

On Verbal Behavior: The Third of Four Parts

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Editor's note: Interest in the behaviorological analysis of verbal behavior (Skinner, 1957) continues to grow. (For an example see the editor's note to Fraley, 2004a, which is Part 1 of this paper. Also see the syllabi for TIBI's two online verbal behavior courses, BEHG 355—Verbal Behavior I, and BEHG 475—Verbal Behavior II. These syllabi appear, respectively, in these issues of *Behaviorology Today*: Volume 7, Number 2, and Volume 8, Number 1.)

To help support continuing interest in verbal behavior, *Behaviorology Today* presents this four-part series on verbal behavior. The first part appeared in Volume 7, Number 1. The second part appeared in Volume 7, Number 2. This is the third part. And the remaining part will appear in the next issue. (One part appears in each consecutive issue, beginning with Volume 7, Number 1.) All four parts derive from a chapter of the author's book *General Behaviorology: The Natural Science of Human Behavior*. (At the www.behaviorology.org web site, you can find more detailed information about this book by selecting the "General Behaviorology" page.)

For each part, the headings hint at the contents:

✂ Some interesting headings in *Part 1* (Fraley, 2004a) were: Terminological Issues, The Antecedent Control of Verbal Behavior, How Instances of Verbal Behavior are Classified, and The Mand.

✂ In *Part 2* (Fraley, 2004b) some interesting headings were: Verbal Behavior Under the Control of Verbal Stimuli, The Tact, Abstraction, Private Events, Reality, and Temporal Relations.

✂ Some interesting headings in *Part 3* are: Autoclitic Verbal Behavior, Descriptive Autoclitics, Autoclitics that Function as Mands, Qualifying Autoclitics, Quantifying Autoclitics, The Autoclitic Functions of Grammar and Syntax, and The Nature and Occurrence of Composition.

✂ In *Part 4* some interesting headings are: The Private Verbal Behavior of Thinking, The Productivity of Thought, The Utility of Thought, Issues of Privacy and Antiquity, The Absence of Thinking, and Nonverbal Consciousness.

The original book chapter was undergoing revision when this part, and Part 4, were extracted for inclusion in this and the next issue. Here is Part 3.—Ed.*

Part 3

Autoclitic Verbal Behavior

A verbalizer as an entity is a part of the environment in which that person's verbal behavior is occurring. When a verbal response occurs, the circumstances of its control by the environment constitute a part of the verbalizer's behavior-controlling environment—a point discussed in the previous section. Therefore, given a statement-sized sample of a person's verbal behavior, certain elements of that statement may be controlled by the nature of the prevailing controls on that statement considered in its entirety. Alternatively, the whole statement may occur as a response to the controls on another of the person's behaviors, either verbal or nonverbal. We describe the class of verbal responses to the controls on other behavior as *autoclitic* responses. Those kinds of responses often occur as features or characteristics of larger samples of verbal behavior. Those embedded autoclitic features usually pertain to the kind of relations through which those larger samples of verbal behavior are being controlled.

Within this chapter, the discussion of autoclitic verbal behavior will pertain mainly to vocal behavior, the medium in which perhaps its richest manifestations have evolved. However, autoclitic verbal behavior is an inevitable part of any mode of verbal behavior—for example, the sign language that is common to a hearing impaired verbal community.

Let us consider a pair of examples in which a verbalizer's statement occurs under stimulus control of the behavior-controlling relation that involves another of the verbalizer's ongoing behaviors. That is, in each case the verbalizer will be reacting to how another kind of that person's own behavior is being controlled.

Consider the statement *I am looking for (or at) a flower*. In this analytical exercise "...looking *for* a flower" is to be distinguished from "...looking *at* a flower." The set of evocative stimuli that respectively control those phrases share many elements but also feature some important differences. In the "looking *for*" version, the looking behavior is being evoked by stimuli characteristic of locations in which flowers have previously been seen. If the "looking *for*" behavior yields the appearance of a flower, the contingency is typically one of positive reinforcement with the whole flower per se functioning as the reinforcing stimulus. In the "...looking *at*..." version, the looking behavior is usually evoked by the flower itself. In such cases, the flower may have certain properties that when contacted are positively reinforcing. Thus, the be-

*The author's footnotes are at the end of the paper.

havior of *looking at* is maintained by contact with certain constituent properties of the whole flower.

Obviously, the vocal manifestation of the term *for* or the term *at* in the statement “I am looking (blank) a flower” is controlled antecedently by substantially different ongoing functional relations between the environment and the behavior of rendering that statement. Those alternative autoclitics are controlled by features in the part of the environment that is in control of the current looking behavior. If the ongoing functional relation is between the characteristics of the general ambient environment and the looking behavior (especially, environmental characteristics that were previously associated with flowers), that kind of relation evokes the preposition *for*. If, on the other hand, the ongoing functional relation is between the characteristics of a particular flower and looking behavior, that kind of relation evokes the preposition *at*. Both kinds of evocation are naturally occurring functions that will simply manifest whenever they can do so.¹

The distinction between controls that is implicit in the alternative occurrences of the terms *for* and *at* is of obvious importance for a mediator (i.e., a listener). If the verbalizer had simply said *flower*, a mediator would probably have asked *What about it?* Such a probing question would tend to evoke a more complete statement (e.g., *I am looking for a flower* or *I am looking at a flower*). In the more complete statement perhaps the most helpful element for the listener is the prepositional autoclitic (i.e., *for* or *at*).

The speaker's statement also includes additional kinds of autoclitic responses. Typically, the verbalizer's statement would include the assertive autoclitic phrase *I am* (*I am looking...*). The *I...*, here a relational autoclitic, relates the behavior that is described in the remainder of the statement to the verbalizer of the descriptive statement. That is, the *I...* indicates to the mediator that the person whose looking behavior is being controlled by features of the proximal environment is the same person who is now speaking. The *...am...* carries the temporal implication of currentness and thus indicates that the described behavior-controlling relation is now in effect.

Many autoclitics, although formally prescribed, are redundant, at least in certain cases, and on such occasions can be omitted without degrading the functional capacity of a statement to control the behavior of a mediator. For instance, if a person who is looking intently at a patch of vegetation utters the explanatory fragment *...look for flower...*, the effect on the behavior of a mediator may be very similar to the effect of the more complete version *I am looking for a flower*.² In general, however, listeners need plenty of help, so verbal communities, in reinforcing the inclusion of autoclitics, tend to err on the side of inclusiveness. Scientific journal editors will often require that an author include kinds of autoclitic enhancements that acceptably may be omitted from state-

ments in less formal writing or in conversations (see, for example, the oft-omitted bracketed inclusion in the next sentence). Autoclitic features [*that are*] embedded in statements become more important if a potential mediator cannot observe verbalizers in their prevailing environmental contexts and can only hear the verbalizers' statements, as in the case of telephone conversations that are limited to the audio mode.

Obviously, how a vocalizer's verbal response is controlled is important to a listener. Earlier sections of this chapter featured two differing classes of controlling relations between environment and verbal behavior that result respectively in *tacts* and *mands*. As previous examples have clearly implied, we tend to respond very differently to an utterance of *Duck!* when it is evoked by a certain kind of bird than when it is evoked by an incoming projectile. If that utterance is evoked instead by a sequence of letters printed on a piece of paper, we tend to respond in yet other ways that are appropriate for an audience to which a vocalizer is reading—and still differently if the utterance of *Duck!* is evoked by an approaching acquaintance whose name is Duck Stephenson. If the speaker has just encountered an antique amphibious vehicle from the World War II era that was known as a Duck, then the utterance should evoke yet a different kind of audience response. As these possibilities illustrate, to respond appropriately to a vocalizer's utterance a mediator often needs more than contact with the mere sound of the vocalizer's verbal response. Typically, a listener also must contact some additional evidence pertaining to the kind and strength of the controls on that vocalizer's verbal production.

The stimuli that are controlling the statements of a vocalizer may also be directly available to potential mediators. For example, when a speaker exclaims *Duck!* in response to a bird floating on a pond, a potential mediator who hears that utterance may also be looking at that duck on that pond. However, in many cases the mediator does not enjoy such a perspective. The mediator must then rely on autoclitic enhancements to the verbalizer's basic utterance, which the verbalizer must provide. Such an autoclitic enhancement may manifest only as a subtle linguistic nuance or intonation—perhaps a slight grammatical variation, a hint of intoned mockery, or some language that describes or implies the nature of the vocalizer's contact with that to which the utterance pertains. Verbal communities typically condition their members to respond discriminatively to such subtleties.

A mediator is especially in need of such assistance in situations where that mediator does not have direct independent access to the factors that control the verbalizer's utterance nor to the historical events that have made possible the current functional relations between those factors and the vocalizer's response to them. That is, the mediator's

interpretation of a vocalizer's utterance may be hindered if the listener is unable to describe the conditioning history of the vocalizer. In common language, listeners may have no idea what a vocalizer is talking about nor, if they do, why the vocalizer would be speaking in that way about it.

Vocalizers could simply say more, . . . continuing to address the topic at length thereby providing more detail, especially about the current relations that are controlling their verbal behavior. Listeners often reinforce a vocalizer's doing so, because the appropriateness of the consequences supplied by those mediators depends on contact not only with what is said but with indications of why it was said. More economically, however, the initial presentation of a speaker's basic utterance may simply vary in stylistic ways that permit the mediator to infer details of the controlling relation that is responsible for what was said.

Because such variations are often necessary for an appropriate response by the mediator, verbal communities have conditioned speakers to provide such special responses to the properties of the controlling relations through which their primary verbal responses are being produced, thus rendering a primary response more validly interpretable. When young people are taught to "speak in full sentences," that objective generally alludes to the linguistic practices by which the more directly controlled parts of a statement are embellished or joined together with additional elements that provide details on the relations that link the environment to that statement.

Those special additional responses to the features of behavior-controlling relations are called *autoclitics*. An autoclitic verbal behavior is classed as such because it indicates to a mediator either a property of the speaker's behavior or the circumstances responsible for that property. Furthermore, once the forms of an autoclitic repertoire are established within a verbal community, their occurrences in the verbal behavior of the community members are much more economical than extended descriptions of the nature of the prevailing controls. For instance, it is much more economical for me to say *I am looking at a DUCK*, with emphasis on the prepositional object, than to explain that *a vision of a single duck is currently happening to me as long as my head and open eyes are oriented in a certain direction. Implicitly, I predict that this will also happen to you if your looking behavior comes under control of my own looking behavior in the way that we describe as copying or imitating. Furthermore, I assume that you will be reinforced by the result.*

Several subclasses of autoclitics have been identified, and some of them will be discussed separately in this section. The term *autoclitic*, coined by B.F. Skinner, pertains to verbal behavior that is controlled by the relations that determine other verbal behavior. The focus in the study of autoclitic verbal behavior is on its effect on the mediator. Earlier in this chapter we considered verbal behavior that

is evoked respectively by (a) aversive stimuli or the operations that produce them (mands), (b) other verbal behavior, and (c) things that share in defining the environment (tacts). In this section, we consider autoclitic responses, which are evoked by the behavior-controlling relations that determine those other kinds of verbal behavior.

In summary, we can say that autoclitic verbal supplements by a vocalizer increase the probability that a mediator will respond effectively to what a vocalizer is under contingencies to say. Therefore, autoclitics are conditioned within a verbal community the members of which benefit when autoclitics manifest as people speak to one another. Autoclitic verbal behavior occurs in association with primary verbal responses that represent other classes of verbal behavior.

Once the necessary conditioning has occurred to the vocalizer, the vocalizer's autoclitic verbal behavior thereafter occurs as naturally as the verbal behavior in any other class. That is, autoclitics too are simply evoked by environmental stimuli. However, their controls tend to be more elusive than those on other classes of verbal behavior and may not be as intuitively obvious to listeners. Therefore, to a greater extent than with other kinds of verbal behavior, people have tended to construe autoclitic verbal behavior as evidence of a mental self-agent that proactively arranges the verbal behavior of a vocalizer.

Behaviorological training is usually required for the autoclitic aspects of speech to be carried conceptually into the realm of naturalism. Absent some training in the relevant behaviorological rudiments, autoclitic verbal behavior often seems mysterious. Even persons trained in other natural sciences can find themselves analytically unprepared to get past recourse to the traditional superstitious assumption that autoclitic verbal behavior represents the craft of a willful and hence responsible self-agent.

Descriptive Autoclitics

Speakers will often have been conditioned to describe other behavior that they are exhibiting (e.g., a statement such as *I'm kicking the football*). Here, a nonverbal behavior (*kicking*) shares in evoking some verbal behavior of a kind that is said to describe it. On some occasions, the behavior being described is other of the same speaker's verbal behavior (e.g., *I'm reading this book*, or *I'm thinking about our situation*). When verbal behavior describes or qualifies other of the speaker's ongoing verbal behavior, it is in the subclass that is called *descriptive autoclitics*.³ A descriptive autoclitic is associated with other of the speaker's verbal behavior, and it affects a given mediator at the same time as does the other kind of verbal behavior with which that descriptive autoclitic is associated. A verbal community arranges the contingencies under which such autoclitics are conditioned. That training is typically long and can be difficult.

Consider this example of a descriptive autoclitic: A vocalizer, when manding a book, may say *Pass that book*. However, if the vocalizer says *I'm telling you to pass that book*, the descriptive autoclitic phrase *I'm telling you to...* describes the manding episode in which the vocalizer is already engaged. Note that the mediator is concurrently affected by both kinds of verbal behavior, which occur in close association within the same statement. That is, the single statement contains both the mand (...*pass that book*) and a descriptive autoclitic that describes the manding (*I'm telling you to...*).

The mand per se is exhibited under control of the book plus the conditions that define a state of book deprivation for the vocalizer. Note, however, that the controls on the descriptive autoclitic behavior are different. The autoclitic aspects of the statement are evoked by the vocalizer's own manding behavior in relation to the mediator, and in this example, the autoclitic portion describes the ongoing manding as the *telling* kind of manding behavior (i.e., *I'm telling...*). Thus, (a) the mand per se and (b) the description of its current occurrence are respectively subject to separate analyses—one of thematic pertinence and one pertinent to the descriptive autoclitic enhancement that announces the fact that a certain form of manding is in progress (in case that fact, and perhaps its implications, were not already in sufficient control of the mediator's behavior).

Why the simple mand, *Pass the book*, would evoke such descriptive autoclitic enhancements may be of analytical concern. We may find that the answer rests with the listener. Suppose that the simple mand has occurred in the recent past and gone unreinforced. If the mediator appears to be inattentive or exhibits other evidence that implies continuing noncompliance, a repetition of the mand may be strengthened with a supplemental description of the fact that the mand is in progress (i.e., *I'm telling you to ...*). Evidence of the vocalizer's potential noncompliance would thus evoke the descriptive autoclitic enhancement to the original version of the mand.

Note that an inattentive potential listener, in failing to respond, puts the speaker's verbal behavior on extinction. The manifestation of the kind of autoclitic enhancement that is described above may then represent an extinction burst. A descriptive autoclitic such as *I'm telling you to...* will often occur as an exaggerated spurt, ...a somewhat frenetic style that characterizes extinction bursts.

Functionally, in addition to simply indicating that a mand is in progress, those enhancements may also increase the potential threat that is implicit in the mand. Such an autoclitically increased threat tends to evoke more strongly the listener's negatively reinforced escape behavior that the simple original mand had been too weak to produce. The speaker will be reinforced if the listener's escape behavior represents some form of compliance. If the

mediator's compliance behavior is still not evoked, an additional mand of the mediator's attending behavior may emerge antecedently as a preceding statement or clause (e.g., *Now look here, I'm telling you to pass that book*).

While some descriptive autoclitics describe the kind of behavior that is in progress (as in the previous example), other descriptive autoclitics specify the nature of the stimuli that are evoking the primary verbal behavior in a statement. Consider this statement: *The paper says that the parade is starting now*. It includes a descriptive autoclitic phrase (*The paper says that...*) that indicates to the listener that the primary verbal behavior (...*the parade is starting now*) is occurring under textual control of a newspaper.

That distinction could be important to a listener. If the statement "the parade is starting now" is assumed to have been evoked by the approaching lead elements of the procession, then the listener may respond with looking behavior that would prove futile if the statement was controlled by text while the lead elements were not yet visible. Consider another example. Suppose that, in general, the newspaper is a more reliable source than the speaker. Then, with the addition of such an autoclitic enhancement to the speaker's statement (i.e., *The paper says that...*), the listener would tend to exhibit a greater measure of behavior in the class described as "preparing to view an actual parade." In common parlance, it may be said that the listener takes more seriously what the newspaper reveals about the starting time than what the vocalizer may say about it independently.

A mediator may have no independent means to confirm the nature of the evocative stimuli on the vocalizer's basic statement, and, in that case, must rely exclusively on the vocalizer's included autoclitics for a description of those antecedent controls. As earlier examples have revealed, without such help, the unenhanced statement, *The parade is starting now*, could be misconstrued by the listener as a tact of the approaching lead unit in the parade. Perhaps, instead, the verbalizer was merely passing along the vocal report of a third party, in which case the statement was merely echoic. The autoclitic enhancements cull these possibilities for the listener (e.g., *I can see that the parade is starting now*, *People are saying that the parade is starting now*, or *A radio announcer is reporting that the parade is starting now*).

Such autoclitic indicators of the functional antecedent stimuli that are controlling the speaker's basic statement are often said "to inform the listener as to *why* the verbalizer is making the basic statement," but that is the invalid language of personal agency. Such an autoclitic enhancement occurs naturally. It is jointly evoked by (a) the controlling relation⁴ between the environment and the basic statement and (b) the presence of some aspect of the audience. Given the ongoing evocation of the basic statement, some aspect of the listener serves as an

elemental stimulus that, if present, evokes the autoclitic addition to the basic statement.⁵ That is, something about the particular listener or that listener's behavior evokes the autoclitic enhancement of the basic statement.

Listeners originally play an important role in conditioning vocalizers to include such helpful autoclitics, and audience members continue thereafter to maintain that linguistic practice among those who speak to them. In that role listeners function as mediators insofar as they consequate the verbal behavior of the speakers. For example, a verbalizer who normally tended to exhibit only plain statements such as *The parade is starting now*, may be mandated by mediators to include a description of the evocative stimuli: *How do you know? What do you mean by that?* A minimal conditioning episode is concluded if, after the vocalizer repeats the statement with included autoclitics that describe or imply the antecedent controls on that statement, a mediator then reinforces the vocalizer's autoclitic enhancement of the basic statement.

During conversations such routine reinforcers provided by mediators are, in general, economically minimal and may consist of a tersely uttered "thanks" or a quick nod of acknowledgment, perhaps with a faint smile. Typically, reiterations of such conditioning episodes are required to establish the reliable appearance of such autoclitics in the vocalizer's similar statements on future occasions.

The autoclitic *I remember that...* informs the mediator that the original evocative stimulus is no longer present and that the remainder of the statement is being evoked instead by private verbal events. Such a distinction often has important implications. For instance, suppose that a potential speaker and a potential mediator are searching for John's house. The mediator, who is not currently in contact with John's house, hears the speaker say *I remember that John's house is painted light blue*. With the autoclitic supplement added to the basic statement, the mediator may not behave at once as if John's house is close enough to the vocalizer to be controlling the basic statement about its color in some direct way. Absent the autoclitic *I remember that...*, the mediator may respond to the statement *John's house is painted light blue* by acting as if the verbalizer can already see John's house and is reporting that it has been painted light blue—a pattern of behavior that would be inappropriate insofar as the verbalizer is not in contact with that house nor may such contact be imminent.

Another subclass of descriptive autoclitics is made possible because speakers can respond to the *strength* of the controls on their primary utterances. The vocalizer may tact an approaching object in the sky by saying *It's a plane*. However, such an unenhanced report affords an isolated mediator very limited evidence of its validity. A mediator may be unprepared to respond with effective or appropriate action in the absence of some indication of

the evocative strength that the putative object exerted on the vocalizer's report. Verbal communities therefore condition their members to include autoclitic responses to the *strength* of the controls on their own primary utterances. Such autoclitics are especially important in the verbal behavior of persons who are acting as lookouts.

Consider some examples pertinent to the possible approach of an airplane for which a speaker has been looking. Statements such as *I guess it's a plane*, *I imagine it's a plane*, *I reckon it's a plane*, *I suppose it's a plane*, *I assume it's a plane*, all imply either that the primary verbal behavior has been insufficiently stimulated or that the vocalizer has not been sufficiently conditioned to respond effectively to a presentation that may evoke more resolute responses from other speakers. In the former case of a weak stimulus, the vocalizer may add that *I need to see it better*; in the latter case of poor preparation the vocalizer may explain that *I'm not trained or experienced enough to be sure*.

The statement, *I hesitate to say it's a plane*, further implies to the mediator that the vocalizer has a history of punishment with respect to reports that later proved to be false. We may describe the vocalizer as cautious. *I guess it's a plane* acknowledges the tentative nature of the stimulus controls on the tact that identifies the object while hinting that the vocalizer nevertheless may be prepared to behave further as if that report is valid.

I swear it's a plane, *I assure you it's a plane*, and *I guarantee it's a plane*, imply to the listener that the vocalizer will be reinforced by subsequent actions of the mediator that are relevant to the presence of a real plane. Such statements also imply to mediators (a) the availability of any reinforcers that are contingent on their plane-related behavior and (b) that any reactions to the speaker's statement that are appropriate only in the presence of a real plane will not be subject to the kinds of punishment that tend to follow wasted or pointless behavior (i.e., it is safe to act as if a plane is really present).

The attachment of *I admit...* (*I admit it's a plane*) may indicate to the mediator that that particular autoclitic is being evoked by the vocalizer's record of deception with respect to the current kind of stimulus presentation.⁶ The autoclitic antecedent part of the vocalizer's statement is a response to certain conflicting contingencies: (a) contingencies to render a valid tact of the approaching object, and (b) contingencies to avoid doing so. Given strong contingencies to report, in the presence of indicators that the escape behavior of deception will be punished more severely than a valid tact, the plane will be reported, and the lesser punishment will thereby be incurred. However, the tact of the plane may be accompanied by descriptive autoclitics that implicitly emphasize the vocalizer's conflict (i.e., *I admit...*). Such an autoclitic supplement may be said to represent an appeal for sympathetic reactions from the mediator, who is receiving a potentially

valid report that the autoclitic implies is being provided by the vocalizer at some potential personal cost.

I agree it's a plane, and *I reply it's a plane* include autoclitics that relate the statement to some earlier behavior by the mediator. First, consider the version that stresses agreement. *I agree...* implies that the vocalizer's report has occurred partly under indirect control of some earlier verbal behavior by the mediator that was evoked by the same remote stimulus (i.e., an approaching plane) that is now in partial control of the speaker's current statement. That autoclitic addition also indicates that the speaker's report comports with that earlier report by the mediator.

I reply... implies that the vocalizer's report has occurred partly under control of the listener's earlier behavior that was relevant to the approaching object but which, from the speaker's perspective, did not constitute its valid identification (i.e., did not include a valid tact). The autoclitic enhancement (*I reply*) may be interpreted as a correction of an earlier statement by the mediator, but the vocalizer's means of doing that is simply to emphasize the strength of the environmental control of the vocalizers own tact.

However, it is also possible that the vocalizer could instead be emphasizing the strength of the control being exerted by the plane following the listener's earlier indication that a plane tact by the vocalizer will not evoke plane-related behavior from the listener. For example, in response to an initial report by the vocalizer, the mediator may have said that it is unlikely that an aircraft would be passing this way at this time, to which the vocalizer responds *I reply, it's a plane*. Although the mediator previously has expressed doubts that a plane could be approaching, the verbalizer is nevertheless reporting the presence of a plane along with an autoclitic enhancement that implies to the mediator that, while the mediator's reservations have had some kind of effect on the vocalizer, they did not significantly weaken the verbalizer's tact of the plane. That implies a strongly evoked tact. The mediator may be conditioned to respond to other people's environment-tact relations that withstand such counter-controls with behavior that would follow the mediator's own environmentally evoked vision of a plane.⁷

Some descriptive autoclitics indicate the current emotional state of the verbalizer: *I am relieved to report that a plane is approaching*, or *I am distressed to report that a plane is approaching*. Such autoclitic enhancements imply to the mediator how the antecedent environmental stimuli that control the tact have affected the verbalizer emotionally. One's respondent emotional reactions, which are elicited automatically and may or may not comport with one's operant responses to an environmental event, can nevertheless affect one's subsequent behavior in ways that are important to one's listeners. Verbal communities therefore condition their members

to include autoclitic enhancements that reveal a speaker's emotional reaction to the object of a statement.

A listener is especially quick to probe for such indicators of emotional reaction when that listener's history with the speaker implies that the speaker's emotional state could affect important outcomes of the situation. Withholding indicators of one's emotional state, including autoclitics that describe the verbalizer's emotional reactions, is one of the most common forms of deception. A socially offended person may speak as if unaroused, while a poker player who has drawn a straight flush typically speaks in ways that conceal any emotional elation that such a rare and favorable draw usually elicits.

When a potentially helpful descriptive autoclitic is absent from a verbalizer's statement, members of the audience may ask *How did that make you feel?* and then reinforce the answer if it describes the speaker's emotional state in a credible form and style. On future occasions, the description of the verbalizer's personal emotional reaction is then more likely to be reported. The ever present contingencies of economy often favor its inclusion as a relatively brief autoclitic supplement that is woven into the syntax of the basic statement, as in the previous examples. Speakers who forego the economy of a simple autoclitic enhancement and instead follow an autoclitically unadorned basic statement with more lengthy descriptive statements about their concomitant emotional reactions may find that such overdrawn thematic extensions are soon punished as unnecessary redundancy (e.g., from a impatient member of the audience: "*OK, so you didn't like what was happening; get on with your report*").

If the mediator has a history of emotional conditioning that is similar to that of the vocalizer, the mediator may respond to the object of the vocalizer's report (in this example, an approaching plane) with a personal emotional arousal of the vocalizer's kind. It may then be said that the mediator shares the feelings of the vocalizer with respect to the reported approach of the plane. More generally, such shared emotional reactions across numerous occasions may constitute the basis of what is often informally described as *the bonding of kindred spirits*.

Let us return to the variations in the antecedent autoclitic enhancements that were used to introduce our continuing example featuring a tact of an approaching plane. We can analyze the effect on the behavior of a listener of the respective autoclitic variations: Given the statement *I am relieved to report that a plane is approaching*, the operant responses of the mediator may anticipatively relate to a verbalizer who will be acting to strengthen contacts with the plane. On the other hand, given the statement *I am distressed to report that a plane is approaching*, the mediator's operant responses may anticipate that the verbalizer will act in ways that diminish whatever implicit threat is represented by that aircraft.

Here, as always, the autoclitic enhancements tend to enable the mediator to respond more effectively to the primary statement (i.e., ...*a plane is approaching*). Descriptive autoclitics are so important to listeners that their general inclusion may get a special kind of additional strengthening as part of the general education of citizens with respect to proper social behavior within the culture.

For example, in addition to the natural evocative controls on descriptive autoclitics, members of a culture may be taught, as part of their general socialization, to include such autoclitics as a matter of conversational politeness. Thus, the descriptive autoclitic may occur under controls that are supplemented with the special increment of strength that gives impetus to the rule-following aspect of proper decorum. When initiating a conversation about a particular topic, especially with a mediator who does not know you well, it is often deemed proper that one begin with at least a partial description of the controls on what one is starting to say about that topic: *According to yesterday's newspaper...*, *I hear by the grapevine...*, *I am reliably informed...*, *I just feel intuitively...*, *As I have seen with my own eyes...*

From the perspective of the mediator, an appropriate response to what a verbalizer says is not only a function of what is said but also of why it is said. Thus, a speaker who withholds that kind of detail may be regarded variously as impolite, authoritative, insensitive, and perhaps even vaguely threatening.

When autoclitics are cast in the negative they usually indicate that the primary verbal behavior is canceled while implying that the statement is nevertheless strong for some reason. Consider the statement *I am saying that there is no pen on the table*. The primary verbal behavior is the statement *there is ...pen on the table*. The phrase *I am saying...* is a kind of descriptive autoclitic that emphasizes that the statement is strongly controlled by the evidence. In this case the evidence may consist of factors that define the thoroughness of a previous search of the table top while under contingencies to contact a pen visually. The negative autoclitic ...*no...* suggests that that looking failed to result in a contact with the indicated reinforcer. Within the verbalizer's statement, tacts of a pen and of its relation to a table are formally spoken, but the inclusion of the autoclitic negation (i.e., ...*no...*) indicates that those tact-like forms are not actually occurring under control of the stimuli that they describe.

In the above statement, the term *that* is a conjunction that introduces a subordinate clause that states a result. It is evoked by the initial pattern of the vocalizer's statement (i.e., by the phrase *I am saying...*). The conditioning of the evocative function for the conjunction *that* in such a context is often insufficient, with the result that that verbal event often fails to happen. Its failure to occur in *I am saying [*] there is no pen on the table* is widely accepted,

although in strictly formal situations the omission of *that* may not be tolerated. The grammar editors of some journals routinely require careless authors to install such omitted conjunctions.

The controls on some descriptive autoclitics may consist of the subtle features of a delicate situation. Consider a statement that begins with *It goes without saying that...* Obviously, the vocalizer is under contingencies to say what follows. However, the mediator may tend to punish statements describing events of which that mediator should already be aware, especially if the vocalizer's statement implies that the vocalizer knows that the mediator is as yet uninformed. By starting the sentence with *It goes without saying...*, the implication that the mediator is uninformed is softened, and the statement is implicitly cast as a mere reminder of something that, *of course*, everyone (including the mediator) presumably knows already.

Here again, the inclusion of such a defensive autoclitic need not be explained as the work of a clever body-managing mental agent. It is a natural outcome of a long history of conditioning, largely informal, that has rendered discriminative certain subtle interpersonal features in social situations of that kind. Once the necessary conditioning has occurred, those subtle features will then evoke that kind of autoclitic as naturally, as directly, and as reliably as a certain kind of vertically upward and branching protrusion from a land surface evokes the tact *tree*.

Autoclitics that Function as Mand

Some autoclitics affect the behavior of the mediator in multiple ways, one of which is similar to the effect of a mand. Consider sentences that begin with colloquial autoclitics such as *Dig this...* or *Check out this...*, and conclude with a plain or supplemented tact. Those autoclitics at the beginning of a statement affect the mediator in somewhat the same way as the mand *Look at this...*, and they are classed as such (i.e., the *autoclitic mand*).

However, their autoclitic classification results from their further controlling effect on the mediator. That is, they do more than merely evoke the mediator's attending behaviors (if that was all that they did, they would be simple mands without autoclitic implications). However, in addition to manding the mediator's looking behavior, they also emphasize that the stimulus to be contacted visually by the mediator will be a reinforcer of the listener's looking response. The autoclitic aspect of such a mand is the implicit prediction that the manded behavior will be followed by reinforcing consequences for the mediator. When the mediator's manded looking behavior starts to occur, but before visual contact is established by the tacted event, that precontact looking behavior may exhibit special properties that people describe as looking with pleasurable anticipation. The autoclitic nature of the opening phrases *Dig this...* or *Check out this...* is thereby revealed.

Here is another kind of autoclitic mand: A sentence may present a listing that logically could continue indefinitely in an unreinforcing way. That listing may then be truncated with the concluding autoclitic *...ad nauseam*. This ending acknowledges the unreinforcing nature of the verbal behavior that is in progress. Additionally, this autoclitic also has a manding effect on the listener insofar as it implicitly instructs the mediator to self-construct as much of the continuation as may be needed, if any, and then to react to it as if the vocalizer had actually bothered to say that much more of it.

Qualifying Autoclitics

Recall that *descriptive* autoclitics change the nature of the reaction of the mediator by bringing the mediator under stimulus control of (a) circumstances under which the autoclitic is uttered or (b) the condition of the vocalizer at the time of the autoclitic utterance. Various examples revealed that mediators typically exhibit a different kind of behavior as a result of such descriptive autoclitic enhancements of a vocalizer's statement, which is why speakers have been conditioned such that their statements tend to be enriched by autoclitic aspects.

While a descriptive autoclitic indicates something about the circumstances that control its manifestation, a *qualifying* autoclitic changes the strength with which a verbal stimulus affects the mediator. The effect on the mediator is not a change in the kind of reaction but rather a change either to its probability or to the degree to which that reaction manifests. A qualifying autoclitic may shift the evocative strength of the speaker's statement below or above the listener's minimal threshold for responding. In that case, either a particular response that otherwise would have occurred does not occur, or a particular response that otherwise would not have occurred, does occur. Alternatively, if the behavior of the mediator can vary in intensity, a qualifying autoclitic in the verbalizer's statement may result in weaker or stronger forms of the mediator's reaction.

For example, consider negation. Suppose that you are selling tickets to a charity event, and are looking for potential buyers. You are walking toward a room that is occasionally crowded with the kind of people who are likely purchase such tickets. As you walk toward the door to that room, a companion, who gets to that door before you arrive, looks back toward you and says *These people are not potential customers*. The qualifying autoclitic *not...* may entirely negate the behavior-controlling effect of the room doorway on your walking behavior. Your walking-toward-the-door behavior then stops. Note that, in such cases, the behavior either happens or does not happen depending on the presence or absence of the qualifying autoclitic *not...* a term that could be said to disqualify that room as a ticket-selling venue.

Another among the common kinds of qualifying autoclitic indicates to the mediator that a vocalizer's tact is in some way extended. Thus the mediator is prepared by the qualifying autoclitic in the vocalizer's statement for an unusual instance of contact. In the statement *This actor gives an approximate portrayal of the character*, the qualifying autoclitic *approximate* indicates to the mediator that the affectations of the actor may closely resemble but are not indistinguishable from the behavioral patterns of the person being portrayed. In the statement *Joe's version of the story is somewhat like a fairy tale* the term *like* indicates to the mediator that the tact of the first person's story (that version) is being described metaphorically, while the term *somewhat* indicates that the supporting relations for the metaphor are to some extent limited or imperfect.

Quantifying Autoclitics

Consider again the previous ticket selling example. Suppose that, instead of disqualifying the people in that room as customers, the vocalizer had said *...one potential customer is in this room*. In the case of that assertion, the effect on your approach behavior may be a decrease in its intensity. Nevertheless, the evocative capacity of that statement may be a little greater than that of *...no potential customer is in this room*, which completely reduces the evocative strength of the doorway. Whereas, prior to that report by your companion, you were walking at a normal pace toward the door into that room, after that report, you may continue more slowly. Your behavior is unchanged in form and direction, but the quantifying autoclitic *...one...* has somewhat decreased the evocative capacity of the vocalizer's tact *customer*. Had the vocalizer instead said *Thirty potential customers are in this room*, your pace might have increased. These potential variations all affect the intensity of the same behavior (in this example, your vectored walking), and the particular quantifying autoclitic in your friend's report determines your walking speed on an increasing scale that begins with zero.⁸

No, *some*, and *all* are quantifying autoclitics when they apply to sentences that feature tacts. Suppose that a person who has contacted automobiles says either *No automobiles are blue*, *Some automobiles are blue*, or *All automobiles are blue*. If the person is speaking on the basis of personal contacts with automobiles, no person could have contacted all existing automobiles, so the vocalizer's personal experience could have prepared that person to state validly only the *Some...* version.

The *All...* version of the statement usually represents an extension of the description of the class to include not only the class members that have been contacted, but all other members as well. A person who has been raised on an island on which all vehicles must, according to enforced law, be painted blue may say "all automobiles are blue" in the same way that a person may say that "all pen-

nies are bronze colored.” However, beyond the personal experience of both of those speakers, some automobiles of other colors could exist just as a small number of pennies are silver-gray in color.⁹

The quantifying autoclitics *no* and *all* affect the mediator by indicating the vocalizer’s inference as to the completeness with which the set of all class members controls the remainder of the sentence. The class is defined by the generalized tact (e.g., *trees, automobiles, pennies*, etc.). By saying *no automobiles are painted yellow* the vocalizer is implicitly responding under the control of a stimulus that consists of a complete set... namely, the set that is composed of the surface colors of every automobile. A typical mediator responds not only to the statement per se, but also to the relevant historical events in the verbalizer’s past. Has the verbalizer had an opportunity to contact all automobiles? Perhaps the speaker has merely contacted legislation or policy that forbids yellow automobiles?

The vocalizer whose statement refers to *all automobiles* may render the otherwise overextended statement valid by the further addition of a descriptive autoclitic that limits the set to members that fall within the vocalizer’s personal experience. For instance, the verbalizer, who has contacted all automobiles on his or her small home island, may say *all automobiles on this island are blue*. The mediator can then respond differently and perhaps more appropriately as a result of the vocalizer’s autoclitic indication that the set of automobiles that is in control of that statement consists of only those automobiles that are on the vocalizer’s small home island, all of which the speaker has probably contacted. In this example, a descriptive autoclitic (...*on this island...*) modifies the effect on the mediator of a quantifying autoclitic (*all...*).

Next, let us consider a vocalizer who may say either *pen*, *a pen*, or *the pen* as a tact. These various forms do not occur under identical sets of evocative controls, but all three forms affect the mediator by respectively indicating singularity. *Pen* indicates singularity by grammatical inflection alone in response to the property of singularity, while the *a* and *the* do so as minimal tacts of that same property. Quantitatively, only one pen is at issue in the sense that only one pen is controlling the vocalizer’s responses, each form of which pertains to that pen.

Pen, as a raw tact, may be evoked following an episode during which the various definitive properties of a particular pen acquire behavioral control differentially until finally the accumulating set of behavior-controlling properties is sufficient to evoke the tact *pen*. We refer to that sequence of events as the *process of identifying* and to the final step (featuring the emergence of the tact *pen*) as *the identification*.

It is the *a* and *the* when functioning as quantifying autoclitics that are of interest here. As previously noted both are minimal tacts of the property of singularity, but in addition, they also have autoclitic functions. If the *a*

occurs in a mand that specifies a pen, it indicates that any pen will suffice, while the *the* indicates to a mediator that only a specific pen will suffice. If occurring in association with tacts—for example, *a pen is on the table*—the *a* indicates that the stimulus being tacted possesses the complete set of definitive properties for a pen, without regard to any other properties that it may possess. In contrast, *the pen is on the table*, indicates further that the stimulus being tacted also possesses additional unique properties that were present during previous contacts with a particular pen. On any occasion of contact with the minimal definitive set of properties for members of the pen class, if occurring along with an additional particular unique set of properties, a tact of the class (i.e., *pen*) may be preceded by *the*. On the basis of its additional particular unique set of properties, only one specific member of the set of all pens is in control of the statement.

Thus, while both the *a* and the *the* are minimal tacts of the property of singularity, they each also have a particular autoclitic function with respect to a mediator. We say *a pen* under stimulus control of the minimal definitive set of properties, and we say *the pen* when certain additional unique properties that are of historical importance also share in the control of the statement. Those two variations have different effects on a mediator, whose reactions differ according to the nature of the controls on the verbalizer’s tact (viz., *pen*). In their autoclitic roles the *a* and *the* indicate some special features of those controls. Such distinctions suggest the theme of the following subsection.

The Autoclitic Functions of Grammar and Syntax

Grammatical and syntactic variations arise under two main classes of control. One pertains to the effects on the mediator of what is being said, and the other pertains to that which is being addressed. That is, the environment provides things to talk about, but the audience may determine how one does so, especially as the effect of the statements on the mediator’s behavior becomes increasingly important to the verbalizer. Therefore, various audiences tend to evoke differing autoclitic enhancements of respective tacts of the same environmental event. In more general terms, we tend not to talk to different people about something in exactly the same way, even though we may be under contingencies to promote a common ultimate reaction among them.

For instance, suppose that an adult verbalizer is standing beside a highway, and reports an approaching car to an adult companion who is awaiting the arrival of a friend who will be driving a Ford automobile. The verbalizer may say *Here comes a Ford* or simply *Ford!* However, to a child who is also awaiting the arrival of a friend driving a Ford but who, as a child, is readily distracted by nontraffic events in the ambient environment, the same

vocalizer may say *Now, this one is a Ford*. The autoclitic *now* evokes the child's attending behaviors and is equivalent to the mand *Pay attention, because...* Such a focal autoclitic mand is often unnecessary with an adult listener who may remain under tighter control by the business at hand. The phrase *...this one...* functions autoclitically to evoke comparative reactions that feature the approaching car with respect to reconsideration of other cars previously contacted.

When the verbalizer announces the approaching car to the child along with this set of special autoclitic enhancements, the complete statement then evokes from the child the kind of attending reactions to the car that facilitate the child's contact with the reinforcers implicit in the initial situational contingency. In contrast, the report of the approaching Ford to an adult who is also awaiting the arrival of a Ford-driving friend would typically feature different autoclitic enhancements to which that person exhibits a different series of responses than did the child to its version of the report. The child's control by irrelevant stimuli first had to be disengaged, whereas the focus of the adult's ongoing and relevant attending behaviors required only a modicum of sharpening.

Differences in the autoclitic enhancements of the same tact will also control the behavior of a third-party observer in different ways. For example, an independent observer of those two versions of the report pertaining to the approaching Ford would probably describe those two reports differently, saying, perhaps, that in one case the speaker was both *teaching* the listener (to stay focused on the business at hand) as well as informing the child about the approaching car, and in the other case was merely *informing* the adult listener (of the approaching Ford).

The observer's discriminative description of the original verbalizer's activity in terms of either *teaching* or *informing* is a minimal tact by the observer of the kind of contingencies under which an original speaker's statement about the approaching Ford was emerging. Recall that the verbalizer's statement about the car was in each case controlled by both the audience and the car. This teaching-informing distinction by the observer is maintained by properties that inhere in the share of the control of the primary verbalizer's respective statements that was being exerted by the audience (child or adult) as opposed to the part of that control that was being exerted by the approaching car.

Now let us consider grammar. The grammatical aspects of a statement often manifest in the form of word fragments that play interesting functional roles and thus attract analytical attention. In the statement *The horse trots*, consider the function of the final *s* in *trots*. First, that final *s* is a fragmentary tact evoked in some shared way by certain properties of the behavior of the horse, which include (a) trotting as a process rather than an entity,

(b) the singularity of the horse that is trotting, and (c) the currency of the activity (the trotting of the horse coincides with the original manifestation of the statement).

Additionally, however, that same final *s* also has a couple of autoclitic functions, which manifest as effects on the behavior of the mediator. First, that final *...s* indicates assertion by its original author. If that author is the present vocalizer, that *s* indicates to the mediator that the vocalizer's primary statement is a tact of the current behavior of the horse. In this sense the final *s* in *The horse trots* renders the statement functionally equivalent to *The horse is trotting*. The implication is that the mediator will then be reinforced upon reacting in ways that comport with the actual presence of a trotting horse. If, on the other hand, the vocalizer is reading from a text, the property of assertion is attributed to the verbal behavior of the author of the text, not to the current reader. In that case the mediator may behave as if the author had originally made some kind of contact with a trotting horse—a kind of reaction that depends on whether the mediator is also affected by other properties of the text that are characteristic of history as opposed to fiction.

The final *...s* on *trots* must thus share this assertive autoclitic function with certain contextual variables that pertain to the controls on the vocal behavior of the speaker (e.g., actual horse vs. textual stimuli, ... and in the later case, indicators of an historical account vs. indicators of a fictional account). The difference in the potential functions of the final *...s* that is attached to the word *trot* manifests as differences in the person who affects the mediator as having contacted the horse (the vocalizer per se, or the original author of the text that the vocalizer is reading). That is, having contacted the vocal report, which has the audible form *The horse trots*, who the mediator then treats as the person that contacted the horse is determined by what controlled that vocal report (e.g., horse or text).

The second autoclitic function of the final *...s* pertains to the mediator's reaction to the linguistic property that it represents. The final *...s* on *trots*, along with the other linguistic features of the verbalizer's product, indicates that a coherent statement has been made in accordance with the conditioning practices of an English speaking verbal community. The mediator can then respond to the entire verbal utterance as a complete statement, and may then do so in whatever ways its various features will control. Had the vocalizer instead said *The horse trot*, some important kinds of responding by the mediator would have been precluded. People may say simply that *it's not English*. That final *s* makes it so and thus serves as a kind of function-altering stimulus, the presence of which allows for the full range of responding that has been described in this section in connection with the English statement *The horse trots*.

Because that final *s* indicates a complete sentence by indicating agreement in number between the verb and the

noun (*horse* and *trots* are both singular forms), that ...*s* is classed, in that sense, as a *relational* autoclitic. Its suffixal attachment to the verb relates the verb to the noun so that they are not interpreted by the mediator as two thus–far unrelated verbal elements of what would, in that case, have to be an incomplete statement (e.g., *The horse... trot...*). A mediator has no effective response to those elements until they fall into place in a more complete statement such as *The horse, trot as best it could, failed to impress the persnickety judges*. Note that this statement structurally dissociates that unmatched noun and verb by providing *horse* with the new singular verb *failed*. The old plural verb *trot* is relegated to an isolated verbal phrase, which here, functioning in its entirety as an adjective that modifies *horse*, need not have its verb *trot* match *horse* numerically.

As the functional analysis of that single letter ...*s* in the original sentence proceeds, it becomes increasingly clear that such a final ...*s* can carry a rather heavy functional load for a mere single–letter word fragment. What is now construed to be a proper placement of such an autoclitic *s* in sentences that describe trotting horses has been predetermined by the effects of that *s* on past mediators. Those are the kinds of effects that have shared in driving the historical evolution of the language being spoken. The consequences that such grammatical features have provided to verbalizers have conditioned them to arrange the *s* in certain ways. That is, the current conventions for the placement of such an autoclitic ...*s* have been determined by the consequating effects that such placements have had in the past on mediators within the historical verbal community.

The grammatical process known as predication involves the addition of an autoclitic of assertion to a relational autoclitic. Consider the verbal elements *tall* and *man*. A well conditioned verbalizer in an English speaking community, tacting a man who is distinguished by extreme body height, may respond verbally by saying *tall man* (as opposed to *man tall*). The autoclitic functional capacity of a relational autoclitic inheres in the order of certain verbal elements rather than their intrinsic characteristics.

In the current example, the order of the elements is a relational autoclitic appropriate to ordinary English conversation. The straightforward form (*tall man*) is perhaps characteristic of an utterance from which rhetorical emphasis is largely absent. The reverse order, (*man, tall*), emphasizes the place of this man in a categorization scheme, and as a mand would be useful to a mediator who was under a contingency to respond by producing a tall man selected from a holding area in which men and women of various heights were confined.¹⁰ If, in addition to the relational autoclitic (*tall* followed by *man*) along with the autoclitic of specificity (*the*), the assertive autoclitic *is* is also evoked (i.e., *the man is tall*), the predication with respect to the noun *man* is completed.

Issues in Language Evolution

Observers may incorrectly attribute the form of a statement to something called the *intention* of the verbalizer, but fictional constructs called *intentions* do not determine the particular structure of sentences. Only current environments do that, and they must share properties with environments that in the past evoked similar verbal behavior that was reinforced.

It was those past episodes of operant conditioning that rendered certain parts of the body capable of now responding with specific kinds of verbal responses to specific kinds of environmental stimuli. As in all functions, given certain changes in the independent variable, certain changes inevitably follow in the dependent variable, and, in the case of environment–behavior functional relations, nothing called an intention plays any role. Explanatory recourse to intentions suggests an ignorance of the nature of nature and relies on a spirit of the self–type that putatively activates body parts through the exercise of a mysterious will–power. Such a scheme of accounting illustrates the compounding of a basic fallacy that usually becomes necessary to make the implications of that fallacy seem rational.

People respect the current conventions of grammar and syntax, because those forms were once selected by their thematic consequences. Subsequently the surviving forms were described as correct, and prescribed according to rules. Thereafter, people may refer informally to the resulting structure of a person’s statement as “the speaker saying it right.” The current circumstances (antecedent stimuli) evoke a particular form of a statement that in the past has yielded reinforcers provided by the current mediator or from mediators in general, both contemporary and historical.

However, after a grammatical or syntactical form that originally was selected for its theme–related effect on a mediator has been declared correct and its control shifted to rule governance, it can begin to be maintained somewhat independent of its thematic effect on a mediator who may consequate statements largely according to their formal properties. Insofar as that occurs, the natural contingencies of survival of linguistic forms weakened, while the language tends to become somewhat fixated under the constraint of its formal rules. That is, the form of a statement may come to be maintained as much by comporting with prescriptive rules as by its effective thematic control of a mediator’s behavior.

A relevant issue is whether it is better to speak correctly or to speak effectively. The prevailing approach can become a distinguishing feature of a verbal subcommunity. As the natural contingencies, which favor effectiveness, force the continuing evolution of the language throughout the remainder of a verbal community, a subcommunity, whose language is functionally insulated by its strict rule governance, may retain correct but progressively less effective

forms of speaking. If such a distinction becomes a conditioned virtue within that subcommunity, within the larger community that subcommunity may come to be regarded as snobby, pretentious, or aloof.

However, in such circumstances a more subtle distinction becomes analytically appropriate. It pertains to the effectiveness of a speaker from such a rule-governed verbal subcommunity when speaking to a general community audience. It is one thing if such general effectiveness requires different linguistic forms and another thing if such effectiveness requires fewer forms. In the former case the speaker is merely antiquated, a condition that may be corrected by a substitution of forms. In the latter case the speaker is said to be more sophisticated than the audience. Insofar as formal behavioral distinctions define the intellect, the speaker whose audience forces the omission of formal properties from the speaker's statements may be said to be "talking down" to the audience by "dumbing down" the rhetoric.

The sacrifice of formal distinctions (as opposed merely to the adoption of different ones) renders the language more primitive and the linguistic performance of the speaker less intelligent. The culture of a verbal species is advanced intellectually through expansion and conservatism with respect to the linguistic distinctions being respected while remaining somewhat flexible with respect to the linguistic forms by which those distinctions manifest.

Examples that illustrate this issue often feature contrasts between the retention and omission of autoclitics. That is because, among the various kinds of functional relations that govern verbal behavior, the controls on autoclitic verbal behavior tend to be the most subtle, tenuous, and elusive.

The Progressive Trend toward Functional Unity

The operant conditioning process is characterized by a progressive economy of function, and that remains true during the conditioning of verbal behavior. However, early in the conditioning process, each element of a statement may occur under some degree of independent stimulus control. A beginner must often master the proper forms of statements one verbal element at a time. The form and order of each element is determined by its relations to the other elements. The functional independence that to some extent characterizes each verbal element supports a kind of detailed functional analyses through which we attempt to determine the independent controls on each verbal element in a statement.

However, as the language skills of a person mature, larger and larger sequences of verbal elements tend to come under the unitary control of specific stimulus elements. As a first step, a sequence of syllables may be uttered under unified control as a single complete word. Later, a sequence of two or more words, perhaps several words, may be uttered as a unitary production that is functionally evoked

by a single stimulus. After a sequence of separately controlled verbal elements has come under the control of a single stimulus and thereafter is uttered as a unit, we then say that such a sequence has acquired *functional unity*.

For example, consider a person who tends to end every assertion or conclusion with the clause *...you know what I mean*. That clause is approximately equivalent to the rhetorical question *Is that not right?* Functionally, it mildly mands some indication of agreement from the mediator. The clause *...you know what I mean* is uttered as a unit under stimulus control of certain features of the preceding statement. Any attempt to analyze the functional controls on each element within that utterance would be idle once that clause is occurring under its acquired functional unity. Thus, such a combination of what earlier had been separately controlled verbal elements represents a functional consolidation that renders pointless the conduct of a more detailed analysis.

Prior to that functional unification, its elements probably did manifest through discernibly independent functions—a phase in the verbalizer's conditioning history that may be described as "learning to say it correctly." During that learning phase, the verbalizer may be described agentially as "being careful to express it in correct English," although each element is simply manifesting inevitably under its own kind of evocative control.

After its functional unification, the clause (*...you know what I mean*) manifests automatically as an appended functional unit following any statement that has the critical characteristics that then evoke that clause as a unit. Its manifestations also tend to be characterized by an increased fluency and speed.

Audience members may be sensitive to such transitions in the control of an appendage like *...you know what I mean*. For instance, when they describe such an appendage as a cliché, they are responding to the functional unity of the control of its utterance. That is, although it is uttered and heard as a string of words, an audience member, in calling it a cliché, is responding to its functional control as a unit.

Such functional unification can also occur to sequences that play a more important role in the control of a mediator's responding. For example, the lookout whose job is to detect and warn of approaching aircraft, may routinely respond to such an approaching plane with a standard statement *I've got one!*, a well conditioned utterance that occurs as a functional unit. It is equivalent to the lookout's exclaiming *Bingo!* Such unification of control represents a progressive natural economy that, increasingly, is enjoyed by maturing verbalizers.

Economy of that kind is realized at the physiological level. Behavior is not physiologically free. It costs energy, and each independent behavior-determining function that is discerned at the behaviorological level of analysis

has its physiological basis within the nervous system of the behaving organism. The unitary control of a multiple-element behavior consumes less energy than when those same elements manifest in the same sequence under respective independent controls.

To the behaving organism the production of the unitarily controlled version usually feels easier. The person whose speech is characterized by strings of clichés tends to be regarded by others as a lazy speaker. The person's easily evoked clichés often substitute for statements the elements of which would require a variety of relatively independent and energy consuming controls, some perhaps complex. A readily evoked unitary cliché can also substitute for a statement that would emerge only as the final step in what is described as a difficult¹¹ sequence of thought. In that case, the speaker may be accused of “spouting a cliché” instead of rendering a considered opinion.

Composition: Its Nature and Occurrence

Autoclitic verbal behavior plays an important role in linguistic composition. We should note that although the composition of linguistic productions is a popular concept, there is no composer, no doer of such organization, ... no force or agent that proactively puts sounds or symbols together in a proper sequence. The insatiable editor who churns out a stream of carefully arranged versions is merely behaving in ways that insure contact with the widest possible range of relevant controlling variables. Nor is that preliminary conceptual posturing a product of an editorial self-agent. It is simply how an editor's body reacts to the environmental circumstances of an occasion to edit, ... a body that, because of the structure imparted during its conditioning history, now reacts behaviorally in that automatic way when presented with the stimuli that define such an occasion. “We” do not compose, because we do not exist as agents that can do such things. Composition happens, but that is because of natural functional relations that automatically become established between bodies and their environments.

That said, let us now consider a verbalizer and a mediator when only the verbalizer is confronting certain environmental events. Suppose that the verbalizer may potentially contact reinforcers through certain actions of the mediator with respect to those events. However, in this case the mediator cannot react directly to those environmental events and, therefore, is not yet behaving in a way that is reinforcing to the verbalizer. However, the mediator may be stimulated to do so by a statement produced by the verbalizer that occurs under partial stimulus control of those events.

Thus, such a situation represents a kind of opportunity for the verbalizer. The verbalizer's reinforcers inhere in the mediator's potential behavior or in its environmental effects—that is, either in how the mediator reacts or in what

the mediator's reaction accomplishes. Thus, in such situations, verbalizers can insure access to their own reinforcers by speaking in a way that will stimulate a mediator to exhibit some potentially reinforcing action with respect to events that only the verbalizer is contacting directly.

Let us consider a specific example. Suppose that a searcher is under contingencies to locate and acquire a lost one-dollar coin and has enlisted the assistance of a helper in the search. Eventually the searcher observes the coin resting in a location that he or she cannot reach but which can be reached by the helper who has not yet noticed the coin. The searcher, as verbalizer, may utter only the raw tact *Coin!*

At issue is whether or not that utterance is sufficient to stimulate the helper to behave in a way that will reinforce the verbalizer's utterance by bringing the verbalizer closer to a more substantial contact with the main reinforcer (i.e., the coin). If, given that utterance, the helper, as a potential mediator, does not discover and retrieve the coin, the situation may evoke a supplementary focal autoclitic by the verbalizer: *Coin, there!*, perhaps accompanied by a nonvocal nod or finger point, or perhaps the addition of another focal autoclitic, ... *beside that tree*. A further step would involve the addition of an assertive autoclitic (viz., *is*): *Coin is there...* If it is somehow unclear which coin is being described by the verbalizer, evidence of that confusion would perhaps evoke the designative autoclitic *the*: *The coin is there beside the tree*.

The individual words, being familiar to the mediator, evoke certain kinds of verbal responses that comport with the language shared by the speaker and listener. Here it is English, and the mediator responds in accordance with prior conditioning pertinent to the syntax of English sentences. This sequential autoclitic property of such statements is so compelling that a listener will usually respond to any presented sequence of those terms as if they had been cast syntactically.

For example, consider their utterance in reverse order, perhaps enhanced with a few inflectional autoclitic properties: “Tree the beside! There is coin *the*.” Clearly, the speaker, whose access to a particular coin has been threatened by a besiduous creature, is urging that this particular beside be gotten out of the way by running it up a tree. The removal of that troublesome beside will then clear the way to the coin that is designated as *the*. The implication is that the individual coins in a particular series of coins have received respective word-type designations, perhaps corresponding to the words in a familiar quotation such as *Once more, ... into the breach!* The verbalizer will have an opportunity to acquire the fourth coin in that series of five coins (i.e., the *the* coin) as soon as the obstructive beside can be treed.

Once the listener “knows” that the statement is in English, it will be comprehended as such, but as we have seen, that knowing is but the listener's automatically

evoked response to a particular autoclitic feature of the speaker's statement. That is, the words were all from the set of words that is known as English. The listener's response to the statement, a neural response of the comprehension kind, then occurred in accordance with English syntax. If that responding amounted to the conjuring of a new and entirely fictitious creature, so be it.

As we account for the evocation of each element of a statement as well as for its sequencing, the redundancy of a proactive composer becomes increasingly obvious. The statement happens, but its formal properties are inevitable products of relations between environmental and bodily structures.

Autoclitic enhancements occur because, in the past, they have more precisely controlled the behavior of mediators than have unenhanced statements. Therefore, how many of the previously discussed autoclitic supplements a verbalizer's statement would have to include to produce effective action by the mediator is determined by the manifestation of that action. In accordance with the grand economic scheme pertinent to all things, people tend to say only what is necessary to produce reinforcing reactions from a mediator. The complexity of speech is in reaction to the complexity of the responses that it must control for those combined or cumulative responses to be reinforcing to the speaker.

In such cases people commonly refer to the immediate complex neural reactions of the listener as "the listener's acquisition of sophisticated knowledge." However, insofar as that sophisticated knowledge consists of functionally determined neural responses to ongoing environmental events, any sophistication is shared by two structures. One such structure is that of the stimulating environmental arrangement, which, as in the current example, may be manifesting as a speaker's verbal behavior. The other structure consists of the neural microstructural arrangements left in place as a result of the listener's conditioning history. As is often noted in vague allusion to these realities, instructors of advanced topics tend to find that the best prepared students are the most reinforcing to teach.

A verbalizer whose audience continues indefinitely to be controlled effectively by mere raw tacts and mands never learns to speak in more complete sentences. An approximation of this situation can occur when a foreign speaking newcomer arrives in a new country, having acquired only a few raw tacts and mands in the local language. If local speakers customarily react politely by carefully anticipating and exhibiting the responses apropos of more complete utterances, the foreigner's raw tacts may be amply reinforced, and that foreigner continues indefinitely to exhibit fragmented speech. That is why, in teaching situations, language instructors progressively depart from any prevailing codes of politeness that prescribe reinforcing responses to the raw tacts and mands of a culturally

disadvantaged verbalizer. With increasing stringency such instructors withhold reinforcing responses until the speakers meet their demands for autoclitic supplements.

The number and complexity of autoclitic enhancements that is evident in common speaking suggests the plethora of mistakes in responding that a mediator could be making in their absence. The verbalizer's composition evolves in complexity as necessary to the establishment of the behavior-controlling functions between verbalizer and mediator—functions that, through the responses of the mediator, yield stimuli that consequte the speaker's immediately preceding verbal behavior.

Linguistic complexity is often asserted to originate with something called the *intelligence* of the verbalizer, but it is actually a reflection of the discriminative responding by the historical audiences to which the person's verbal behavior has been directed in the past. The features that render statements complex quickly extinguish when audiences fail to respond discriminatively to those features. Such subtractions from a person's exhibited verbal repertoire are usually evident when, for example, a mature literary laureate starts interacting verbally with the members of a kindergarten class. Complex and sophisticated speech can quickly be reduced to any specified approximation of childish talk if it comes under the control of an audience that is linguistically primitive to a corresponding degree.

To the extent that complex forms of speaking manifest reliably under given kinds of circumstances, those linguistic forms, if frequently evoked, may gain some functional unity as well as mere fluency. That is, when a well conditioned vocalizer is presented with a multi-element situation, the corresponding elements of a responsive vocal statement may be evoked immediately without the kind of private verbal supplements that are often described as thinking about how something is being said. People may still regard the statement as having been *composed*, but the term *compose* pertains merely to the discriminative control exerted by specific environmental elements over corresponding elements of the statement. (It is the environment that does the composing.)

In that sense, composition does not occur at the initiative of the speaker, but merely happens as environmental elements acquire control over body parts that, through behavioral conditioning, have become neurally microstructured in ways that enable those functions to manifest. Complex verbal behavior is thus never proactively composed as a product of some sort of internal self-agent, but instead merely happens when its environmental controls are appropriately contacted. What people tend to call the behavioral activities of composition (i.e., *composing*) are merely behaviors that improve the exposure of the relevant parts of the body to the particular aspects of the environment¹² so that the productive behavior-controlling functional relations can become established.

That process can be easy if common products are composed in a familiar mode. An example is the composition of an ordinary statement in one's native language.

The difficulty that often characterizes a more creative composition process usually results from limited prior conditioning that has left the productive behavior susceptible only to tenuous and largely undescribed environment-behavior relations, perhaps featuring very specific although unspecified environmental stimuli. The necessary kind of contact with those stimuli may require special arrangements or circumstances that must be contrived precisely, although what must happen in that process cannot be described accurately in advance. Thus, the composer must often act in the absence of relevant prescriptions, so the activity of creative composing tends to be characterized by much probing behavior.

A statement such as *Pete is peeling the wormy apple* may not exhibit current composition in any sense, as, for instance, when that statement is being read from text. On the other hand, composition is said to be involved if the verbalizer is contacting an environment that features certain elements that include Pete, peeling behavior in progress, an apple, evidence of worms such as worm holes or worms per se, and an audience that serves as the function-altering stimulus that renders all of the other elements evocative of descriptive speech. The final verbal product depends on some initial contacts with environmental stimuli. Let us suppose that, in this case, they are Pete, apple, apple peel, knife, worm hole, and the behavior of peeling. The descriptive statement is constructed around some raw tacts, mainly *Pete* and *apple*. There is also a minimal tact of the reality of these four events (viz., *is*). We may also include the tact of a process (viz., *peel*... in the verb sense).

These raw elements may combine in various verbal ways that respectively affect the behavior of a mediator, and, in addition to their order, the options depend on which autoclitics become incorporated (e.g., *Pete is peeling the wormy apple*; *The apple, although wormy, is being peeled by Pete*; *Pete peels the wormy apple*). Two-sentence versions include *Pete is peeling the apple. It is wormy*. Let us consider the initial version (i.e., *Pete is peeling the wormy apple*) and analyze the autoclitic elements within that statement.

First, consider the autoclitic *is*. Its manifestation in the statement occurs under at least three different kinds of functional control, which are said to share in its production.

First, the ...*is*... arises as a minimal tact of the reality of the events. That they are real as opposed to virtual is thereby asserted (i.e., as it is commonly expressed, a fact is being reported).

In addition to indicating reality, the ...*is*... also implies currency. That indicator of currency is controlled by the minimal tact of the ongoing occurrence of these events. That is, the sequential steps or elements of the sensations

(e.g., the private neural behaviors of awareness, recognition, etc.) are being evoked by discrete events in the external environment, as opposed, for example, to their occurrence through a private chaining process as when the events are only imaginary. Thus, while the *is* shares control by a temporal property of the events (i.e., their immediacy), the assertive *is* is under control of their general reality. In response to these autoclitic features of the statement, we can say, in common parlance, not only are the specified events happening now, they are also real events.

Thirdly, the autoclitic ...*is*... is also controlled in part by the relative strength of the controls on the tact *peel*. For instance, if those functional stimulus controls are sufficiently weak, they will tend to evoke ...*may be*... instead of ...*is*... (i.e., *Pete may be peeling a wormy apple*). This particular autoclitic function of *is* becomes more clear if, when doubt is cast about the peeling behavior, the speaker replies *Pete is definitely peeling that apple!* This response alludes to the range and strength of the controls on the tact *peel*. In the original sentence the collective evocative strength of those various antecedent controls on *peel* contributed an additional evocative increment to the total evocation of the *is*.

The ...*ing*, appended as a suffix to *peel*, is controlled by the process of removing the peel of the apple. The apple, its peel, and Pete are entities, but the scene is not a tableau in a wax museum. Something happens, and the autoclitic ...*ing* indicates to the listener that the speaker's statement is under the control of a process.

The control of the autoclitic ...*the*... inheres in the history of this particular apple in relation to the parties to this verbal episode. Although the details of that history are unspecified, this is not *any* apple; this is *the* apple. That is, while the ...*the*... indicates that this apple is distinguished from all other apples, the statement does not indicate *why* that distinction can and does now manifest.

The only relation may simply be the geometric relation between an apple and Pete's hand (this is *the* apple that he is peeling). In addition, the speaker and perhaps the listener may have responded previously to events in the history of this particular apple, in which case the autoclitic *the* also alludes to the relation between the apple in hand and those previous events in which it was involved. In that case the *the* indicates to the listener not only that Pete is peeling the apple in hand but that that apple is the same apple that is of some historical significance. In that function the *the* is a minimal tact evoked by an abstract property of this apple (i.e., certain aspects of its history). This is not just any apple, this is *the* apple (e.g., the 700 year old apple that William Tell, using a bow and arrow, dislodged from atop the head of his son).

In the sentence *Pete is peeling the wormy apple*, *worm* does not manifest as a complete tact controlled by the characteristics of a specific worm but is instead a tactual

fragment that is completed by the addition of an autoclitic ...y. That is, the fragment *worm...* is a tact of a subset of characteristics that are associated with worms and their products, while the ...y, suffixed to *worm...*, is an autoclitic of characterization that, in accordance with English syntax, functions to relate that set of worm-related characteristics to any tact that follows *wormy*, which in this statement is *apple*. The ...y... implicitly transfers a set of characteristics from worms in general to this particular apple—an important autoclitic function for a mere single-letter word-fragment. To determine “what the inclusion of this ...y... means,” we must observe the discriminative behavior of a mediator who is reacting to statements in which this autoclitic ...y... is respectively included and omitted.

As we have earlier noted, verbal composition can be a misleading phrase, because the verbalizer neither initiatively nor proactively does it (or anything else, for that matter). Rather, as with all behavioral products, the production merely happens under natural controls. That is, the functions in which composed verbal products appear as dependent variables are entirely natural relations. The naturally evoked behaviors of composition share in establishing those productive environment-behavior relations. The compositions that emerge have been made possible by what has usually been a long conditioning history that has put a wide variety of verbal utterances under the often subtle and respective control of a wide variety of often equally subtle environmental features. The naturally occurring behavior of the composition process brings those independent variables into contact with a body that has been conditioned (i.e., neurally micro-structured) to mediate the dependent behavioral products that are known as compositions.

The occasion for a verbal episode consists of the presentation of a set of those historically important environmental features to a verbalizer.¹³ Each of those various environmental features respectively controls an aspect of the verbal behavioral product, which then manifests with the forms and sequencing by which we distinguish the particular language of the verbalizer (i.e., English, Japanese, French, etc.). With the help of the supplementary autoclitics, members of the audience can respond with private knowing behavior to the environmental circumstances that have evoked that composition. That responding, which occurs naturally, is typically described as the listener's understanding of what the speaker has said.

Given a fixed antecedent stimulus presentation, the level of complexity that the verbal product exhibits measures the richness of the conditioning history of the verbalizer but does not imply that a successful analysis must deviate from naturalism. The discreteness of the stimulus control that is exerted by various environmental features over the respective elements of the verbal product controls our

description of the process as *composition*. In contrast, if the parts of a statement are not respectively controlled by discrete aspects of the environment, and the whole statement instead occurs in response to a single unified controlling stimulus, we may refer to that verbal product as a cliché,... a label that indicates that the statement did not require composition. To say that a statement was composed implies that the respective elements of the statement in question were under discrete stimulus control thus necessitating what is said to be their individual selection and their grammatical and syntactical arrangement in the form of a linguistically proper statement.

If verbal behavior is to occur in response to the presentation of a set of environmental features, among those environmental features must be a mediator. If verbal responding occurs in the absence of a mediator, it is subject to extinction. A mediator serves in part as a function-altering stimulus. Absent a functional mediator, a potential verbalizer typically does not engage in public verbal behavior even when contacting environmental stimuli that would otherwise evoke such publicly exposed verbal reactions. In that sense, the mediator functions as an on-off switch for the evocative capacity of the environmental events about which the verbalizer has been prepared historically to speak.

The role of a functional mediator does not always require a second individual. An example is provided when one talks to oneself. The body parts that speak are not the same body parts that respond to the transmission, but both sets of parts are constituents of the same individual. In such cases the kind of functional loop that often involves a remote mediator is completed within the same individual.

It is necessary that lone vocalizers have been conditioned by a verbal community to assume the role of the mediator for their own verbal behaviors. A person who matured in total verbal isolation would not talk to self although being physiologically capable of speech. Similarly, a dog, if suddenly bestowed surgically with a complete physiological capacity to speak English, would not begin suddenly to do so. The role-defining behaviors of both vocalizers and their mediators are products of the conditioning that is provided by verbal communities.

The verbalizer's history with mediators has prepared the verbalizer for the class of behavior that we call linguistic “composition,” and the verbalizer's history with the present kind of mediator has prepared the verbalizer to exhibit the specific arrangement of the current statement. When mediators are involved, their role as such is to affect the environment on behalf of the verbalizers to whose speech they are reacting, and the term *composition* pertains to the vocalizer's arrangement of the verbal stimuli that produce precisely those behavioral effects by a mediator.

Note, however, that while the verbalizer's statements each have a certain arrangement, those arrangements of linguistic elements do not occur because the verbalizer

has behaved proactively to produce sentences as if they were being composed creatively by a linguistic artist. That is, the verbalizer's statement does not possess its elemental forms and order of elements because the verbalizer is at that moment *composing* that statement to serve as an evocative stimulus for the mediator. Instead, the statement emerges with its grammatical and syntactic features because in the past those are the linguistic stimulus arrangements that have proven effective in the sense of having been reinforced by mediators, which thereby insures their higher probability on similar future occasions.

Most of what is true of the interactions between a verbalizer and a mediator hold for the relations between an author and a reader, at least to the extent that a textual product affects a reader in a manner similar to the effect of its corresponding audible version. However, text is an enduring product of the author's verbal behavior and makes possible an indefinite delay in consequating feedback from a future reader (which cannot occur until that person reads the text). Such a delay can quickly exceed the relatively short interval following a text-creating verbal response during which a potential reader-mediated consequence can exert an operant conditioning effect directly on the kind of behavior that created the text that was read. Operant conditioning requires rather immediate consequation for the authoring behavior of the writer who created the text that the mediator is reading.

Readers who read and respond to old text may still affect the author of that text if that author can still be contacted and thus remains capable of being affected by a reader. Technically, at this late date, the reader's current reactions consequate in an operant way not the author's original writing behavior but only the author's current behaviors of contacting the delayed feedback from the reader. If the current reactions of a reader are to have an effect on the author's writing behavior, that effect can manifest functionally not through the impossible operant consequation of ancient responses but through the arrangement of new antecedent stimuli for that author. Such newly arranged evocative antecedents include the current reactions of the reader to what was written long ago.

That is, in such a case, any effect on the author's future writing behavior must be accomplished through the incorporation of the reader's reactions into the evocative antecedents for the author's further writing. Those current reactions to what was written long ago must become part of the author's present or future writing environment. Observers, in retrospect, may say agentially that, in future writing, the author *took into account* the reactions of a reader to that author's earlier writings, but, more precisely, records of those reader reactions would have become part of the behavior-controlling environment in response to which the author proceeded to produce additional writing. Thus, a reader's reactions to text,

although coming too late to be part of an operant conditioning process relevant to the writing, may nevertheless become a part of the behavior-controlling circumstances under which that author's future writing occurs.

In this case, the author, upon completing the original writing, was not affected immediately by reader reactions. Thus, the author was not operantly conditioned by such reactions, which means that that earlier writing episode did not conclude with the neural microstructural changes to the author that result from the kind of extrinsically imposed reinforcement, punishment, or extinction procedures that readers can arrange for authors. However, if the author makes a much later contact with a reader's reaction, that reaction can function as an antecedent variable with respect to that author's future writing behavior. Those delayed reader reactions, having come too late to produce direct microstructural changes to the body of the author in the manner called operant conditioning, nevertheless share with other environmental aspects in exerting antecedent control on any impending writing behavior that that author-body may exhibit.

Thus, the delayed reader reaction that, being untimely, may fail in the role of operantly consequating stimulation and hence not result in the operant conditioning of the author-body, may yet affect that author's future writing in a different way—namely, by sharing in the antecedent functional control of that new writing. It is one thing when writing occurs with a body that was changed by operant conditioning during a previous writing episode and another thing when writing occurs again with the operantly unchanged body but under new circumstances that include some delayed effects of the earlier writing episode.

Current reader reactions to text that was written long ago may also have a respondent effect on the antecedent conditions that foster additional writing by the author. For instance, a favorable reaction may elicit an emotional arousal within the author that promotes more writing insofar as it reduces the evocative threshold of environmental stimuli that evoke writing behaviors. As this is often described, a person who becomes excited about writing as a result of encouraging reactions to earlier products will engage in new writing more readily than if unaroused.

Apart from how writing affects authors by way of remote readers, when an author writes, that author is typically the first and usually immediate reader. Textual stimuli that are contacted by their author most directly consequate the behavior of reading, but they also consequate any historically recent behavior of writing and do so in proportion to the recency. The fact that the reader has just written the text that is being read is irrelevant to the reinforcement function. Authors, upon immediately reviewing what they have just written, in many cases may be described as being pleased with it.

It has often been said agentially that authors write to amuse themselves, that they themselves are their most appreciative readers, and that they write to probe for any reinforcing things they may have to say. When the author is also the immediate reader, the cybernetic loop is at its tightest, because the reinforcing feedback occurs with maximal immediacy and directness. Because the author is usually the first and most immediate reader, the sharpest consequences of textual composition thus tend to inhere in the author's own reactions, and they usually occur with sufficient timeliness to have operant effects on the author's subsequent writing behavior, perhaps with a respondently produced emotional boost. This accounts for the fact that writers tend to compose products that are reinforcing for them to read, in some cases regardless of how those texts may affect other readers.

Autoclitic Verb Inflections: The Subtlety of their Natural Controls

A person's verbal behavior has many characteristics that can evoke that individual's own further discriminative verbal behavior. For example, we have discussed how people respond overtly to the covert nature of their private verbal behavior (e.g., an audibly vocalized statement *I am thinking about you*). In addition, people often respond to characteristics of the functional relations that control their behaviors, verbal or nonverbal. For instance, the currency of their behavior may evoke *I am running*. They may also respond both to the historical nature of their behavior (*I ran yesterday*) and to the environmental factors that determine the probability of their future behavior (*If flames erupt, I will run*).

In the case of a statement that is rendered in the present tense, the identification of the evocative stimuli by a listener typically presents relatively few analytical problems. For instance, when another person says *There's a car*, the generic tact *car* specifies the potential reinforcer for the listener. The car, as a behaved environmental construct, is said to be the stimulus that evoked the tact *car*. However, consideration of the car aside, it is in response to the phrase *There is...* that some looking behavior by the listener now occurs. The listener looks around in ways that, in the past, have resulted in car-seeing responses, and often, as a result of looking, a listener experiences the neural behaving that is described as *seeing the car*. The listener's car-seeing response is the basis for the listener's subsequent conclusion that the vocalizer's statement (*There's a car*) was valid. Obviously, the listener then *knows of the car* (as they say). That acquired knowledge on the part of the listener may then be interpreted behaviorologically in at least two ways: (a) that the listener has neurally behaved that knowing-type of neural behavior, and (b) any reinforcement that has been associated with that behaving has left in place some neural restructuring that facilitates reiterations of that knowing behavior.

However, as we turn our attention to the past and future tenses, the evocative stimuli for the specified activity that is cast in either of those tenses can seem more illusive. A statement such as *I ran yesterday* is often described as a *memory*. However, the independent variables often remain unidentified. Those functional independent variables must be present currently, because current behavior is evoked only by current stimuli. However, the body that is currently vocalizing in the past tense about its exhibition of running behavior is not currently exhibiting the running that is being described. The stimuli that shared in behaviorally defining yesterday do not leap forward in time to evoke the future behavior that shares in defining today. At best, they are links in chains of functionally determined events that account for what has become the current environment.

The behavioral events of yesterday produced, at that time, structural changes in both the body and its environment, ...changes that may remain in place to capacitate the current evocation of the statement *I ran yesterday*. For example, a current stimulus pertinent to running may now evoke a covert vision of yesterday's running episode, because the body has been left, since yesterday's conditioning episode, with the structural capacity to produce that kind of private seeing behavior in response to certain stimuli that may be contacted a day later. However, although triggered by a current stimulus (i.e., by an element of the current environment), the constituent events of that vision are out of context in the current environment as a whole. That is, the current environment does not evoke running behavior by the body's major muscle systems, but is evoking only some neural behavior in the form of visions of what are then interpreted as yesterday's running behavior on the basis of how they are being controlled.

The current evocative stimulus for such a visual review of a previous visual event need only trigger it and should do no more if an accurate neural reiteration of that past event is to occur. Often called a *reminder*, the current evocative stimulus need not have the detailed evocative capacities to produce the various elements of the vision. The reminder type of stimulus need only evoke most any element of that vision, and the previous pairing of that element with the others will result in the current manifestation of the relatively complete vision ...a vision that is rendered by neural body parts that, since their structural conditioning a day earlier, have been configured to reproduce that kind of vision-response with relative ease.

We are linguistically conditioned by our verbal community to speak of such visions, which are incongruous with the current environment, in the past tense, just as we are conditioned to tact them as *memories*. The affixes or other inflections of verb morphemes that indicate the past tense of the verbs occur in response to the kind of

controls that are now evoking the basic verb. For instance, as in the previous example, which featured a verb inflection with the *a* in *ran* replacing the *u* in *run*.

That conditioned grammatical nuance along with our subsequent responses to it, constitutes our *knowing* that such currently restimulated visions pertain to originals that have occurred in prior contexts. That is the essence of our sense of *past*.

Behaviorally, we exist only in our present, and current behavioral revisitations of our past are actually always new behaviors that are occurring in our present in response to stimuli that also are part of our present. Thus, the *reality* of the past is always necessarily a currently produced inference that is evoked by the kind of current behavior-controlling circumstance that is described in the preceding paragraphs.

Why some current running-related stimulus so readily evokes a new vision similar to a vision that occurred in the presumed past is not necessarily a difficult kind of question, at least at the theoretical level. It is answered by explanatory recourse to the physiological implications of the basic model of behavioral conditioning: Operantly, if the original vision of the running behavior was reinforced, that would have left the body reconfigured, at a microstructural level, to more readily behave in that way whenever an appropriate evocative stimulus is again contacted. Respondently, each behavioral element of the visionary episode, having been paired with others to form a sequential chain of events, tends to reoccur in the same sequential order during subsequent reiterations, ... again because of the preestablished microstructural basis for the sequential manifestation of those chains of related events.

Returning to the current example of the runner who is reporting on his or her own activity, we can summarize more precisely as follows: The current contact between this body and a running-related stimulus involves a running-related stimulus in contact with a body that since yesterday has remained microstructurally configured to readily reproduce an episode of visual awareness that is similar to the original version that was behaved yesterday. An envisioned episode now occurs in the presence of the current running-related stimulus that, by its very manifestation, defines the currency of the vision-type of responding that it is evoking. However, the context of the behavior in the vision that is now being evoked is not current—we say ... *not present*. By this we mean that the envisioned context would evoke behavior different from that evoked following current looking and other environment-sampling posturing of the body. That is, the environment that if contacted would evoke the behavior in the current vision, differs from the environment that is contacted through current attending behaviors. In common parlance, what one is now visualizing is not what one would be seeing if one were alertly to look around and pay attention to what currently is present.

The kind of ongoing vision or private seeing behavior that is discrepant with respect to the current environment, may then, partly on the basis of that discrepancy, evoke the statement *I ran yesterday*.¹⁴ When such a past-tense verb inflection manifests, it is a discriminative response to some current neural events that are now occurring in the environmental absence of most of the stimuli that would be necessary to sustain a real version of the envisioned sequence. That is, what has now evoked that envisioned activity is insufficient to have evoked the original version with all of its envisioned details.

In response to a current although isolated or fragmentary stimulus (often called a *reminder*), one may re-see or re-feel oneself running while, at the same time, perhaps reacting to one's currently nonrunning body as well as to an environment that does not currently evoke identical running, if any running whatsoever. Casting the description of the visualized running in the past tense is a response to that combination of factors. One such factor is a kind of fragmentary evocation that nevertheless proves sufficient to trigger the envisioned sequence. Another factor is the incompatibility between the behavior that is evoked by the visualized environment and the behavior that is evoked by the current extrinsic environment. The discrepancy may be extreme as when the visualized environment strongly evokes running, while the actual current environment has no capacity to evoke running.

However, even if both environments (i.e., the envisioned environment and the current so-called *real* environment) would tend to evoke running, a detailed analysis of the respective running will yield discrepancies. We do not run now exactly as we ran yesterday. Nor would the revisualized behavior-controlling environment and the currently visualized behavior-controlling environment be identical. That is, in the recalled vision one is seeing oneself running in an environment that would evoke the kind of running that is being envisioned, but it is an environment that differs, whether greatly or only in subtle ways, from the alternative environment that is seen when one exhibits inspection behaviors pertinent to one's immediate surroundings. We verbally distinguish among different times for an action (here, present and past) by responding with different verb inflections to such differences in behavior-controlling relations.

As described in common agential terms, if one snaps out of one's reminiscence and pays attention to what is currently happening, the behavior being recalled would be more or less out of place in the immediate situation. Given that those classes of responding differ, the test for the currency of the *remembered* behavior thereby fails, and the past tense rather than the present tense is more probable when describing it. If the envisioning also comes easily because the sequencing of the envisioned elements is already strengthened (presumably through pre-

vious conditioning) the past tense of the verbs becomes highly probable.

The person may explain what is happening by saying something like this: *I have been experiencing a vision of myself running in a realistic context. That vision has been evoked in a way that did not anticipate (i.e., prompt) its contents. However, I have also then contacted (a) the current state of my body and (b) the environment in which my body currently exists, and, when I did so, in the resulting inspection-induced vision my body was not running in either a manner or context that comports with the initial vision of myself running. Therefore, I am conditioned to regard the running in my initial kind of visionary episode as having occurred previously, and I have been conditioned to describe any such running in the past tense.* If one remembers running yesterday while running today, that situation would be subject to the same kind of analysis, but the distinctions to which the analyst would have to respond would be more subtle, especially if those two episodes of running were very similar.

Note, however, that the behavior of sensing the past is happening in the present and is actually evoked by current (not past) events. The behaviors that are commonly classed as memories, recollections, or remembrances occur exclusively as a function of current events (as do *all* behavioral reactions). That is, everything behavioral happens in the present, and we must account for our behavioral senses of both past and future in terms of present evocative events. A sense of the reality of the past, by its nature, is often said to be an abstraction that is derived from past tacts, visions, and other nonverbal reactions, that have accumulated, but those are all behaviors, which are processes, not entities, so they cannot really accumulate in a physical sense. They happen transiently and can have no enduring status beyond their durations. Thus, memories cannot be reiterations of stored behaviors.

When occurring initially, however, behavioral reactions to the environment, including tacts, result in consequences that physically change the structure of the body that has mediated that behavior of contact. Such a molecular-scale change in the neural system of a body renders that body more or less behaviorally susceptible to such contacts¹⁵ on similar future occasions. On such future occasions of contact with environments that share stimulus elements with the present occasion, the current kind of contact behavior, or a fragmentary version of it, may be re-evoked. However, that will be happening in a future context that differs from the current context. On such future occasions, it is that contextual disparity, between (a) currently re-evoked versions of earlier contacts and (b) ongoing contacts of current events, that will control the casting of descriptions in the past tense.

Thus, what is called *a sense of the reality of the past* is necessarily always a current behavioral manifestation. It

can be said that one *behaves* the reality of the past, but one must always be doing so in the present. Thus, the past can have no essence beyond current behavior and how it is being controlled. The so-called *reality* of the past necessarily inheres only as an artifact of current behavioral phenomena. *Past* is a current behavioral reaction to some currently encountered behavior-controlling relations and to the relations among those relations.

Upon analysis, these controls on verb forms may seem complex and subtle. Nevertheless, the autoclitic inflectional verbal behaviors that denote the past tense typically emerge with a natural ease, largely because one comes so often under contingencies to speak of the past that the necessary functional relations are strongly conditioned and kept so by one's verbal community. While an accounting for grammatical tenses as natural phenomena can quickly become complex, the contingencies under which tense forms occur are encountered frequently and are often important. As a result of the discrepancy between the ease of expressing appropriate verb forms and the difficulty of accounting for them, the intuitive grammatical skills of the members of a verbal community quickly outstrip the capacity of most members to provide a rational account for those skills. This discrepancy is superstitiously increased among people who presume that verbal behavior represents the manifest will of a mystical self-agent.

The statement, *I will run tomorrow*, must also occur under current stimulation. Future events, being virtual or potential, are necessarily unreal and cannot function as evocative stimuli for current behaviors such as the previous statement. An assumption that a future event is controlling a current statement is classed as a teleological error, a kind of mistake that was discussed early in this book.

To account for the current evocation of future-tense inflections, we must look to what we infer to be the past. In general, during past behavioral episodes of operant conditioning, we have experienced seeing-type responses that feature ourselves repeating behavior that on certain prior occasions was followed closely by contact with reinforcers. The occasions or circumstances were thus paired with the reinforcers that were mediated by the intervening behavior. Such previous behaviors were repeated on subsequent occasions when reinforcement was possible or probable, . . . a probability that was indicated upon recontacting the kind of antecedent events that were present in those prior contingencies of reinforcement. That is, we say that reinforcement is again possible and perhaps probable when we encounter stimuli that were present as antecedents during previous episodes of reinforcement. Given such present contacts with indicative stimuli but prior to any public behavior to which those stimuli may lead or with which those stimuli may prove to be associated, a privately envisioned episode may occur, . . . one that thematically features the kind of public behavior that

those stimuli previously evoked.¹⁶ A person's verbal description of such envisioned behavior is cast in the future tense. Thus, we note that current occasions to cast verbs in a future tense were responsively capacitated by the prior pairing of antecedent and consequential stimuli.

Suppose, for example, that I have had such a conditioning history featuring the reinforcement of running behavior. If currently I contact events that in the past have preceded, by about a day, the evocative stimuli for running, . . . current events that, after about a day, have in the past led to the presentation of stimuli that evoke running, I am conditioned to respond now to newly encountered versions of those precursory circumstances by saying something like *tomorrow, given an opportunity to run, I will run*. If I have not run recently, the capacity of those current stimuli to evoke such a prediction may now be stronger due to the effects of deprivation.

Those currently encountered running-related stimuli may also produce a visionary episode of running. Whether the envisioned episode shares in the evocation of the predictive statement or is merely a coproduction of the encounter with the circumstances that have preceded previous runs may not be readily discriminable if the vision and the statement occur at about the same time. The statement could be occurring under direct stimulus control of those precursive events or it could be a response that describes what is being envisioned.

If, instead of a history of reinforcement, one has had a history of aversive stimulation with respect to events now encountered, a corresponding analysis of the controls on tense forms can be made with respect to avoidance and escape behaviors. Let us consider the reaction of a person who contacts stimuli that have always preceded a reliably punished behavior. The person may then describe those stimuli as *threatening*. In addition to evoking memories of past sequences of behavior and its punishment, those currently encountered stimuli may also produce an envisioned episode and perhaps other kinds of sensations that feature one engaging in avoidance behavior that has not yet occurred because the evocative stimuli for it have not yet presented. Concurrent emotional elicitations may prepare the body to respond more robustly in these ways.

At issue is what controls the formal past-versus-future distinction in descriptions of imagined events. To date, little scientific progress has been made in the accounting for such distinctions. However, everyone readily distinguishes in linguistic ways between past and future, so let us now more sharply focus our examination of how that verbal distinction can emerge as a natural phenomenon.

Given a bout of neural sensations, let us identify the indicators of futurity that evoke future tense inflections in its description. In this example, we will stick with the descriptions of envisioned avoidance behaviors. Given evidence of an impending kind of aversive stimulation,

the envisioned avoidance behavior may take a familiar form that has never before been associated with what is a new kind of aversive stimulation, or it may represent a new combination of familiar avoidance behaviors in response to a familiar kind of threat. That is, the avoidance behavior featured in the current neural iteration may represent an old means of avoiding a new kind of threat, or it may represent a new set of avoidance behaviors in response to a familiar kind of threat.¹⁷ If one then comes under contingencies to describe the current situation, the description will be rendered in the future tense.

For example, one may say *Upon seeing that bully approaching, I am going to leave before he gets within striking distance*. In this case, the combination of (a) encountering this bully and (b) one's leaving the scene cannot be made to occur together in an envisioned episode as a result of mere triggering by a probing style of reminder (which would be true of a memory but not of a visionary prediction). The past conditioning of thematic coherence that would insure a currently chaining sequential progression of the envisioned events has not previously occurred. Instead, the independently strengthened thematic elements of the currently envisioned episode have come together as a result of a generalization process, the newly associated elements having been strengthened independently. As an alternative to chaining, the generalization process explains the combinational affinity of those thematic elements in the general envisioned response to the current threat. The ongoing process of generalization with respect to the envisioned episodic construct evokes indicators of futurity in the verb inflections of statements that describe that envisioned episode.

What, we may ask, is it about the generalization process to which we so readily respond with the verb inflections that appropriately indicate the future tense? Here we are talking about a generalization process with respect to the neural behavior of an envisioned episode. In a generalization process, a single property or a subset of properties of an evocative stimulus may occur as elements of a different stimulus, . . . a different stimulus that, because of those inclusions, can evoke the same behavior as did the initial stimulus. In the current example, all of the responses and most of what stimulates them are visual neural responses. The constituent stimulative and responsive events featured in the environment-behavior relations within such an entirely neural episode may be described as *virtual*.

In the case of envisioned behavior, such a new envisioned stimulus (the vision of this particular bully) may arise through thematically extraneous prompting or probing. One then sees oneself running from that bully. This emergence of an old visionary behavior (i.e., vision of oneself running away) being functionally controlled by a new stimulus (this particular bully in this particular

present context) evokes the future tense inflection in a verbal description of the envisioned episode.

In the present example, which features the neural behavior of envisioning in the absence of the things envisioned, a particular envisioned bully in a particular new context evokes one's envisioned departure behavior for the first time, because that bully shares properties with aversive people from whom one has previously escaped by running. The envisioned bully had to be evoked by stimuli that were thematically extraneous to the envisioned episode, but once the envisioned bully manifests, that envisioned bully shares properties with other stimuli that had taken the brunt of previous operant conditioning of a kind that rendered those stimuli aversive evocators of escape behavior. Those previously conditioned aversive stimuli were other people from whom it proved negatively reinforcing to run. The properties that are common to those persons and the current bully, although shared by accident, once again evoke the envisioned behavior of running away (this time, for the first time, from this bully). When the thematic integrity of an envisioned episode is being established through such a combination of controlling relations, the future tense is evoked in verbal descriptions of that envisioned episode.

In contrast, in a visualized episode of events that merely chain, the entire stimulus for one imaged event inheres in the preceding imaged event. That preceding evocative stimulus in any such chaining relation can be either the integral preceding visionary event or only some of its properties, but any such subset of evocative properties inheres in the preceding thematic scene within the envisioned episode (as opposed to occurring as elements of an extraneous stimulus). We tend to respond differently to the two discussed classes of control on the successive scenes in an envisioned episode. One such difference in our responding manifests in the kind of verbal inflections that emerge in verbal descriptions of the envisioned episode, . . . inflections that indicate either the futurity or antecedence of the described thematic events.

In summary, we note that in a memory of a past episode, the thematic elements and the sequencing of those elements is already strengthened, and during that memory the generalization process is not in effect. That integral episode of neural reiteration need only be probed enough to get it started, and it will continue to occur through a chaining process. That way of making the visionary episode happen evokes the inflectional indicators of its historical status in statements that describe its thematic content. Thus, when we describe the neural behavioral episode that is occurring in the form of a vision, the verb inflections that indicate tense are determined by the nature of the controls that impart integrity to that vision. How the thematic elements are coming together is the evocative factor for the verb inflections in a description of the neurally rendered episode.

The emergence of a particular tense-imparting verb inflection is often said to reflect the "intuitive knowledge" that an envisioned episode is either in the past or in the potential future. However, there is no knowledge (whatever that is mistakenly assumed to be) beyond the evocation of a particular verb inflection by some ongoing functional relations.

There may be additional factors that support this inflectional distinction. One possibility pertains to differences in energy consumption—a critical factor to which bodies are naturally prepared to react behaviorally in various ways. The stimulation for the visionary construct of the speaker running away usually requires more energy than the stimulation of a visualized reiteration of a previously reinforced neural sequence as is characteristic of a memory. The greater energy drain in the former case controls the typical observation that "it can be harder to imagine creatively than merely to remember." Speculating requires a level of ongoing if often weak self-prompting that tends to be unnecessary for memories (in which the sequential linkage is often already well established). Such a subtle difference in the energy drain may share in the antecedent control of the tense-indicating verb inflection (i.e., *I will run away* as opposed to *I ran away*).

The emergence of a tense-denoting verb inflection may also occur in response to one's own current contributions to the controls governing the thematic sequence of envisioned events that is being described. For instance, suppose the thinker has just emitted the self-mand, "what will I do if I meet that bully on the street?" Suppose, too, that the subsequently envisioned sequence of neural events features the thinker coming into contact with that bully and then behaving in some way. The bully functionally enters the envisioned episode via the speaker's own extraneous prompt, but once the bully becomes a prompted thematic addition to the ongoing virtual episode, that bully then evokes the virtual response of running away (through the previously discussed generalization process). The thinker cum speaker, having just prompted elements of the virtual episode to be described, is then likely to describe his or her own behavior in that envisioned episode with future tense inflections of the verbs. Those future-indicative inflections would emerge under partial control by at least two factors: (a) the future tense of the verb in the self-mand to produce a speculation that began this episode (viz., "what will I do if I meet that bully on the street?") and (b) the thinker's current thematic prompting of the envisioned scenario via that self-mand.

Such influences, characteristic of a speculation about the future, must not be permitted to happen if the prevailing contingencies favor an accurate memory. An accurate memory must be probed but not prompted.

Note that a *sense of antecedence* or a *sense of futurity* inheres in current circumstances. Those senses manifest

in the form of current statements being cast in the past or future tense. Antecedence or futurity is always a property of current behavioral products. The reality of past and future can manifest only as current behavioral phenomena, with the critical distinction inhering in the nature of the controlling relations. We behave our sense of future as we behave our sense of past, with both occurring as aspects of our present behavior. The essence of the distinction between past, present, and future (including tense-indicative inflections, and any other aspects of our so-called *sense of time*) inheres in some different ways in which some current behaviors are being controlled.

Let us conclude this section with a prison metaphor: One is confined within the prison of one's own behavior and serves a life sentence exclusively in the functional present. In behaviorological terms this statement translates as follows: *One is one's behavior and nothing more; one's sense of past and future consist exclusively of current and functionally controlled behavioral events.* In descriptions of these senses, their distinctions occur as different forms of autoclitic verbal behavior.

The General Role of Autoclitics in Verbal Behavior

Verbal behavior, in general, shares in the control of subsequent behavior, and as a result of the verbal component among those controls, the ultimate behavior tends to be more effective. That has been demonstrated often and in a wide variety of practical situations. The notion that verbal behavior contributes to the effectiveness of other behavior long ago became embedded in common wisdom. People generally assume that their behavior is more effective when their actions are guided intellectually (i.e., verbally) rather than merely intuitively (i.e., nonverbally), although fluent behavior that is effective precisely because it occurs under direct stimulus control is a widely recognized exception.

We have noted that the verbalizer and mediator are often represented by a single body, as when verbalizers speak or think to themselves, and we have noted that the general function of speech is not changed when the listener is the same person who is speaking. If only one individual is involved, the verbal behavior need not be rendered audible, because it can be contacted in a private internal way. The person in whom subvocal speech is produced is said to "hear" it privately, just as the person in whom a vision is generated is said to "see" it privately (although both the sound and vision, as neural behaviors, enter into whatever subsequent functions may follow without the mediation of the redundant self-agent who is said to hear and see).

However, regardless of who the listener may be, the verbal behavior that appears initially may have to mature in form and arrangement before it acquires the properties that enable it to share effectively in the control of subse-

quent behavior. In that regard, autoclitic enhancements play the important role of additional supplements that prepare the raw tacts, mands, and intraverbals to exert sufficiently effective control on the behavior of a mediator (whether the speaker per se or another person).

The autoclitic behavior consists of those verbal features that can be construed as talk about, or in response to, other talk (or more precisely as verbal behavior occurring under stimulus control of the relations through which other verbal behavior arises). The primary verbal behavior that evokes the autoclitics is environmentally controlled in the various ways that are typically characteristic of mands, tacts, and intraverbals. The autoclitics, which appear as special enhancing characteristics of such primary speech and as supplements to it, are being controlled by the nature of the functional antecedent and postcedent controlling relations through which that primary verbal behavior is produced.

Thus, autoclitics do not arise in isolation apart from other kinds of verbal behavior. We may come under natural contingencies to say *spoon* in isolation—for instance, as a tact, mand, or intraverbal. (A searcher, upon seeing a spoon, may say *spoon*; a person with soup but no spoon, may say *spoon*; and a person who hears *knife, fork, and...* may reply *spoon*.) However, we do not come under uncontrived contingencies to say *perhaps, the, ...ing, ...s, or some* apart from other verbal behavior to which such utterances pertain.

Before autoclitics appear, more basic verbal behavior must already be manifesting. Furthermore, a mediator must also be present whose behavior, from the perspective of the verbalizer, can be improved by verbal stimuli pertinent to the nature of the controlling relations that govern that verbalizer's basic verbal behavior. For instance, in the previous example of a verbalizer saying the word *spoon* in three different contexts, appropriate autoclitic enhancements of the utterance *spoon* would be different in the three cases, because the stimulus controls on the utterance of *spoon*, to which those autoclitics would respectively pertain, are different.

The appropriate response of the mediator would also differ in each case, and the verbalizer's differing autoclitic supplementation of the basic utterance *spoon* would be responsible for those differences in the reaction of a mediator. For the utterance of *spoon* as a tact, mand, or intraverbal response, possible respective autoclitic supplements would be *There is a...*, *Please pass the...*, and *...is the correct completion.* The verbalizer's conditioning histories for these three different sets of autoclitics would have involved the establishment of specific kinds of control over the behavior of mediators—control that was exerted by those respective autoclitics. The respective autoclitically determined reinforcing responses by those mediators would have involved (a) attending to the

spoon that evoked the verbalizer's tact, (b) passing the spoon to the verbalizer, and (c) arranging that the verbalizer contact some sort of generalized reinforcer.

The complexity and subtlety of the controls on autoclitics can tax a person's intuitive sense of nature. Even among natural scientists, many remain reluctant to concede that such verbal behavior in response to other verbal behavior can occur exclusively as totally controlled (i.e., inevitable) functional reactions, as must all natural events. In some cases, that reluctance to rely exclusively on a natural account is because the personal natural philosophy of those "natural" scientists does not apply beyond their own nonbehavioral specializations, leaving them vulnerable to superstitious interpretations of behavioral phenomena.

In other cases, support for that reluctance to treat autoclitic verbal behavior as a natural phenomenon is sought among concepts of unpredictable variance, chance, randomness, chaos, and probability. However, the concepts in that domain pertain fundamentally to human behavioral limitations and consist of conceptual tools by which to remain effective in spite of those limitations. They are not concepts descriptive of the fundamental nature of nature, but instead allude to the fact that natural events often occur so rapidly and prolifically that they exhaust the human capacity to monitor and measure.

Thus, concepts of unpredictable variance, chance, randomness, chaos, and probability pertain to human conceptual devices by which to circumvent complexity and do not support a logical assault on the requirement of environment-behavior function in the production of any and all behavior. As it is sometimes expressed, the fact that nature often works too fast for people to keep up with it reflects a shortcoming in people and certainly does not imply that nature can get unnatural. Instances in which enthrallment with those conceptual devices has carried to such extravagant conclusions illustrate part of the cost to the scientific community when behaviorology is absent from the basic natural sciences in which members of the general scientific community are grounded.

The controls on autoclitic verbal behavior are often subtle and resist analysis, even with respect to the familiar verb inflections that respectively indicate antecedence or futurity. This section only hints at the magnitude of the task of converting the study of language from a structural to a functional kind of accounting. But language consists of verbal behavior and its products, and a substantial increment of progress in the study of language awaits that transition. Such a shift in how language is analyzed has had to await the emergence of the relevant basic natural science, but with the emergence of behaviorology the analysis of language can transcend certain limitations imposed by the traditional way that language has been studied.✻

[Part 4 continues in the next issue.—Ed.]

Footnotes

- ¹ In nature, whatever *can* happen, *does* happen. In a natural world, terms of probability are evoked by the speaker's insufficient contact with the environment, not by some intrinsic environmental vagary. If an event does not happen, it could not have happened. In contrast, superstitious perspectives on events often posit a mystical agent that mediates the relations between independent and dependent variables. That fictional agent can deign to allow or disallow the manifestation of any dependent variable. The notion of an agential willpower replaces the concept of natural function. Such an assumption then renders logical various practices of appeal to that arbiter on behalf of favored outcomes.
- ² Note that the fragmentary utterance in this example functions as described here only if the word *look* is uttered without audible emphasis. In that case the listener tends to respond as if the term is descriptive of the speaker's searching behavior. If the term *look* in the same uttered phrase is audibly emphasized, the listener tends to respond as if mandated to participate in the search. This inflectional distinction reveals another kind of autoclitic. As with all kinds of autoclitics such an emphatic inflection reveals a certain kind of control over the statement in which it occurs. Although the same words are spoken in both cases, in one case the speaker is merely explaining his or her actions; in the other case, the speaker is telling the listener to help search.
- ³ In a sentence of this kind, the term *speakers* does not refer to proactive self-agents but merely to the bodily entity by way of which the dependent behavioral variables can manifest in certain behavior-controlling functions. A speaker is thus a body that is reacting in a certain natural way under the functional control of certain features of its environment. In the case of a descriptive autoclitic response, the body is reacting verbally to aspects of some of its other verbal behavior.
- ⁴ The aspect of a *relation* that can function as a behavior-controlling stimulus consists of the reliable sequence of real events that supports the inference that a functional relation exists between those events.
- ⁵ Often, it is not the whole listener that is functional in this regard but only certain characteristics of the listener. For instance, the kind of descriptive autoclitic that indicates the controls on the speaker's basic statement may occur if, but only if, the listener exhibits an incredulous facial expression in response to the basic statement. A gesture as subtle as a raised eyebrow may be sufficient for the speaker to repeat the basic

statement, this time with the addition of the autoclitics that indicate its evocative controls (e.g., *A police officer said that the parade is starting now*). Note that the listener, in managing the consequences of the speaker's utterances, assumes the role of a mediator.

⁶ This statement does not suggest that a person can respond to past events but rather that a person can respond to the current effects of past events. Past events leave changes to the body, often subtle, and it is to such after-effects that one can be conditioned to respond. In cases like this, those changes may be molecular and neural. An observation such as "*she knows what she has done*" is an allusion to that kind of lingering effect and a current response to it.

⁷ On terms: Note that the term vocalizer in this paragraph is defined simply as a speaking verbalizer, ... a definition that in the context of the presented example implies that the substitution is valid. If the example had featured a pair of deaf individuals who communicated in sign language, *verbalizer* and *mediator* would still be correct, but not *speaker* and *listener*.

⁸ Discussion of the quantifying autoclitic with respect to changes in the intensity of a behavior raises the old issue of whether a change in the intensity with which a behavior manifests represents a change to a different behavior. That is, can the same behavior manifest with different intensities, or do different intensities imply different behaviors. However, during considerations of the quantifying subclass of autoclitic verbal behavior, that distinction is usually dismissed as esoteric.

⁹ During a copper shortage in the middle of World War II the United States minted a small number of pennies made of a silver colored alloy that contained no copper.

¹⁰ People whose job is to fill orders from warehouses or supply depots form a verbal subcommunity the members of which routinely exhibit this language of categorization, which relies on such syntactical reversals of order. That reversed order represents a relational autoclitic that comports with the logic of the categorization scheme for the stored commodities. A mediator who is mandated to produce socks, wool, brown, size II has thereby been provided with the order of search along with a specification of the item to be delivered. In contrast, consider the mention, in the more standard conversational order, of *size II brown woolen socks*. That form would have the necessary search pattern backwards if the behavior of the mediator were to come under control of it as a search-prescriptive relational autoclitic.

¹¹ The adjective *difficult* in such a statement is a response to the degree of fatigue that is associated with the relatively high energy consumption of private neural activity.

¹² Recall that the behavior-controlling environment includes all real events on both sides of the skin. Thus,

from the perspective of a mediator, an environmental event can be an utterance by a remote speaker, an utterance spoken by that mediator (who is also hearing it), or a private neural behavior within that mediator who then reacts behaviorally to it.

¹³ When such presentations are arranged by the verbalizers themselves, we say that they are thereby engaged in composing. The "composed" product is thus teased out by arranging the stimuli that inevitably will evoke it. Note, however, that those behaviors of composition, which arrange the necessary stimulus presentation, also occur naturally in response to aspects of the situation. Those functional relations too are subject to behaviorological analyses. Such analytical sequences account for the activities traditionally assigned to the spiritual muse and render it progressively redundant.

¹⁴ The past tense of a weak verb is produced with a suffix by which the verb is inflected to indicate the past time of the action (e.g., *picked*). An alternative kind of inflection, characteristic of strong verbs, indicates the past action of a verb through a change in the form of the basal morpheme of the verb (e.g., *sang* instead of *sing*, *was* instead of *is*, or [as in the current example] *ran* instead of *run*).

¹⁵ Note that the term *contact* really refers to a behavioral reaction. *Contacts with...* manifest as *behavioral reactions to...* As will be further explored in a subsequent chapter, the reality of the environment, as determined by our contacts with it, is an inference (i.e., a subsequent kind of behavioral reaction) that is based on prior behavioral reactions that presumably were evoked by an *environment*. Thus, our own behavior is necessarily as close as we can ever get to the reality of what we call "our environments."

¹⁶ The phrase *public behavior* alludes to the fact that that behavior produces sensations in other people as well as in the body that exhibits it. The phrase *private behavior* alludes to the fact that the behavioral events produce sensations only in the body that is exhibiting that behavior. Those sensations constitute the person's firsthand knowledge of the behavior that that person's body is exhibiting. In the current example, we are talking about visual sensations. Note that a behaving person's awareness of the behavior that its own body exhibits is a neural behavioral response to that episode of behaving (in this example, the seeing kind). A body behaves its own self-awareness.

¹⁷ Recall that, if the current neural behavior is entirely a restimulated rendition of a prior one, it is called a *memory* and described using indicators of the past tense. If, on the other hand, it features a composite of behaviors from different earlier episodes that have never occurred together as an integral episode, all evoked

by a current event that, in the past, has preceded punitive stimulation, one describes the avoidance behavior as impending insofar as the future tense is evoked. The forms that indicate futurity are thus controlled antecedently by a current event that restimulates neural reiterations of past behavioral reactions that originally occurred as parts of different episodes. An example is when, in response to a current event, one imagines one taking some composite action the elements of which have, in the past, occurred on different occasions. What we call *different past occasions* are discriminatively distinguished as different on the basis of how elements of current neural behaviors (called *recollections*) are being controlled.

References

- Fraley, L.E. (2004a). On verbal behavior: The first of four parts. *Behaviorology Today*, 7 (1), 10-20.
- Fraley, L.E. (2004b). On verbal behavior: The second of four parts. *Behaviorology Today*, 7 (2), 9-36.
- Skinner, B.F. (1957). *Verbal Behavior*. New York: Appleton-Century-Crofts. Reprinted, 1992, Cambridge, MA: The B.F. Skinner Foundation. ☺