A Behavioral Analysis of Conversation

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Goals

- To interpret conversation from a behavioral perspective (and incidentally identify challenges for autistic individuals).
  - What are the structural features of conversation?
  - Behavioral processes in conversation:
    - What are the cues?
    - What are the component skills??
    - What are the reinforcers?
    - How is it maintained?
    - How does it generalize?
  - Examples of main types of conversation
- Interventions?
  - Canned procedures are useless: We must <u>analyze</u> each case and craft procedures accordingly.

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Required Repertoire –
An Overview

- Conversation depends upon a great sensitivity to multiple controlling social variables (i.e., acting simultaneously).
  - Conventions: e.g., "pressure" to converse, or not.
  - Each party must be sensitive to the repertoire and point of view of the other: The Goldilocks zone. (σ^2)
  - Modulation of tone and volume according to context
  - Conversation is often "context free." Listener's behavior is wholly conditioned by speaker. Listener must acquire special skills in order for this to happen, and must organize his own verbal behavior in ways to make it happen in the other party, in turn.
  - It often depends upon "verbal memory," which is itself a complex skill and which may have to be taught as a precursor.
  - Much variation from topic to topic and person to person. One must modulate one's remarks to a nearly unlimited variety of circumstances.

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Repertoire cont'd.

- Precise timing (as both speaker and listener).
- Sensitivity to prosody.
- Sensitivity to metaphor.
- Sensitivity to social norms about speaking to others
- Judgments about shading the truth
- All of these are formidable challenges for people for whom social variables are neither strongly reinforcing nor salient as cues.

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Problems for individuals with autism

- Relatively insensitive to social contingencies
- Relatively insensitive to multiple stimuli
- Language scripted, ritualistic – insufficient variability
- Too few requests for information from others
- May have difficulty in taking another's point of view
- May fail to reinforce speaker behavior ("uh-huh," "I see")
- Weak listener behavior (echoics and intraverbals)
- Too tight intraverbal control: failure to follow the subtle thread of a conversation and change of direction.
- Narrow range of topics of interest. (MO control)

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More Problems

- Atypical or weak prosody and intonation*
- Unusual pronoun usage
- Self-editing ("I meant to say…")
- Use of supplementary stimulus control techniques (problem solving, recall).
- Conditional discriminations (i.e., as listeners, they might not distinguish between two similar sentences.)
- Divergent multiple control (i.e., an utterance that has two or more meanings to us may have only one meaning to the child.)

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Example: Prosody
The song of speech

- The prosody of speech includes
  – Relative stress (on words, phrases, or syllables).
  – Pausing (e.g. at clause boundaries, sentences, or conversational turns.)
  – Rising and falling intonation.
- It can serve a variety of communicative functions.
  – Words: con'-verse vs con-verse'
  – Emphasis: *I* called Joe. I called *JOE*.
  – Lexical: a GREEN-house vs. a green HOUSE
  – <u>Many</u> syntactic functions, e.g., transitions in sentence parts
  – It plays an important role in cueing the listener to jump in or stay out of a conversation.

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Prosody in autism

- The speech of autistic individuals often has atypical prosody.
  - But sensitivity to prosody is often necessary (or at least helpful) for timely turn-taking in conversations.
- (Possible opportunity for intervention: Practicing variations in prosody.)

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Reasons to care

- Isolation, alienation, and unintentional ostracizing attend people who are "different,"
  - And verbal behavior is a distinctive marker of differences among people (accents, foreign, impediments, etc.)
- Conversation is the medium through which relationships develop:
  - How we feel; our dreams, our worries; what thrills us; what terrifies us.

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Fortunately…

- Conversational ability lies on a continuum. It isn't all-or-none. (Cf. FdE's talk)
- Our task is to try to help people move up the scale of conversational complexity.
- For most people, mastering conversational skills is an example of a <u>behavioral cusp.</u>
- Any progress we can make is likely to be supported by the natural environment.

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The behavioral literature

- Skinner (1957) discusses conversation only incidentally, in the context of other things.
- Ullin Place (1991) showed how many of the concepts of conversation analysis can be translated into behavioral terms.
- The applied behavioral literature has many articles on the topic of teaching conversational skills to individuals with autism and other disabilities. Most are rather narrow in scope and context.
  - Task analyses contain relatively few components.
  - For generalization they usually depend on unanalyzed skills on part of individual.

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- The problem with [all such approaches] is that they inevitably teach a narrow range of social behaviors appropriate for a small number of social situations. Even when they demonstrate generalization and maintenance, these approaches do not fundamentally change the capacity of the child with ASD to engage fluidly and competently in the rapidly shifting, dynamic world of normal social interaction …. At this point in the development of our field we are able to effect changes on only small slices of [conversational] behavior.

Prelock, Paul, & Allen (2011)

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A central problem

- Each disability is unique. There is great variability in baseline repertoire.
- Each case needs analysis rather than application of a fixed set of procedures.

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- To that end, my invitation to this conference suggested that I should offer a conceptual behavioral analysis of conversation, rather than a literature review of demonstrated procedures.

- A behavioral analysis….

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A Related Field: Conversation Analysis

- Conversation Analysis is a field in its own right, a field within sociology.
- It describes the structure of typical conversations
- It focuses on culture-wide generalizations rather than the idiosyncratic behavior of individuals.
- It does not attempt to relate phenomena to behavioral principles.
- But it necessarily overlaps with the present account and has been a helpful resource.

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A behavioral analysis: Analyzing conversation in terms of basic principles

- Reinforcement & Punishment
  - (But great individual differences in what is reinforcing & punishing.)
- Extinction
- Discrimination
- Generalization
- Multiple control
- Covert behavior

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- Motivating operations (MO)
- Discriminative stimulus (SD)
  - Distinction highlighted by German conductor.
  - Verbal exchanges involve both.
  - Analysis of conversation varies considerably with MOs and SDs.

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More terminology

- Intraverbals (e.g., an actor's lines)
- Echoics (verbal imitation)
  - The above, together with other fundamental verbal operants, can be taught in straightforward ways but in isolation they make limited contributions to conversation
- Sentence frames
  - These are orders of magnitude more complicated but contribute much to conversation.

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Conversation: What is it, and what is it not?

- A kind of social behavior
  - A kind of verbal behavior
    - Conversation not an "essence", but contrast it with
      - Interview
      - Testimony
      - Lecture
      - Ceremony
      - Instruction
      - Debate
      - Self dialogue
      - Business transaction
    - (Conversations are free to vary without limit.)

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A tentative definition

- Verbal exchange among two or more people in which the responses of each party are controlled in part by the contributions of the previous speaker, by the immediate circumstances, and by speakers' histories. There are no structural limits on the topics, duration, or participants.
  - Exceptions: ritualistic greetings and partings
- This intrinsic variability poses a severe challenge to individuals with limited repertoires.

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Conversations are Intrinsically Social

- But there are various types of social relations:
  - Peer-to-peer
  - Asymmetrical relationships
  - Family members vs perfect strangers
  - Dyads or multiple participants
  - Settings can range from private and quiet to public and chaotic.

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Conversations are intrinsically verbal

- Participant must have listener repertoire**
- Participant must have some verbal repertoire— the more the better. (At a minimum, some mands and intraverbals.)
- Participant must "have something to say."

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The structure of conversations

- Opening (greeting, taking the floor, setting the topic, etc.)
- Turn-taking: only one speaker at a time
- Turns are thematically related: each utterance is related to the one before it and after it (or indicates a transition)
- Periodic feedback to speaker ("uh-huh…")
- Clarifications and corrections sought or offered
- Closing

- (Opening and closing remarks may be ritualistic)

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Opening a conversation:
Some challenges

- Forbidden contexts: Theaters, churches, funerals, lectures, classrooms, when someone is attending closely to something else, when eavesdroppers are present, etc.
- Social rules about addressing others:
  - Asymmetries in age, gender, social stature
  - Level of acquaintance
- Competing contingencies (are they busy?)
- Establishing appropriate physical distance. (Cultural variation)
- Evaluating mutual interest in topic (lizards)
- Individual runs a risk of rejection.

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MO: Why open a conversation?

- Usually, but not always, in service of an overarching contingency
- Must have a history of reinforcement for doing so. Past conversations, or approximations to conversations, must have been reinforcing.
- Note the large asymmetry between the first person to speak and the second person. The task of the former is much more complex.
- For the timid and taciturn, difficulties and dangers can be avoided by letting others initiate conversation, but that leads to a loss of many potentially rich exchanges.

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Relevance of MO magnitude

- Social norms can be overridden by MOs.
  - E.g., Powerful narratives can demolish social restrictions on speaking to strangers.
    - Events of 9/11
    - Kevin's hang-gliding accident
  - A person on the make
  - Asking directions
  - Ordering food
  - Job-related VB: conductor; guard; attendant; housemaid;

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MOs and special contexts

- All other things being equal, the greater the history of reinforced behavior, the stronger the vb. MOs and SDs tend to vary with one's experience with listener.
- Strangers: Weak MOs, weak SDs, weak vb
- A married couple or two friends at dinner.
  - Common history: Strong SDs -- the most trivial events are discussed
  - MOs can be weak, and they sit in comfortable silence
- Subway: Many speakers; common history, but still poor audience control, as no strong MO;
- Airplane: Single audience; poor audience control but MO stronger. Silence can be aversive in 1:1 situation

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Special contexts cont'd.

- Two people in an elevator
- Sitting in an auditorium
- Foreign country
- Reunion: Long history, strong audience control, Strong MO; strong SDs
- Very unusual settings or personal characteristics:
  - Imagine meeting a man in a cave, at the south pole, or on a small island. Very strong MO overrides total lack of SDs: Who? What? How? When? Where?
  - People in costume, or holding a chicken, or sporting a handlebar moustache, etc.
    - But social sanction against drawing unwelcome attention to a person. Hence very tall: make remark. Very short: remain silent.

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Other contextual variables

- Context specific social conventions: In big cities, eye-contact is uncommon; hailing strangers unheard of.
- In my experience, in small towns, in the South, and in Latin America people are more likely to speak to strangers.
- No doubt many other macro- and microcultural differences (e.g., how close to stand).

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Turn-taking (as speaker):
When should one pass the turn, and how?

- Hold the floor until one's conversational unit is complete:
  – That fact must be discriminated by both parties.
  – But each turn may consist of many units of verbal behavior.
  – What is a unit? Elementary operants (tacts, mands, etc.). But elementary operants often combine to form complex strings with their own functional unity (sentences, narratives, anecdotes, proposals, etc.)

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Turn-taking (as speaker):
Identifying coherent conversational unit

– Responding as a listener to one's own verbal behavior.
– Evaluating it with respect to the MO
– Self editing; self-correction
– Judging the repertoire of the other party
– Predicting the reply of the other party

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Turn-taking (as speaker):
Techniques for holding the floor

– Using connector phrases.
  • "And then…"
  • "And that's not all…"
– Filling pauses
  • Saying "uh…"
  • Using meaningless fillers like, "I mean…" and "What I'm trying to say is…"
– Keeping facial expression steady
– Using level or rising intonation
– Using rising amplitude to suppress competition

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Turn-taking (as speaker):
Evaluating listener engagement

- Identifying cues:
  - Interest (or lack thereof):
    - Eye contact, nods, "uh-huhs," vs. drifting, flat affect, turning away.
  - Sensitivity to content: (when has listener gotten the point?)
    - Repetition is commonly punished (but note exceptions)
- Explicitly checking to see if listener is following
  - Speaker interrupts turn to check, but resumes turn when check has been made.

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Turn-taking (as speaker):
Ending one's turn: Signaling the pass:

- Pausing
  - Pauses of more than a second are distinctive, but can be overridden by context. If rate is very low and erratic, long pauses may be tolerated without transfer of control.
    - Note effect of delayed signals in telephone conversations.
- Use of intonation, spacing, and stress
  - Rising intonation of a question. Falling intonation of a statement, often with emphasis, followed by pause.
- Physical cue (e.g., alter facial expression).
- Ask a question
- Perhaps pick the next person to speak (turn toward Eric; address Eric)

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Listener behavior during speaker's turn

- Attending
  - Providing periodic SDs and S^{r}s (uh-huh….mmm…)
  - Covert behavior (imagery, elaboration, rehearsal)
  - Echoic behavior (The function of the speaker is to induce identical verbal behavior in the listener)
- Asking questions
  - (Serves multiple functions: Reinforcer, SD & MO)
  - S#1 must have evoked responses in S#2 that occasion questions. (Narrative imagery. Cf hang-gliding)
  - Can redirect conversation in a polite way

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Turn-taking as listener:
When can you jump in?

- Discriminating that a transfer point has been reached:
  - Intonation
    - Roles of even, rising, and falling intonation
  - Pause
  - Key words ("What?")
  - Posture, expression, and eye contact
  - Content cues
    - Query
    - Passing the baton: "And you?"
    - Semantic cues (punch line, conclusion, etc.)

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Turn-taking as listener:
Discriminating conversational units

– Speaker can employ any of the following units in his turn:
  • Anecdotes, narratives, quotations, poems, etc.
  • Sentences
  • Clauses
  • Phrases
  • Single words.

– But turns do not transfer in the middle of a unit.
  • (E.g., "What?" as a query vs. "What…." as the beginning of a question.)

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Turn-taking as listener:
Cutting in line

• Signaling to speaker that you have something urgent to say. (MO overrides social convention of waiting till speaker is done)
  – Interruption
  – Raising hand, etc.
  – Incipient vocalizations
  – Body language: Speaking up to point of vocalizing

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Turn-taking as listener:
Getting in line

First person to respond gets to hold the floor.**

– In case of conflict, one person must back down.

- High-status often takes precedence
- Temporal priority takes precedence
- High-amplitude response takes precedence
- Insensitivity to rule can take precedence

– In the event of silence, original speaker may resume.

– Note need for fine temporal discriminations and the role of individual differences → Some people "never get a word in edge-wise."

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Turn-taking can depend on cultural norms, local or general

- In some cultures the order of speaking is fixed, with age and social status taking precedence.
- Less formal norms tend to be honored in families and other social groups.

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Maintaining the conversational thread

- The overarching contingency that governed the opening of the conversation establishes the topic and keeps it going until it is satisfied.
  - How about them Red Sox?
  - What's Sandy going to do about Patrick?
  - You'll never guess who I ran into today.
- No one departs from the thread until the contingency has been met or a new contingency overrides it.

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Maintaining the thread II

- Turns (sometimes) have a "given/new" structure: Speaker acknowledges previous turn before saying something new:
  - "I know what you mean. My room-mate has one too…"
  - "Yeah… I think I'll ask him about it tomorrow."
- A skillful speaker will bracket his remarks with transitions at the beginning (to previous speaker) and perhaps at end (to next speaker).

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Switching topics

- Standard devices for switching topics
  - Begin by alluding to previous topic
  - Make transitional remark:
    - "By the way…"
    - "Before I forget…."
    - "Can I jump in for a minute?..."

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Providing feedback to the speaker

- Listeners must indicate level of interest and understanding (or lack thereof), and speakers must respond accordingly.
  - Uh-huh…..Mmmm…..Yeah…. No kidding….
    - Especially important when visual cues absent
      - Notice how quickly we detect when a phone line has gone dead. ("Are you still there?")
    - Such responses do not constitute "turns;" they are cues to keep talking
  - Eye-contact
  - Timely and appropriate change of expression
  - Tone of voice ("Really????")

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More feedback to the speaker

- Facial expression
- Posture
- Maintaining appropriate interpersonal distance
- Repeating and clarifying as needed/ Signaling confusion

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Responding to feedback

- Positive feedback is a cue to continue
- Negative feedback is a cue to quickly pass the baton or close the conversation.
  - Listener
    - looks away
    - Looks at watch
    - Uses flat intonation
    - Adopts a restless posture
    - Often, merely fails to provide positive cues.

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Clarifications and corrections

- "'Jack?' Did you mean 'Larry'?"
- "Huh?"
- "Wait… What was that again?"
- "Excuse me?"
- Listener may repeat gist of speaker's remarks to confirm understanding.

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Closing a conversation

- Sensitivity to the overarching contingency.
- When it has been satisfied, conversation can end (but need not).
- Body language may indicate a desire to continue or to terminate.
- Period of silence may be sufficient to close conversation (e.g., on an airplane)

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II. A few examples of types of conversation (among many)

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A) Verbal formulae
(usually in distinctive contexts)

- How are you?
- Fine thanks, and you?
- Very well thanks. How was your flight?
- It was OK; thanks for asking.
- That's good. Well, so long.
- Good-bye.

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- Such exchanges consist almost wholly of intraverbal chains. Often….
  - The physical context is clear
  - The verbal antecedent is clear
  - The responses are fixed
- A good place to start
- A few such scripts may serve a wide variety of social functions, and nothing more may be required.
- But they fall short of "conversation."

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B) One-Shot Exchanges between strangers

- Often asymmetrical: Speaker #1 dominates.
  - Typically a mand, with a conspicuous motivational variable (MO#1)
- Initially a weak MO, or none, for S#2.
- S#1 provides strong MO for S#2 by addressing him.
- S#2 reinforces the behavior of S#1, and thereby resolves MO#1.
- S#1 reinforces the behavior of S#2 and conversation ends.

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Examples

- #1 Can you tell me where the bathroom is?
- #2 Last door on your right.
- #1 Thanks.
- #2 Don't mention it.

- #1 Excuse me, you dropped your scarf.
- #2 Thank you!
- #1 No problem.

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Why does the conversation die?

- Speakers 1 & 2 are strangers.
- Subtle social rule (that varies from culture to culture and group to group) viz., strangers don't talk to one another without a good reason (MO).
- S#1 breaks the rule because of the MO. Acceptable to both parties.
  - Compare: Confronting a stranger with "How do you like my hat?" or "Have you heard the one about the dancing flea?" or "Do you want to sleep with me?"
- After S#2 responds, the motivating variable is resolved.
- Social rule (not subtle) requires a couple of ritualistic responses ("Thank you," etc.)

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- As there is plenty of ritual and only a couple of variables, this sort of exchange is relatively simple, and another good place to start in shaping up conversation skills with autistic individuals.
- Establish scripts for common scenarios:
  - Common requests
  - Meals
  - Cleaning up
  - Personal care
  - TV shows, music, etc.
  - Shopping
  - Safety: seatbelts, fire drills, etc.

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- Nevertheless, even such simple exchanges are much more complicated than verbal formulae.
  - Listener must respond to novel content ("understand it")
    - Covert (or overt) echoic behavior (i.e., "pay attention")
    - Respond discriminatively to the verbal stimuli (be able to act accordingly)
  - Must be able to identify units and when to respond.
  - Must be able to compose a relevant response
    - Put himself in position of other party
    - Hear himself, evaluate effect on himself

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C) One-shot exchange with elaboration

- S#1 under control of strong MO, as above, but when MO changes abruptly, speakers fall under control of incidental variables. This is much closer to what we ordinarily mean by "conversation."

- Example

  – Excuse me, you dropped your scarf.
  – Thank you! It was my grandmother's. I'd feel awful if I lost it.
  – It's beautiful. Is it silk?
  – I don't know. She got it when she was living in Turkey.
  – Oh! … Very nice.
  – Thanks again.
  – So long.

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What's the difference?

- 1) It is always easier to speak a second time after having spoken once. That is, speech becomes an MO for more speech. The incident has "broken the ice," and incidental variables exert control.
  – The uncertainty about social norm has been resolved.
  – Other person has revealed himself as someone who reinforces one's speech.
- 2) Differences in motivating conditions:
  – Act of kindness was unsolicited
  – Magnitude of discrepancy
- 3) Possible other variables:
  – Speakers are not in a rush
  – Person is attractive
  – Person is lonely
  – Etc.

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- But one can't rely on scripts: Conversation can take any turn and introduce any topic:
  - Grandmother
  - Turkey
  - Living abroad
  - Family heirlooms
- One has to have broad experiences in the culture to respond appropriately
  - "My grandmother got it when she was living in Turkey."
  - "My grandmother comes on Thanksgiving too!"
- Need to learn to how to ask clarifying questions or simply to change the subject as gracefully as possible, e.g.,
  - "Where does your grandmother live again?"
  - "That's nice. Hey, do you like my watch? It tells the time in 24 cities!"

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- In this example, overarching contingencies took over again, as the speakers had places to go. But if they are thrown together for a long time, as on an airplane or a bus, the conversation may go on for a long time.
- After a while, aversive contingencies may kick in:
  - If I stop talking and look out the window, it may be seen as rude. ("I'd rather sit in silence than talk to you.")
  - But as MOs get resolved, there may be "nothing to talk about" and people continue to talk only to avoid being seen as rude.

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The point of these examples is that even though they are simple, a sensitivity to social conventions is required.

It would be easy to behave in a way that would be thought odd, awkward, or inappropriate. And of course there are many other ways the exchanges could have gone, depending on circumstances.

(Treacherous ground for the autistic.)

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D) FUNCTIONAL, DIRECTED CONVERSATION

- Asymmetrical.
- S#1 leads and S#2 follows.
- Governed by an overarching MO.
- Each entry by S#1is controlled partly by that MO and partly by the responses of S#2.
- Conversation has a theme and a direction.

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Example

- S#1: What did you do last night?
- S#2: I went out with Al.
- S#1: Where did you go?
- S#2: We went to Bart's and then we hung out.
- S#1: Did you go to a bar?
- S#2: No. What makes you think that?
- S#1: Well, when you and Al get together, that's where you usually end up.
- S#2: Well, not last night. We sat on the bench in front of La Veracruzana until Lou and his friends came by, and we went to his apartment.

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Example 2

- From P. G. Wodehouse, *Much Obliged Jeeves* (p. 58)
- Nasty exchange between Bertie Wooster and Roderick Spode, who thinks Bertie is trying to steal his frightful fiancée, Madeline Bassett.
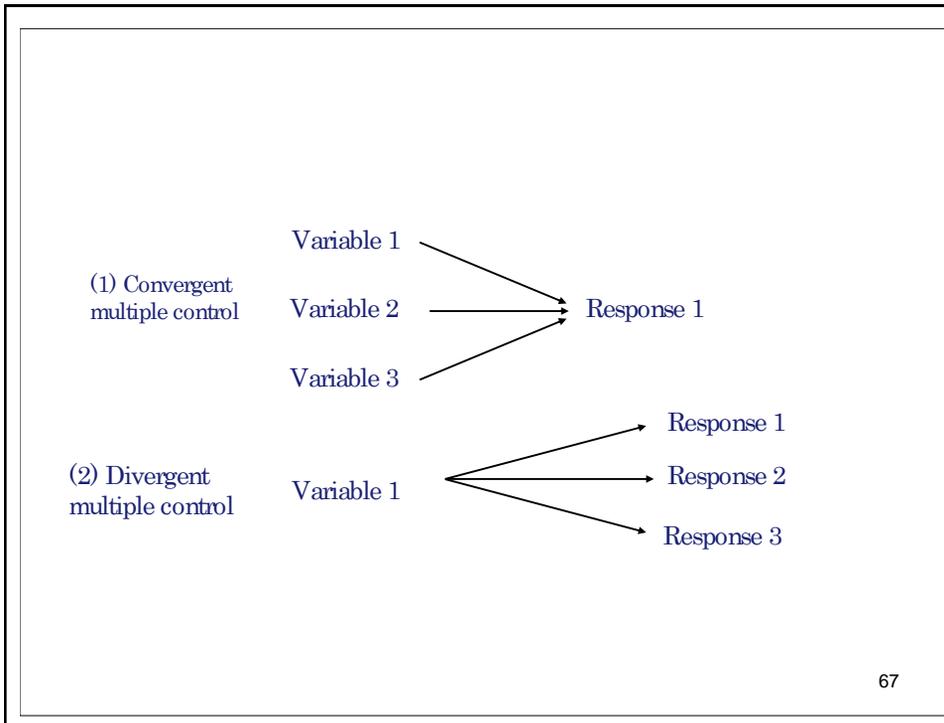- The conversation has a direction, a purpose, and an "exit line."

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- Such examples can go on for as long as the overarching MO is in effect.
- Each response of S#1 is under multiple control of
  - 1) The overarching theme
  - 2) The previous response of S#2

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Multiple control: ubiquitous in verbal behavior

- Convergent multiple control: Behavior that is influenced by more than one antecedent.

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(1) Convergent multiple control

Variable 1 → Response 1
Variable 2 → Response 1
Variable 3 → Response 1

(2) Divergent multiple control

Variable 1 → Response 1
Variable 1 → Response 2
Variable 1 → Response 3

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- Multiple control might be a formidable problem for an individual with autism, a disorder in which "overselectivity" is often observed.
- But speakers are asymmetrical in this regard. S#2 can merely follow. But he needs to be able to understand the novel demands imposed by S#1.

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E) SPONTANEOUS, DESULTORY CONVERSATION

- (E.g. Wodehouse, p. 21)

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- Each statement serves as a dominant variable for what follows.
- Each statement has an effect on the listener who must understand what was said, track the shift in MOs entailed by what was said, and respond with respect to both variables and add something new.
- <u>Each utterance is likely to be novel, at least in its details.</u> They can't simply be trained, for there are too many possibilities.

- Moreover, these seemingly simple conditions mask highly complex performances.

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- "His dinners must fortify you for the tasks you have to face. How's the election coming along?"
  - An example of responding to the speaker and initiating something to which the speaker must respond. A common feature of conversation, an acquired skill.
  - Anatole's cooking → fortification → tasks → MO for query about election.
  - S#1's remark "It's a wonderful place" initiated a sequence of events that established a strong MO. How does that happen? (Conditioning the behavior of the listener.)

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F) Narration with a listener

- S#1 has "something to tell" S#2. Example: Wodehouse (p. 113)

- Each speaker is also a listener, not just to the other person but to himself.
- Behavior is partly under control of a state of affairs, but often that state of affairs is absent at the moment of the conversation.
- But …
- He must not repeat.
- He must present things in an optimal order.
- He must be sensitive to what the listener already knows.
- Meanwhile, the listener has to be giving periodic feedback to the speaker to signal understanding, confusion, boredom, etc.

- All of this is orders of magnitude more complex than one-shot mand conversations.

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Presumably all conversational skills can be taught.

- They quickly learned that I was a college professor and began to ask me about my work. Frazier's confounded system of education must have included a study of the techniques of conversation, for they drew me out deftly and began to bear down with a series of embarrassing questions. Why did colleges make their students take examinations, and why did they give grades? What did a grade really mean? When a student "studied" did he do anything more than read and think—or was there something special which no one at Walden Two would know about? Why did the professors lecture to the students? Were the students never expected to do anything except answer questions? Was it true that students were made to read books they were not interested in.

Walden Two: p. 214

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- But all these skills are ordinarily acquired without instruction, through natural contingencies. If they are missing, we will have to build a curriculum to teach them
- Notice how many discriminations are required just to maintain the superficial framework of a conversation, before any content has been added.
- Each one of these distinctions might be the subject of a substantial program of training, *but they are only naturally reinforced when they occur all together.*

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The role of elementary verbal operants

- Tacts, and mands are relatively straightforward to teach, but play limited roles in conversation:
  - Mands, yes, but conversation tends to dry up after MO is resolved, as noted above
  - Tacts less likely to play a major role as both speakers are usually privy to the same physical environment.

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Exceptions to the limited role of tacts

- 1) When one person (say) has the binoculars, periscope, window seat, etc., or has some other advantage over the other party.
  - Here an autistic child with a good tact repertoire could answer questions effectively:
    - Who do you see?
    - What are they doing?
    - Who is driving?
    - Is anyone coming on the right?
    - (Cf. degli Espinosa)
- Has much in common with one-shot conversations above.

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Exception #2

- Tacts under control of private stimuli.
- People typically acquire a tact repertoire with respect to their private behavior the same way they learn to tact public objects and events
  - "Yes, that's a garden snake." "No, that's not a volleyball; it's a soccer ball."
  - "You have a cut on your elbow. Your elbow must hurt." "You are limping; did you sprain your ankle?"
- Self-descriptive responses of great interest to parents, doctors, teachers, etc.

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- "One-shot" mand conversations should be relatively easy to train in autistic children both as Speaker #1 and #2.
- Tact conversations should be achievable with autistic person playing role of Speaker #2.
  - Playing role of S#1 is much more complicated.
- Desultory conversation very formidable indeed.

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Intraverbals

- Intraverbals can play a large role in conversation.
  - Relevant to structural properties
    - Question/answer
    - Word associations
      - Raise probability of thematically related verbal behavior
      - Foster staying on topic
  - Scripted conversations
    - Can be taught in a relatively straightforward way
  - But emphasizes formal properties of conversation over function; may not be reinforcing for individual.

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Sentence frames
(autoclitic frames)

- Sentences or phrases of a particular form, with some fixed elements and one or more variable elements:
  - A is wearing a B.
  - The A is on top of the B
  - A promised B that C.
  - A sent the B to the C.
  - The (boy) has a (blue) (wagon).
  - (Joe) is taller than (Sue).

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Sentence frames cont'd.

- Mastery of a single sentence frame permits a great variety of sentences, provided that the child has a repertoire of elementary terms (usually tacts). Mastery of many such frames gives the child a lot to talk about.
- Such frames can be explicitly taught to high-functioning autistic children through modeling in controlled settings. Neurotypical children pick up such frames without formal instruction.
- The task then becomes one of bringing them under control of the correct cues in conversation.

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Complex speaker behavior and complex listener behavior

- In many conversations, the verbal behavior is relatively "context-free." The verbal behavior itself is the dominant variable.
- Each verbal response evokes a lot of behavior in the listener, and that behavior serves as one of the controlling variables for subsequent verbal behavior in the listener.
  - E.g., "I was knocked unconscious at 10,000 feet" evokes emotional, imaginal, echoic, and other behavior in the listener. Many questions follow.
- But conditioning the behavior of the listener is a complex topic in its own right.

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How might audience variables and motivational variables miscarry in autistic children?

- Usually very restricted histories.
  – Normalization helpful, but may not be sufficient
- May be insensitive to MOs (personal, vocational, literary experiences may be outside the norm).
- Even if skills are in repertoire, they may not come to strength in appropriate contexts.
- To an autistic child, everybody may be like a person in a foreign country- Can't tell if there is a foundation for a conversation.

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Behavioral Interventions for Facilitating Conversation

- Instructions
- Peer modelling
- Self-monitoring (with checklist)
- Pivotal response training
- Role-playing
- Video modelling (peer and self)
- Contrived practice
- Scripts and script-fading
- Behavioral Skills Training packages
- Group therapy on social skills training

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The research shows that behavioral procedures can be used to change the strength of targeted behaviors. Furthermore, training often maintains and sometimes generalizes to other settings. However, all such studies are necessarily limited in scope, and the nature of the procedures depends greatly on the baseline level of behavior of
the individuals under study.

Training is typically restricted to broad categories of speaker behavior, such as approach, greeting, asking scripted questions, waiting for an answer, repeating with variation, perhaps several times, and closing. These skills get us approximately to the "one-shot plus elaboration" level of conversation.

This may be the best we can do except for those with advanced baseline skills. As noted above, conversation lies on a continuum, and our goal is to move each individual upward and not to despair if he or she fails to become a television talk show host.

Consider:
- Targeting turn-taking as a skill in its own right. Can be practiced as a game or skill.
- Working on prosody as a target skill, apart from language, then try to generalize.

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- To go further will require training with respect to motivational variables, prosody, the subtleties of turn-taking and an analysis of listener behavior, all of which are difficult to measure and control.

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