

Natural Language Acquisition (Marge Blanc, 2012)

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Collecting and Analyzing a Language Sample



Natural Language Acquisition assessment combines best practices from Speech-Language Pathology with clinical research and 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 them, and matching a child's language 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 their 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 producing 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 Acquisition 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 parts of language gestalts and can "mix and match" them to create new combinations. Stage 3 (isolation and recombination of single words) occurs when Stage 2 chunks are further broken down into their component parts (single words), and words are "recombined" to create original, two-word combina-

tions. Stage 4 describes beginning grammar as two- (or more) word phrases develop. Stages 5 and 6 continue the development of generative grammar through all the levels and components of a complete grammar system.

Language sampling techniques for NLA combine traditional methods with what we know about autistic children, 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:

1. viewing spontaneous videos taken of the child in their home environment. These should not be ‘staged’ in any way, and will help define what the child does and says spontaneously.
2. reading available reports about the child, including OT and PT reports
3. talking with the child’s parents to ascertain the conditions that support the child’s regulation, engagement, and most spontaneous language use
4. setting up a clinical environment that considers parent and OT/PT input and recommendations
5. spending at least 1–3 sessions with the child in a supportive setting. A home visit would be ideal, but not always practical.

Language sampling itself should include at least these parameters:

1. Physical supports for the child’s regulation, and speech and language access.
2. An attentive communication partner who is experienced in listening to and interacting with gestalt language.
3. A recording and transcription method that does not interfere with play or spontaneous 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 score for any particular utterance or utterance part.

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

Learning the history of language exposure

Here are the relevant considerations:

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 their lifetime and might be drawing from any number of them as their Stage 1 comments. If a student is just beginning the NLA process in higher elementary grades or later, the encyclopedia of stories in their mind may be extensive.

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 they might want to communicate.

Talking to family is imperative, but talking to several family members is often important as well. Each will have their 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 in the NLA book, siblings often engage in the dialogues they find particularly entertaining.

Familiarity with the particular 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 impossible 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 soliciting 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. Ask the family to make a home video 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. Set a phone on the window sill, and record real life. 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 solicit the language sample

1. Use the standard guidelines for obtaining spontaneous language samples. Those suggested by Laura Lee in *Developmental Sentence Analysis* (1974) are useful. With gestalt processors and neurodivergent children, additional preparation should be made. Among the most important preparatory recommendations are:

- Provide a setting in which the child’s physical and linguistic access is 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.
 - Provide a linguistic environment that may promote the child’s spontaneous use of the language within their developmental competency. Avoid modeling “school language” or known scripted or taught language, avoid asking questions, and avoid giving the impression that there is a “right” thing to say.
2. The language sample can 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 soliciting a sample to analyze.
 3. Try out the audio/video 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 their own expectations.
 4. 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 linguistic characteristics.
 5. For neurodivergent children, other guidelines would apply as well. Children’s space should be considered so that children feel safe and free to be them-

selves. 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.

6. 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.
7. The assessment is of the child’s developmental language competence. It is not an assessment of the words, phrases or sentences a child has learned to say outside of their language development, i.e. 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 their 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 minimum guidelines do not take into account the highly-variable patterns of autistic children. 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 taught) and others that were directly solicited (e.g. with a question).

In the case of partially or completely unintelligible utterances, an attempt at phonetic transcription is important, as is including intonational contours. It may be important to ask a second person, particularly a family member, to listen to the recording, look at your transcript, and try their hand at transcribing. More attempts at transcription typically result in better interpretation. Committing the phonetics and intonation to memory often reveals patterns that were not apparent when first heard. Replaying audio/video recordings can often make a big difference over time, as the same intonational contours/melodies are heard more than once. Acknowledging speech that is understood begets more intelligible speech, so it is often possible to go back and note language that was communicated before the child was intelligible.

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 taught) and not directly solicited are numbered and scored. An utterance that is not 'analyzed' (mitigated or self-generated) is considered 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.

Utterances that have been specifically taught are included on the NLA assessment form but scored 0, even if they are changed from the original/mitigated. NLA scoring reflects natural language development, not the use of learned utterances, even if mitigated. The latter is 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. This includes utterances that are shortened from the original gestalt, changed in any way, or mixed-and-matched.
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 gestalts as part of a broader Stage 2 process; or Stage 3 if isolated as part of a broader Stage 3 process. These include single words that were directly derived from mitigations, or other single words that were a part of a general Stage 3 referential process.
5. A two- to three-word utterance could be a Stage 1 gestalt, a Stage 2 mitigation, or a Stage 3 word + word combination. Only knowing the child’s linguistic history, including their immediate 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, they 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 is used. 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). As-

signing Stage 4, 5, or 6 to an utterance requires a knowledge of DSS. One 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 used according to the guidelines for DSS.
10. An utterance that includes more than one Stage is scored one or the other, depending on which Stage more accurately describes it. A Stage 2 utterance that includes a single word as one of its mix-and-match parts does not receive two half-scores as in the original Chapter 19 or prior Scoring Guide. It is scored simply as Stage 2. This acknowledges that prior scoring was a “short-cut” that mimicked how Stage 3 has been historically undermined as its own Stage. Another example is a Stage 4 (or higher) self-generated utterance that includes an unanalyzed “mini-chunk” from Stages 1 or 2. If the student has progressed through Stage 3, and is self-generating grammar, but utterances include mini-chunks, they are noted, and the utterance is scored Stage 4. This could happen at Stage 5 or 6 as well.
11. Utterances at each Stage are totaled 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 is 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 support 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 the Stage 2 percentage and examples. Looking at the variety and usefulness of Stage 2 mitigations, the clinician can determine other mitigations that might be helpful to support 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 them move some of their language to Stage 3. Ample social language opportunities give the child a feeling of communicative success and help 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 mitigations is important in order to provide miti-

gable 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 them.

Stage 3

1. When a child is developmentally ready for Stage 3, their age will likely determine when they try out their single words and two-word combinations. If the child is a pre-schooler, they will probably feel comfortable using them in social situations without feeling pressure to sound more “correct.” If the child is older, however, and senses how unusual they sound, they may need encouragement to use this mix-and-match stage in fun practice situations. Our role is to set up these situations and play with words (and ideas) with them.
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 variety of conceptual combinations will help support older children in getting ready for Stage 4. Younger children may need only a short time at Stage 3 before moving successfully into early Stage 4 DST word play.
3. If the child is using Stage 3 words and combinations between 25 and 50% of the time during practice sessions, it may warrant re-looking at Stage 2 to make sure it is comfortable and functional for the child. They may need more Stage 2 language to further break down in order to make a good transition to Stage 3 - or they may simply benefit from further opportunities to “refer” to things, qualities, and locations in different environments to ensure readiness for Stage 4.
4. If a child is using Stage 3 words and combinations less than 25% of the time during practice sessions, it depends on their age, and history at the other levels to determine recommendations. If the child has moved out of Stage 1 well and is using Stage 2 flexibly and well, a small percentage of Stage 3 single words may provide young children sufficient referential sense for Stage 4.

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 utterance with grammar 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 they know 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 and DST combos to make sure they are 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 they are 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 may be 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, and a rich variety of DST "pre-sentence" grammar.

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.

In conclusion

To all of you who have read this final chapter and taken it to heart, welcome to the family of those of us who acknowledge the past of our profession and who are ready to pick up the chain of history that we nearly lost decades ago. Our neurodivergent and neurotypical gestalt language processors are ready and able

to become the language users they have the capacity to be, to be acknowledged as linguistically capable, and to represent themselves as true communicators among their families and peers.

With our help, all language processors can attain respect. Autistic and other neurodivergent children are among the significant part of the population who experience their linguistic journey as gestalt language processors, and with our help, they will be able to achieve their rightful status as natural language processors. With that elevated status, they can achieve authentic language development and flexible use of language to communicate their own personal intentions!

Thank you, and all the best in your worthy endeavor.

