Natural Language Acquisition (M.Blanc, 2012)

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Chapter 19

Collecting and Analyzing a Spontaneous Language Sample

Natural Language Acquisition Natural Language Acquisition assessment combines best practices from Speech- Language Pathology with clinical experience using NLA analysis to arrive at a flexible protocol to use in any clinical setting.

Traditional spontaneous language sampling techniques

Speech-Language Pathologists are well-prepared to solicit spontaneous language samples. Whether we are preparing to apply Brown's Stages, Systematic Analysis of Language Transcription (SALT), Developmental Sentence Scoring (DSS), or another measure of language competence, obtaining a representative, spontaneous language sample is well-understood. The elements are: soliciting a conversational sample of a child's spontaneous language by engaging in free play with the child, using materials known to be of interest to him, and matching a child's interest and cognitive level.

Because language analysis is a way of assessing developmental language competence, SLPs attempt to solicit a child's spontaneous use of natural language. "The clinician's main purpose is to keep the child interested, talking, and thinking as creatively as possible" (Lee, 1974, p. 59). In order to facilitate the child's use of his highest-level spontaneous language, the SLP is instructed to positively respond to the child's language, take equal turns (reducing direct questioning once the child is talking freely), and use some higher-level linguistic forms to see if the child will use them as well. An analyzable sample depends on the measure being applied but tends to be either 100 or 50 consecutive, spontaneous utterances (DST vs. DSS) or a 12-minute sample (SALT). Repeated sampling is often encouraged to ensure that the sample is truly representative of the child's linguistic performance.

Traditional spontaneous language analysis

Analysis of spontaneous language has traditionally applied one of several forms of syntactic and/or semantic coding in order to compare a child's use of original language with developmental norms. For example, DSS is a traditional analysis tool that can be used once a child produces 50 consecutive subject + predicate sentences within an hour. Syntax is the main component of analysis, but semantic integrity is included by means of a "sentence point" if the entire utterance is both syntactically and semantically correct. If a child is not produc-

ing 50 sentences per hour, Developmental Sentence Types (DST) can be applied to his "pre-sentences."
For DSS analysis, the spontaneous sample is recorded and transcribed, but only 50 consecutive sentences that are original, spontaneous, and analyzable (containing a subject + predicate) are scored and compared with age norms for children two to seven years old. The child's other utterances in the sample can be included in the transcription in order to calculate other measures of linguistic development, particularly Mean Length of Utterance (MLU) and measures of semantic development such as Type-Token Ratio (the ratio of different words to the number of total words).

In DSS, immediate echolalia disqualifies an utterance from analysis. As Lee (1974) stated, "Since the clinician is interested only in a child's self-formulated grammatical structure, sentences which are first formulated by the clinician and then echoed by the child must not be included." Immediate, mitigated echolalia is allowed, however, as Lee noted: "… if a child changes the clinician's sentence in any way and reformulates it into his own grammatical structure, then the child's sentence could be included …" (p. 68).

Language sampling for Natural Language Acquisiton analysis

Natural Language Acquisition (NLA) describes the stages of language development of children who began their development as gestalt language processors. Stage 1 (echolalia) is followed by Stage 2 (mitigated echolalia), when a child discovers the phrase parts of language gestalts and can "mix and match" them to create new wholes. Stage 3 (isolation and recombination of single words) occurs when Stage 2 phrases are further broken down into their component parts (single words), and words are "recombined" to create original, two-word phrases. Stage 4 describes beginning grammar as three- and four- word sentences develop. Stages 5 and 6 continue the development of generative grammar through all the levels and components of a mature grammatical system.

The setting for gathering a language sample is tailored to each child.Language sampling techniques for NLA combine traditional methods with what we know about children on the autism spectrum and what we are attempting to ascertain about their use of echolalia, mitigation, word combining, and self- generated grammar. Each child is unique, so the setting for gathering a sample is tailored to each child. Any language sampling for analysis would require at least the following preparation: viewing a spontaneous movie clip taken of the child in his home environment; reading available reports about the child, including OT and PT reports; talking with the child's parents to ascertain the conditions that support his engagement and most spontaneous language use; setting up a clinical environment that considers parent and OT/PT recommendations; and spending at least 1–3 sessions with the child in an appropriate clinical setting.

Language sampling itself should include at least these parameters:

1. Physical supports for the child's speech and language access.

2. An attentive communication partner who is experienced in listening to echolalic language.

3. A recording and transcription method that does not interfere with play or spontaneou language production.

Assessing language with NLA

Language can be assessed at any stage of a child's development using the NLA assessment procedure, as long as adequate linguistic background information has been obtained. Because Stage 1 utterances are echoed from other sources, understanding a child's Stage 1 and 2 utterances typically relies on some cross- referencing with linguistic sources (comments made to the child, favorite movies, songs, games, etc.). Even as a child moves through the stages, the origins of gestalts figure highly into assigning a stage for any particular utterance or utterance part.

For these reasons, an assessment begins by obtaining a detailed history of the child's language exposure, linguistic preferences (favorite stories, etc.), and language production.

Learning the history of language exposure

Depending on the extent of a child's language exposure, the history will be more or less detailed. A pre-school child who has a few favorite movies, books, songs, and games will have a far less complicated history than an elementary- aged student who has listened to many, many stories during his lifetime and might be drawing from any number of them as his Stage 1 comments. If a student is just beginning the NLA process in higher elementary grades or later, the encyclopedia of stories in his mind may be extensive.

Talk to several family members, as each has his or her own insight into the child.Obtaining an adequate linguistic history also involves learning a child's interests, favorite themes, favorite people, and favorite characters. Discovering a child's most common linguistic themes is also vital to the complete history, even if a child seems minimally communicative. Just knowing which lines a child likes to hear and/or say frequently is a hint about what he might want to communicate.

Talking to several family members is often important. Each will have his or her own understanding of the child. Often siblings will be especially helpful in reporting their brother or sister's favorite themes and which lines the child often says. It is encouraging to find out how much family members often know about the origins of a child's echolalia and to learn that they, too, know the lines, having heard certain movies, stories, or songs dozens of times. Like Bevin and Tori, siblings often engage in the dialogues they find particularly entertaining.

Familiarity with the particular echolalic utterances a child is likely to be using is especially helpful in overcoming the problems inherent in the lack of intelligibility usually presented by children at Stage 1. Long gestalts are hard for young mouths to produce, and most pre-

school children have difficulty making themselves understood when they are at Stage 1. Even older children can be quite difficult to understand if they have not mitigated much and are relying on an extensive library of long gestalts.

Obtaining other background material

Before eliciting the language sample to be used for the NLA assessment, it is important that the SLP gather as much information as possible so that the language sample will be analyzable. The following is a guideline for obtaining information:

1. Obtain a home movie of the child in natural situations.Ask the family to make a home movie of their child in natural situations. Let the family know not to set it up but to simply gather natural footage so a variety of daily situations will be included. An hour's worth of footage often captures several short snippets that prove valuable.

2. Ask the family to compile a complete list of the child's current favorite media and personal language sources as well as past favorites.

3. Ask the family to provide a list of the child's common expressions, their source, and their possible meaning to the child (or at least to the character in the story).

4. Ask the family to provide emails or messages to complete these lists and to keep them current.

Preparing to elicit the language sample

Standard guidelines for obtaining spontaneous language samples are used. Those suggested by Laura Lee in Developmental Sentence Analysis (1974) are useful. With children on the spectrum, additional preparation should be made. Among the most important preparatory suggestions are:

1. Provide a setting that supports the child's best physical and linguistic access and promotes spontaneous use of language.Provide a setting in which the child's physical and linguistic access could be predicted to be at its best. This means setting up the play room to support the child physically, emotionally, and linguistically. Use of a school "sensory room" or gym with PT/OT recommendations for the child in place might be the most conducive setting. Try out the space during one session and make changes that would help the child feel most safe and supported. If it is evident that the child already talks spontaneously in a particular setting, consider using that one or set up one like it.

2. Provide a linguistic environment that might promote the child's spontaneous use of the language within his developmental competency. Avoid modeling "school language" or known scripted language, avoid asking questions, and avoid giving the impression that there is a "right" thing to say.

3. The language sample can be be taken during the first play session, but it will probably not be the child's best and should be repeated. The first session should be used to establish trust and rapport and to give the child a clear understanding that you are there to listen, not to "teach." The second or third session will probably be the best for eliciting a sample to analyze.

4. Try out the audio equipment before the assessment session and determine that the naturalness of the interaction will not be disturbed by its use. If it is interfering, note-taking can be used, but the sample recorded by hand would usually not be complete. Another option would be to have a second, trusted person take notes, but have that person sit well to the side so the child does not think that person will have her own expectations.

Eliciting a spontaneous language sample

General guidelines within the field of Communicative Disorders apply. Language samples should be spontaneous, not prompted, and derived only minimally through question-asking. If you know the child responds spontaneously to question-asking, occasional questions might jump-start conversation, but direct answers to questions would usually not be counted as spontaneous, and would often lack certain grammar.

For children on the spectrum, other guidelines would apply as well. Children's space should be considered so that children feel safe and free to be themselves. Eye contact or other motor responses would not be expected. Toys and materials would be individually selected to match the visual style and interests of the child. Books and videos would not generally be used unless the clinician is confident that they would promote, rather than limit, spontaneous language use.

Generally accepted practices to "keep the conversation going" would be used, including equal turn-taking, using less language than the child, glossing judiciously, and maintaining an accepting and positive demeanor. These practices would be modified to match each child, so an examiner might take very limited turns if they were judged to inhibit the child's use of spontaneous language.

The assessment is of the child's developmental language competence. It is not an assessment of the words, phrases or sentences he has learned to say outside of his language development, e.g. 'scripts' or learned responses, with or without prompting, visual cuing, or other learning strategy. If the child tends to use utterances of this variety, the clinician should continue to try to elicit a segment that is truly spontaneous. This may take more than one session if a child is not used to his spontaneous language being heard, valued, or acknowledged.

Selecting a language sample for assessment

The sample should be long enough to be representative of the child's language competence at the time. It should be at least a 12-minute sample or a 50-utterance sample, but these min-

imum guidelines do not take into account the highly- variable patterns of children with ASD. A 12-minute sample might have only Stage 1 utterances, when an hour sample reveals Stages 1–4. One 50-utterance sample might contain mostly Stage 2 utterances, while another contains mostly Stage 4. Thus, two samples or one longer one might be needed to capture a more complete sampling of the child's spontaneous language.

The following NLA Scoring Guide is meant for Speech-Language Pathologists' clinical use to assess language levels and to chart language development in their clients. There may be clinician-to-clinician variation in recording styles. One client-clinician dyad might work best with hand-written notes. Another might allow a third person to take notes. Another would be comfortable with audio- taping or even video-taping.

Scoring a language sample with NLA

Samples should be transcribed verbatim. Partner turns, in whole or abbreviated, should be included to provide linguistic context for the conversation. The situation should be noted when important to understanding the linguistic context of the child's comments. All of a child's utterances should be included in the transcript: spontaneous utterances (natural and scripted) and others that were directly elicited (e.g. with a question).

All client utterances from the transcript are transferred to the NLA assessment form, included as Appendix B. Those that are deemed spontaneous (either natural or scripted) and not directly elicited are numbered and scored. An utterance other than a sentence is defined as a "unit of meaning" (series of sounds and words spoken as a unit). Even a long monologue is judged to be one utterance if it is spoken as a unit, as a gestalt.

Rote utterances that have been specifically taught are numbered on the NLA form but scored 0, even if they are mitigated. NLA scoring reflects natural language development, not the use of learned utterances, even if mitigated. The latter might be valuable to note, however, and comments can be included in the summary.

Scoring guidelines are as follows:

1. Utterances that have been specifically taught are scored 0, both whole learned utterances and mitigated ones.

2. Utterances that are judged to be naturally-acquired whole gestalts, regardless of the length, are scored as Stage 1. Each is a "unit of meaning."

3. Utterances that are judged to be mitigated from natural whole gestalts are scored as Stage 2.

4. Utterances that are single words might be scored as Stage 1 if judged to have been acquired as gestalts; Stage 2 if mitigated from short gestalts as part of a broader Stage 2 process; or Stage 3 if isolated from mitigations as part of a broader Stage 3 process.

5. A two- to three-word utterance could be a Stage 1 gestalt, a Stage 2 mitigation, or a Stage 3 two-word combination. Only knowing the child's linguistic history will tell the examiner which it is.

6. Utterances that are longer than two to three words might be Stage 1 if echoed from elsewhere or Stage 2 if a mitigation. If the child has already successfully negotiated Stage 3, it might be beginning grammar, Stage 4. Again, knowing the child's linguistic history and broader process is imperative to decision-making.

7. Multi-word utterances of any length might be Stage 1 or 2 if they are echolalic in origin. If the child has passed through Stage 3 and it can be determined that the child is generating developmental grammar, they may be more accurately scored as Stage 4–6.

8. Once a child has a large percentage of Stage 4–6 utterances, DSS analysis should follow. Stages 4, 5, and 6 each represent levels within Developmental Sentence Scoring (Stage 4 = DSS 1–3; Stage 5 = DSS 4–6; Stage 6 = DSS 7 and 8). Note that the NLA form groups 4–6 together, however, because assigning Stages 4, 5, or 6 requires a knowledge of DSS. The real value in differentiating Stage 4 from 5 and from 6 is in treatment, because the grammar at each stage can usually be introduced at the same time.

9. Developmental Sentence Scoring is included as Appendix D and should be applied according to the guidelines for DSS.

10. An utterance that includes more than one Stage might be scored one or the either, depending on which score more accurately describes it. A common occurrence is an utterance that includes self-generated grammar, but also a mitigation that has not been fully-broken down.

11. Total number of points at each Stage are tallied and percentages calculated.

Determining assessment results

Determining the percentage of total utterances at each Stage within an appropriate language sample gives the clinician data to help with clinical decision-making about natural language development.

The following provides basic guidelines:

1. If 80% or more of the utterances in an appropriate sample are at one Stage, the child likely operating at that Stage developmentally.

2. If 50% or more of the utterances in an appropriate sample are at one Stage, the child is likely operating at that Stage most (or much) of the time.

3. If no single Stage is represented more than 50% of the time, then processes at more than one Stage are being used.

4. The highest Stage that is represented suggests that the child is developing towards that level.

Establishing treatment goals

Treatment goals can be determined from the assessment results.

Stage 1

1. If the child is using Stage 1 language more than 50% of the time, it is important to look more closely at the other smaller percentage(s) and determine the types of language models at Stage 1 that might lead to a larger Stage 2 component by being easily mitigable.

2. If the child is using Stage 1 language 25–50% of the time, it is important to look at Stage 2 percentage and examples. Looking at the variety and usefulness of Stage 2 mitigations, the clinician can determine what other mitigations might be helpful to move the child solidly to Stage 2 and beyond. The types and variety of Stage 2 mitigations help the clinician assess the types and varieties of models (Stage 1 or Stage 2) that would be the most useful.

3. If the child is using Stage 1 language less than 25% of the time, it may be that Stage 1 language is providing only linguistic "background" for mitigations and providing cross-referencing for Stages 3 and 4.

Stage 2

1. If a child is using Stage 2 language more than 50% of the time, helping to support its functionality and flexibility is important. When people are tuned into the fact that a child is communicating, their feedback helps the child identify what others understand and helps the mitigation process continue. Communicative use of mitigations helps the child to isolate their component parts as well, helping him move some of his language to Stage 3. Ample social language opportunities give the child a feeling of communicative success and helps promote the continuation of natural language development.

2. If a child is using Stage 2 language between 25 and 50% of the time, finer examination of the variety of phrase mitigations is important in order to provide mitigable gestalts and mitigations that will be quickly useful to the child. Social language opportunities are imperative.

3. If the child is using Stage 2 language less than 25% of the time, it is still important to look at those mitigations to see how more examples might help the child isolate the component parts that are yet alluding him.

Stage 3

1. When a child is developmentally ready for Stage 3, his age will likely determine when he tries out his single words and two-word combinations. If he is a pre-schooler, he will probably feel comfortable using them in social situations without feeling pressure to sound more "correct." If he is older, however, and senses how unusual he sounds, he may need encouragement to use this mix-and-match stage in fun practice situations. You will need to set up these situations and play with words (and ideas) with him.

2. If a child is using Stage 3 single words and two-word combinations more than 50% of the time during practice sessions, looking at the variety and flexibility of the combinations is important. Providing opportunities for building a great variety of conceptual combinations will help support the child in getting ready for Stage 4.

3. If the child is using Stage 3 words and combinations between 25 and 50% of the time during practice sessions, it is important to look at Stage 2 and make sure it is comfortable and functional for the child. He may need more Stage 2 language to further break down in order to make a good transition to Stage 3.

4. If a child is using Stage 3 words and combinations less than 25% of the time, it depends on his use of the other levels to determine recommendations. If he is moving out of Stage 1 well and is using Stage 2 flexibly and well, a small percentage of Stage 3 single words provides him with good building materials for Stage 4. This may be just the right combination.

Stage 4

1. If the child is using Stage 4 (or higher) more than 50% of the time, it is important to look at each grammatical utterance to make sure it is developmentally appropriate and foundational to higher-level grammar. It is as important to look at the incorrect sentences as the correct ones, as the former will reflect emerging understanding of the rules of grammar, as well as a child's original thinking. Too many "correct" sentences can be a red flag that the child is trying to sound a certain way, and may undermine the natural developmental process. Too many "correct" sentences increases the possibility that a child will revert to scripted sentences, which he knows are "correct."

2. If the child is using Stages 4–6 between 25 and 50% of the time, it is important to look at Stage 3 to make sure it is rich and varied and supportive of more Stage 4 development. It is also important to look closely at Stage 4 to make sure all structures at each DSS level are represented with a variety of vocabulary and that the child is not trying to move on to higher grammar before he is well-supported with basic grammar.

3. If a child is using Stages 4–6 less than 25% of the time, an examination of the other levels is most important. Grammar should not be promoted before there are adequate building blocks, which need to come from Stage 2 mitigations through Stage 3 single-word isolation.

Repeating the assessment

It is recommended that an assessment be repeated in one to two weeks to help determine if the first assessment reflected the child's true language level. It is also recommended that assessments take place every 3–4 months in order to track longitudinal language development.