Chapter 1

Analytic Goals and the Varieties of Scientific Contextualism

Steven C. Hayes
University of Nevada

Contextualism is being looked to as a framework within which psychology may advance, stripped of needless mechanism and needless philosophical inconsistencies. That, in fact, was the reason the conference on contextualism was held that led to this volume. Contextualism, it seems, is suddenly a progressive alternative.

An examination of contextualistic writings leads quickly to two conclusions, however, both of which present problems for this progressive construction of the current situation. First, contextualism is not new. American psychology began with a very heavy contextualistic emphasis due to the early influence of James, Pierce, Dewey, and others. Second, there are many contextualistic approaches, each with very different perspectives. It is not yet clear that these different contextualists can even talk with each other effectively.

The first point is troubling because it suggests that our past may be our future. The current wave of interest in contextualism may be doomed to failure. The second is troubling because it suggests that there are many contextualistic paths leading from the present, not all of which are likely to succeed, or–worse–that there is no coherent contextualistic position to be pursued at all.

In this chapter I argue that the ultimate failure of American pragmatism within scientific psychology was due to a subtle but crucial problem, beginning with James himself. I also argue that the varieties of scientific contextualism make sense when this problem is identified and solved. Contextualism can indeed serve as a coherent philosophy of science, despite the diversity of approaches that emanate from it.

The Models of Stable Truth

Each of Pepper's four world views can distinguished on the basis of its truth criteria. What may be obvious to most–but was not to me for quite a while–is that the truth criteria are not arbitrarily related to their underlying root metaphors. They are built into the root metaphors themselves. Parenthetically, my discussion here as in many other areas differs from Pepper's. I do not think using his categories demands agreement with the specifics of his analysis. I am prepared to defend my analysis without an appeal to his authority, and similarly I will not assume the burden of defending his thinking.

Formism emerged early in the history of philosophical thought, and for a good reason: its truth criterion is inherent in language itself. If all events are instances of specifiable forms, then the purpose of analysis is to know these forms and to name them. To name or describe an event is to specify a relation between a term or sentence and an occurrence. The formists' simple correspondence is nothing more than the "truth" of common sense language, and it is built into the root metaphor. If I say "an apple is round, red, and sweet and I have one in my hand," the truth of the statement is assessed by examining the properties of the object in my h nd. If an instance of the class "apple" is there, I spoke truthfully. I do not think it 's an accident that Formism emerges just as written language is coming into full blossom within the human community. Formism is the philosophy of naming, and the truth criterion is the criterion of that common sense activity.

Mechanism is, in a sense, an elaborated type of formism and its truth criterion is an elaborated form of simple correspondence. Because the mechanist assumes the presence of a world organized *a priori* into events, relations, and forces, truth is to be found in the way ever more ambitious verbal formulae reveal the assumed organization of the world. If one assumes that there is a single way that the world is organized, it makes sense to test verbal formulae by applying them to new phenomena, and thus predictive verification is the primary truth criterion of the mechanist. Again, the truth criterion is built into the root metaphor.

The coherence of the organicist is superficially like the truth sought by a story-teller: many specific elements are integrated into a coherent whole. But the story teller knows that the story can be told many different ways, while the organicist takes a view that is more passive in one sense and is also active in another sense. The coherence of the organicist is more like the coherence of a reader. When we read a complicated mystery story for the second or third time we see how fragments of the story that seemed unimportant or irrelevant the first time through, now assume their proper place. If the story is well written and well understood, every element will be seen to have its place, often without an effortful analysis. The organicist assumes that there is a grand story evolving, in which all apparently contradictory elements will be found in the end to be part of the evolving whole. Such a changing, developing organic system "tells a story" that we can either read correctly or not. The truth criterion of the organicist is just the application of this root metaphor. Truth is the removal of all apparently contradictory elements so that they are seen to be part of the evolving whole: in a word, coherence. The truth criterion is built into the root metaphor itself.

In all three of these world views the analyst views the job of analysis to be one of discovery--literally, a matter of "taking the cover off" what is already there. The history of the analyst may influence how well this job is done, but it does not change its nature. This means that the analyst need not deal with the difficult issue of values--of *why* a given bit of knowledge is important. The analyst can appeal to the ontological basis of knowledge as a defense.

The Fluid Model: Truth and Consequences

Contextualists take a local and pragmatic perspective on truth. Again, this truth criterion is not arbitrarily related to the root metaphor: it is instead an application of it. An act-in-context is a common sense historical act, alive and in the present. As such, it is purposive, not causally, but descriptively (more about this later). Acts like "going to the restaurant for lunch" have what Pepper calls a satisfaction (what behavior analysts like myself might call a consequence or a reinforcer). When we apply this root metaphor to the action of the analyst, it too is related to a consequence. Achieving that consequence is the truth criterion of contextualism: it is built into the root metaphor.

Pepper uses many terms for this truth criterion, and distinguishes among these terms for reasons of interest to professional philosophers, but in my view "successful working" is the clearest term for our purposes. Etymologically, work is related to a word meaning simply "activity." Successful working, in its broadest sense, is just successful activity. Indeed, effective action is commonly used as a synonym for successful working.

What is important is the word "successful." Success is an outcome concept: it is a matter of reaching a goal, fulfilling a purpose, or producing a desirable consequence. The terms "goal," "purpose," or "desirable consequence" all suggest that the important issue is not simply the presence or absence of *any* consequence, but the degree to which the consequence produced was part of the original activity. A behavior analyst might say that the question is the degree to which the consequence produced is part of the original function of the operant.

In physics "work" is defined as effort times distance. Distance can only be measured in terms of a direction--from somewhere to somewhere. Similarly, workability as a truth criterion requires direction. We have to measure workability from somewhere to somewhere.

Pepper says it this way:

> Serious analysis for [the contextualist] is always either directly or indirectly practical . . . If from one texture you wish to get to another, then analysis has *an end, and a direction,* and some strands have relevancy to this end and others do not, and . . . the enterprise becomes important *in reference to the end*" (Pepper, 1942, pp. 250-251, emphasis added).

Note that Pepper uses the term "wish." This suggests that the consequence of importance must be present, even before it is contacted, to be useful as a guide to analysis. An analysis is true to the extent that it reaches the end, or takes one in the direction, that was important *before the action of analysis.*

This is a crucial point, because it means that "successful working" is not foundational in contextualism--you cannot start from successful working and proceed from there. What is foundational is a consequence, end, purpose, goal, direction, intention, value, outcome, or metric in terms of which the truth criterion of successful working can be applied.

I will argue that these consequences must also be *verbally* present, as part of the extended present of the original analytic activity. Successful working is a matter of achieving *specified* consequences–of accomplishing that which was there to be accomplished.

Verbal and Non-Verbal Time

The conceptual units familiar to animal behaviorists have to do with change in an experiential sense, or what we might call non-verbal time (see Hayes, 1992). Consider a simple situation with a pigeon. First there was an observed green light, then a peck on a key, then food eaten. Later, there was an observed green light, then a peck on a key, then food eaten. Still later, there was an observed green light, then a peck on a key, then food eaten. A bird exposed to such a sequence of events has experienced an orderly process of change from one interaction with the world to another. If these events come together to form an operant class, pecks on the green key is "purposeful" in the sense that a past history of change is present when the light appears. The bird pecks "in order to get food" in the sense that their has been an *orderly* sequence between pecking and food. The peck is a food-getting peck. Thus, terms like "purpose," when they have to do with non-verbal time, are referring to defining qualities of operant or instrumental behavior–not as a source of this behavior but as a way of speaking about the historical role of consequences in present actions.

Verbal time, and thus verbal purpose, is different, however (Hayes, 1992). I have argued in several places that the essence of verbal behavior is the derivation of relations among events under contextual control not based simply on the form of the relata. Temporal change in a verbal sense is a class of arbitrarily applicable change relations: cause-effect, if ... then, before-after, and the like. If we are told that "right after *A* comes *B*," we derive that "right before *B* comes *A*." Similarly, if we are taught directly that "right after *A* comes *B*" and "right after *B* comes *C*," we can derive that "shortly after *A* comes *C*" or that "shortly before *C* comes *A*." If *B* has functions (for example, if *B* is an intense shock), other stimuli may have functions based on their derived relations with *B*. For example, *A* may now elicit great arousal, while *C* may lead to calm. The verbal relation of time is brought to bear by contextual cues, not simply by the form of the relata. Thus, construction of a verbal purpose involves relating the present action to consequences not simply because these consequences have been experienced following these actions in the past, but also because a history of deriving change relations is brought to bear on the current situation.

My point is this: verbal time is not the same as non-verbal time, and thus concepts like purpose, goal, or intention must differ in the two domains. But verbal time relations are also not mental events that "cause" behavior to occur. Verbal time relations are enabled by the action of deriving an arbitrarily applicable relation between an event and some change. When we then act affirmatively with regard to such derived relations, we are behaving purposefully in a verbal sense. In other words, verbally purposeful actions are rule-governed, and the rule that is involved is a temporal one.

Why Successful Working must be Verbal

Truth is not a non-verbal concept. Truth is something that applies to the verbal actions of verbal organisms.

It would be nonsense to say that the actions of a dog or a cat are "true" or "false." For example, suppose a cat tries to open a door by purring. In the past, purring may have lead to doors opening because owners have acted on the basis of the purring–that change relation has been directly contacted by the cat and it is the basis upon which we can say that the purring is "purposeful." It is part of an operant class of "opening-the-door behavior." But today the cat's owner is not at home. The failure of the door to open may mean that purring is currently ineffective, but it does not mean that purring is "false." Purring has worked to open the door in the past, and at the moment that the cat purrs it does so based on a history of "successful working" in a non-verbal sense.

This example shows that successful working cannot be allowed to refer solely to non-verbal purpose because, when one does so, *all purposeful actions become "true" because organisms do what has worked in the past.* Put another way, if when we ask "is this true?" we mean (properly) *has this been true*, and if the "this" refers to successful working in a non-verbal, purely contingency-shaped sense, then the answer always is "yes."

One could solve this conundrum by claiming that truth actually has to do with the *literal* future. The cat's action may be false in the sense that, at the moment it purrs with the owner gone it will soon be found to be an unworkable means of opening the door. Purring has been true, but now it is false.

This solution reduces truth criteria to non-criteria, because we can never assess the truth of any statement except based on something that has not yet happened. Even if a given action has lead to horrific consequences, we cannot rule out that these consequences may change. Asked about the truth value of anything we could only say "I do not know. Let's wait and see."

My conclusion is this:

1. if successful working has to do with non-verbal time it is applicable but we always find that all present activity is "true";
2. if it has to do with the literal non-verbal future, it is never applicable;
3. therefore, successful working cannot refer solely to non-verbal time.

Truth is a verbal concept, applicable only to verbal events. Statements can be true or false; actual histories cannot.

A verbal analysis can have many consequences:

To experience the harmony of events
To experience connections among events
To produce a consistency of beliefs
To understand and make sense of the world

To predict events
To postdict or interpret the world
To have a verbal place for everything
To feel personal satisfied
To manipulate and control phenomena
To survive as a species/culture/individual
To look intelligent
To have fun
To give talks
To speak nonsense
To confuse your friends
To get put into a mental hospital

These are all workings. Each could be a goal of a given statement or set of statements. Successful working, to be a useful truth criteria, must help us sort out verbal statements into true and false categories. Since it cannot do so if it involves only directly contacted and unanalyzed consequences, as I have just shown, I conclude that successful working *must be a matter of contacting verbally specified consequences*. We must say which of these many consequences I have just listed, or many others, is of importance to a speaker.

Unlike its non-verbal variant, successful working that is limited to a verbal sense of "working" can be applied to actions, and it does not always yield the same answer. Suppose a person is engaged in scientific action "x." As a contextualist I ask this person "is this working?" or "is this effective" as a means of assessing the truth value of this activity. If the referent of "working" is totally non-verbal, the answer must always be "in the past, yes; in the future, I do not know." But if "working" is a matter of reaching specified consequences, I must first ask "toward what are you working?" Only when I have a clear answer may I usefully ask "is this working" in the sense of "is this moving you toward your specified consequence." Even very richly reinforced behavior can fail such a test.

In short, to be mounted as a truth criterion, successful working first requires a goal, *and that goal must be stated verbally*. A verbal goal is simply the statement of a consequence of interest (for the rest of the paper when I refer to goals I mean verbal goals). Once we have a goal, we can assess the degree to which analytic practices have helped us achieve this goal in the past, or the degree to which they are likely to do so in the future, based on an even verbal broader history that is involved in the verbal construction of a future. As the literal future becomes present, these judgements can be continuously revised.

Implicit goals are not very useful for these purposes, because we can always construct a verbal description of our direct history. That is, we can always tell a story, *post hoc*, that would make sense of current behavior in terms of past consequences. Only explicit, stated, specific, *a priori* goals can make successful working a trustworthy guide to analysis.

Why Goals Cannot Ultimately Be Justified

I have just argued that there is no way to apply successful working useful without a goal. If so, since successful working is the means by which contextualis evaluate events, it must be the case that goals themselves cannot ultimately l evaluated or justified, only stated. To evaluate a goal via successful working wou require yet another goal, but then that second goal could not be evaluated.

At times we do have hierarchies of goals. For example, we may have process goa that are linked to outcome goals–we seek goal *x* because we believe that goal y w then be more likely to be reached. In such a case, goal *x* can be evaluated in terr of its contribution to the achievement of goal *y*. In this case, however, goal *y* cann be justified or evaluated.

Thus, *ultimate analytic goals are foundational in contextualism.* Such goals mu simply be stated–naked and in the wind–they cannot be justified.

The Common Error of Contextualists: Dogmatism

Dogmatism is a matter of cognitive claims that go beyond the cogniti evidence. If my analysis is sound, without an explicit goal all cognitive claims l contextualists are dogmatic. Furthermore, all attempts to justify or objectify ultima goals are dogmatic.

The purpose of a truth criterion is to provide a means to evaluate the cogniti basis for claims. It follows that the cognitive basis for any claim must be inadequa if the truth criterion itself is inadequately or improperly applied. In absence explicit goals the claims made by contextualists are being made without basis–th are dogmatic.

This error is extremely common in contextualistic analyses. Indeed, it has bec common from the beginning.

James: The First Contextualistic Dogmatist

William James is acknowledged by all as the father of contextualistic thoug Building on the pragmatism of Charles Pierce, he was an extremely popular figu in his time. His lectures and books were attended and read not just by philosophe or psychologists, but by the educated public.

What most fascinated the public was his view of truth, and the implications that view. Here are a few statements about truth from James' 1907 book *Pragmatis*

> Truth is one species of good (p. 37)
>
> The true is the name of whatever proves itself to be good in the way of belie and good, too, for definite, assignable reasons (p. 37)
>
> True ideas are those we can assimilate, validate, corroborate and verify. Fal ideas are those that we cannot. That is the practical difference it makes t us to have true ideas. (p. 92.)
>
> The connexions and transitions come to us from point to point as beir progressive, harmonious, satisfactory. This function of agreeable leading what we mean by an idea's verification. (p. 93)

> To "agree" in the widest sense with a reality can only mean to be guided either straight up to it or in its surroundings, or to be put into such working touch with it as to handle either it or something connected with it better than if we disagreed. (p. 96)

What is noticeable about these quotes is the almost complete lack of concern over the purposes of analysis. Good things must be good for "definite, assignable reasons" but these presumably can be assigned post hoc. As I have already discussed, however, post hoc analysis of consequences does not enable meaningful distinctions to be made.

The reason James missed the point was, in my opinion: theism. A deeply religious man, James was intensely troubled by Darwin. He was fascinated by Darwinian thought, and was too intellectually honest to dismiss it, but he was horrified at its implications for religious belief. One of the main reasons James was so widely followed by the public was the relief he provided to believers from the relentless onslaught of materialistic science.

In the book *Pragmatism*, a series of public lectures given by James, his analysis of truth builds to a climax that is captured in this quote:

> On pragmatistic principles, if the hypothesis of God works satisfactorily in the widest sense of the word, it is true. Now whatever its residual difficulties may be, experience shows that it certainly does work, and that the problem is to build it out and determine it so that it will combine satisfactorily with all the other working truths. (p. 133)

Of most direct interest is the phrase "experience shows that it certainly does work." The questions fairly shouts out: *work towards what?* James never directly states this question nor its answer–brushing the issue aside by claiming that the workability of religion is *obvious*. James does mention (in Lecture II of *Pragmatism*) that religious belief bring comfort, as it surely does to many, as it did to James himself. But if comfort is the guide, why aren't the consumption of tranquilizers, or masturbation, or back scratching also to be included in his efforts to "build them out?" In James' hands, religion is true simply because people *enjoy* the belief. But this non-explicit, non-goal-related sense of workability cannot withstand scrutiny, as I've tried to show. It is a form of workability that is not workable, if one wishes truth criteria to be an active guide and not just a convenient hook on which to hang our pet biases.

In my opinion, James' mixture of religious belief and pragmatism was dogmatic, not because all religious beliefs must be so, but because he *refused to state his analytic goals clearly and explicitly*. Had he stated his goals, religious belief would have had to compete with all other forms of activity assessed in terms of these same goals.

James could rightly turn my argument on its head by stating that his goal is to maintain the value of religious belief. Indeed, I suspect that was his goal in a very deep sense. I cannot criticize this goal, or any other, except in terms of other goals I might have, which themselves must remain undefended. I am free, however, to vote with my feet. If your goal is not mine, your useful analyses are likely to be useless for me.

If your goal is *simply* to maintain the value of religious belief, I will not be interested. I suspect that his contemporaries, even those with strong religious beliefs, would also not have been interested. What fascinated and comforted the public was not his support for religion, which is commonplace, but his claim that this support emerged from a philosophy that could accommodate modern science. If the game James was playing had been stated baldly, I suspect that James himself would have recoiled from it. Perhaps this is why he could not become clear about the issue of explicit analytic goals: to do so would have put at risk his apparent hard-won victory. Having created a place at the scientific table for theism, he could hardly admit that the invitation to the table was contingent, and that the contingency had not yet been satisfied.

Skinner: More Contextualistic Dogmatism

I have argued elsewhere that Skinner is best viewed as an implicit contextualist (e.g., Hayes, Hayes, & Reese, 1986). Skinner was certainly *explicit* about his embrace of a pragmatic truth criterion:

> [Scientific knowledge] is a corpus of rules for effective action, and there is a special sense in which it could be 'true' if it yields the most effective action possible. . . . (A) proposition is 'true' to the extent that with its help the listener responds effectively to the situation it describes" (Skinner, 1974, p. 235).

This quote could have easily been written by James himself. But, once again, there is no sensitivity to the goals of the analysis, and no attempt to distinguish specified from merely contacted consequences.

When Skinner did talk about the consequences of science he did so as descriptions of the world, not as goals.

> What we call the scientific conception of a thing is not passive knowledge. Science is not concerned with contemplation. When we have discovered the laws which govern a part of the world about us, and when we have organized these laws into a system, we are then ready to deal effectively with that part of the world. By predicting the occurrence of an event we are able to prepare for it. By arranging conditions in ways specified by the laws of a system, we not only predict, we control: we 'cause' an event to occur or to assume certain characteristics. (1953, p. 14)
>
> To predict and control the behavior of the individual organism. This is our 'dependent variable'–the effect for which we are to find the cause (1953, p. 35).

When Skinner says that science is not contemplative, for example, he is claiming this as a matter of fact. In his hands, it is also a matter of fact that the purposes of science are prediction and control.

This is another type of dogmatism. If a contextualist says "the goal is x" how is this claim to be evaluated? Viewing statements of goals as statements of facts that have emerged from analysis creates an infinite regress: the adequacy of the analysis can only be evaluated against still other goals. What were Skinner's analytic goals

against which we can assess the truth of his claim statement that prediction and control are the purposes of science? Viewed as a contextualist, Skinner should have said "*My* goals are to predict and control behavior." This is absolutely Skinner's privilege, and it requires no defense. *Any* goal is legitimate within contextualism, because goals are foundational and pre-analytic. Once again, others can then vote with their feet.

What is wrong with both Skinner and James is that they are appealing to the nature of the world, not to their own values. They refuse to stand naked in front of us and declare their intentions. Both of their positions are dogmatic for that reason.

How to Avoid Dogmatism

I have argued that contextualism cannot mount its truth criterion non-dogmatically without the statement of a goal, for without it there is no non-dogmatic basis for the evaluation of the "success" part of successful working. And there can be no contextualistic grounds for evaluating these goals–to do so only delays the inevitable. Contingency-shaped behavior also does not qualify: by this criterion, any action is successful working, from suicide to Hitler's Germany.

If one's goal is to make contextualism more workable as a scientific philosophy that helps foster systematic development of a line of thought, then some specific recommendations can be made, based on my reasoning:

1. **Avoid implicit goals.** These types of goals give a free range to dogmatism, and tend to move analysis toward the parochial and primitive.
2. **Avoid vague goals or goals that cannot be assessed.** Both types of goals weaken the workability of successful working itself.
3. **Avoid incompatible goals.** It is difficult to move in two directions at once.
4. **Avoid using solely short-term goals.** Extremely short term goals change frequently by their very nature. This is not good for science if your goal is systematic development of a perspective or point of view. Conversely, if you value chaos, you may reach a different conclusion.
5. **Avoid extremely long-term goals, without medium and short-term goals.** If goals are too long term, the evaluation of their accomplishment is indefinitely delayed, and thus their usefulness as a guide is lost. What seems to be needed if systematic development is important, are goals at various levels, all in harmony. Accomplishment of long-term goals cannot be evaluated readily, but such goals help make sense of medium and short-term goals.
6. **Avoid rapidly changing goals.** This is not really a problem as long as you state your goals clearly as they change. It will, however, probably be a problem for others, who will in turn vote with their feet. No solid scientific framework has ever been build on quicksand.
7. **Compare performance to goals.** There is no point have a criterion that is never used as such.

8. **Compare different courses of action and modify your behavior accordingly.** It is not enough to show that your activities move in the direction of a goal. If one truly values the goal, then one values efficiency in reaching it. Thus, we must be concerned with the *relative* performance of various courses of action.

The Two Contextualisms

Understanding the importance of goals to contextualism help us understand why their are different contextualistic theories. I believe these can be divided, currently, into two loose groupings: descriptive contextualism and functional contextualism.

Descriptive Contextualism

Descriptive Contextualists have a fairly personal purpose of analysis: They seek an appreciation of the whole by the examination of its participants. This purpose is a kind of coherence goal, but it differs from the coherence criterion of the organicist in several ways. First, there is no assumption that there is any ultimate analysis. An analysis that works at one time may not work at another; one that works for me, may not work for you. Second, advances in one area need not imply advances in another–to understand what it is like to get older, does not mean that we understand phobias. Both of these differences come from the dispersive quality of contextualism. Third, the coherence sought is intensely personal–descriptive contextualists seek an *active appreciation* of the quality of an event by situating it in its various contextual strands. Even analysis is an act-in-context, and the satisfaction for such acts is not objective and abstract, it is personal and local.

A model: history. A ready way to understand descriptive contextualists and their goal, is to compare their enterprise to that of history (as, indeed, they themselves do, e.g., L. J. Hayes, 1992). History involves constructing and reconstructing the story behind historical records or "facts." The word "facts" must be in quotes, because the story changes the actual quality of the events themselves: as context changes, quality changes, and vice versa. For example, the launching of the American civil war can be interpreted as a fight over slavery, or a fight over the economic subjugation of the South by the North. The purpose of the construction of the story is to appreciate the quality of the event–to see how the civil war came to be and what it meant. What the war was changes as the story changes.

Historians can abstract principles to aid in their interpretations of records, but every historical situation is also unique, and no one answer will ever remain untouched by alternative analyses. Even when a particular analysis is supported by wide agreement, new interpretations may later overturn this agreement.

The difficulty faced by history is that it is difficult to know when knowledge has truly advanced–this is why some view history as one of the humanities, not a science. Are we moving ahead or falling behind? A contextualist approaching history as an area of study is struck both by the extreme dispersiveness of knowledge, and by its

tie to the personal history of the analyst. So extreme may this sense be that one is tempted to deny the progressivity of knowledge entirely.

In psychology. A descriptive contextualist in the world of psychology approaches the study of a whole organism interacting in and with a historical and situational context much as a historian approaches the study of records. A narrative is created that reveals the multiple historical strands and current context of a psychological action. Such a story can attempt to be sensitive to the actual features that participated in the event for the doer, but the descriptive contextualist readily admits that he or she cannot escape the effects of personal history and that no interpretation is ultimate or final. Knowledge is personal, and necessarily somewhat ephemeral. Dramaturgy, hermeneutics, field theoretical, interbehavioral, and narrative approaches are instances of this type of contextualism (see Rosnow & Georgoudi, 1986).

Strengths and weaknesses. The strength of descriptive contextualists is that they can more readily stay true to the underlying root metaphor of contextualism. Their purposes do not threaten a holistic perspective, or so it seems. Their problem is three-fold.

First, it is difficult to assess and to share the accomplishment of their goal. When have we told the story well enough? And how can you share a personal experience of coherence? It is difficult to build a progressive science based on a descriptive contextualism. In fact, many descriptive contextualists specifically eschew the possibility. But the more forcefully that argument is made, the fewer reasons they can give to others to listen to them.

Second, while the explicit goal of descriptive contextualists may be an appreciation of the whole through examination of the participants, it is difficult to cordon off other, more directly practical goals. But what grounds are there to argue that an experience of coherence will lead to practical benefits? Descriptive contextualists can resolve this by suggesting that their experience of coherence comes from their greater appreciation of reality which ultimately must be of practical benefit, but to do so is to lean perilously close to organism. That is, to do so moves one towards the assumption of a grand appreciable reality in which all facts cohere—the essence of the organicist's position. One safe step seems to be to deny that any practical benefits will necessarily flow from analysis, but this is an argument that one may win intellectually only to lose politically. Another approach is attempt to demonstrate practical benefit, but to do so requires the use of methods—especially experimental ones—that challenge the holistic perspective. It is not easy for descriptive contextualists to use traditional empirical methods (other than naturalistic observational methods), and yet its own methods are either poorly developed or not oriented toward the evaluation of practical impact.

The final problem is a difficult one to explain: The purpose of the descriptive contextualist is subtly contradictory. To appreciate the whole by the examination of its participants does not mean to start with the whole: this is analytically impossible. To say anything about the whole, one must at least have the talk about the whole

and the talked about whole: that is, there must be two. This obvious contradictic has a negative impact on analysis *per se*. Like a monk on a mountaintop, there is tendency as one appreciates more and more to say less and less. The contradictic is lessened, however, when we start instead with the "event" and this is the path take by contextualistic academics (as compared to mystics). But the event is not tl whole, and descriptive contextualists are constantly threatened by a never-endi whirlpool, on both ends of analysis.

On the one hand, to see that the event we seek to understand is but a tin arbitrarily abstracted part of the whole leads inexorably to an interest in ever larg units, until one is dealing with the undivided experience of now, about whic nothing can honestly be said (L. J. Hayes, 1992). If we lose the event, we lose o voice. On the other hand, even if the descriptive contextualist hangs on tight to tl event, appreciating the participants in the event also takes us in ever widening circle "the analysis of an event consists in the exhibition of its texture, and the exhibitic of its texture is the discrimination of its strands, and the full discrimination of strands is the exhibition of other textures . . . and so on from event to event as lo as we wish to go, which would be forever or until we got tired" (Pepper, 1942, p. 24 What saves contextualists from these whirlpools is practical action: "Serious analy for [the contextualist] is always either directly or indirectly practical (Pepper, 194 p. 250). But the practical purpose of the descriptive contextualist is etherial: it difficult to state, share, or measure. To admit this is to risk a cacophony; to deny is to risk a collapse into organicism.

Functional Contextualism

Functional Contextualists have an intensely practical purpose for analysis: t prediction-and-influence of events. Influence is a better word than "control," n just for political reasons but also because "control" refers both to behavio influence and to the elimination of behavioral variability in an absolute sense. accomplish a particular end I may need to eliminate some forms of variability, b that does not mean that action without variability in an absolute sense is bet "understood." Indeed, if I embrace such a belief too tightly, this jeopardiz contextualism because it denies the assumed random variation from which n forms emerge. Mechanism is then virtually embraced. The issue is not eliminati of all variability, but rather in psychology it is the production of specified respon functions, and thus "influence" is a better term (see Biglan in this volume for mc on this point).

A model: engineering. A ready way to understand functional contextuali and their goal, is to compare their enterprise to that of engineering (as, indeed, th themselves do). Engineers are interested in ways of speaking about the physical wo that lead to the prediction-and-influence of events. The goal is hyphenated beca purely predictive knowledge would be of little use without an ability to change t course of events. Simply to know that a bridge will fail is not enough—we must kn how to make it not fail.

Engineers have little use for knowledge in the abstract: when physicists argue about the degree to which string theory can capture the nature of reality, the engineer might remind them that there is no difference that does not make a difference. Because of their practical goals, however, engineers do not just seek practical outcomes on a trial and error basis, much as a craftsman might. Experience has shown that in the long run it is more practically beneficial to have verbal rules with sufficient precision and scope to allow some outcomes to be predicted and influenced. Thus, it is for *practical* reasons that the engineer has an interest in parsimonious knowledge that coheres. It is easier to have a small set of principles than a large one. But the engineer will make do with whatever works, even if that means that principles in one domain do not apply to another, while a third domain has no good principles at all. In other words, the engineer would prefer that knowledge be tight-knit and comprehensive, but is willing to accept whatever approximations exist. The preference for comprehensive principles is not an ontological statement but an intensely practical one.

In psychology. A functional contextualist in the world of psychology, approaches the study of a whole organism interacting in and with a historical and situational context much as an engineer and as a physicist interested in engineering (the actual field of engineering can stand on physics as its basic science, but psychology is both a basic and applied science, so psychologists must be interested in both roles). Functional contextualists have an interest in both applied psychology on the one hand, and theory of behavior change on the other. An analysis is constructed that points to features of the historical strands and current context of a psychological action that can effectively guide the behavior of the scientist/engineer. The functional contextualist readily admits that he or she cannot escape the effects of personal history and that no interpretation is ultimate or final, but knowledge can be shared and practical when principles emerge that effectively guide the actions of other analysts. Because the best way to test the general utility of principles that involve behavior change is controlled experimentation, this method is often embraced. While generally applicable rules of action are sought, the functional contextualist accepts the possibility of randomness. Thus, the preference for comprehensive principles is not an ontological statement but an intensely practical one.

Strengths and weaknesses. The strength of functional contextualists is that they can readily assess and share the accomplishment of their goals. They know when they have constructed an analysis well enough—when they can predict-and-influence behavior with adequate precision and scope. While admitting that knowledge may not be progressive, they are happy to take order where they find it.

The weakness of functional contextualism is that its methods threaten its root metaphor. Contextualists can borrow mechanistic methods in the services of their goals, but they can in turn be swayed by the implicit values of these methods and become mechanists. Accomplishing practical outcomes requires the division of the whole into parts. Most especially, if one becomes interested in behavioral influence,

one must distinguish between events that are—at least in principle—manipulable and those that are not. To influence another's action one must manipulate context—it is never possible to manipulate action directly (Hayes & Brownstein, 1986).

It is not just that it is impossible to manipulate the totality—the descriptive contextualist's looming whole is not the functional contextualists problem; rather even the simplest event must be subdivided. A person goes to the restaurant to buy lunch. If I seek to influence this event I must temporarily act as if "going to the restaurant to buy lunch" is the action, while the restaurant, the time of day, the money used to buy the food, and so on, are abstractable from this event. I do this so that I can manipulate events that might alter the likelihood of going to the restaurant.

This style of analysis immediately presents three problems. First, functional contextualists define stimuli functionally. But when I divide an event into pieces and distinguish verbs from manipulable nouns, I am beginning to treat context as a mechanical object: I am only a short step away from mechanism. A second problem is closely related. If I am manipulating stimuli, and stimuli are functions, and these functions are response functions, how can I distinguish "responses" from "stimuli?" Suppose I turn the clock back to 11 am and find that the person I am studying does not go to the restaurant for lunch. Surely it is not the clock that had this effect—it is the person *seeing* the clock. But if so, what of my practical distinction between manipulable and non-manipulable events? It begins to seem that all knowledge is indirect. I can manipulate only that which does not truly interest me: there is a gap in knowledge that cannot be closed. There is a final problem related to the first: what of the analyst? When I divide action and context, even for pragmatic purposes, am I not standing apart from the analysis, as if the contextual features I identify are not an aspect of *my* interaction with the world? When I "change the clock" am I not speaking of an event that I know through *my* interaction with the world? Thus, the functional contextualist faces another kind of whirlpool—one in which the practical purposes of analysis within a contextualistic root metaphor lead to distinctions that are practically useful and thus fulfill the contextualistic truth criterion but are incomprehensible within the root metaphor. A functional contextualist must either tolerate permanent ambiguity of this kind, resolve the matter by abandoning behavioral influence as a goal, or resolve the matter by abandoning contextualism.

Goals and the Forms of Contextualism

The strength of descriptive contextualism is the ease with which the root metaphor can be maintained, but its weakness is the difficulty of mounting the truth criterion. The strength of functional contextualism is the ease with which the truth criterion can be mounted, but its weakness is the difficulty of maintaining contact with the root metaphor. Descriptive contextualists are tempted by organicism when their coherence goal hardens into its own truth criterion; functional contextualists are tempted by mechanism when the methods used harden into analytic assumptions.

While both forms of contextualism have problems, both are both truly contextualistic. The choice of a goal in contextualism is *arbitrary*—not in the sense that it makes no difference (it makes an enormous difference) but in the sense that the choice is pre-analytic. It is a metric for analysis, not the result of analysis. Thus, neither descriptive or functional contextualists can claim that their goal is the "right" goal or the only goal one might choose. Conversely, no contextualist may claim that, for example, functional contextualists are wrong to have behavioral influence as a goal.

Choosing a goal has consequences for the types of research that are likely to be done and thus contextualistic positions can differ dramatically while remaining contextualistic. The present volume contains examples of these positions. It is my argument that, when the goals of analysis are recognized, these contextualistic positions present themselves as a family of positions.

As a functional contextualist, I can agree heartily with the assumptions held by descriptive contextualists and still not *be* one, simply because my goals are different. Descriptive contextualists are not the enemies of functional contextualists, and there are no causes for disagreement with their purposes. I can cheer on my contextualistic colleagues from afar, even while traveling a largely separate path. I can temporarily assume the goals of the descriptive contextualist, and from that vantage point offer helpful comments about the adequacy of constructions produced. At times, the issues descriptive contextualists face will be of direct relevance to me because they involve the elements of a contextualistic world view, but other times they will not because they involve the specific goals descriptive contextualists are working toward.

Whatever Happened to American Pragmatism?

I began this chapter with two curious facts: a) that early American psychology was frequently contextualistic, but modern day psychology is not, and b) contextualism seems to mean so many things. While I have discussed only the second point so far, I have been attempting to account for both of these facts. It should be clear by now why there is a diversity of contextualistic positions, but is it not also clear what probably happened to the psychology of James, Dewey, Angel, and the like? The question is crucial. If modern contextualists cannot give a coherent answer, the recent renewed interest in contextualism may be the beginning of another trend going nowhere.

I believe that the present discussion points to the critical error that was made: the early contextualists did not specify their analytic goals clearly and self-consciously and thus gradually lost support or lost contact with the underlying position. Because the earliest contextualists were largely descriptive, they could avoid noticing the problem a lack of clarity about goals creates. It cannot be by accident that James, Dewey, Kantor, and the like were more philosophers than experimental scientists—they were descriptive contextualists. As such, they hung on to the root metaphor very well, but because their goals were implicit they lacked a clear guide to the use of their truth criterion.

This undermined a sense of progressivity to their knowledge, and American psychology gradually turned away in frustration, looking for a more "empirical"—especially a more experimental—approach. Experimentation is difficult for descriptive contextualists: it is not a method that fits their purpose. The students of Dewey and James, and their students, became experimental psychologists, but in so doing, they gradually lost contact with the contextualistic root metaphor. It is a tricky game to use mechanistic methods for contextualistic ends. It cannot be done intuitively over the long term. As a result, the functionalists gradually moved toward other positions, especially mechanism. Within a few academic generations, American pragmatism was only a coloring agent in the mainstream of psychology—the direction of the stream was set elsewhere.

Thus, the same central issue that explains the current diversity within contextualism, also explains why the original pragmatists were so easily and quietly swallowed up. Contextualism permits many analytic goals, but it eventually exiles those who are not clear about their goals.

As pragmatism emerges again, it seem critical to me that the original error not be repeated. I have identified two main types of contextualism, though I admit there could be many more. It doesn't matter how many types there are or which type is dominant. What does matter is an appreciation of the centrality of analytic goals to all forms of contextualism. If contextualists are to avoid the error of dogmatism, in my view, they need both a firm grasp on their root metaphor, and a firm grasp on the outcomes they will use as an analytic metric.

References

Hayes, L. J. (1992). The psychological present. *The Behavior Analyst, 15,* 139-146.

Hayes, S. C. (1992). Verbal relations, time, and suicide. In S. C. Hayes & L. J. Hayes (Eds.), *Understanding verbal relations* (pp. 109-118). Reno, NV: Context Press.

Hayes, S. C., Hayes, L. J., & Reese, H. W. (1988). Finding the philosophical core: A review of Stephen C. Pepper's **World Hypotheses.** *Journal of the Experimental Analysis of Behavior, 50,* 97-111.

James, W. (1907; reprinted in 1981). *Pragmatism.* Indianapolis, IN: Hackett

Pepper, S. C. (1942). *World hypotheses: A study in evidence.* Berkeley: University of California Press.

Rosnow, R. & Georgoudi, M. (1986). (Eds.), *Contextualism and understanding in behavioral science.* New York: Praeger.

Skinner, B. F. (1953). *Science and human behavior.* New York: Free Press.

Skinner, B. F. (1974). *About behaviorism.* New York: Knopf.