

LANGUAGE ASSESSMENT AND PROGRAMMING:

A DATA COLLECTION SAMPLE

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A DATA COLLECTION SYSTEM FOR THE TRAINING
AND ASSESSMENT OF A VERBAL REPERTOIRE

The verbal operant constitutes the most complex form of human behavior. An experimental analysis of such behavior is dependent on an accurate observation and measurement system. It has always been quite difficult to measure human language because few knew exactly what to record. The obvious seemed to be its audible products - the spoken phoneme, word, or sentence. However, these data did not seem to explain why men speak, or say what they say, or say it in given ways.

What seems to be missing in a topographical analysis of language is data concerning the circumstances under which the behavior occurred, as well as its consequences. B.F. Skinner, in his book Verbal Behavior (1957), provides a theoretical account of how such circumstances seem to control and alter the verbal repertoire. The following data collection system is designed to account for all the different types of controlling variables which Skinner describes, as well as the specific form or topography of the response. The system will allow trainers to gather and assess data for each trial, session, day, week, month, and year. These data will provide the necessary information as to the effectiveness of your specific independent variables. They also provide a cumulative record of the verbal operants which provide for even more accurate assessment. Specific verbal objectives can be established (e.g., Fred will mand the function of ~~two~~ new stimuli each day at 100% accuracy for three consecutive days, within thirty days) and criterion can be assessed by use of this system.

This data collection system is still in the pilot stages, and we will

continue to recycle and expand as the data come in. The authors encourage questions and comments and especially data which will improve our current technology for analyzing the verbal operant.

Preliminary Observation Sheet

Careful observations prior to the teaching of a verbal repertoire are necessary for designing an individualized program. These observations in the natural environment will provide the necessary data for selecting a more functional vocabulary for the student. The data sheet contains columns for the recording of topographies that will later be used in training.

The data of interest are: 1) the objects and events which appear to function as reinforcement for the person (e.g., food, water, tickle, pop, car, ball, ride, lights, music). A possible assessment of effective reinforcers would be to set up a choice situation in which a display of items (e.g., toys, games, foods, etc.), are presented to the person allowing him to choose any item that he wants. Record the selection, randomize the items, add new items, and allow the person to make other choices. This could be done at various times throughout the day. Another method would be to record the person's response rate, for example, on some motor task (e.g., ring stacking) using different items as reinforcement. Then select items which resulted in the highest response rate and they should provide the basis for your first group of words (approximately 5 to 10 words should be used). Then select objects (5-10) within the immediate environment of the person (e.g., table, chair, book, cup, paper, pencil). Next, select actions (5-10) which the person frequently engages in, or observes (e.g., stand, sit, jump, walk, run, open, close). These should constitute the first 20 to 30 words that should be taught.



the modeled response. If the person vocalizes a sound other than the presented model it should be written and if no response is emitted a zero should be placed in the box. The stimulus presentation is, "Say ___."

Vocal Probe II - No Model: Immediately after the student vocally imitates the modeled response of Probe I the tester should present the stimulus "Again" without supplying the vocal model to be copied. The sheet is scored the same as the model probe.

Vocal Probe III - Combination: This probe is used for sounds/phonemes that were incorrect or where no response occurred in Probe I. The tester may use a combination of different stimuli (e.g., gross motor movement, a vocal model, increased voice intensity). Scoring is, again, the same as that described in Probe I.

Vocal Topography Sheet

In vocal languages, the most basic component is a distinctive speech sound, or phoneme. In English there are 42 phonemes, but various combinations of these phonemes permit thousands of different words to be spoken. Prior to the vocal training of words (if that is the chosen response mode) a breakdown of the response form should be specified on the topography sheet. The sheet describes exactly what sounds or phonemes the response must contain and the sequential order of those specific sounds.

This specification should increase the reliability of the training data by providing a criterion for scoring a response. This consistency will also promote generalization across staff members and training sessions. This breakdown will help us more accurately assess vocal development, especially for persons with severe deficiencies. For example, if a student vocalizes 2 of the 3 phonemes specified you may score it as an approximation

(specific criterion should be established for each student). In a student who may require hundreds of training trials to master a correct vocal response this data is of great importance.

Sign Topography Sheet

In the shaping of a new response form it is important to start at the operant level and reinforce successive approximations toward the desired response. The same is true in the teaching of a sign topography. A breakdown of response forms using the topography sheet should help the teacher in the shaping process.

American sign language has certain features which are somewhat analogous to phonemes in a vocal language. These are called "cheremes". A chereme is a unit upon which more complex response forms are built. Cheremic elements fall into three categories: TAB, DEZ and SIG (Stokoe, 1965). TAB is a place or location where a sign occurs. Certain locations are significant in that the same handshape and movement represents one sign in one location and a different sign in another location. The cheek is one TAB, the palm of the other hand is another. There are twelve TAB's in American Sign Language. DEZ is the configuration of the hand(s). There are nineteen DEZ's in American Sign Language. The SIG is the action or movement involved in making the sign. For example, the motion may be circular or away from the body. There are 24 SIG's in American Sign Language.

Prior to the training of signs (if that is the chosen response mode) a breakdown of the response form should be specified on the topography sheet. The sheet describes exactly what cheremes or units the response must contain. This specification should increase the reliability of the training data by providing a criterion for scoring a response. This consistency will also

promote generalization across staff members and training sessions. Also, this breakdown will help us more accurately assess the development of a specific sign topography (see vocal topography sheet description for example).

Training Data Sheets

Verbal Behavior Probe Sheet: The verbal behavior probe sheet is designed to assess the occurrence of the verbal operants in the natural environment. This sheet can be used in a variety of settings (e.g., school, free play, one-to-one training sessions, home, etc.).

An observation interval should be specified for scoring the frequency of the verbal operant. The observer records the topography of behavior and classifies it as a function of its controlling variables. The data sheet provides space for recording the topography as well as a checklist for classifying the verbal operant (e.g., topography - "Come outside"/classification - mand). These data are important in that they provide us with an extensive record of the occurrence of verbal behavior under novel situations. Continuous recording may be used with persons with minimal verbal skills; whereas, interval recording should be used with those with a more extensive verbal repertoire.

Copy, Mand, Tact, Tact Extension, Intraverbal, and Textual (Data Sheets)

These training data sheets are devised to score the topographies of a response following the presentation of the training stimulus. The stimulus presentation, response, and mode of reinforcement are specified at the top of each data sheet. The sheets are also devised to record the training stimulus, date, trial by trial response, percentage for training session, comments of unique features during the training session, and a scoring key. Individual criterion for the scoring key should be devised for the specific student of

the training program. The key is devised to score, + = Correct Response, A = Approximation (topography sheets should help here), R = Random or incorrect response, 0 = No Response. The intraverbal data sheet was designed for a written record of the person's response to the verbal stimulus.

THE ECHOIC EVALUATION FORM

Vowel in Isolation	MODEL			Vowel	Word	MODEL			Vowel	Word	MODEL			Vowel	Word
	MODEL	NO MODEL	COMBINATION			MODEL	NO MODEL	COMBINATION			MODEL	NO MODEL	COMBINATION		
				/u/ "shoe"				I	cat				I	now	
/i/ "ee"				/ɜ/ "word"				M	rock <u>e</u> r				M	pen <u>n</u> y	
/I/ as in "it"				/eI/ "day"				F	sack				F	ten	
/ɛ/ "bed"				/aI/ "my"					/g/					/l/	
u "at"				/ɔI/ "boy"				I	go				I	light	
/a/ "ah"				/ɔu/ "cow"				M	wag <u>o</u> n				M	yellow	
/ɔ/ "aw"				/ou/ "boat"				F	dog				F	fell	
/ʌ/ "uh"				Consonants					/s/					/r/	
u as in "book"				/p/				I	sh <u>o</u> e				I	red	
/u/ "oo"				I "pat"				M	wash <u>e</u> r				M	ar <u>o</u> und	
/ɜ/ as in "earth"				M apple				F	wash				F	door	
/eI/ "day"				F "hop"					/rɜ/					/th/	
/aI/ "eye"				/b/				I	ch <u>a</u> ir				I	th <u>u</u> mb	
/ɔI/ as in "boy"				I ball				M	mat <u>c</u> hes				M	bath <u>r</u> oom	
/au/ "ow"				M rubber				F	wat <u>c</u> h				F	tooth	
/ɔu/ "oh"				F tub					/dɜ/					/ʒ/	
Vowels in words				/t/				I	jump				M	treas <u>u</u> re	
/i/ "me"				I teeth				M	judg <u>e</u> s					/h/	
/I/ "hit"				M water				F	cag <u>e</u>				I	h <u>a</u> t	
/ɛ/ "bed"				F hot					/m/					/w/	
u "bat"				/d/				I	man				I	w <u>e</u>	
/a/ "hot"				I dog				M	Tom <u>m</u> y				M	aw <u>a</u> y	
/ɔ/ "ball"				M ladder				F	comb					/j/	
u "nut"				F head					/n/				I	y <u>e</u> s	
u "book"				/k/				I	now				M	cray <u>o</u> n	

Student _____

VOCAL TOPOGRAPHY SHEET
Breakdown Of Response Forms

1. Word _____
The response must contain the sounds _____
in that order
2. Word _____
Sound order _____
3. Word _____
Sound order _____
4. Word _____
Sound order _____
5. Word _____
Sound order _____
6. Word _____
Sound order _____
7. Word _____
Sound order _____
8. Word _____
Sound order _____
9. Word _____
Sound order _____
10. Word _____
Sound order _____

SIGN TOPOGRAPHY SHEET
Breakdown Of Response Forms

Student _____

1. Sign _____

1. Hand configuration must be at least _____

2. Location must be at least _____

3. Movement must consist of _____

2. Sign _____

1. Hand configuration _____

2. Location _____

3. Movement _____

3. Sign _____

1. Hand configuration _____

2. Location _____

3. Movement _____

VERBAL BEHAVIOR PROBE SHEET

Student _____

Setting _____

Observer _____

Date _____ Time _____

Topography	Classification				Comments
Copy Echoic Imitative Written		Mand Tact Intraverbal Textual Taking Dict.		Extensions Generic Metaphoric Metonymic	
Copy Echoic Imitative Written		Mand Tact Intraverbal Textual Taking Dict.		Extensions Generic Metaphoric Metonymic	
Copy Echoic Imitative Written		Mand Tact Intraverbal Textual Taking Dict.		Extensions Generic Metaphoric Metonymic	
Copy Echoic Imitative Written		Mand Tact Intraverbal Textual Taking Dict.		Extensions Generic Metaphoric Metonymic	
Copy Echoic Imitative Written		Mand Tact Intraverbal Textual Taking Dict.		Extensions Generic Metaphoric Metonymic	
Copy Echoic Imitative Written		Mand Tact Intraverbal Textual Taking Dict.		Extensions Generic Metaphoric Metonymic	
Copy Echoic Imitative		Mand Tact Intraverbal Textual Taking Dict.		Extensions Generic Metaphoric	