store" *by* "obtaining money" or "obtain money" *by* "robbing a store?") and then representing the most clearly asymmetric relations as arrows from the lower level identity to the higher level identity (e.g., from "robbing a store" to "obtaining money.").

Such observations suggest that the person's cognitive representation of action is considerably more complex than a "script." People seem to think not only about *how* to do an act—by means of lower level identities; they also conceptualize *why or with what effect* the act is done, volunteering higher level identifications. These higher level identities are the "encompassing" ways of understanding action that

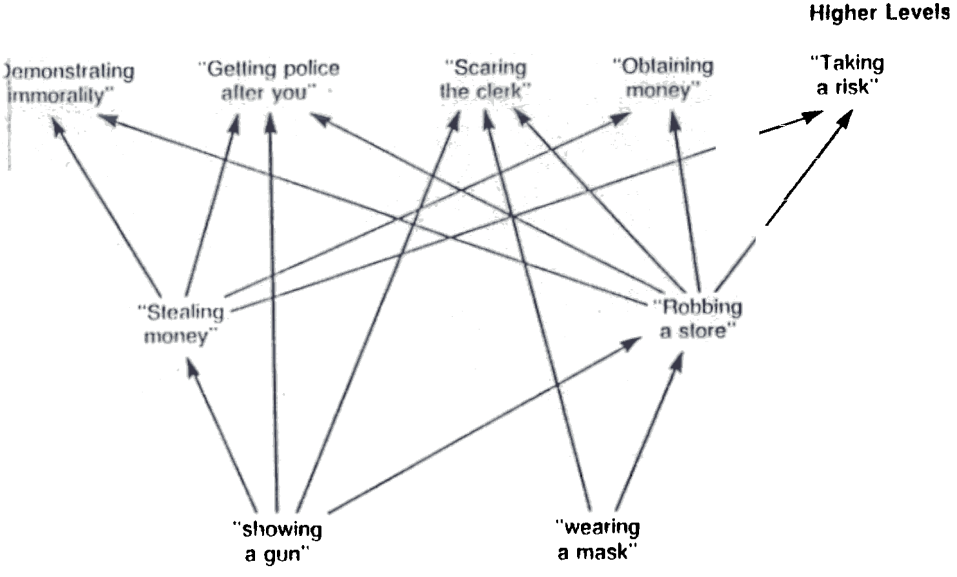

FIGURE 18.1 "Robbing a store" act identity structure

are noted in the second principle of the theory. And according to that principle, they are very attractive. To say someone is "moving a finger," for instance, identifies the act at a relatively low level and thus presents what seems to be an impoverished conceptualization of what is done—especially if there are cues available to suggest higher level meanings of the act. If we learn that the person's finger is posed on the *b* key of a typewriter, we are prone to infer immediately that the person is "typing an *b*" (*by* "moving a finger"). Should we learn that the paper in the typewriter is a page of prose about dog breeding, the act may become "writing about dogs." And if there are many pages next to the typewriter and a book contract in the file cabinet nearby, we may quickly assume that the person is "writing a book," "earning a living," or even "helping to improve the dog breeds of the world."

Many features of the context surrounding an act provide potential cues for inferring higher level meanings of the act. Given the observation of body movement alone, we can identify only what Danto (1963) has called a "basic act" (e.g., "moving a finger"). However, certain features of the act's context will allow us to identify the act at a higher level (cf. Goldman, 1970). These "identity conditions"—contextual features that must be present for a given basic act to generate a higher level identification—must be counted as important but implicit features of the person's act identity structure. For the person to know of a possible higher level identification of an act, he or she must know that a particular array of identity conditions is present in the setting of the act. These identity conditions

may be potential causal effects; for example, "moving an arm" while holding a cue stick in the presence of a particular configuration of billiard balls generates the higher level identity of "putting the 8 ball in the pocket." Identity conditions may be potential conventional interpretations; for instance, "winking" in certain circles may generate, by convention, the higher level identity of "flirting shamelessly." Identity conditions may be environmental circumstances (as when "talking" generates the higher level identity of "talking to a crowd"). Identity conditions may also arise in other potential actions with which the current action is compared (as when "running" generates the higher level identity of "running faster than one did earlier"). In short, causation, convention, circumstance, and comparison each provide a variety of identity conditions that allow the person to know that a particular body movement will be interpretable as a particular higher level act (cf. Goldman, 1970).

Higher level action identifications allow the identity structures surrounding particular acts to become connected. The seemingly disparate acts of "reading a magazine" and "drinking a beer," for example, could both be understood by a particular person to have "relaxing" as a higher level identity. "Walking to work" and "eating at McDonald's," in turn, might both generate the higher level identity of "saving money." The higher level identities of "relaxing" and "saving money," however, might be linked at an even higher level in terms of the overarching identity of "doing the right thing." Still other connections might be made among all the different higher level identities the person knows for many different actions. Thus, although it is often theoretically convenient to speak only of particular domains of the person's identity structure—those surrounding identities of special interest—the "encompassing" nature of high-level identities reminds us that these domains may very well be linked in a yet higher order structure that the person uses to understand all action.

Identification as Personal Reification

The principles of the theory of action identification indicate how people go about referring to their act identity structures in the course of determining what they will do. The first principle, as we have already noted, says that people will perform the prepotent identity in the structure. This means that the other identities in a particular structural domain will *not* be consciously entertained—although they may very well be done anyway because they are a part of, or a result of, the prepotent identity. The prepotent identity *will* be consciously considered, however, and it will stand as the person's own reification of the action, characterizing exactly, at that time, what the person thinks the act really is.

The second and third principles of the theory propose how the prepotent identity for an action is determined. In a sense, they suggest an algorithm by which the person moves from one prepotent identity to another in the act identity structure. The second principle indicates that people will always be ready to appreciate higher level identities of their actions. People search for meaning in

action, and they find it by identifying the action at higher and higher levels. The third principle indicates, however, that there is a critical limitation on this tendency—the person's own ability. If the person cannot perform an act that is understood at a particular level of identification, this principle suggests that the person will move to think about the act at a lower level of identification. For example, if one has difficulty "driving a golf ball to the green," one will become consciously concerned with some detail of this act, perhaps then worrying about "keeping one's eye on the ball," "getting a good grip on the club," and so forth. This tendency thus provides a constant and stringent ceiling on the level of identification that may become prepotent for a person in any particular action domain. Quite simply, the person will not long identify an action at a level that is higher than the one at which he or she can perform the action successfully.

This specification suggests that there *is* a criterion—other than the identification—for determining the "reality" of an act. This other criterion is the person's skill in acting. In any particular setting, at any particular time, a certain person will either be able to perform the act specified by an identity or not. The different factors that may promote or inhibit a person's capacity to act, of course, might well comprise an interminable list; we could start with genetic predispositions and the person's history of experience and eventually speak of the person's diet, the lighting, the presence of high winds, and a host of other factors. The point, however, is that all these factors come together each time a person acts, and they determine whether the person will be able to do the act as identified. The person's own capacity to act thus determines whether an identified act can become a reality.

When a person can do an act as indicated by a prepotent identity, the theory proposes that there will be an immediate tendency for the person to move to a higher level of prepotent identification. This means that a person who successfully "butters the toast," for example, can now think of "making breakfast." At this higher level position, however, the person may not have sufficient skill to complete the act as identified. The person may not have the training in cooking, perhaps, to be able to complete the preparation of breakfast in a completely automatic, unthinking way. Thus, the theory argues that the person will move to thinking about the act again at a lower level, now considering something like "frying eggs" or "sectioning grapefruit." Both of these acts are parts of "making breakfast" that, at least for this person at this time, must be conceptualized separately for their completion to ensue. A particularly inexperienced cook might have to descend to even lower levels, thinking about "getting the eggs out of the fridge," or some such, for the action to continue. In sum, the person thinks of how to continue when an act cannot be done and thinks of what effect it has when it can be done. In this way, the person's current action is guided through his or her identity structures to keep him or her acting all the time.

The principles of the theory describe a system that makes people identify acts at the level at which they can do them. Therefore, although the theory proposes that people are always prepared to accept higher level identifications, it suggests that their personal capacity to do an act—upon only thinking about it in terms of the prepotent identity—will bring them back from the ephemeral reaches of high-level identification. Over time, then, people will move in these cycles toward an optimal, personal reification of any action. This personal reification will tend to be at the level at which, given no special disruptions or complications, they can perform the act only by thinking of it in terms of a single identity.

Our empirical investigations of the theory have centered on two major sets of implications of these ideas. First, we have examined how identification affects the performance of action; this is the study of *action maintenance*. This line of inquiry is focused on the ways in which the prior identification of an action influences the subsequent nature and quality of the action. Thus, it is relevant to questions of how people "intend" to act, "regulate" their action, and are "motivated" to act. Second, we have examined how action identification may change, thereby leading action on a new course; this is the study of *action emergence*. Our concern here is with the ways in which people may come to understand their acts differently—and as a result, may come to behave differently. This research thus offers insight on how people "learn," how they act "on impulse," how they "create" new actions, and even on how they seem to respond to "unconscious drives." In the remainder of the chapter, we take up the topics of maintenance and emergence in turn.

ACTION MAINTENANCE

It is not unusual to encounter a psychological theory that suggests a role for mind in action. William James (1890) suggested something much like the first principle of action identification theory when he developed the notion of "ideomotor action." By his analysis, people get ideas of what they will do, and an act is the immediate result of such an idea coming to consciousness. Many theorists have since echoed this notion, making it a part of theories of cybernetics (Carver & Scheier, 1981; G. A. Miller *et al.*, 1960), private speech (Luria, 1961; Vygotsky, 1962), motor learning (Schmidt, 1975), action hermeneutics (Gauld & Shotter, 1977; Harré & Secord, 1972), artificial intelligence (Abelson, 1973), and others. In this sense, the present analysis can be portrayed as "one of those theories that says people know what they are doing."

The Optimal Identification Level

There are limits on how people may know their actions and still do them successfully. Some identifications of action may be effective ones, allowing the person to perform the act as identified. Other identities may not be effective, resulting in a failure to maintain the act. Certainly, it is easy to see that an identity might be ineffective because it is too high-level for the person to do. There are very few baseball players, for instance, who could step up to bat and follow a coach's injunction to "triple to left field." Although this might very well be a desirable state of affairs, and although the player might know exactly the identity conditions that would be necessary for this act to occur (e.g., the ball falling far from a

fielder), the player's capacity to produce such an act may simply be lacking. Thus, the act will not be done.

An identification might also be ineffective by being too low-level. The player who is capable of hitting the ball squarely each time at bat, for example, might be admonished at some point to "keep your forward arm straight." This identity consists of only a part of what is usually a fluid, well-integrated action. In trying to perform this identity, however, the skilled player might produce a disintegrated action, one that fails even to meet the criterion of "hitting the ball." Many everyday actions can be disrupted in just this way. Most people can remember a point at which their "driving a car" was disrupted by a backseat driver who reminded them to "stay in the lane" or "use the turn signal." Thus, it is not surprising that psychologists discovered fairly early that attention to a skilled action can disturb its course (Bryan & Harter, 1899). In terms of our theory, the point is that thinking about lower level identities can be ineffective when one can ordinarily perform the act at a higher level of identification.

This line of reasoning suggests that there is an optimal level of identification for any person performing a particular action. Identifying the act at levels higher or lower than this would be ineffective. This optimal point would be determined by the person's skill level in doing the act in the particular setting. However, people do not always identify their acts optimally. Although the principles of the theory suggest that people would tend to move toward optimal identification levels, this movement may often be incomplete. People may not have performed an action before, for example, and therefore may have to make an essentially random start at identifying it at some level. Or they may have made a "lucky shot," performing an act identified at high level when their true skill would not allow them to perform it well at that level on a subsequent occasion. Perhaps they have even been swayed by what others say about the act, and so try to perform it at a consensual level of identification that does not match their personal level of skill.

These departures from optimal identification levels should have observable effects. Our studies of the action maintenance process have centered on this possibility. In general, our plan has been to determine whether deviations from optimal identification levels have the expected ill effects on action performance. To determine what level of identification is likely to be optimal for a given action, we have depended on subjects' judgments of several maintenance indicators—qualities of actions that indicate how difficult the actions are to maintain. Wegner and Vallacher (1983) asked 50 subjects to rate 25 different actions (e.g., "eating," "talking to a child," "climbing a tree") on the following characteristics:

1. *Difficulty*: How difficult is the action?
2. *Familiarity*: How familiar are you with the action?
3. *Complexity*: How many ways are there to do the action?
4. *Duration*: How long does it take to do the action?
5. *Learning time*: How long does it take to learn to do the action well?

These indices were all significantly correlated across the 25 acts, so ratings on them were summed (with familiarity ratings reversed) to yield an overall index of the degree to which the actions were easy versus difficult to maintain.

The notion of optimal identification level suggests that, generally, people would identify the more difficult actions at lower levels and the easier actions at higher levels. Thus, it is worth noting that this study called for a second sample of subjects ($N = 272$) to indicate their preferred identification level for each act. This was done by having each subject consider the act identity (e.g., "eating") and judge which of two other identities for the act was a better descriptor of the act. One of these other identities was always lower in level (e.g., "chewing"), whereas the other was higher in level (e.g., "getting nutrition"). Such choices were offered subjects for each of the 25 initial act identities, and the proportion of low-level choices was calculated across subjects for each. This score was significantly correlated across actions with the maintainability index, $r(25) = .39$, $p < .02$. Multiple regression analyses carried out with the individual maintenance indicators revealed significant prediction of identification level as well. In sum, as the theory suggests, people generally identify difficult actions at lower levels than easy actions.

The notion of an optimal identification level implies that for each individual, a notable departure from the usual level of identification will portend poor act performance. This means that for easy actions (which are usually identified by most people at high levels), low-level identification should predict poor performance. In contrast, for difficult actions, low-level identification should be optimal, and thus high-level identification should predict poor performance. To present some of the data we have accumulated on these possibilities, we will concern ourselves first with a study of the maintenance of an easy action—one rated as easy to maintain by subjects in the aforementioned study. We will focus on the identification and performance of "drinking alcoholic beverages," an act considered easier than 21 of the 25 actions rated. Then we will turn to research on the most difficult of the 25 acts—"rearing a child."

Maintaining Easy Actions

An action that is easy to maintain can be carried out without much conscious thought. Seldom do adults have to remind themselves to "step out of the car" when they have reached their destination; seldom, also, do they think about "bending the left knee" as they are walking. Yet they do these things, and when they are asked, they can identify them quite clearly. Our idea is that for many of the simple and frequently performed actions of everyday life, people only find it necessary to think about what they are doing in relatively large action segments. They can identify easily maintainable actions at high levels because, as a result of practice or the inherent simplicity of the act, they have it in their grasp to perform all the details of the act only by thinking of a high-level identity. This allows people the freedom to gloss over the mechanics, even if they were once painful to

learn, and intend their actions in the largest units of which they are capable. There is thus an elegant economy in the way people identify action.

For many of the easy actions one performs in a day, economy of identification is a definite advantage. Yet there are some easy actions that might be more adaptively performed if they were *not* quite so economical to intend. "Drinking an alcoholic beverage" is one of these. The theoretical ideas that have been advanced to this point would lead us to believe that people who perform this easy act frequently and proficiently should identify it at high levels. In so doing, however, these people might also tend to lose conscious contact with the details of "drinking." For instance, they might not notice just how many drinks they are having, how deeply they are quaffing the drink they have in hand, or even whether they have had enough. Their high-level identification of the act could prevent them from prepotent identification of the act at lower levels and thus perhaps even hinder their attempts to control their drinking behavior. This reasoning suggests that drinkers' identifications of the act of drinking could be an important topic of study—one that might offer a test of the theory and might suggest potentially beneficial lines of intervention for alcohol abuse as well.

Wegner, Vallacher, and Dizadji (1983) examined the relationship between alcohol consumption and the identification of "drinking alcoholic beverages." First, an action identification questionnaire was constructed by having 15 subjects (with widely varying degrees of drinking experience) each give multiple answers to the question "What do you do in drinking alcoholic beverages?" The 50 most common responses were isolated, translated into a common form (the gerund phrase), and used for the questionnaire. To complete the questionnaire, each subject was instructed to rate each identity on a 1–7 scale according to how well it described the act of "drinking alcoholic beverages."

Two samples of subjects completed this questionnaire: a group of 94 undergraduates from Trinity University and a group of 87 inpatients from the Chicago Alcohol Treatment Center (CATC). We trusted that the CATC subjects would be relatively uniform in their high level of alcohol experience. All had been admitted to the center only after (1) their attempts to stop drinking had failed, (2) alcohol use had affected a significant area of their lives, (3) blackouts had been experienced, (4) a loss of control during alcohol use was reported, and (5) they had lost their jobs as the result of alcohol problems. The Trinity sample, however, was expected to vary somewhat in alcohol experience. Thus, these subjects completed an additional questionnaire on alcohol use. This measure, derived from the factor analysis of a larger questionnaire, exhibited satisfactory reliability in this sample ($\alpha = .78$). It contained six items: (1) number of different kinds of alcoholic beverages used (of 12 categories provided); (2) number of days in which alcohol is consumed in a typical week; (3) number of drinks likely to be consumed at a party; (4) whether drinking had ever been continued to the point of illness; (5) self-rated drinking experience; and (6) self-rated enjoyment of the taste of alcohol. Standardized scores on these items were summed to yield an overall alcohol use index for each undergraduate.

TABLE 18.1 "Drinking Alcoholic Beverages" Identity Factors

Factor		
Low level	.81	lifting a glass
	.77	touching a glass to my lips
	.71	swallowing liquid
	.71	holding a liquid in my mouth
	.64	drinking from a glass
	.61	drinking by swallowing liquid
	.57	experiencing wetness in my mouth
	.48	holding a glass in my hand
	.39	experiencing a taste
2. Hurting myself	.76	letting myself down
	.61	demonstrating a lack of self-control
	.59	letting myself down by drinking
	.53	experiencing shame
	.51	causing damage to my health
	.44	disappointing my friends
	.42	acting out of habit
	.39	making myself withdrawn
3. Relieving tension	.88	relieving tension by drinking
	.61	relieving tension
	.43	getting my mind off my problems
4. Overcoming boredom	.57	overcoming boredom by drinking
	.48	satisfying my needs
	.42	passing time
	.40	following my impulses
Getting drunk	.70	getting drunk
	.56	drinking too much
	.43	joining in with others who are drinking
	.36	getting in a good mood
6. Rewarding myself	.80	rewarding myself
	.69	rewarding myself by drinking
	.51	demonstrating my good taste
	.40	getting myself energized
	.36	clearing my mind
	.36	enjoying myself

The act identity ratings made by all subjects were submitted to a principal axis factor analysis with varimax rotation. This procedure yielded six factors with eigenvalues greater than 1.0 that together accounted for 59% of the rating variance. A .35 loading criterion used to assign items to factors resulted in the factor structure shown in Table 18.1. As we have found in other such analyses (cf. Vallacher & Wegner, 1985), a low-level identification factor arose along with several high-level factors tapping different general interpretations of the act. The high-level factors in this case could be interpreted as "hurting myself," "relieving tension," "overcoming boredom," "getting drunk," and "rewarding myself." The

mean reliability for factor indices formed by summing the ratings of the identities loaded on each factor was .81.

To determine the relationship between alcohol use and action identification, subjects were assigned to four groups monotonically increasing in alcohol use: low-, middle-, and high-use undergraduates (as partitioned by scores on the alcohol use questionnaire), and CATC clients. Then a complete multiple regression was performed using subject age, sex, and scores on each of the six identification factor indices to predict alcohol use. This regression yielded a significant overall equation accounting for 63% of the criterion variance, $F(8, 175) = 37.49, p < .01$. Given that the Trinity sample was younger than the CATC sample, it is not surprising that age was the strongest predictor of alcohol use, $\beta = .31$, $F(1, 175) = 28.13$, $p < .05$. However, as we would expect, low-level identification was a significant *negative* predictor, $\beta = -.12$, $F(1,175) = 3.94$, $p < .05$. All of the high-level indices, in turn, were positive predictors, with betas ranging from .06 to .22. Of these, "hurting myself" was significant, $F(1, 175) = 8.89$, $p < .01$, as was "relieving tension," $F(1, 175) = 10.74, p < .01$.

These findings indicate that identification of the act of "drinking alcoholic beverages" indeed varies with alcohol use. People who use alcohol a great deal tend to identify their act at higher levels, noting that they are behaving reprehensibly or relieving tension. People who do not perform the act so frequently or proficiently describe it in terms of its details. Thus, even though the act is a relatively easy one to perform, some people can remain teetotalers, never seeing the act as much more than "raising a glass to one's lips." Others, however, have become so proficient at the act that they skim over these details in a headlong rush to perform more encompassing and distant identities. We suspect that this high-level conceptualization of the act may serve as a barrier to the act's suppression. This is because, rather than monitoring the act in steps as it occurs, a person who understands an act in a high-level way is likely not to think about the act at all once it is initiated. Rather, this person will monitor only whether the high-level identity of the act has been achieved.

A similar analysis can be made of a variety of other habitual or addictive behaviors. In the case of "eating," for example, it appears that undereaters (e.g., anorexics) identify the act at low levels, whereas overeaters (e.g., the overweight) identify it at high levels (Wegner, Vallacher, Ewert, & Reno, 1983). Eating, like drinking alcohol, is relatively easy to do, and thinking about the details of the act is thus a sign of poor performance. Thinking about the consequences of the act, however, seems to do little to help when the act is performed to excess. Although overweight people often identify "eating" as "gaining weight," their recognition of this unwanted feature of the act does not seem to be sufficient to slow them down. In our view, this very concentration on a high-level identity is the problem. As self-regulation theorists have noted (Kanfer, 1970; Kirschenbaum & Tomarken, 1982), the successful control of habitual behaviors may require something like an "obsessive-compulsive" mindset—a detailed monitoring of ongoing habitual behavior. This seems to entail the identification of action in terms of the low-level identities that precede the completion of the action, rather than the high-level identities that follow it.

In drawing lessons about self-control from these studies, we should not forget the theoretical message of the findings. Quite simply, as the optimal identification level hypothesis would have it, easy actions appear to be performed most proficiently by people who have come to identify them at relatively high levels. It is most fortunate that people have the capacity to "unitize" the chains of movement that go into an easy action, for this allows them the luxury of not thinking about each movement as the act is performed. If they do report thinking about these pieces of action, it seems that the integration and fluidity of the action itself is called into question. Thinking about act details is only useful when one must build the action from its parts each time it is undertaken.

Maintaining Difficult Actions

Some actions are so difficult to maintain that they can never be completed merely by reference to a high-level identity. For most people, "playing jazz piano" might be such an action. Years of practice are required before one can go beyond "putting fingers on keys" to the level of "playing a pleasant pattern of notes," and even then, one may still fall short of "going for the jazz" (cf. Sudnow, 1978). Eventually, however, even this act could conceivably be mastered; a fine jazz stylist can simply intend jazz and have it happen. However, there are many actions one is called on to perform in daily life that are even more complex or time-consuming and that are complicated still further by the absence of any chance to practice. Imagine, for example, trying to "go to college" by merely setting out to do it and then noting when it is done. "Earning a living," "making a home," "rearing a child," and the like, are even more difficult to maintain. Such acts can take a lifetime, and without multiple lifetimes in which to learn them, it is quite clear that one cannot maintain them only at high levels of identification.

The successful performance of difficult actions depends on lower level identification. A focus on the details of action is optimal in these cases, because it is simply impossible for the human information processor to conceptualize in one identity, and then enact automatically, such extended and intricate action. The "maintenance indicators" assessed in the research by Wegner and Vallacher (1983), give some sense of the dimensions of actions that give rise to this necessary concern with detail. As actions become more difficult, less familiar, more complex in their possible patterns of lower level acts, more lengthy, and more time-consuming to learn, they become more likely to be enacted in pieces. The person must think of each piece separately, and little can be done if the identities of the pieces do not become prepotent at their appropriate points of enactment.

Wegner, Richard, and Vallacher (1982) tested the hypothesis that "rearing a child" would be done most successfully by people who identify the act in terms of its details. Working with the Girl Scout and Boy Scout organizations of San Antonio, we arranged for 202 parents to complete a series of questionnaires. One

TABLE 18.2 "Rearing a Child" Identity Factors

Factor	*Loading*	*Identity*
Teaching and training	.72	encouraging the child to do well in school
	.70	helping the child with homework
	.69	helping the child make good decisions
	.66	teaching the child about sex
	.63	teaching the child to handle money
	.62	encouraging the child to participate in activities outside school
	.58	disciplining the child for misbehaving
2. Caretaking	.78	getting the child clothes to wear
	.67	teaching the child how to get dressed
	.60	providing the child's meals
	.51	driving the child to school or activities
	.47	taking the child to the dentist or doctor
	.36	protecting the child from danger
	.36	talking with the child's friends
	.19	giving the child money
3. Experiencing costs	.70	getting too little appreciation
	.66	making myself feel bad for not being a perfect parent
	.63	missing out on being with people my own age
	.51	getting extra worries
	.49	getting exhausted
	.40	getting less money to spend on other things
	.37	increasing family tension and arguments
	.14	getting embarrassed from time to time
Experiencing rewards	.65	arranging for someone to take care of me when I am older
	.62	raising someone to take my place in the world
	.62	raising someone to do the things I couldn't
	.60	getting a companion
	.59	being admired and imitated by the child
	.51	getting praise from friends and family about the child
5. Fulfilling a duty	.71	taking time away from more interesting things
	.61	doing what I have a duty to do
	.55	risking my personal property
	.42	raising someone to help around the house

was an action identification questionnaire for "rearing a child"; the 40 identities on this form were generated by 30 people in the free-response format noted earlier for the "drinking alcoholic beverages" questionnaire. The other questionnaires asked parents for detailed demographic information, for estimates of the amount of time per day they typically devote to each of 20 activities (including child care, child-centered activities, and children's organized activities), and for an array of indicators of child-rearing effectiveness. This latter form called for the parent to report certain objective indices (e.g., whether the child had received awards, had been in trouble with neighbors or the police, had received special treatment for emotional or learning problems) and also asked for more subjective reports (e.g., whether the child was easy to get along with, well-behaved, doing well in school).

A factor analysis with varimax rotation performed on the action identification ratings revealed a solution of five factors, which are shown in Table 18.2 along with their associated identities. It should be noted that a .40 item-loading criterion was relaxed somewhat in specific cases when identities appeared to be meaningfully associated with only one factor. The low-level identities clustered in two factors, one dealing with the lower levels of "teaching and training," the other capturing the lower levels of "caretaking." Higher level identifications were revealed in the remaining factors: "experiencing costs," "experiencing rewards," and "fulfilling a duty."

The results of this investigation bore out our hypothesis. Correlational and multiple regression analyses revealed that lower level identification was predictive of child-rearing success as measured by multiple criteria. Parents who concerned themselves with the details of the act reported that their children got into trouble less frequently and had not as often required therapeutic intervention for emotional or learning problems. Parents who were low-level identifiers also reported spending more time with the child and having better relations with the child. Several of the high-level factors also evinced significant relations with the child-rearing success indices. Most notably, the view of child-rearing as "experiencing costs" and as "fulfilling a duty" seemed to accompany child difficulties (e.g., poor school performance, a lack of awards or honors for the child). These general relationships were found to exist even after demographic predictors had been entered into the prediction equations of hierarchical multiple regression analyses.

These findings should be generalizable to many of the more difficult actions people perform. For example, the person who dwells on "becoming famous" as an identity of "writing a book" would seem by this analysis to be in a position to "write a book" only poorly. By the same token, the person who presses toward "inventing a revolutionary new computer" will meet certain failure. Although people might very well *begin* acts with these identities, and might even have these identities come to mind from time to time during the actions, they cannot use these identities alone as guides to action performance. High-level identities do not convey how difficult actions are to be done and, for this reason, are not sufficient for the cognitive control of difficult actions. It is only when relevant low-level identities come to mind that the action can be carried on, perhaps eventually to meet the high-level identity with which it was initiated.

This analysis is relevant to a number of important problems of action performance. Phenomena such as "choking under pressure" (cf. Baumeister, 1984) or other performance deficits that arise from overmotivation (e.g., Atkinson & Birch, 1978; Zajonc, 1965) can be understood as action identification errors. People may often fail to perform optimally because, as a result of their personal dispositions or the identity conditions made salient by the specific performance setting, they have it in mind to do too much. A basketball player, for example, might feel great pressure to perform a high-level identity such as "winning the game" or "pleasing the crowd." If the player's skill were sufficient, these are things

that might in fact be done. However, without the skill to do these acts merely by intending them, the player who attempts action identified at these levels may fail to remember to "hold on to the ball" or "put it through the hoop." Thus, failure will often be the consequence.

This sort of performance handicap should also arise when a person underestimates the difficulty of maintaining an action. Suppose, for example, that one visits a physician and is told that one is likely to suffer blindness as a result of glaucoma later in life. The physician prescribes a medical regimen whereby one must take eyedrops four times a day for the rest of one's life if this condition is to be prevented. Because most people have taken eyedrops at some point, the action appears to be easy. Thus, one identifies what one is doing as "preventing blindness." This high-level identity, however, does little to convey the series of lower level actions that must be done regularly for successful performance. Actually, although "taking eyedrops" may be easy, doing anything four times a day for the balance of one's life is difficult indeed. Thus, one's identification fails to promote the maintenance of the action.

Research by Wegner, Kyser, and Vallacher (1983) provides empirical support for this account. This study called for 87 people receiving glaucoma treatment in San Antonio and Little Rock, Arkansas, to complete an action identification questionnaire for "using glaucoma medication." In addition, their self-reports of compliance with their prescribed medical regimens were assessed in a detailed questionnaire. The factor analysis of their action identifications yielded three low-level factors ("remembering the medication," "going to the doctor," and "taking the medication") and two that were higher level ("experiencing unpleasant consequences" and "preventing blindness"). Correlational and regression analyses revealed that "remembering the medication" and "going to the doctor" were associated with enhanced compliance, whereas "experiencing unpleasant consequences" was predictive of noncompliance. Apparently, thinking about the act in such a way as to make its details part of one's daily routine is an important path to proper self-medication. Thinking about it only in a high-level way is insufficient to bring about this integration.

People often fail to self-medicate for glaucoma; studies have suggested that only about 60% of patients follow this self-care regimen correctly (Norrell, 1981). The action identification approach to this problem suggests, however, that there is a useful avenue of intervention. Patients are regularly given some counseling by the physician or assistant when they begin such a regimen. We suspect, however, that this counseling may not emphasize clearly enough the difficulty of the act nor make salient the critical components of the act that must be prepotent for its proper performance. An emphasis on techniques of "remembering" and stress on the importance of "going to the doctor" could serve, in this context, to alert people to the low-level identities of the act that would enhance their self-care effectiveness.

Identification as a Cause of Action

We have now seen how identification level is related to the performance of several acts—drinking, eating, rearing a child, and taking medication; and the relationships we have reviewed appear to support the optimal identification level hypothesis. Whether lower level identities enhance or retard performance seems to be a matter of the maintainability of the act; lower level identification improves the performance of acts that are hard to maintain, but impairs the performance of acts that are easy to maintain. The soundness of this analysis rests, however, on an assumption we have made in conducting this research—that identification differences can cause action differences.

Although this assumption helps us forge the theoretical links among all these varied findings, it was not tested explicitly in the correlational research we have reported to this point. Thus, one could approach any of the results of these studies and propose an alternative path of causation. It could be argued that performing an easy or difficult act poorly or well is the cause of the observed level of identification. People may merely observe their completed actions and describe them in accord with what they believe they have done. Alternatively, one could even argue that neither action nor identification is the cause of the other, but that some unobserved third variable is in fact the cause of both. In the case of alcohol drinking, for example, it might be said that a physiological addiction to alcohol drives the act and simultaneously leads people who drink a lot to think about the act only in high-level terms.

We have not concerned ourselves with attempting to rule out such possibilities in this research, for a simple reason. Such reversed or circuitous causal paths, like the direct causal link between identification and action, are often perfectly reasonable to the theory. Although the theoretical principles certainly do not embrace all possible causal paths—especially those including third variables—they do prescribe a *system* of sequential interrelationships among acts and identities. The principles suggest that successes and failures in action provoke identification changes; such identification changes, in turn, produce different kinds of actions. These actions, then, are again susceptible to success or failure and thus can promote yet further identification changes. Jumping into such an ongoing system to proclaim one component the "cause" of the other is an oversimplification of the dynamic interplay of the components (cf. von Bertalanffy, 1968). We suspect that path-analytic or time-series investigations designed to establish the causal priorities of action and identification in the domains we have studied would partition the causality all around.

To examine the causal links between identification and action, we have undertaken a more fine-grained analysis of the processes by which actions and identifications change. In particular, we have conducted a series of experimental studies of the stepwise action change process that is implied by the theory—one

we have taken to calling the process of "action emergence." Both the impact of action on identification and the influence of identification on action are parts of this process. More important, however, it is through the process of action emergence that both identifications and actions can change, leading people to do new things and understand differently what they are doing.

ACTION EMERGENCE

It has always been fashionable in certain psychological circles to suggest that people do not know what they are doing. Freud (1914/1960) held that the motives underlying most human actions are so obscure that people are lucky to find them out even after years of psychoanalysis. Outside the realm of psychoanalytic thought, similarly dour views of the rationality of human action have often arisen (Hampshire, 1959; Mead, 1938; Merton, 1968; Ryle, 1949), culminating most recently in theories that rest largely on the idea that people try to discern what they have done only after the action is over (Bem, 1972; Nisbett & Wilson, 1977). By such analyses, actions are typically seen as caused by nonconscious mechanisms (arising from psychoanalytic, cybernetic, behavioristic, or other causes), and are thus merely data to be interpreted once they have become available for inspection. The identification of action, in this view, is always a *post hoc* affair.

Action in Prospect and Retrospect

The idea that people understand their acts only in retrospect is, of course, at odds with action identification theory. We have proposed that people always know what they are doing—that is, that there is always a prepotent identity for any time of action. How, then, could people sometimes come to learn the identity for their action only *after* it has occurred? We believe that there is room for such reflective understanding of action in the theory and, moreover, that the process by which people come to such *emergent* identifications of their acts is the central mechanism whereby action identification can promote behavior change. In incorporating the notion of retrospective identification into the theory, however, we do not simultaneously accept the idea that actions are *not* known beforehand. Because an action can be identified in many ways, there is nothing to stop us from suggesting that a person may identify an act in one way before it occurs and then come to identify it in another way after it has happened. In this manner, people can understand actions in advance and yet "discover" what they have done after the fact. Their initial and later identifications of the act simply differ.

An empirical example may help illustrate this point. Wegner, Vallacher, and Kelly (1983) asked people to identify what they were doing in "getting married." Telephone interviews were conducted with people who, according to newspaper announcements in San Antonio or the campus grapevine at Trinity University, were en route to the altar. The usual free-response array of act identities was

assembled for this study, and we simply asked respondents to indicate what one does in "getting married" by rating how well each of the identities described the act. Respondents we questioned over a month before their wedding day endorsed most strongly a relatively high-level identity of the act—"expressing my love." Those questioned a day or two before the wedding, however, endorsed a low-level factor containing identities such as "getting a special outfit," "saying vows," "hiring a photographer," and so on. Subjects questioned a month or two following their wedding no longer saw the act in such low-level terms and more strongly advocated a high-level factor of "getting problems" as the identity of the act. It seems the honeymoon was over.

Most people seem to know that "getting married" can change in this way. What they seldom recognize is that because actions are not real, *all* actions are, in principle, open to such reidentification. Everyday experience does not seem to bear this out, however; the tendency to reify an action in terms of its prepotent identity often seems to keep people from accepting alternative identifications. For example, if we tell an avid butterfly collector that he is not "collecting butterflies," but rather "wasting his time," we are likely to be singularly unsuccessful in convincing him. Likewise, if we inform someone who is "lobbying for a larger national defense budget" that she is actually "promoting nuclear war," she will not readily adopt our conception of her act. Different high-level identities often convey very different evaluations of an act, and people seem unusually resistant to accepting one high-level conception of what they are doing when they already have another. Why is it, then, that subjects in the "getting married" study could change their conception of what they were doing?

According to the theory, the period of low-level identification that occurred near the wedding day was the critical condition for the change in identification. The theory holds that people can move from higher to lower levels of identification; this is the message of the third principle. It also holds that people can move from lower to higher levels of identification; this is conveyed by the second principle. However, simple lateral movement in an identity structure is not allowed. Thus, to move from one high-level conception of the act ("expressing love") to another ("getting problems"), individuals must necessarily pass through a transitional state in which they consider the details of the action. This, then, is what keeps people from accepting, willy-nilly, any high-level identification that is offered for an act they already know at high level. It is only when an initial comprehensive understanding of the action is dissipated—by a consideration of low-level identities—that a new comprehensive understanding can be instituted in its place.

We believe that this sequence is characteristic of each instance in which an act is viewed in different high-level ways in prospect and retrospect. The initial and later identifications of the act can differ because the low-level identification that occurs during the act erases the initial identification, making way for a later identification that makes sense of the person's later circumstances. This general statement can be generalized yet further when we note that the low-level period does not necessarily have to be induced by performance of the act. It could occur at

some other time and thus make an emergent understanding possible. The newness and difficulty of an act that is ongoing, of course, may often make people descend to lower levels to maintain it. But what if people were asked, for instance, to consider the details of their wedding plans some years before or after engaging in the act? By our analysis, their movement to lower levels even at this time could pave the way for an emergent high-level understanding. Any suggestion of a high-level conception of "getting married," whether it is the person's original conception or something quite different, will be attractive. Thus, identification changes should be open to manipulation at any time, provided that some stimulus to lower level identification is available.

We should note that low-level identification promotes a readiness for a new understanding of action but does not require it. Often, a person will come to think of the details of an action and then will encounter information from memory or experience that suggests the same high-level identification with which the action was initiated. The person who does not experience any problems when the honeymoon is over, for example, may emerge from the low levels of the wedding experience to adopt a renewed appreciation of the act as "expressing love." Such a return to the initial high-level identification of the act will be particularly likely if the person is reminded of that act meaning by some current experience. A special candlelight dinner, for instance, could lead both partners back to their romantic interpretation of their union. A period of low-level identification seems to make people sensitive to any cues about the larger meaning of what they have done, whether they knew that meaning of the act in prospect or only in retrospect.

The Emergence Process

The remarkable aspect of action identification change is that it may produce action change. The person who comes to identify "getting married" as "getting problems," for instance, would seem to be less inclined to get married the next time the chance arises. Indeed, it is conceivable that an emergent understanding of an action could center on an identity that would give the action an entirely new direction, one that would capture little if any of the originally intended character of the act. The examination of this possibility has been the focus of several of our studies. In each case, we have engaged research participants in a series of events designed to move them from their initial understanding of an act to a relatively low level of identification. Then we have provided them with a suggestion about a new high-level understanding. The measures of interest in these studies indicate the degree to which the subjects adopt such emergent identifications and proceed to act on them.

Emergent identification of the act of "drinking coffee" was the topic of research by Wegner, Vallacher, Macomber, Wood, and Arps (1984, Exp. 2). Participants in this study were asked to drink coffee in the laboratory. (They were not so informed, but the coffee was decaffeinated.) One group received their coffee in normal coffee cups; another group was given coffee in disruptive cups designed

to move their identification of the act to lower levels. These disruptive cups were fastened securely atop tin cans that had been weighted with rocks; thus, they were heavy, tall, and unwieldy. In a separate study designed to check this manipulation of identification level, it was found that subjects with disruptive cups came to identify "coffee drinking" more in terms of details (e.g., "moving my arm," "bringing a cup to my lips") than did subjects using normal cups.

Both the normal and disruptive-cup groups were subsequently exposed to potential higher level identifications of the act. They completed a questionnaire on the "effects of coffee" that was arranged to suggest to them that coffee drinking can be identified either as "making myself seek stimulation" or as "making myself avoid stimulation." The subjects in the "seeking stimulation" group were asked to rate their certainty that coffee drinking makes them "go out and do things," "look for excitement," "enjoy loud, exciting music," and so on. The subjects in the "avoiding stimulation" group, in contrast, rated their certainty that coffee drinking makes them "avoid going out and doing things," "do things that are calming and soothing," "prefer soft, restful music," and the like. Our expectation was that the subjects who had used the disruptive cups, and who were consequently at a lower level of identification of the act, would emerge with the potential high-level identification suggested by this questionnaire.

We arranged to test this by having all subjects spend some time listening to music. They were told that their physiological reactions to the music would be measured and that they could adjust their headphone volume level by means of a control knob within easy reach. Their preferred volume level over the course of 8 min of music was used to assess the degree of emergence in the various conditions of the experiment. As it happened, subjects with disruptive cups were very sensitive to the new meaning of their action conveyed by the "effects of coffee" questionnaire. Those in the "seeking stimulation" condition proceeded to seek stimulation by turning up the music volume; those in the "avoiding stimulation" condition proceeded to avoid stimulation by turning down the volume. Subjects who had been served their coffee in normal cups, however, showed no such evidence of emergence. Instead, they showed a slight (nonsignificant) tendency to react against the suggestions offered in the questionnaire by turning their volume level in the direction opposite the one suggested.

This research illustrates what we believe to be the common course of action emergence. People undertake an act and, as a result of some error or disruption, find they cannot maintain it in terms of its initial identification. They move toward lower levels of understanding in service of continuing the act. However, from this lower level position, any high-level identity that is suggested by their memory or current circumstances becomes appealing and thus is adopted. If they have sufficient skill to maintain this new, emergent identity, their subsequent action will be guided by it—and they will thus perform an emergent action. In this way, people come to do things they did not envision before they began to act. As we shall see, such emergent action can be considerably more important than the simple adjustment of music volume.

Several broad categories of social behavior studied by psychologists appear to

be amenable to an emergence analysis. Research by Wegner, Vallacher, Kiersted, and Dizadji (in press), for example, showed emergence effects in the genesis of altruism versus egoism and cooperation versus competition. In the altruism/egoism experiment, we set out to determine whether subjects' conceptions of what they had done in a psychological experiment could be directed toward an altruistic or egoistic identification. After subjects had participated in a memory study, we measured their identifications of the act of "participating in an experiment." Because this act contained elements of both helpfulness (to the experimenters) and selfishness (in that subjects received extra course credit for participating), subjects' conceptions of what they had done were potentially manipulable in either direction. Those subjects who understood their participation primarily at low levels (e.g., "making marks in a booklet"), we believed, would be ripe for emergence, whereas those who understood their participation at higher levels (e.g., "testing my memory") would be resistant to emergent identification.

The identification level variable that was measured in this way was then crossed with a second variable—the high-level identity suggested to subjects as the meaning of their act of "participation." We arranged to expose subjects to either an altruistic or an egoistic interpretation of their action by filling the last portion of their action identification questionnaires with items pointing toward one or the other interpretation. For subjects in the altruism condition, the last seven act identities rated included "helping people study psychology," "aiding the experimenter," and the like. For subjects in the egoism condition, these items included "getting extra credit in my psychology class," "getting a better grade in psychology," and the like.

Following completion of the questionnaires, subjects were told that the memory study was over. They were asked to stay in the laboratory for a few minutes, though, and at this point were given an opportunity to volunteer for additional participation in future experiments. They were given a sheet describing ten upcoming studies and were asked to rank their preferences and then sign the sheet. One of these studies called for egoistic participation; it promised an inordinate amount of extra credit for the amount of participation time. Another study called for altruistic participation; its description promised no extra credit but expressed a great need for help.

The results showed that volunteering for participation in these studies was indeed predictable as a function of action emergence. Subjects who identified their earlier participation at low levels differed significantly in their choices. Those exposed to the altruistic identity of their earlier participation opted for the upcoming "helpful" study, whereas those exposed to the egoistic identity of their earlier participation more often chose the upcoming "extra credit" study. However, subjects who had not identified their earlier participation at low levels did not emerge with a new identification and thus did not strongly prefer either helping or extra credit. Their initial high-level identifications of the act had taken quite different forms, and they were therefore no more likely to help or to be selfish. In sum, although altruism and egoism can represent opposing forces in everyday social life, the findings of this study indicate that they may have similar beginnings in the process of action emergence.

A second study conducted by Wegner, Vallacher, Kiersted, and Dizadji (in press) extended this analysis to cooperative and competitive action. Subjects in this study were asked to describe a recent interaction they had. They were to enter descriptions of what they did into a computer console. Some were prompted to describe their actions at lower levels (i.e., "Try to provide as much detail as you can; indicate the particular comments you made, questions you asked, or behaviors you performed"), and others were led to describe their actions at higher levels (i.e., "Be somewhat general in your answers; indicate what opinions and values you communicated, or perhaps what personality traits you demonstrated"). Subsequent coding of their responses by trained judges revealed that this manipulation of identity level was successful.

The computer then delivered an ostensible "personality analysis," telling subjects either that they were very cooperative or very competitive. The subjects in the low-level condition reported greater belief in this feedback—either cooperative or competitive—than did subjects in the high-level condition. Subjects in the low-level condition also rated themselves on an adjective self-description form in ways consistent with the feedback. Those who received competitiveness feedback rated themselves as more competitive, whereas those who received cooperativeness feedback rated themselves as more cooperative. Moreover, when all subjects were later given choices to participate in future experimental tasks that required cooperative or competitive behavior, those who had initially been led to describe their acts at low levels chose to participate in tasks consistent with the bogus personality feedback they had been given. Low-level subjects who received cooperative feedback opted for cooperative tasks, whereas low-level subjects who received competitive feedback preferred to perform competitive tasks. In contrast, the subjects who were prompted to describe their acts initially at high levels were not significantly swayed to participate in tasks that would be consistent with their feedback.

The results of both of these studies should be evocative to readers familiar with the social psychology of self. The altruism/egoism study mirrors in some ways a common paradigm initiated in social research by Freedman and Fraser (1966). Their "foot in the door" paradigm has been used to show that when people are induced to perform some small helpful act, they later become more likely to perform a larger helpful act (cf. Wegner, 1980). Bem's (1972) self-perception theory is often used to explain this phenomenon. In essence, it is reasoned that people who perform the small helpful act come to see themselves as helpful people and thus continue to behave as self-perceived. Our cooperation/competition study, in turn, seems reminiscent of the many studies of the effects of social feedback on self-conceptions (e.g., R. L. Miller, Brickman, & Bolen, 1975). This line of research follows from the symbolic interactionist proposition that people's self-concepts are the result of the appraisals of themselves that they receive from others (Cooley, 1902; Mead, 1934).

The results of our studies of emergence provide a new theoretical understanding of the bases of self-perception and social feedback processes. These findings suggest that people "discover" what they have done, and thus learn what sorts of people they are, principally when they have entered a period of low-level action identification. During such a period, the self is the author of only relatively drab and concrete low-level actions. When these are put together in terms of an emergent high-level act identity, the self becomes newly understood as the source of an encompassing and meaningful action. The self becomes "helpful" or "selfish," "cooperative" or "competitive," or the agent characterized by many other action-producing qualities. In this light, people who understand their actions at high levels have stable self-views. People who, for whatever reason, come to identify their actions at lower levels, in turn, are momentarily robbed of a stable and meaningful self. It is in such moments of low-level identification that emergence can happen and can lend people a new basis for self-understanding.

Emergence and Impulse

Action emergence creates new actions. Instead of following the track laid down by a prior high-level identification, the person who experiences an episode of emergence can adopt a new, perhaps untried action direction. Such emergence only has *immediate* consequences for action, however, when the identity conditions for the emergent identity are available as the initial action is ongoing. For instance, one might be "working on a project at one's desk" one day and find it necessary to begin the lower level act of "searching for paper in the top drawer." While surveying the contents of the drawer, one encounters the address of an old friend and, in short order, finds onself "writing a letter to an old friend." By our account, this would not have happened had one kept "working on the project" in mind all along. The descent to lower levels in search of the paper served to disrupt this line of action, and because the identity conditions for a different higher level act were available at the time, the act could emerge on the spot with a new character and a new result. We believe such a sequence can do much to explain the nature of impulsive action.

Let us take as an empirical example a study performed by Wegner and Vallacher (1982). We arranged for a group of subjects to observe a videotape of a research participant performing a cold pressor task—a standard laboratory induction of pain. Subjects observed as an experimenter explained that the participant was to perform a series of manual tasks (putting together nuts and bolts, putting metal rings on an upright rod, etc.) while his hands were submerged in an aquarium full of icewater. The participant was then instructed to carry out this task, trying to keep his hands in the icewater for as long as possible up to a limit of 2 min. The participant did so, and subjects were then asked to identify the action that had been performed. Their identifications were made in response to a 40-item questionnaire that had been constructed by means of the free-response technique.

Each subject was then called on to perform the icewater task. Measures were taken of three different indices of pain: duration of hand immersion, manual task performance, and the subject's posttask self-report of pain. By all three measures, we found that subjects who understood the task at a low level in advance experienced greater pain. They removed their hands from the icewater more quickly, performed fewer of the nuts-and-bolts tasks, and reported feeling more pain. This experience of pain is understandable as an emergence phenomenon. The subjects who began the task at a higher level of identification knew what they were doing in a durable and long-term way. They concerned themselves with "learning about psychology," "helping the experimenters," or some other high-level identification of the act, and therefore monitored their environments primarily with the identity conditions for these larger acts in mind. The subjects at low level, in contrast, had an unsatisfactory understanding of their action. They knew they were "moving fingers," and the like, but they were not considering the act's larger meaning. Thus, when a very clear meaning became available—"I am exposing myself to pain"—they emerged with this understanding of what they were doing.

The state of low-level action identification is likely to make people sensitive to their experiences. Because people in this state are understanding their acts in only a mechanical and relatively meaningless fashion, they are likely to remain alert to the variety of stimuli in their environments that could serve as identity conditions for the higher level understanding of their action. In one sense, this means that people in this state are often going to be surprised; their low-level identification prevents foresight regarding the consequences of their actions. In another sense, though, this means that low-level identification will portend a special flexibility of action, a capacity to reformulate the action in response to new stimulation. A person at high level in "working," for example, might well work straight through lunch. A person at low level in the same job, however, might "move toward the office door" and, at the same time, feel a hunger pang. The hunger stimulation would be processed for its possible relevance to the meaning of the ongoing action, and the person might well emerge with "going to lunch."

This seemingly impulsive quality of emergent action has led us to investigate the connection between low-level identification and impulse. In a study by Wegner, Myers, and Vallacher (1982), we arranged for subjects to encounter a hypothetical opportunity for impulsive action—a theft. Subjects were asked to imagine that they were walking down a hallway in a campus building. To aid in this exercise, they were shown a videotape made by walking a camera down a hall. The tape simulated a crime opportunity. At the end of the hall, it showed a couch with a jacket and some notebooks on it. On the floor in front of the couch was a $20 bill. The camera zoomed in on the money and then zoomed back to pan the empty hallway in both directions. The tape ended at this point, and subjects were asked to identify what they would be doing if they had taken the money. They were also asked to indicate whether they would have taken the money under these circumstances and whether they would have been *tempted* to take the money.

Although only 10% of the sample of 40 subjects indicated that they would have taken the money, over 40% said they would have been tempted. The interesting feature of the results of this experiment, though, was the relationship between action identifications and self-predictions. By the usual factor-analytic technique, identifications of the act were found to cluster around four main meanings: a low-level factor (e.g., "looking around," "clasping the bill in my hand"); a high-level factor signifying the "criminal" quality of the act (i.e., "committing a crime"); a high-level factor euphemizing the action (i.e., "borrowing"); and a high-level factor conveying enjoyment of the action (i.e., "getting in a better mood"). Simple correlations between these identification factors and the self-predictions revealed that two of the high-level meanings were most predictive of self-reported theft likelihood. Identifying the act as "committing a crime" was negatively correlated with self-predicted theft, $r(40) = -.29$, $p < .05$, whereas identifying the act as "borrowing" was positively correlated with this self-report, $r(40) = .37$, $p < .01$. Low-level identification, however, was the only factor correlated with self-reports of being tempted, $r(40) = .43$, $p < .01$. Apparently, although thinking about the details of this action does not lead people to report that they would do it, it does lead them to report a strong feeling of temptation.

These data lead us to wonder whether people may predict their future actions primarily on the basis of their high-level identities for action. Thinking of this act in a positive light ("borrowing") is associated with predicting that one will do it, whereas thinking of the act in a negative light ("committing a crime") inclines one to predict that one will not do it. What is intriguing about these findings, though, is that the admission of temptation to act is so strongly associated with low-level identification. It could be that in the heat of the moment, those individuals who lose their initial high-level identification—for whatever reason—become especially compelled by the current circumstance. The opportunity to get money emerges on the spot as the meaning of the low-level identities, and the person takes the money "on impulse." Further research in nonhypothetical settings will be necessary to assess the validity of this reasoning.

There is yet another line of evidence linking low-level identification with impulsive action. Wegner, Gould, and Vallacher (1983), gave 42 Trinity University undergraduates a general individual difference measure of action identification level. This Behavior Identification Form (BIF) consisted of 25 forced-choice items; for each, the subject was given one act identity (e.g., "eating") and was asked to choose whether this was better described by a lower level identity ("chewing") or a higher level identity ("getting nutrition"). This measure, developed by Vallacher, Wegner, and Cook (1982), was the one used in the maintenance research by Wegner and Vallacher (1983) mentioned earlier. It exhibits substantial internal consistency (Cronbach's $\alpha = .84$; $N = 272$) and repeat reliability over two weeks (.96; $N = 42$) and indicates to us that despite the considerable variability in identification level that is accounted for by differences in situations and in action domains, there are also general individual differences in level of identification. Such differences are of course interesting in their own right, and we have discussed them in depth elsewhere (Vallacher & Wegner, 1985). For present purposes, however, suffice it to say that the undergraduates who completed the BIF in this study were also asked to complete a self-report scale of impulsiveness and to describe in detail the course of their activities in the past week. Two weeks later, they returned and again described their activities over the past week.

High-level identification scores on the BIF were negatively correlated with self-reported impulsiveness, $r(42) = -.31$, $p < .05$. Thus, people who generally identify their actions at higher levels are less likely to report that they do things on impulse. Evidence corroborating this relationship was derived from a comparison of the activity schedules the subjects reported. A measure of action instability was calculated by determining the difference between the amounts of time allocated to each of 20 action classes in the two time periods. The correlation between BIF scores and this measure of action instability was significantly negative, $r(42) = -.26$, $p < .05$. This means that, in this sample, individuals who typically identified action at higher levels were also more consistent in their action over a two-week period. Those who identified action at lower levels reported allocating their time to different acts in the two time periods. These data suggest that high-level identifiers have a broadly conceived plan of action that keeps them doing the same things from one week to the next. Low-level identifiers have no such plan and so emerge moment by moment in diverse action directions.

Taken together, the results of these various studies of emergent action provide some insight into the nature of impulse. Whether a person removes a hand from icewater on impulse, is tempted to take a $20 bill on impulse, or generally does different things from one week to the next on impulse, the common thread that underlies this sort of behavior is a tendency toward lower level action identification. Such lower level identification may be chronic in the person—leading to a life of repeated emergence with new action directions; or it may be chronic with regard to only a specific domain of action—leading the person to emerge in a new direction whenever that domain of action is approached. Perhaps most generally, though, lower levels of action identification may arise whenever a person cannot do an action according to a higher level identity alone. Environmental events that produce disruption, confusion, and error should make anyone—regardless of personal proclivities—identify action at lower levels and so become prey to impulsive action tendencies. The emergence process portrays impulsive action as a standard human response to the lack of high-level action understanding.

Impulse has more traditionally been understood in psychology by means of the Freudian notion of unconscious motivation. Psychoanalysts maintain that remarkable meanings can usually be found in slips of the tongue, memory lapses, spontaneous emotional expressions, and impromptu actions, and that these meanings must be orchestrated by unconscious motives. Thus, actions have very different meanings than the one known consciously by the actor (Schafer, 1976). The emergence analysis of impulsive action suggests a different interpretation: Impulsive or unplanned action occurs when a person is identifying ongoing acts at a low level. The person is performing what Heider (1983) has called an

"existential walk"—an aimless journey marked by incessant small decisions of what to do next. In this state, the person suddenly finds something more substantial to do; a low-level act can be identified at higher level, and the high-level path is thus followed. Far from being a consequence of unconscious motives, then, the person's impulsive act is simply a rapid reidentification and redirection of ongoing action.

Later, such spontaneous emergence of action can certainly *seem* to have come from the unconscious. A good psychoanalyst could offer several interpretations of the act that are high enough in level to provide an impressive advance in meaning. Usually, this high-level meaning will be one that the actor cannot remember having entertained prior to the action, for the actor was at a low level at that time. The actor may thus be likely to accept this interpretation as a psychoanalytic insight—even though the analyst's identification of the action may characterize only by chance what the person was really doing. The person was actually committing a low-level act, which, with the proper identity conditions, could emerge into impulse. It is informative, of course, regarding the person's knowledge structures, that the person could appreciate those identity conditions and so perform that act. But such knowledge is far from "unconscious" in the Freudian sense, and our theory thus departs significantly from the psychoanalytic formulation. It suggests, instead, that people will often seem to do things motivated by the unconscious when they are consciously concerned with *how* to act rather than with *why* they are acting.

INTELLIGENT ACTION

The principles of action identification theory prescribe a system that allows people to act intelligently. All the acts that people think about, from the most mundane to the most complicated and far-reaching, are performable because people can, indeed, think about them. The theory indicates that thinking plays a relatively simple role in easy actions: thought gets the action started, and motor systems that do not require conscious thought move the body to play the action to its conclusion. Because such easy actions can usually be done without thinking about action details, emergence need not take place, and these acts thus stand as a stable array of things the person can do.

The theory suggests that thought plays a more critical and remarkable role in difficult actions. People can do these acts only because they can think about details of action. In performing difficult actions in such tiny steps, however, people will often lose sight of their initial action directions. The theory holds that thought about action will make the most intricate and difficult human actions susceptible to almost constant reshaping through emergence. Different identifications will be "tried on for size"—such that at any particular time, the one will be adopted that is most descriptive of what the person's motor systems can do in the given circumstance. Thoughts of actions that are entirely beyond human abilities will thus be dissipated whenever such actions are attempted. Therefore, people will be

able to behave intelligently, doing what they can do and remaining continually open to what they might do.

Obviously, the kind of intelligent action described by the theory is not available to organisms that do not symbolize their actions. Therefore, raccoons are out, no matter how much it looks like they are "washing their food." Human infants are also beyond the scope of the theory. Certainly, they may represent their actions to themselves by means of motor or sensory memories (cf. Bruner, 1964), and their systems of action representation and performance could bear a structural resemblance to the system we have proposed. However, until infants develop the capacity to symbolize their actions to themselves (Luria, 1961), their behavior is organized by processes that are opaque to our theoretical analyses. Oddly enough, though, certain *computer* action, like adult human action, may be understandable in terms of the theory.

Artificially intelligent computer programs that guide action—such as the one that guides the robot SHAKEY through the halls of a building (Fikes, Hart, & Nilsson, 1972)—are often run by systems that appear to be "action identifiers." They perform acts that are characterized in advance by plans; they move to consider acts in greater detail when the plans are thwarted; and they move back to continuing their more general plans when the obstructions have been removed. It is in this way, for example, that Winograd's (1972) SHRDLU describes picking up a box and knows, first, to remove another box that is sitting on top of it. Each of these steps is usually carried out by a separate subroutine that is called by a higher level program. Thus, just as a person might need to think of the name of a lower level action (e.g., "removing the box on top") as a part of a higher level act (e.g., "retrieving the lower box"), programs identify levels of action in terms of separately named subroutines that perform each action level.

The system described by action identification theory suggests that humans have action production capacities that are more "intelligent" than any artificially intelligent systems yet developed. The human ability to move to higher levels of identification as the actions described at lower levels are mastered and made automatic, for example, is one that is implemented only in a very rudimentary way in even the best computer programs (Boden, 1977). This capacity for integrating actions entails a kind of *self-modification* that allows humans to perform some of the most complex actions with but a single conscious intent. The gap between human and machine intelligence in action is even wider, however, in yet another domain. Action identification theory indicates that people are remarkably facile in reorienting themselves to different higher level meanings of their action. Computer programs seldom contain more than one high-level identification; they have an impoverished understanding of the variety of different purposes that might be served by their acts (Dreyfus, 1979). Such flexibility and potential creativity is difficult to build into a machine for the simple reason that each higher level identity brings with it a myriad of information—in the form of new lower level identities, connections to these and to previously existing lower level identities, and connections to yet other higher level identities.

Just as artificial intelligence analysts have found it difficult to implement the

multiplicity of high-level act meanings in their machines, psychologists have found this feature of humans hard to understand. At best, psychologists have contented themselves with composing lists of human needs and motives or with tracking down all the various lower level actions that can be ascribed to one such motive. With the action identification approach, these "motives" are seen as actions themselves and thus are embraced in a single system that allows the continuity from the lowest level minutia of action to the highest level goal to be understood. It is within such a framework that we can begin to understand how people may do things that last a lifetime or may do things that change in their very doing to become something entirely new.

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References

Abelson, R. P. (1973). The structure of belief systems. In R. C. Schank & K. M. Colby (Eds.), *Computer models of thought and language* (pp. 287–340). San Francisco: Freeman.

Abelson, R. P. (1981). Psychological status of the script concept. *American Psychologist, 36*, 715–729.

Anscombe, G. E. M. (1957). *Intention*. Oxford: Blackwell.

Atkinson, J. W., & Birch, D. (1978). *An introduction to motivation*. New York: Van Nostrand.

Austin, J. L. (1961). *Philosophical papers*. London: Oxford University Press.

Baumeister, R. (1984). Choking under pressure: Self-consciousness and paradoxical effects of incentives on skillful performance. *Journal of Personality and Social Psychology, 46*, 610–620.

Bem, D. (1972). Self-perception theory. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 6, pp. 1–62). New York: Academic Press.

Boden, M. (1977). *Artificial intelligence and natural man*. New York: Basic Books.

Bower, G., Black, J., & Turner, T. (1979). Scripts in text comprehension and memory. *Cognitive Psychology, 11*, 177–220.

Brown, R. W. (1958). How shall a thing be called? *Psychological Review, 65*, 14–21.

Bruner, J. S. (1964). The course of cognitive growth. *American Psychologist, 19*, 1–15.

Bryan, W. L., & Harter, L. (1899). Studies on the telegraphic language: The acquisition of a hierarchy of habits. *Psychological Review, 6*, 345–378.

Carver, C. S., & Scheier, M. F. (1981). *Attention and self-regulation: A control-theory approach to human behavior*. New York: Springer-Verlag.

Cooley, C. H. (1902). *Human nature and the social order*. New York: Scribners.

Danto, A. (1963). What we can do. *Journal of Philosophy, 40*, 435–445.

Dreyfus, H. L. (1979). *What computers can't do: The limits of artificial intelligence*. New York: Harper & Row.

Fikes, R. E., Hart, P. E., & Nilsson, N. J. (1972). Learning and executing generalized robot plans. *Artificial Intelligence, 3*, 251–288.

Freedman, J. L., & Fraser, S. C. (1966). Compliance without pressure: The foot in the door technique. *Journal of Personality and Social Psychology, 4*, 195–202.

Freud, S. (1960). *The psychopathology of everyday life*. New York: Norton. (Original work published 1914)

Gauld, A., & Shotter, J. (1977). *Human action and its psychological investigation*. London: Routledge and Kegan Paul.

Gergen, K. J. (1982). From self to science: What is there to know? In J. Suls (Ed.), *Psychological perspectives on the self* (Vol. 1, pp. 129–150). Hillsdale, NJ: Erlbaum.

Goldman, A. I. (1970). *A theory of human action*. Princeton, NJ: Princeton University Press.

Hampshire, S. (1959). *Thought and action*. London: Chatto and Windus.

Harré, R., & Secord, P. F. (1972). *The explanation of social behaviour*. Oxford: Blackwell.

Heider, F. (1983). *The life of a psychologist: An autobiography*. Lawrence: University of Kansas Press.

James, W. (1890). *Principles of psychology*. New York: Holt.

Kanfer, F. H. (1970). Self-monitoring: Methodological limitations and clinical applications. *Journal of Consulting and Clinical Psychology, 35*, 148–152.

Kirschenbaum, D. S., & Tomarken, A. J. (1982). On facing the generalization problem: The study of self-regulatory failure. In P. C. Kendall (Ed.), *Advances in cognitive-behavioral research and therapy* (Vol. 1). New York: Academic Press.

Kruglanski, A. W. (1975). The endogenous-exogenous partition in attribution theory. *Psychological Review, 82*, 387–406.

Lichtenstein, E. H., & Brewer, W. F. (1980). Memory for goal-directed events. *Cognitive Psychology, 12*, 412–445.

Luria, A. R. (1961). *The role of speech in the regulation of normal and abnormal behavior* (J. Tizard, Trans.). New York: Liveright.

Mead, G. H. (1934). *Mind, self, and society*. Chicago: University of Chicago Press.

Mead, G. H. (1938). *The philosophy of the act*. Chicago: University of Chicago Press.

Merton, R. S. (1968). *Social theory and social structure*. New York: Free Press.

Milgram, S. (1963). Behavioral study of obedience. *Journal of Abnormal and Social Psychology, 67*, 371–378.

Miller, G. A., Galanter, E., & Pribram, K. H. (1960). *Plans and the structure of behavior*. New York: Holt.

Miller, R. L., Brickman, P., & Bolen, D. (1975). Attribution versus persuasion as a means of modifying behavior. *Journal of Personality and Social Psychology, 31*, 430–441.

Newtson, D. (1976). Foundations of attribution: The perception of ongoing behavior. In J. H. Harvey, W. J. Ickes, & R. F. Kidd (Eds.), *New directions in attribution research* (Vol. 1, pp. 223–247). Hillsdale, NJ: Erlbaum.

Nisbett, R. E., & Wilson, T. D. (1977). Telling more than we can know: Verbal reports on mental processes. *Psychological Review, 84*, 231–259.

Norrell, S. (1981). Monitoring compliance with pilocarpine therapy. *American Journal of Ophthalmology, 92*, 727–731.

Rosch, E. H. (1973). Natural categories. *Cognitive Psychology, 4*, 328–350.

Ryle, G. (1949). *The concept of mind*. London: Hutchinson.

Schafer, R. (1976). *A new language for psychoanalysis*. New Haven: Yale University Press.

Schank, R. C., & Abelson, R. P. (1977). *Scripts, plans, goals, and understanding*. Hillsdale, NJ: Erlbaum.

Schmidt, R. (1975). A schema theory of discrete motor learning. *Psychological Review, 82*, 225–260.

Sudnow, D. (1978). *Ways of the hand*. New York: Harper & Row.

Vallacher, R. R., & Wegner, D. M. (1985). *A theory of action identification*. Hillsdale, NJ: Erlbaum.

Vallacher, R. R., Wegner, D. M., Bordieri, J., & Wenzlaff, R. (1981). Models of act identity structures. Unpublished research data.

Vallacher, R. R., Wegner, D. M., & Cook, C. (1982). Construction of the Behavior Identification Form. Unpublished research data.

von Bertalanffy, L. (1968). *General system theory*. New York: Braziller.

Vygotsky, L. S. (1962). *Thought and language*. Cambridge, MA: MIT Press.

Wegner, D. M. (1980). The self in prosocial action. In D. M. Wegner & R. R. Vallacher (Eds.), *The self in social psychology* (pp. 131–157). New York: Oxford University Press.

Wegner, D. M., Gould, J., & Vallacher, R. R. (1983). Action identification level and behavior consistency. Unpublished research data.

Wegner, D. M., Kyser, G., & Vallacher, R. R. (1983). Identification of the act of using glaucoma medication. Unpublished research data.
Wegner, D. M., Myers, R., & Vallacher, R. R. (1982). Identification of the act of taking $20. Unpublished research data.
Wegner, D. M., Richard, M., & Vallacher, R. R. (1982). Identification of the act of rearing a child. Unpublished research data.
Wegner, D. M., & Vallacher, R. R. (1982). Identification of the act of performing a cold pressor task. Unpublished research data.
Wegner, D. M., & Vallacher, R. R. (1983). Action identification level and maintenance indicator ratings. Unpublished research data.
Wegner, D. M., Vallacher, R. R., & Dizadji, D. (1983). Identification of the act of drinking alcohol. Unpublished research data.
Wegner, D. M., Vallacher, R. R., Ewert, J., & Reno, L. (1983). *Knowing what one is doing: Action identification and self-control.* Unpublished manuscript, Trinity University.
Wegner, D. M., Vallacher, R. R., & Kelly, M. (1983). Identification of the act of getting married. Unpublished research data.
Wegner, D. M., Vallacher, R. R., Kiersted, G., & Dizadji, D. (in press). Action identification and the emergence of social behavior. *Social Cognition.*
Wegner, D. M., Vallacher, R. R., Macomber, G., Wood, R., & Arps, K. (1984). The emergence of action. *Journal of Personality and Social Psychology, 46,* 269–279.
Winograd, T. (1972). *Understanding natural language.* New York: Academic Press.
Wittgenstein, L. (1953). *Philosophical investigations.* Oxford: Blackwell.
Zajonc, R. B. (1965). Social facilitation. *Science, 149,* 269–274.

Wegner, D. M., & Vallacher, R. R. (1986). Action identification. In R, M. Sorrentino & E. T. Higgins (Eds.), Handbook of motivation and cognition: Foundations of social behavior.(pp. 550-582). New York: Guilford.