

**Critiquing English Language Models of External Reality:
Notes On A Transformational Grammar Model of College Teaching**

December, 1976

Draft: Comments welcome

Private circulation
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Teaching encompasses a series of processes designed to be of service to other people in at least three ways: the first process is simply providing information about a given subject (what are the formal steps by which a bill goes through Congress? What is the structure of Gödel's theorem? What is the authoritarianism syndrome proposed by Adorno et al.?). The second process is to expand empathy with other people and practice gaining it with oneself. The third process, which concerns me here, is teaching students how to think scientifically, how to analyze well.¹ A major part of this third process is teaching students how to construct and assess models of external reality using an ideal model of well-formed positivistic science, and the following framework is designed to account for how this typically is done as a teacher responds to communications from a student.

The Model

Let us consider a communication from a student to involve one explicit component, the manifest communication or Surface Structure, and two implicit components: an unexplicated Deep Structure or map of the world which underlies the manifest

¹ By emphasizing the development of a well formed positivist Deep Structure for statements about external reality I do not mean to imply that it is the most important of these three functions. In fact I think that the capacity for empathy is probably more useful, satisfying, and important for a social scientist. Unfortunately, I know of no systematic work on this teaching problem. Some people maintain that scientific method alone will produce accurate empathy, but I suspect this is wrong. See Michael Polanyi, The Tacit Dimension (Garden City: Doubleday, 1966) and Personal Knowledge: Towards a Post Critical philosophy (New York: Harper and Row, 1962). I have treated the intuitive knowledge of the principles of transformational grammar as a given capacity of the teacher but clearly a capacity for empathy is required in the inference process I describe.

communication; and the student's experience (including his knowledge of factual data and conceptual alternatives) which forms the Deep Structure.²

Deep Structures or maps of the world are represented in Surface Structures (explicit communications) by a process of transformational grammar, a set of rules, understood by each native speaker, for generating well-formed sentences of equivalent meaning. For example, the following Surface Structures can be equivalent transformations of a common Deep Structure:

- The Russians threaten America.

Russia threatens America.

The Soviet Union threatens America.

- America is threatened by the Kremlin.

America is threatened by the Soviet Union.

- The Soviets are basically hostile to American interests.

² A pioneering and stimulating application of a transformational grammar to therapeutics and models of inner reality is Richard Bandler and John Grinder, The Structure of Magic (Palo Alto: Science and Behavior Books, 1975). Similar points are made in a critique of thinking allegedly fostered by literary critics in Robert E. Lane, The Liberties of Wit (New Haven: Yale University Press, 1961). I am using a highly simplified adaptation of the language of transformational grammar see, e.g. Noam Chomsky, Aspects of the Theory of Syntax (Cambridge: M.I.T. Press, 1965).

- Soviet leaders threaten American security.

Given the intentions and military capabilities of Russian elites, I think we live in a dangerous world. etc.

To put the model in the form of a diagram, we can think of what occurs in the following way (Diagram 1:

What I propose is that the process of teaching students to think in the social sciences can be modeled as involving the teacher in a three-step process which a good teacher executes instinctively and almost automatically. Specifically, what a teacher does is to:

(1) Apply his intuitive knowledge of the rules of transformational grammar to a student's Surface Structure to infer the student's Deep Structure;

(2) Compare the student's Deep Structure with a model of an ideal Deep Structure which he has in his own mind;

(3) Devise an appropriate response (his own Surface Structure) which will incrementally transform the student's Deep Structure so that it will more closely approximate the form of his ideal Deep Structure as he has learned it from the positivist social science tradition.

Let me take an example from actual practice. I once heard

Diagram 1: A Simple Model of

Student Communication

Surface Structures (manifest student communication)

Student application of

transformational grammar rules



student experience



Deep Structure (latent student map)

the ex cathedra judgment:

Freud's influence on the Twentieth Century has been conservative.

Hearing the Surface Structure, a teacher will combine it with his other knowledge of the speaker to infer the Deep Structure underlying this assertion. For example, in this case I inferred that this speaker's Deep Structure probably looked like this (Diagram 2):

The teacher next compares the Deep Structure of the speaker to an ideal Deep Structure which would meet the positivist science criteria as a well-formed Deep Structure for the statement. In the present case such an ideal Deep Structure would include:

- a.) referential indexing of all key concepts,
- b.) appropriate sampling across the relevant population;
- c.) explicit rules of causal inference which in principle could falsify the assertion and which ideally should assess the probability of Type I and Type II errors and consider, and then rule out or control for, plausible alternative explanations.

In general form, then, a simple ideal positivist social science Deep Structure one would try to teach would look like this (Diagram 3):

In the case of the Freud sentence the teacher may suspect,

Diagram 2

Surface Structure: Freud's influence on the twentieth century

Deep Structure: It is my opinion that Freud's

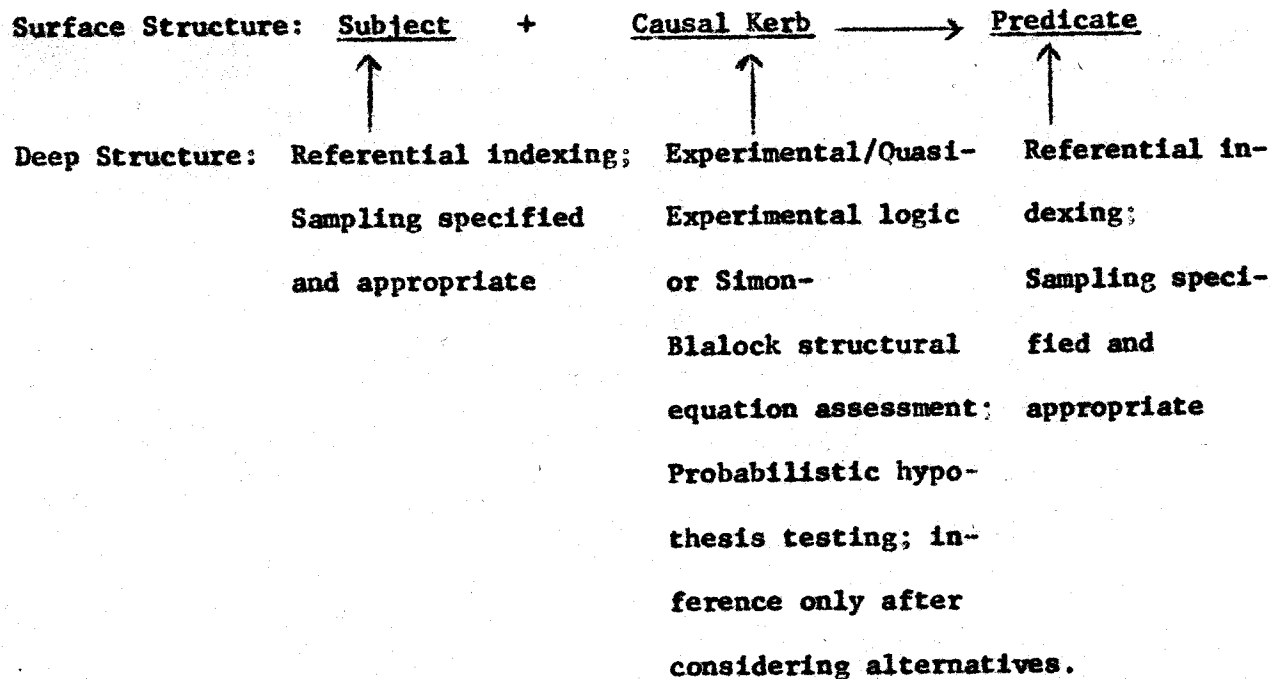
- a.) influence on me if I simply believed him; and
- b.) other people are like me except they would be trapped by Freud's view of the world.

Surface Structure: has been conservative.

Deep Structure: a) Freud's main tenet was that man's instinctive satisfaction must be inhibited to maintain civilization;

- b) People who believe this tenet will become conservative;
- c) Modern societies are repressive (conservative).

Diagram 3



to his dismay (as I did), that the Deep Structure of the speaker was almost totally in a different world from the Deep Structure of positivist social science. He can test this inference about the speaker's Deep Structure further by questioning the student, but he will eventually face the strategic decision of how to challenge the Deep Structure he infers to begin the educational process of enrichment of reality assessment. In the present case he will have a wide range of alternatives:

- he can challenge referential indexing (e.g. "Can you name some people who have been substantially influenced by Freud's ideas? ");

- he may challenge the implicit sampling (in this case a typical mind-reading generalization from the student's own experience) (e.g. Do you think everyone who reads Freud is influenced in a conservative way? Some people probably take Freud's message to be that society is too repressive. Rogow in The Psychiatrists finds, for example, that most American psychiatrists and psychoanalysts are politically liberal.), or

- he may challenge the simple associative reasoning masquerading as causal assessment (e.g. There have been a lot of things going on in the twentieth century. How can you be sure Freud has produced the trends you observe?).

Any of these challenges (and there are many other possibilities) might, in principle, begin the slow process through which the student is led to enlarge the rational adequacy of his own Deep Structure.

Let me return to an earlier example, an undergraduate who asserts the Surface Structure:

The Soviets are basically hostile to American interests.

And let me assume we infer a Deep Structure as follows (Diagram 4):

Again, the present model asserts that in the process of education the teacher characteristically is less concerned with the truth or falsity of Surface Structure than he is with the well formedness of the Deep Structure of the student. In this second case, as well, he has a variety of strategic options: challenge of referential indexing to promote the development of this intellectual function (e.g. Who, specifically, in the Soviet Union is hostile? What American interests, where, are being threatened specifically?); challenging of sampling and hasty generalization (e.g. What actions or words by them lead you to believe they are hostile to American interests?); challenge of the pseudologic ("I feel threatened, therefore they re basically hostile) of causal inference (How do you know they are basically hostile and not just scared?).

Probably the most pervasive interaction, however, is not dialogue (or its equivalent of teacher comments on student papers) but the more confused process of class discussion. Rather than tell students directly how to think, teachers stimulate discussion, allowing students to respond to one another's assertions, develop their own critical faculties, and gradually evolve toward an implicit understanding and deeper appreciation of the positivist model of the well-formed Deep Structures that

Diagram 4

Surface Structure: The Soviets are basically hostile to American interests.

Deep Structure: The image I have of the

scares me

Soviet Union

promote rational processes of agreeing on causal statements about social and political reality.³ This undergraduate intuitive understanding will later be codified explicitly in a graduate Concepts and Methods course for those who desire to think in a positivist social science way as a career.

That Surface Structures typically are a transformation of Deep Structures; that different people have different unexplicated Deep Structures; and that a teacher is trying incrementally to catalyze the evolution of student Deep Structures toward a scientifically acceptable model help to explain the fits and starts, discontinuities, and confusion of classroom discussion. It is only on the surface that people seem to be communicating about exactly the same subject. They are, in part, strangers, divided by different competing Deep Structures beneath their common language.

That good teaching is more concerned with nurturing well-formed Deep Structure than with the manifest content of Surface Structure in the specific sentences a student speaks also clarifies another element of teaching practice, the concern with providing a variety of new experience and conceptual alternatives, for example in the form of assigned reading. Particularly with undergraduates it may be the case that many are too unsure of themselves to have any Deep Structure for a given set of issues. Thus the first step is to build Deep Structures as a preliminary to challenging them constructively.

³ I do not mean to endorse this practice of indirection.

Reprise

There are several distortions of a well-formed Deep Structure which are often manifest in Surface Structures: I have discussed three:

inadequate referential indexing.

-generalization from the self (i.e. mind reading, intuitionism; inadequate sampling of external reality).

associative "plausible" thinking as an inadequate causal assessment technology for external reality.⁴

There is one other distortion I want to mention: nominalization or, in more familiar terms, reification - representing a process as a noun. A number of my recent papers treat the problem of nominalization/reification within a social control framework (e.g. Hypnosis and Order, hierarchical imagination encoding of citizen-government relations) and argue that it is a key inhibitor of social change and personal growth and I will not repeat the evidence and argument here. My experience with social science textbooks and courses is that they are just terrible at freeing students from nominalizing tendencies, so I cannot claim the present model is accurate about teaching practices in this respect. Briefly, you probably have a Deep Structure nominalization whenever a noun in the Surface Structure could be represented by the alternative phrase the

⁴ My two examples both involve the process of displacement Lsswell refers to, although more is probably involved than simple displacement of motives. See Harold D. Lasswell, Psychopathology and Politics (New York: Viking, 1960).

process of _____.⁵

For example, it would probably free students somewhat if we stopped referring to American government, and referred to the process of American government, to the process of law rather than "law," to the process of power rather than to power. The dissolution of nominalizations, an especially important part of psychotherapy, alters (by creating more sense of freedom, engagement, efficacy, and flow) an individual's intra-psychic experience of him-/her-self and the world. But, since most social systems are stable and have linguistic/nominalization processes that support and reproduce this stability, the de-nominalization of Deep Structures in ordinary teaching is unconventional and, unfortunately, linguistically awkward.

One final comment: obviously there is much about teaching which is not clarified by this model (e.g. see the previous 14 models for other parts of the variance). But one element of teaching practice which deserves attention is the crystallization of Meta Structures which integrate across a range of Deep Structures. Thus, after hearing a series of student Surface Structures, a teacher may discern a common theme and supply the

⁵ An alternative test is that true nouns will not fit the blank in the phrase "an ongoing _____" so that decision, government, law, anxiety, fear, count as nominalizations of processes whereas material objects (rock, tree, chair) do not.

The point is experiential, not just a word game. Thus the process of government refers to a simple image of people acting and speaking in certain ways with certain symbols in place of the experience of a reified entity. See Bandler and Grinder, op.cit., pp. 74-80, and the discussion of enlightened maturity in Etheredge, Optimal Federalism: A Model of Psychological Dependence, Policy Sciences (in press).

student with a key vocabulary term to bridge and integrate the underlying the series of Surface Structures (e.g. You seem to think the world is a pretty Machiavellian place, You seem to believe the pluralist model of American politics. . .)⁶

⁶ See Robert E. Lane on morcelizing tendencies of belief systems in his Political Ideology: Why the American Common Man Believes What He Does (Glencoe: Free Press, 1962).