

## Considerations in Teaching Receptive Language: The Listener as Speaker

Mark L. Sundberg, Ph.D., BCBA  
([www.marksundberg.com](http://www.marksundberg.com))

## The Role of the Listener: The Problem With Traditional Views

- The traditional distinction between expressive language and receptive language
- Skinner (1957) avoided the terms expressive language and receptive language because of the implication that they are merely different manifestations of **the same underlying cognitive processes**
- “Theories of meaning are usually applied to both speaker and listener as if the meaning process were the same for both” (p. 33)
- A functional analysis (antecedents-behavior-consequence) of the two repertoires will demonstrate the distinctions, and provide direction for applications to language assessment and intervention

## A Behavioral Formulation of Language: The Speaker

- The distinction between the speaker and listener
- The speaker: the verbal operants (“expressive language”)
  - Mand
  - Tact
  - Echoic
  - Intraverbal
  - Textual
  - Transcriptive
- Each has different antecedents and different consequences
- Complexities: Multiple control, extensions, autoclitics, private events, automatic contingencies

## A Behavioral Formulation of Language: The Listener

- The listener (“receptive language”)
- Etymological sanctions and the term “listener”
- Skinner’s use of “listener” is not the same as the accepted lay use of the term (1. To apply oneself to hearing something. 2. To pay attention. *The American Heritage Dictionary*)
- It is also not the same as linguist’s use of the term
- Not a perfect term: The deaf and sign language (“Observers”); the reader in textual behavior

---

---

---

---

---

---

---

## The Role of the Listener

- What role does the listener play in Skinner’s account of language?
- A common position is that Skinner totally ignores the listener (e.g., Place, 1981, 1985)
- The word “listener” appears on at least 50% of the pages in *VB*
- There are 14 section headings (6 are major headings) containing the word “listener”
- Two full chapters are mostly devoted to the listener (6 & 7)
- “Skinner’s analysis of verbal behavior very convincingly directs our attention to the complexity of the listener’s repertoire to account for the speaker’s behavior” (Ferster, 1974, p. 155)
- Today, we will focus on how that happens, and how to apply Skinner’s analysis of the listener to individuals with language delays

---

---

---

---

---

---

---

## The Different Roles of the Listener

- **1) Necessary for a verbal episode**
- “The behaviors of the speaker and listener taken together compose what may be called the total verbal episode” (p. 2)
- “There is nothing in such an episode which is more than the combined behavior of two or more individuals” (p. 2)
- “It would be foolish to underestimate the difficulty of this subject matter” (p. 3)

---

---

---

---

---

---

---

## The Different Roles of the Listener

- **2) The listener consequences the speaker's behavior**
- Mediates reinforcement (the definition of VB, p. 2)
- "The verbal community maintains the behavior of the speaker with generalized reinforcement" (p. 151)
- A verbal community primarily consists of listeners

---

---

---

---

---

---

---

## The Different Roles of the Listener

- **3) The listener functions as an S<sup>D</sup> and MO for verbal behavior (The Audience, Chapter 7 in VB)**
- "The listener, as an essential part of the situation in which verbal behavior is observed, is...a discriminative stimulus" (p. 172)
- "This function is to be distinguished from the action of the listener in reinforcing behavior" (p. 172)

---

---

---

---

---

---

---

## The Different Roles of the Listener

- **4) The listener "takes additional action"**
- "Verbal behavior would be pointless if a listener did nothing more than reinforce the speaker for emitting it" (p. 151)
- "The action which a listener takes with respect to the verbal response is often more important to the speaker than generalized reinforcement" (p. 151)

---

---

---

---

---

---

---

## The Different Roles of the Listener

- **There are three types of action**
- (1) Nonverbal respondent behavior
- “Among the special effects of verbal behavior are the emotional reactions of the listener” (p. 154)
- “If a verbal stimulus accompanies some state of affairs which is the unconditioned or previously conditioned stimulus for an emotional reaction the verbal stimulus eventually evokes this reaction” (p. 154) (e.g., “snake,” anger, passion)

---

---

---

---

---

---

---

## The Different Roles of the Listener

- (2) Nonverbal operant behavior (“Receptive language”)
- Listener compliance (e.g., *Jump*)
- Listener discriminations (LDs) (e.g., *Touch the car. Where is the number 5?*)
- Listener Responding by Function, Feature, and Class (LRFFC) (e.g., *Can you find an animal? Which one do you eat with?*)
- “These examples remind us of the fact that the behavior of the listener is not essentially verbal. The listener reacts to a verbal stimulus whether with conditioned reflexes or discriminated operant behavior, as he reacts to any feature of the environment” (p. 170)

---

---

---

---

---

---

---

## The Different Roles of the Listener

- (3) Verbal operant behavior
- “In many important instances the listener is also behaving at the same time as a speaker.” (p. 34)
- “An important fact about verbal behavior is that the speaker and listener may reside within the same skin” (p. 163)
- “Some of the behavior of listening resembles the behavior of speaking, particularly when the speaker ‘understands’ what is said” (p. 11)
- Much of what is traditionally called “listening” is covert verbal behavior, consisting of all the verbal operants (e.g., we can covertly emit echoics, mands, tacts, intraverbals, autoclitics, etc.)
- This is a big part of what constitutes “thinking” (VB Chapter 19)

---

---

---

---

---

---

---

## The Different Roles of the Listener: Summary

- **Skinner's restricted use of "listener"**
- Necessary for a verbal episode (even when the speaker is his own listener)
- Discriminative stimulus and MO for verbal behavior (audience)
- Mediator of reinforcement for the speaker (consequence)
- Nonverbal action (behavior)
  - Respondent behaviors (emotion)
  - Operant behavior ("receptive language," imagery)
- Verbal action (overt **and** covert behavior)
  - Understanding
  - Thinking
  - Verbal comprehension

---

---

---

---

---

---

---

## Applications to Language Assessment and Intervention

- A complete listener repertoire involves more than just "receptive language"
- Listener skills must be specifically assessed and taught for most children with severe language delays (all types)
- Some of the variable involved in listener behavior are present in speaker behavior (multiple control)
- Listener skills can facilitate the acquisition of speaker skills in a number of ways

---

---

---

---

---

---

---

## The Effects of Listener Training

- Establishes verbal stimulus control of nonverbal behavior (e.g., transition, compliance, adaptability, safety....it's ubiquitous)
- Can facilitate (through multiple control and pairing)
  - Echoic, tact, mand, intraverbal, & social behavior (many variables come together)
- Teaches appropriate antecedent skills (e.g., audience, eye contact) and consequating skills (e.g., attending, mediating reinforcement) and skills necessary for participating in a verbal episode (e.g., turn taking)
- Responding to conditional (2-part) discriminations across modalities
- Establishes multiple verbal control (the antecedent part of verbal conditional discriminations)
- Allows for an easier and facilitative introduction to learning complex concepts (e.g., negation, prepositions, relative adjectives)

---

---

---

---

---

---

---

### Early Listener Repertoires: Assessment and Intervention VB-MAPP Level 1

- The VB-MAPP and VB program presents a curriculum sequence, teaching procedures, daily data and skills tracking system that is conceptually based on Skinner's analysis of the speaker and listener
- Attending to speech (conditioned reinforcer, S<sup>D</sup>, CS, MO)
- Specific verbal stimulus control
- Words as S<sup>D</sup>s
- Looks at a speaker
- Discriminates own name (and other words) from other verbal stimuli
- No contrived array
- Discrimination with an array ("Array management")
- Multiple control and conditional discrimination (C<sup>D</sup>)

---

---

---

---

---

---

---

### Multiple Control

- "Two facts emerge from our survey of the basic functional relations: (1) the strength of a single response may be, and usually is, a function of more than one variable and (2) a single variable usually affects more than one response" (1957, p. 227)
- The conditions where the strength of a single verbal response is a function more than one variable can be identified as "convergent multiple control"
- The conditions where a single variable affects the strength of more than just one response can be identified as "divergent multiple control" (Michael, Palmer, & Sundberg, 2011)

---

---

---

---

---

---

---

### Multiple Control

- Convergent multiple control can be observed in almost all instances of verbal behavior
- In convergent multiple control, more than one variable strengthens a response of a single topography
- Any type of antecedent event can participate
  - verbal (e.g., mand, tact, intraverbal, autoclitic)
  - nonverbal (e.g., visual, auditory, olfactory)
  - public (e.g., verbal, nonverbal)
  - private (e.g., pain, self-echoic, self-mand, imagery)
  - S<sup>D</sup> (verbal, nonverbal)
  - MO (UMO, CMO, aversive, establishing, abative)
  - US/CS (bright light, screeching sound, words)
  - audience (lay, professional, friends, non English speaking)
  - contextual (settings, temperature, lights, décor)

---

---

---

---

---

---

---

## Multiple Control

- Convergent multiple control

• S<sup>D</sup>

• S<sup>D</sup>

• S<sup>D</sup>

• S<sup>D</sup>

• MO

R

---

---

---

---

---

---

---

## Multiple Control

- In divergent multiple control, a single variable controls a variety of responses
- “Just as a given stimulus word will evoke a large number of different responses from a sample of the population at large, it increases the probability of emission of many responses in a single speaker” (p. 227)
- The response can be
  - Verbal
  - Nonverbal
  - Respondent

---

---

---

---

---

---

---

## Multiple Control

- Divergent multiple control

•

•

• S<sup>D</sup>/MO

•

•

R<sub>1</sub>

R<sub>2</sub>

R<sub>3</sub>

R<sub>4</sub>

R<sub>5</sub>

---

---

---

---

---

---

---

7

## Early Listener Repertoires: Assessment and Intervention VB-MAPP Level 1

- Conditional discrimination: “When the nature or extent of operant control by a stimulus condition depends on some other stimulus condition” (Michael, 1993, p. 14)
- Said in another way, one stimulus changes the evocative effect of a second stimulus
- Listener discriminations (LDs) often cross modalities; verbal + nonverbal in the form of a conditional discrimination
- MOs can help to facilitate early LDs
- Array management: 2-3, neat, slightly messy, natural environment
- Major early goal in teaching an LD repertoire: establish conditional discriminations (a type of multiple control)

---

---

---

---

---

---

---

---

## Listener Discriminations

Verbal  $S^D_1$  + Array ( $S^D_2$ ) Nonverbal Response

“Touch ball” +      
 $S^A$   $S^D$   $S^A$  Select Ball

---

---

---

---

---






---

---

---

## Listener Discriminations

Verbal  $S^D_1$  + Array ( $S^D_2$ ) → Nonverbal Response

“Touch Boat” Comparison  
      
 $A_S$   $S^D$   $A_S$  Select Boat

---

---

---

---

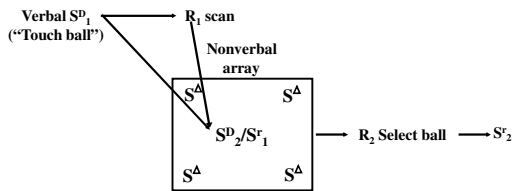
---

---

---

---

## Listener Discriminations (LD): A Conditional Discrimination




---

---

---

---

---

---

---

---

## Early Listener Repertoires: Assessment and Intervention VB-MAPP Level 1

- Verbal stimulus control, motor behavior, no  $C^D$
- Generalization: stimulus and response generalization
- Expansion of LD skills (more words, fluency, larger array)
- LD via multiple control has a potential facilitative effect on:
  - Echoic (vocal  $SP$  + object)
  - Mand ( $MO$  + vocal + object)
  - Tact (vocal + object)
- "If a response is reinforced upon a given occasion or class of occasions, any feature of that occasion or common to that class appears to gain some measure of control" (p. 91)
- Single word is involved in several different functional relations
- Mixed VB or "multiple exemplar training" can facilitate transfer

---

---

---

---

---

---

---

---

## Early Listener Repertoires: Assessment and Intervention VB-MAPP Level 2

- **Array management**
- Learning to scan visual arrays and comparisons efficiently is essential (same skill for MTS, LD, LRFC)
- Over conditioning with a small array (limited array variation) can cause long-term problems
- Array variables to gradually manipulate:
  - Size: 2 to 100, picture backgrounds, partial pictures, orientation
  - Arrangement: neat-messy
  - Similar stimuli: 2 – 100
  - Combinations
  - Scenes
- Natural environment, moving, changing, generalized, fluent

---

---

---

---

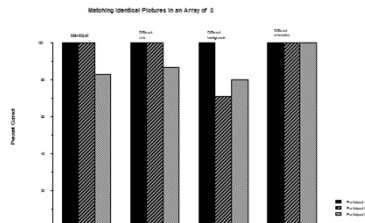
---

---

---

---

## Identical Pictures: Array of 3




---

---

---

---

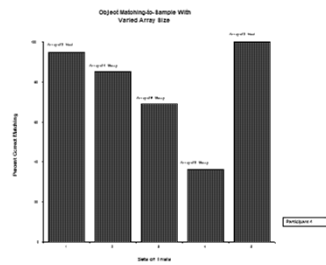
---

---

---

---

## Identical Objects: Varied Array Size




---

---

---

---

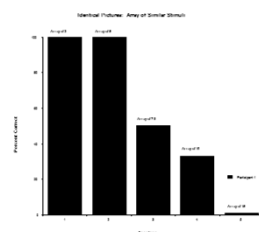
---

---

---

---

## Identical Pictures: Similar Stimuli




---

---

---

---

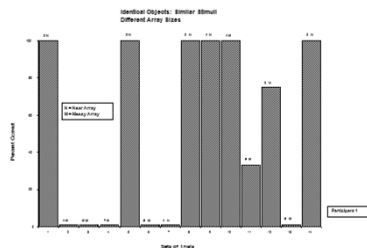
---

---

---

---

### Identical Objects: Similar Stimuli-Varied Array Size




---

---

---

---

---

---

---

---

### Developing Listener Repertoires Along with Speaker Repertoires: VB-MAPP Level 2

- Establishing individual words in a verbal repertoire
- Listener discriminations ("receptive language")
- Nouns (e.g., "airplane")
- Array management
- Mixed VB: same and different words; Multiple exemplar Inst.
- Mands (generalized)
- Tacts (generalized)
- MTS (generalized)
- Skill acquisition data sheets, first trial data, first and last trial data, first 5 trials data sheet, array data sheet
- First 300 known nouns list (vocabulary tracking)

---

---

---

---

---

---

---

---

### Developing Listener Repertoires Along with Speaker Repertoires: VB-MAPP Level 2

- Verbs (generalized): Verbs list
- Across the verbal operants: LD, Tact, Mand (data sheets)
- Beginning LRFFC training: Develop advanced listener repertoires
- LD with a wider range of verbal stimuli (functions, features, class); talking about things without naming them
- Teaching objectives: Establishing conditional discriminations involving a wide variety of verbal and nonverbal stimuli
- Constant variation of the verbal and nonverbal SPs are critical
- LD animal and object sounds (sound to item LD)
- Associations, reverse associations

---

---

---

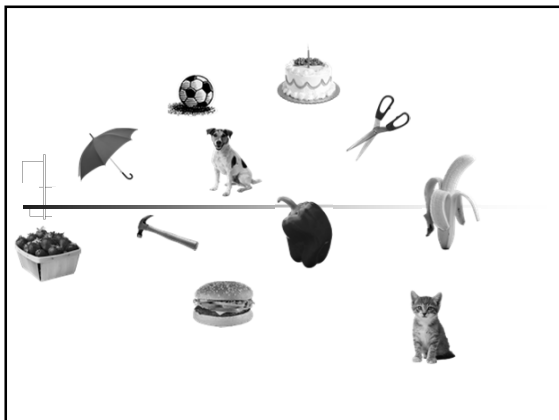
---

---

---

---

---




---

---

---

---

---

---

---

### Developing Listener Repertoires Along with Speaker Repertoires: VB-MAPP Level 2

- LRFFC to intraverbal transfer
- Animal and object sounds (fade out picture)
- Fill-in verb-noun (easier than “WH” verb-noun)
- Associations, reverse associations, song fill-ins
- Two component “sentences” = Two antecedents & two responses
- 2 echoics, 2 motor imitations, 2 matching-to-sample tasks
- LD noun-noun combinations (generalized)
- Noun-noun mands (generalized) (could be verbs)
- Noun-noun tacts (generalized)
- Verb-verb; LD, tact, & mand
- Noun-verb (noun-verb data sheet & list)

---

---

---

---

---

---

---

### Developing Listener Repertoires Along with Speaker Repertoires: VB-MAPP Level 2

- Go to objects and locations (learn to “carry S<sup>D</sup>s”)
- LD categories/classes, locations
- LD functions, features, classes with pictures

---

---

---

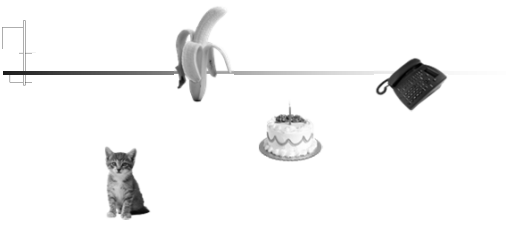
---

---

---

---

Function: What do you use to call grandma?  
 Feature: What has a tail?  
 Class: Which one is for a party?




---

---

---

---

---

---

---

Developing Listener Repertoires  
 Along with Speaker Repertoires:  
 VB-MAPP Level 2

- Advance known nouns and verbs to LRFFC
- Fill-in to WH transfer (still within LRFFC, i.e., pictures present)
- Stimulus generalization/classes
- A stimulus classes is where a child learns that several different verbal stimuli (e.g., *fruit*, *peel*, *a monkey likes...*) can evoke the same response (*banana*)
- Response generalization/classes
- The responses classes is where a single verbal stimulus (*peel*) can evoke several different responses (e.g., *banana*, *orange*, *tangerine*)
- LRFFC can be used to establish classes first with nonverbal stimuli, then with verbal stimuli

---

---

---

---

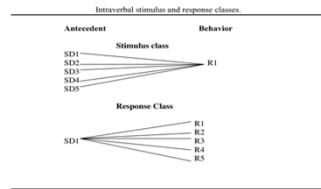
---

---

---



## Stimulus Classes and Response Classes




---

---

---

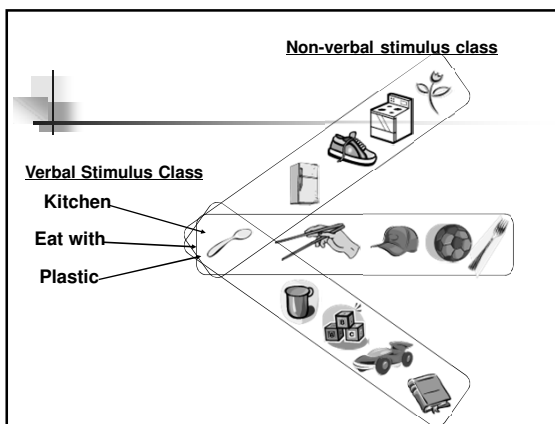
---

---

---

---

---




---

---

---

---

---

---

---

---

## Moving on to Intraverbal Training

- **Prerequisites for Intraverbal Milestones 8 -10** (Out of context fill-in-the-blanks, What? and Where? questions)
- 100-300 tacts and listener responses (LDs) before a major focus
- Matching-to-sample (MTS) and some sorting skills
- Demonstrates tacts and LDs for specific target intraverbal words
- Verb-noun combinations as tacts and LDs
- Verb-noun combinations as LRFfCs
- Strong generalization skills—all types
- Use the “**known language lists**” as a **vocabulary guide** (e.g., first 300 noun list, first verbs list, noun-verb list, LRFfC list) -- download some of these from [www.avbpress.com](http://www.avbpress.com)

---

---

---


---

---


---

---

---



### The Use of LRFFC as a Stepping Stone to Intraverbal: LRFFC to Intraverbal Transfer

Verbal Antecedent	Array	Response
What has paws?		Child touches the cat and says "cat"

- The basic components of the intraverbal relation are present ("Paws" and "Cat")
- Simple task for transfer: 1) Fade out the picture of the cat
- Target Intraverbal: "What has paws?" → "Cat"
- Shannon and Grant Video

---

---

---


---

---

---

---

---



### Developing Listener Repertoires Along with Speaker Repertoires: VB-MAPP Level 3

- Moving on to more advanced parts of speech**
- LD colors and shapes (features, properties, parts)
- LD prepositions with action (go under, get in, get on,)
- LD self and others pronouns (mine/your, me/you)
- LD noun-preposition-noun ("Put Elmo in the swing")
- Tact/LD interspersal (but no requirement for 1<sup>st</sup> trial tact, but probe and reinforce), eventually establish tacting
- Generalization, multiple exemplar training
- LRFFC preposition-noun ("Show me something on the bed")
- LRFFC adjective-noun ("Show me a brown animal")

---

---

---


---

---

---

---

---



### Developing Listener Repertoires Along with Speaker Repertoires: VB-MAPP Level 3

- For advance parts of speech, multiple parts of speech, and "concepts," use a picture scenes to provide extensive multiple exemplar training (no verbal response required, but it often occurs) in an LRFFC format
- Generalization, multiple exemplar training
- Various combinations of parts of speech
- LD singular vs. plural
- Three component, etc. (e.g., subject-adjective-noun)

---

---

---

---

---

---

---

---



---

---

---

---

---

---

---



---

---

---

---

---

---

---



---

---

---

---

---

---

---




---

---

---

---

---

---

---

---




---

---

---

---

---

---

---

---

### Developing Listener Repertoires Along with Speaker Repertoires: VB-MAPP Level 3

- Selects two or more members of a class (all, some, lots)
- Next step in a sequence
- Time concepts
- Similar stimuli (array management)
- LRFFC prepositions, pronouns, adjectives, adverb
- Multiple classes and functions
- 3 or more part questions
- Sets up complex verbal stimulus control
- LRFFC for Which, When, How, Why questions
- What's missing (Car without wheels)
- Negation (Can't, not, isn't, won't)

---

---

---

---

---

---

---

---

Developing Listener Repertoires  
Along with Speaker Repertoires:  
VB-MAPP Level 3

- **Sample of relative concepts taught first as a listener**
- Big-little
- First-middle-last
- Beginning-middle-end
- In-out
- Above-below
- Weak-strong
- Hard-soft
- Same-different
- Opposite

---

---

---

---

---

---

---

Developing Listener Repertoires  
Along with Speaker Repertoires:  
VB-MAPP Level 3

- **Relative Concepts as a listener first**
- Cheap-expensive
- Long-short
- Happy-sad
- More-less
- Hot-cold
- Fast-slow
- Clean-messy
- Past-future

---

---

---

---

---

---

---

Summary

- Being a listener is far more than “receptive language”
- Skinner’s functional distinction between the listener and speaker, and the specific types of each provide us with a framework for language assessment and intervention for individuals with language delays
- There is much to be worked out regarding procedures, materials, protocols, etc.
- The data so far on the use of Skinner’s analysis of verbal behavior suggests significant gains are happening with children
- “Verbal Behavior...will, I believe, prove to be my most important work” (Skinner, 1978, p. 122)

---

---

---

---

---

---

---