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Foreign Language Testing, Part 2: Its Depth

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THIS second installment of a two-part essay discusses the theoretical underpinnings of the pragmatic approaches to language testing recommended in the first part (Oller, "Foreign Language"). Here we examine a philosophy that shows why methods emphasizing holistic approaches to language through sensible experience work better than the bit-by-bit, discrete-point, surface-oriented approaches that tend to neglect meaning. I reject the notion that everything about language acquisition (FL testing included) is so complex that no coherent theory will ever be found.

Classic Pragmatism

Language teachers are generally encouraged by a school of philosophy that shows why methods of language teaching and testing that take meaning into account work better than those that neglect it. That philosophy is termed *classic pragmatism* (for selected articles and a review see Oller, *Language and Experience*). Among its best-known scholars we find Charles S. Peirce (1839–1914), Albert Einstein (1879–1955), William James (1842–1910), and John Dewey (1859–1952). Even Ferdinand de Saussure (1857–1913), Jean Piaget (1896–1980), and Bertrand Russell (1872–1970) embraced some of its tenets. Though many predecessors contributed to its development, Peirce, the American scientist and logician, gave us the philosophy and its brainchildren "pragmatics" and "pragmatism"—which, according to Peirce, were later "kidnapped" by James and Dewey. Interestingly, Einstein independently expressed the same overall outlook as Peirce.

While many foreign language teachers see philosophy from afar—on account of the daily demands of the classroom—most of them realize that the surface orientation of modern structural linguistics is incomplete. Leonard Bloomfield overemphasized surface forms of speech—phonemes, morphemes, and so on. More recently, early Chomskyan linguistics brought syntactic structures into focus. But good language teachers knew that language teaching must address the deeper purposes of language in representing and sorting out experiences. Richard-Amato and I give a partial chronicle of the battle against meaninglessness in the language classroom in *Methods That Work: A Smorgasbord of Ideas for Language Teachers*. Among the other authors who have fought the good fight are Emma Marie Birkmaier, Mary Finocchiaro, Stephen Krashen, H. Douglas Brown, Wilga Rivers, Sandra Savignon, Earl Stevick, and Rebecca Valette.

Some writers of the 1990s say that language teachers are still searching for a theoretical framework in which to place the many so-called communicative orientations of the previous decade. So far, some say (e.g., Spolsky, *Conditions*), no one has articulated a sufficiently rich and adequately developed perspective. Personally, I believe that Peircean pragmatism provides a foundation for such a perspective. The goal, as I see it, is to find a *coherent* (self-consistent, comprehensive, and simple) theoretical framework that can make sense of the grocery-list eclecticisms (of which Spolsky's *Conditions* is a prime example) that have served as substitutes for theory in much modern writing on the subject of nonprimary language acquisition and teaching. While some advocate a top-down ("hypothesis-driven") approach to theory building and others a bottom-up ("data-driven") approach, classic pragmatism suggests a dynamic, interactive approach that works both ends against the middle.

Data without theory to define them are a hodgepodge of nonsense, and theory without connection to data is empty. Why not put the theory to the test in practice? Why not see what is happening in cases where language acquisition really occurs (especially in classrooms)? Meantime, let's trash the notion that the data might be put into the driver's seat or that theory can ever be

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"pure"—uncontaminated by experimentation. Theory without testing leads to insanity (as Dewey said long ago), and practice without theory is blind wandering. Therefore, we should trust our intuitions and refine them. We'll also do well to ignore the ever-popular lip service that otherwise rational authors (e.g., Gregg; Spolsky, *Conditions*; Gardner) offer at the shrine of complexity: "Oh, but the problems are so complex, there can be no one theory that explains them"—this, in learned tones with furrowed brow. However, a more simplistic excuse for not seeking a coherent theory cannot be imagined.

To stand, the argument from complexity must be construed as a permanent, absolutely monolithic, all-encompassing theory. It can be summed up as the theory that "no theory will do." A more self-contradictory solution to the touted complexity of language acquisition, teaching, and testing cannot exist. The simplest theory in the world is that anything of interest is complex, and saying so is saying nothing at all. It adds no useful information. It makes no distinction in ordinary experience. Noses are complex, eyeballs are complex, corneas and lashes are, molecules are, atoms are, motion is, space is, and so on. To offer a theory of language use and language acquisition that puts linguistic phenomena in the same general class as noses, gases, motions, and space is to propose no theory at all. Nor is it a very great advance to offer a grocery list of seventy-four conditions that are said to interact in ways that are left mostly to the reader's imagination (see Spolsky, *Conditions*).

Pragmatic Language Tests

Nevertheless, just as grocery lists are distinct from other inventories, we can learn from looking at different kinds of language teaching and, as I argued in the previous installment, testing. The differences can give clues to the mysteries of interest. In fact, a whole genre of language tests has existed for a long time marching to the beat of a different drum and defying the cadence of structural linguistics. These pragmatic language tests, a collection of oddities to the structure-oriented theories, answer to a better but lesser-known theory. As a result, even some of their erstwhile advocates waffle from one position to another (e.g., Spolsky, "Fourteen Years Later," admits confusion about what he meant in prior quotations of himself).

Pragmatic tests have included certain applications of dictation, translation, cloze, oral interview, essay writing, narrative, dramatization, and the like. For these testing techniques, no linguistic theory worth speaking of existed until the relatively recent advent of "text linguistics," "discourse analysis," and "pragmatics"—terms that are now popular in a growing literature, though they have a wide range of accrued meanings. "Linguistic" pragmatics, incidentally (as contrasted with the recommended variety of classic pragmatism in the writings of Peirce), narrows the subject matter almost beyond recognition—this, in the grand tradition of attending to the details of surface form until meaning vanishes.

Because of the emphasis on surface form, for instance, linguists long despised the pragmatic technique of dictating a portion of text, conversation, or discourse and asking students to write it down. This technique was not a good one, according to the discrete-point theory that prevailed throughout the structuralist era. Some said a dictation could not test words because the teacher "gave" the words in "giving" the dictation. It could not test sounds since the sounds were also "given." They were uttered by the teacher. Difficult sounds could be identified by context. Dictation could not test syntactic patterns since these too were "given." Some said dictation was just a test of spelling. Others said it was merely a test of one's ability to write fast. In the end, by this line of thought, it was a lousy test.

However, the theory, or rather the whole genre of surface-oriented theories, that served as the basis for these complaints was wrong. It wasn't really bad as far as it went, but by being incomplete it led to absurdly false conclusions. It emphasized surface form as if there were nothing else. It stressed sounds, words, and syntactic patterns but neglected the deeper pragmatic aspects of language—its purposes, its connections with experience, and its deeper organizational basis. The surface-oriented theories neglected the fact that language use is merely a manifestation of the deeper intellectual capacities of human beings. Language use is a manifestation of intelligence itself. The surface-oriented theories failed to see that phonemes, morphemes, lexical items, and syntactic patterns per se are merely aspects of the clothing that makes language public. Indeed, even notional-functional approaches of the late 1970s and 1980s fell into much the same trap. All of them failed to take the world of experience very seriously.

As a result the surface-oriented linguistic theories led to the false conclusion that the process of hearing utterances and converting them to written text was quite mechanical; therefore, dictation was not a good language-testing procedure, nor could it be used as any sort of instructional tool. By the same token, the surface-oriented types objected to oral interview. Unless the interview were structured so as to focus on particular bits and pieces of surface structure—certain phonemic contrasts, morphological elements, syntactic structures, and lexical items—it was no good. Similarly, a cloze test based on a passage of prose (deleting every fifth word, say, and asking students to replace the missing items) could not be a good test since it did not conform to the preconceived ideas about someone's peculiar grocery list of important surface elements. The same objections came up with respect to essays, reading tasks, translation, dramatization, narration, summation, theme expansion, question answer-

ing, improvisation. They were questionable procedures to apply as language tests.

Still, flying in the face of the prevailing theories, all these pragmatic testing approaches worked very well in practice. They proved reliable and valid, and the results they generated consistently defied explanation by the discrete-point, surface-oriented theories. Why did these procedures work at all? Oddly, almost any language teacher could see why they *had* to work. They *had* to be more or less valid. In fact, such procedures could not logically be any less valid than the texts on which they were based. The test activities had to be at least as good as the discourse tasks they employed were authentic. The best argument was not a statistical one but a straightforward practical understanding of how language use normally links up with experience. Teachers who used dictation and a host of other discourse-processing tasks understood that to write down a dictation, or to fill in the blanks in a text, or to interpret and retell a story in one's own words, or any number of similar tasks, students would have to understand the meaning of the texts in question.

Good language teachers understood that this was not *merely* a question of knowing fifty thousand points of surface structure (as was recognized by Simon Belasco). But neither did they, as some theoreticians now propose ("Let's just forget about how they say it, ignore the errors, and enjoy the meaning!"), disregard entirely the role of surface forms. As Peirce showed with irrefragable logic, representations must have a distinctive form. Speaking Russian "in saaventeen languages" (as Roman Jakobson playfully admitted doing) has its shortcomings. Again, as Peirce argued, speaking a language is conforming to the particular norms (including the idioms, accents, and surface forms) of a community. Good foreign language teaching and testing has always taken surface forms seriously.

But good language teachers (as well as superb language learners like Jakobson), unlike narrowly focused structural linguists, also understood that sensible communication in any language requires going *beyond* the surface forms to the deeper intentions and understandings of interlocutors. The students must put themselves in the shoes of the other person (while at the same time keeping track of their own identities and viewpoints as well as those of others) so as to experience vicariously what the other person experienced or, at least, to understand that person's view of the text as a representation of something beyond itself. The good teacher has always understood intuitively that sensible language use is more than *merely* the faithful production or reproduction of any finite list of surface forms of speech or writing.

Pragmatic Mapping

Good language teachers understand implicitly what Peirce called *abductive reasoning* or what I like to refer to as the *pragmatic mapping* of text into experience (see Oller, "Semiotic Theory"; chs. 1 and 2 of Oller and Richard-Amato, *Methods That Work*). As the theory of pragmatics has been developed and applied in a range of language-use, -teaching, and -testing settings, it has become clear that authentic language use *always* involves a linking of elements of text (speech included) with the ongoing stream of experience.

While many have said in ponderous tones, "There is no one theory of language acquisition," here is a theory that defines the sine qua non of language acquisition. It tells why some methods work and why others fail. The learner must perform the pragmatic linkage of meaningful texts in the target language to his or her own experience. Without access to well-equilibrated pragmatic mappings of target-language texts, language acquisition cannot occur.

Of equal importance to the kind of data provided is the learner's perception of himself or herself as really needing to understand and make use of the target language to such an extent that he or she in fact does so. Saying that one is motivated to acquire a language means nothing if it does not motivate active participation in the process of pragmatically linking texts in the target language with the learner's own personal experience. Merely being exposed to pragmatic mappings of target-language texts into someone *else's* experience will not be sufficient. The texts must be actively and successfully mapped into the learner's *own* experience.

A Simple View

I can be more explicit about pragmatic mapping. It is the articulate, dynamic, interactive process of connecting facts with text, or experience with language. Figure 1 pictures this tensional integration.

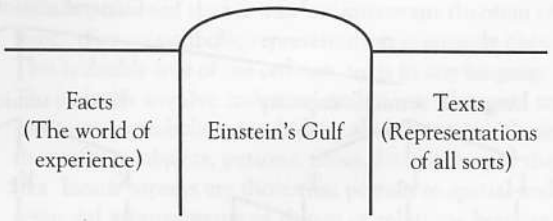

Fig. 1. Pragmatic mapping

In 1941, Albert Einstein commented on the difference between the world we know through our senses and the means by which we express and understand it:

> We have the habit of combining certain concepts and conceptual relations (propositions) so definitely with certain sense experiences that we do not become conscious of the gulf—logically unbridgeable—which separates the world of sensory

experiences from the world of concepts and propositions. (Qtd. in Oller, *Language and Experience* 25)

The problem is the connection: how are we able to link representations with the world of experience?

Looking back to the use of dictation as a language-testing procedure: if the dictated text is uttered at a conversational rate in bursts of three to seven words (or more) so as to present a challenge to short-term memory, for literate persons dictation is an effective way to test ability to comprehend the spoken version of a given text. If the text is not correctly understood (i.e., pragmatically mapped into the right sort of experiential context), then all sorts of errors will appear. Sounds will be incorrectly heard—for instance, *correct* may be heard as *collect*, *right* may be heard as *rate*. Consonants and clusters of them may be distorted or omitted. Morphemes such as tense markers, plurals, and possessives may be omitted or inserted in places where they do not or even cannot occur. Words may be omitted, distorted, or inserted where they did not occur. Syntactic structures may be altered in highly creative ways. Even topics and whole texts may be systematically changed by the hearer. For instance, one foreign student converted a passage about *brain cells* into a text about *brand sales*. All this shows that pragmatic mapping necessarily involves a creative, generative aspect. Apparently what the learner does is to translate (or interpret) one semiotic form (in the case of dictation, speech) into another (writing).

In fact, much more is involved. If the dictation, for instance, concerns a narration about experienced or imagined events—such as skiing down a mountain—then just those experiences or imaginations come into play. However, in order to work up the right sensorimotor representations, the person taking the dictation (i.e., interpreting the spoken text) has to translate it from the target language into a deep semiotic representation that can then be linked to sensorimotor images pertaining to the narrated events. That is to say, all meaningful interpretations involve an interaction between distinct systems of representation or semiosis. Interpretation, by this Peircean view, is always a matter of translation between distinct semiotic systems.

Ordinary, sensible use of language involves a richer hierarchy of systems than could have ever been imagined by the shallow-thinking proponents of surface-oriented approaches to language analysis, not to mention teaching and testing. We may picture some of the additional complexity in terms of a hierarchy of semiotic systems as shown in figure 2. The hierarchy expands on the pragmatic-mapping process of figure 1. After sketching the hierarchy, I will show how it explains certain pragmatic testing techniques.

A Hierarchy of Semiotic Systems

Figure 2 shows a hierarchy of three distinct kinds of representational capacities: sensorimotor, kinesic, and linguistic. At the deepest level of the postulated hierarchy of semiotic systems is an abstract and general system for representing meanings. If such a deep and general system did not exist, we could not explain how we can talk about what we see. This point is made by Ray Jackendoff. That is, there must be a deep representational system that mediates between what we see and what we say. Otherwise a person telling a story about personal experience would not be able even to recall the sequence of events that occurred, much less portray them so the per-

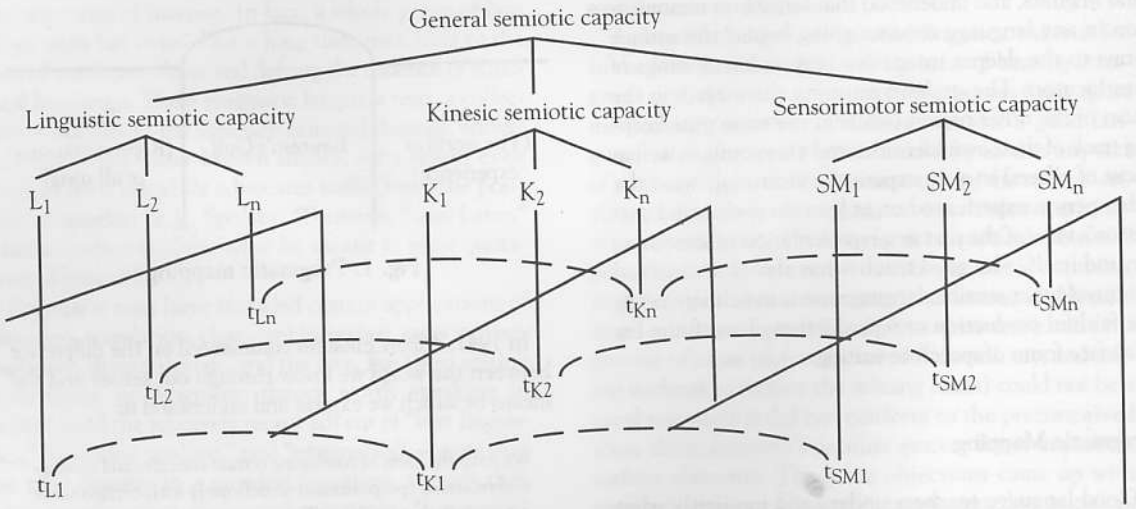

Fig. 2. Different kinds of semiotic capacities

son listening could imagine anything similar. Yet no one seriously doubts that we can do these things.

Sensorimotor Representations: The first kind of semiotic system—the one that generates sensorimotor representations—relates more or less directly, and iconically, to the facts of experience. Someone skiing down a mountain not only represents the terrain ahead in a continuous flow of images (contrary to the claim of John Searle in a public lecture at the University of New Mexico that he "just skis without representing anything") but also represents his or her body postures as well as internal commands for motor adjustments. Without such representations it would be impossible to explain the volitional control of the body to accommodate the changing terrain. The skier feels (i.e., represents in sensorimotor fashion) the skis, movements, the slope, the texture of the snow, and more.

As Peirce showed, sensorimotor representations are analogues, copies, or icons of the facts they represent, and as such they are degenerate. If a person looks away from an object, its image quickly fades. Details are lost or may be wrongly reconstructed in the mental picture. In fact, it is this degeneracy of iconic representations, it seems, that forces us to depend on more abstract means of representation.

Kinesic Representations: The second type, kinesic, or gestural, representations are different in several ways from sensorimotor ones. Kinesic representations, such as pointing with the index finger (or the lower lip, as Navajos do) or brandishing a fist, are conventional and arbitrary to some extent but involve iconic (analogical) elements. For instance, a brandished fist suggests the act of punching someone. The potential victim is singled out for attention. The gestural act, therefore, has an iconic relation to throwing a punch but an indexical (or deictic) relation to the person to whom it is addressed. Even more so than icons, indexes are apt to acquire meanings different from the ones iconically suggested. For example, the brandished fist may become a sign of solidarity. Peirce contended, however, that indexes are "reactionally degenerate"—that is, it is problematic, without help from some other semiotic supports, to tell what is pointed at, whether the brandished fist signifies a threat or solidarity, whether a smile is genuine or feigned.

Linguistic Representations: The third kind of representations pictured in figure 2 are linguistic. These in contrast to the other types achieve a higher level of abstraction and greater potential validity. While sensorimotor representations are iconic (analogues of what they mean) and kinesic representations are always indeterminate without other semiotic supports, linguistic representations are typically more abstract and more determinate. For example, there is little doubt about the meaning of the proposition "humans are mortal" (in any language). But whether a certain act of pointing is aimed at this object or that is always doubtful unless determined by other semiotic supports.

Because of their abstractness and their virtual independence of contextual determination, unlike sensorimotor icons (visual, auditory, or other images), symbolic representations are not qualitatively degenerate. That humans are mortal is a representation as good today, tomorrow, or next year as it was yesterday, or seven million years ago. But compare a recollection of a reflection in a mirror that fades quickly. Or consider any act of pointing where the object pointed out may be difficult to discern. While it may be difficult to say just who is waved at in a crowd, propositions like "humans are mortal" or "cars are used for transportation" (or any number of similar linguistic representations) have a relatively more determinate meaning.

Further, unlike icons or indexes, linguistic symbols (propositions and texts) may be used to represent any imaginable, or even unimaginable, idea whatever. Linguistic forms ultimately depend on sensorimotor representations of nonlinguistic states of affairs (e.g., factual or fictional contexts), as well as indexical or deictic relations (e.g., pointing or naming or referring). Therefore, they are ultimately contaminated with the same kinds of degeneracy associated with icons and indexes respectively. Nevertheless, in theory at least, they have a potential for an indefinite and unlimited increase in determinacy (of a nondegenerative sort). This potential is absent from mere sensorimotor or kinesic representations. For this reason, Peirce reserved the term *symbol* for abstract propositions or texts as found in natural languages. The "symbol" he saw as "the relatively genuine genus." It contrasted with the "icon" (a mere copy or image) and with the "index" (a sign that represents something by pointing it out).

Peirce claimed that it was "an important theorem of logic" that no symbolic representation is entirely pure. This is doubly true of the ordinary texts in any language. They always involve indexical and iconic elements in addition to symbolic ones. Indexical elements are those that refer to objects, persons, times, locations, and the like. Iconic aspects are those that pertain to spatial and temporal arrangements of things or relations between them. Metaphors have a sort of iconicity.

Particular Systems and Their Texts

Having defined the three kinds of semiotic capacities—linguistic, kinesic, and sensorimotor—that are subordinate to the general semiotic capacity in figure 2, I still must explain the terms subordinate to them. Under linguistic semiotic capacity, an ability that Chomsky (e.g., in Piatelli-Palmarini) claims is innate and species-specific to

human beings, come terms that correspond to the grammars of particular language systems, L_1, L_2, through L_n. These systems, to the extent they are not already specified by innate knowledge of universal grammar, must be acquired.

Each specific language system in its turn corresponds to a class of textual representations in experience, t_{L1}, t_{L2}, through t_{Ln}. These latter terms stand for the texts of the primary language, the second language, through the nth language. For monolinguals, there is no L2 (unless distinct dialects are counted as languages, as they probably should be). The same sort of hierarchical arrangement is hypothesized under kinesic semiotic capacity. Although this capacity is not entirely species-specific to human beings, the innate and universal kinesic capacity dominates (or branches into) a plurality (or at least a potential plurality) of subordinate acquired systems. Each of these subordinate systems dominates a class of texts (sequences of forms) in experience, and these tend to be loosely tied to linguistic texts.

For example, English speakers are apt to accompany the statement that a certain person is about "so tall" with a corresponding gesture, palm down, hand extended. In different cultures different gestures may be used. More important, research shows that the sequence of gestures is delicately coordinated with the sequence of linguistic forms and meanings. W. S. Condon and W. D. Ogston showed that this is true not only of the speaker but also of the audience. The body movements of both appear to be under the control of the "same puppeteer" (as Condon and Ogston put it). As a result of this delicate coordination of linguistic with kinesic and sensorimotor texts (indicated by the connected dotted lines of fig. 2), ordinary language use involves a rich interaction among the several systems named, and no doubt others could be added (e.g., music, art, mathematics).

Sensorimotor capacity also has innate aspects. There is no question that much of our ability to perceive the world and our body as part of it is innate (Bower; Piatelli-Palmarini). However, every normal person operates in ordinary experience by so many routines and patterns that it would be impossible to estimate how many distinct sensorimotor systems an ordinary individual possesses. In fact, such systems, being iconic as they are, are probably represented even by the brain in holistic ways. While we may think of them alternatively as continuous wavelike affairs or as grammatical systems consisting of distinct rules relating inventories of elements, probably the first metaphor is better for sensorimotor representations. At any rate, there are sensorimotor programs for almost every imaginable aspect of routine experience (e.g., chewing gum, brushing your teeth, grooming, dressing, driving a car, riding a bicycle, playing basketball, going to class, giving a talk). Each of these routines is divisible into subroutines of indeterminate variety. Peirce suggested the metaphor of a triangle dipped gradually at one of its tips into a liquid. The liquid would always define a continuous, unbroken line in its contact with the triangle. Such a continuum is infinitely divisible regardless of how deep or shallow the dipping of the triangle.

To the extent that sensorimotor programs can be described as rule-governed systems, they are like grammars of natural languages. They also have their own texts, t_{sm1}, t_{sm2}, and so forth. For instance, our ability to recognize a game of basketball and to distinguish it from a tennis match, or to distinguish either of these from a boxing match, is dependent in part on our knowledge of the corresponding sensorimotor systems. But none of these knowledge systems is the same as an actual game of basketball, or tennis, or a particular boxing match. Yet the general rule-systems underlying the particular manifest forms (t_{sm}'s in fig. 2) are at least as different from one another as are their diverse "textual" manifestations. Sensorimotor texts, in their turn, are also coordinated in ordinary experience in delicately articulate ways with kinesic and linguistic texts.

The Hierarchy and Particular Tests

Focusing, then, on the language part of the semiotic hierarchy, and more specifically on some one particular language system—say the language we are trying to teach or learn—it can be viewed in a variety of ways. We may think of the capacity to use a particular language as a composite of components of knowledge: for example, pragmatics, semantics, syntax, lexicon, morphology, and phonology. This sort of view is shown in figure 3. Or, another way of viewing knowledge of a particular language is in terms of distinguishable skills: for example, listening, speaking, signing, interpreting, reading, writing, and thinking, as shown in figure 4.

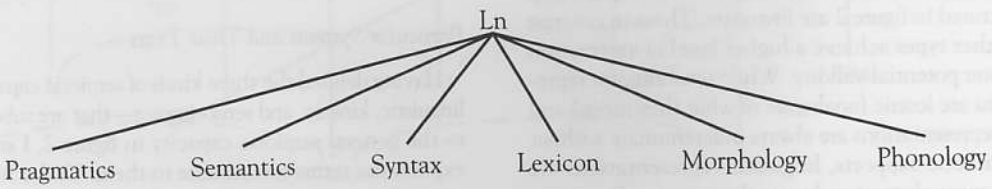

Fig. 3. Language proficiency in terms of domains of grammar

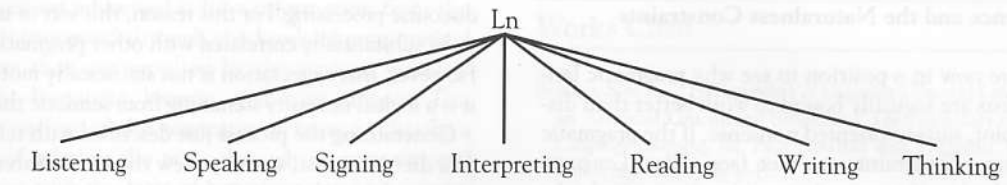

Fig. 4. Language proficiency in terms of modalities of processing

While many debate the virtues of one or the other of these descriptions (and many others besides these), it is clear from a semiotic perspective that the various alternatives are complementary ways of looking at the same thing. It is an error to regard them as competing with one another. Nor do they exhaust the ways of viewing language capacities. Language capacity may be viewed from many different angles, and with each new angle, new facets come into view. It is a truism (and a trivial one) to say that language is a complex phenomenon and that its countless intricacies are difficult to capture from any one vantage point. Some of those who resist theoretical commitments plunge eagerly into the pit of endless analysis. They would prolong analysis infinitely by producing longer and longer grocery lists. There are, they say, at least this many potential skills, subskills, components of subskills, subcomponents of components, elements within subcomponents, subelements of elements, and so on till death do us part from our analysis. There is no logic to support such an approach, but those who are willing to attempt it will necessarily object to holistic procedures of the sort embodied in pragmatic language tests.

The Theoretical Basis for Pragmatic Tests

All logic converges on the theme that language holds the potential for coherence. This coherence is possible both in spite of the complexity of language and at the same time because of it. The potential for coherence (see Oller and Jonz), if nothing else, suggests that there *must be* some unity among the countless elements that are intrinsic to language capacity. The intrinsic interrelatedness of all the parts is at least as undeniable as the fact that countless parts must be admitted to exist. Were it not for this interrelatedness, it would be impossible to provide any determinate interpretation for any text, since all the parts regarded separately are of indeterminate meaning. A simple phonetic sequence such as [rɛd] (or pick any feature, sound, syllable, word, phrase, or other element you like in any language you like) is, by itself, of indeterminate value. It could be *red* or *read* or even *led* or *lead* (as spoken by someone with any of a dozen Asian or other accents). Even if we are sure of the phonological interpretation of the phonetic sequence (and we cannot even be certain of the language without context!), we still would be uncertain of the lexical form intended.

But suppose we could narrow it down to the word *red*. The meaning remains uncertain. It could appear as a noun or as an adjective. It could be an abstract adjective as applied by Tom Clancy in *Red Storm Rising* or a concrete attributive as in "Dave's redheaded wife." But there are many other possibilities, and till we have some determining context, the form is uninterpretable. It has no determinate value. Unless the interpretation of a given linguistic form is carried all the way to the world of experience (by pragmatic mapping), even a bit of linguistic, purely verbal context will not supply a determinate interpretation.

For instance, to someone who has not read Clancy's novel, met his characters, lived through their collective experiences, and so on, the title *Red Storm Rising* is relatively uninformative. Or, for anyone who does not know that I really do have a friend named Dave with a redheaded wife, the phrase "Dave's redheaded wife" also remains of indeterminate value.

The word *red* in either of these cases could, in the absence of further context, be understood to mean something very different from what is actually intended. For instance, how could an interpreter know that red in Clancy's title does not refer to the color of a desert storm, or that of a fire, or that of a rain storm at twilight? Or in the case of the "redheaded wife" that her hair was not the color of a bright red drawing in a cartoon, or of some fluorescent dye, or of blood, or burgundy wine, or a dozen other things?

Only the limits of our imagination and our ties to ordinary experience prevent us from supplying an infinite array of other possible interpretations (though some of the analytically inclined would joyfully undertake to list them). Moreover, this indeterminacy of meaning is entirely universal. Unless textual relations with experience are established, their indeterminacy can never be removed: no settled, well-equilibrated, appropriate, correct, true interpretation of any text could ever be achieved in any language whatever. That is to say, coherence is achieved only by the pragmatic mapping of textual elements into the narrative-like ebb and flow of tensional relations in ordinary experience. Even fiction requires such a mapping, or else it will remain, quite literally, as John Dewey put it, fantastic beyond imagination.

Coherence and the Naturalness Constraints

We are now in a position to see why pragmatic language tests are logically bound to work better than discrete-point, surface-oriented nonsense. If the pragmatic naturalness constraints are met (see Oller, *Language Tests*), that is, if pragmatic mapping is required (the *meaning* constraint) and if it is done under normal time limits (the *time* constraint), a test such as a dictation, a cloze task, an essay, or a question-answer exercise will necessarily engage the semiotic apparatus of the learner (provided the learner actually does the task and takes it seriously). If the requisite conditions are met, then, through the test we may get a glimpse of the relative efficiency of the learner's developing grammar (in the target language). Of course, it follows that the test will be no better than the text on which it is based. The test cannot be more coherent or more authentic or more natural than the text the learner aims to comprehend, reproduce, or invent.

A procedure that allowed the learner to stop and look up every word in a bilingual dictionary, for instance, would fail the time constraint. It might not be a totally useless exercise, but it would not be a very good indicator of the learner's ability to do what speakers of the language in question can do. A dictation that involved the presentation of one word at a time, bounded by pauses, *would* devolve into a mere spelling test of some sort. But what about a dictation or any other test that meets the naturalness constraints? I would like to suggest that *any* such test will ipso facto (*to that extent*) be a valid test of language proficiency.

In the case of a dictation, provided the text is presented in long enough bursts to challenge the learner's developing short-term memory, correct processing will depend on the learner's ability to anticipate and interpret the target sequences. The auditory presentation (see the first branch of the language subhierarchy shown in fig. 4) must be interpreted in terms of the several domains of structure suggested in figure 3. The phonetic input must be identified as pertaining to a particular language system.

From there, it may be supposed that efficient language users employ parallel processing in all grammatical domains more or less simultaneously. Guiding this multiple parallel processing (see Rumelhart et al.) from the top down will be some hunch as to what the text is about (an initial hypothesis about its pragmatic relations to experience). From the bottom up there is the perceived auditory form of the elements of the text as they impinge over a time span. From the middle outward toward both ends are the more specific parsings that determine lexical identities, phrase structures, and the like. All this is carried on over time as the learner transmogrifies the spoken text into a written form. This process—taking dictation in a foreign language—involves much of the normal complexity of any other mode of discourse processing. For this reason, this sort of task has to be substantially correlated with other pragmatic tests. However, this expectation is not statistically motivated: it is a logical necessity stemming from semiotic theory.

Generalizing the process just described with reference to a dictation test, we may view the entire interactive semiotic hierarchy as an information-processing system. Within this generalized model it will be possible, in theory, to characterize any language-processing task and to differentiate many hypotheses pertaining to specific elements of each one. Moreover, the theory will be subject to improvement and modification as more is learned about specific language-processing tasks whether they are viewed as tests, instructional procedures, or something else.

Pragmatic Mapping as Information Processing

Another way of viewing the pragmatic process of linking representations or texts of various sorts with the facts of experience is given in figure 5. As in the case of all the preceding views, this one too is subject to reinterpretation and revision. No claim is made as to its completeness. It is merely a metaphor. At the center is what is termed immediate awareness.

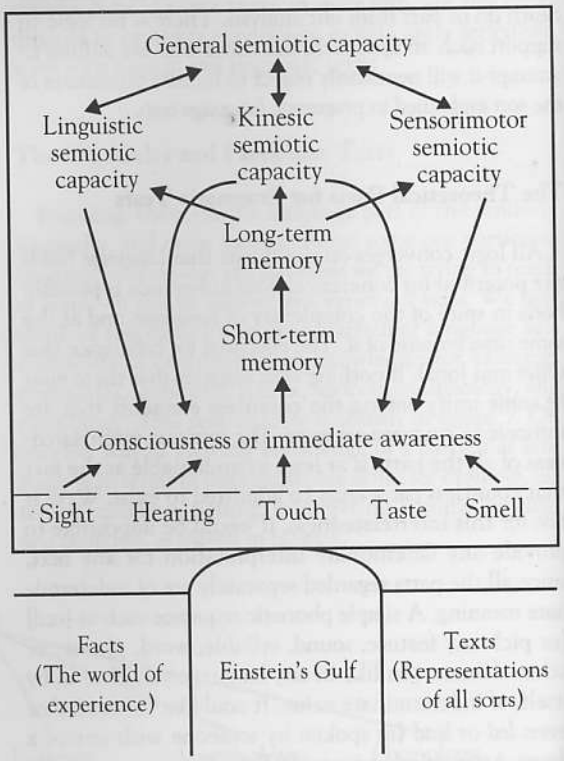

Fig. 5. A modular information-processing expansion of the pragmatic-mapping process

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The question addressed is how information from the senses is processed through the kinds of grammatical structure that are supplied by the various semiotic systems—linguistic, kinesic, and sensorimotor. The determination of the meaning of texts is chiefly a matter of relating the texts through representational capacities with the facts of experience and vice versa. As new texts or representations are processed, they are fed into short-term memory and possibly from there into a longer-term memory. Consciousness and memory, together, then, may interact with particular semiotic systems so as to result in modifications of them. Presumably, this is the primary basis for the acquisition of the conventional aspects of semiotic systems.

Since the question will inevitably come up, it may be well to note that fiction, insofar as it is actualized in imagination, achieves a factual status. This status involves everything but the existential commitment to the material and physical reality of the fiction per se. The fictional text itself, however, like text of any sort, already has a factual status. For texts, however, to acquire status as texts, they must be interpreted. (A text never interpreted is no text at all.) From the viewpoint of the originator (the logical and grammatical viewpoint of the first person), a text is interpreted as it is produced. From the vantage point of an audience (second person), as soon as the text is perceived as being addressed to the second person, it is subject to either interpretation or rejection. From a disinterested third party's vantage point (third person), a text is merely another complex fact of experience. The point of all this is to establish that, as Bertrand Russell eloquently proclaimed, texts are facts (whether they are fictional, factual, uninterpretable, or nonsensical).

Turning again to dictation as a means of assessing language proficiency: the distortions that commonly appear in the written renditions of learners could not occur if taking dictation were a strictly mechanical procedure, where all the surface elements were simply "given," as some structuralists claimed. Nor is it possible on the basis of naive structuralism to explain parallel distortions that sometimes occur in the speech and writing of the same students in a variety of tasks. For instance, distortions that are seen in a dictation protocol are apt to appear as well in spontaneous conversation, elicited imitation, translation, reading aloud, a written essay, a narration, an improvised or memorized part in a drama, or any number of other performances. It seems that language users really do invent and internalize generative rule systems, as Chomsky and others have consistently maintained. The relative efficiency of such systems is what language tests ought to measure. The systems themselves are what language teaching should instill.

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