Software for Windows® and Mac

Elicitation Materials

SALT Reference Book

Free Online Training

Transcription Services

Systematic Analysis of Language Transcripts
Jon Miller is an Emeritus Professor at the University of Wisconsin-Madison and CEO of SALT Software LLC. His career has been devoted to child language research with a specific emphasis on, and passion for, language sample analysis (LSA). His software, Systematic Analysis of Language Transcripts (SALT), was developed in the early 1980s. Jon’s mission has been to promote the use of language sample analysis and improve SALT to standardize, simplify, and streamline the process.

Jon was awarded the ASHA Honors of the Association in 2000. He is also the recipient of the ASHFoundation 2017 Frank R. Kleffner Lifetime Clinical Career Award in recognition of outstanding contributions to the clinical science and practice in communication science and disorders.
Why Language Sample Analysis?

- LSA assesses functional, natural spoken language
- LSA is non-biased and culturally responsive
- LSA is valid, reliable, repeatable
- LSA is evidence based
- LSA augments standardized measures
- LSA correlates to classroom performance and parent input
- LSA identifies language impairment
- LSA is sensitive to change over time
- LSA is compatible with RtI
- LSA aligns with Core Standards

Why SALT?

- SALT standardizes the LSA process
- SALT compares results to typical peers
- SALT provides performance levels across syntax, morphology, semantics, discourse, and verbal facility
- SALT provides data for goals and progress
- SALT generates user-friendly assessment results
- SALT supports bilingual assessment
- SALT supports quick sample collection with minimal training
- SALT yields comprehensive results with short samples
- SALT is criterion referenced
SALT 18 Clinical Software & PDF Textbook ($195)
Clinical software for assessing language acquisition and disorders through the analysis of language samples. Includes an editor for transcribing samples and produces numerous reports containing more than 50 measures of syntax, semantics, discourse, fluency, and speaking rate. There are multiple reference databases for comparison to age and grade-matched peers. This version of SALT contains built-in support for Spanish and French but may be used with many other languages.

SALT 18 Student Software & PDF Textbook ($65)
Discounts the Clinical version for student purchase.

SALT 18 Instructional Software Site License ($695)
Licenses the Clinical version to colleges and universities for instructional and clinical training. It may be installed freely on any number of campus computers or networks. There are no annual fees.

SALT 18 Research Software & PDF Textbook ($595)
Expands the Clinical version with a set of research tools designed to analyze large data sets. Export data from SALT in a format that can be read by other programs such as SPSS®, SAS®, Excel® and Access®; explore sets of transcripts to search for utterances or words that are of special interest to you; generate lists of words and codes across a set of transcripts; and build your own reference databases to use for comparison.

SALT 18 Software and Elicitation Kits

For: Windows® 10/8/7/XP
Mac OS X v10.8–10.13

Story Retell Elicitation Kit ($101)
The Narrative Story Retell database procedures require seven books to elicit samples; one wordless picture book, three books with text, and three books with text covered. This kit includes:

- Laminated elicitation protocols
- *Pookins Gets Her Way* (H. Lester, 1987)
- *A Porcupine Named Fluffy* (H. Lester, 1987)
- *Doctor De Soto* (W. Steig, 1982)
- Laminated comprehension question protocol
- Scoring pads for the comprehension questions

Expository & Persuasion Elicitation Kit ($16)
The Expository and Persuasion database procedures use specific protocols to elicit samples. This kit includes:

- Laminated database descriptions and elicitation protocols
- Pads of expository and persuasion planning sheets

Frog Story Elicitation Kit ($80)
The Bilingual Spanish/English and Monolingual Spanish database procedures use four different frog books to elicit samples. This kit includes:

- Laminated elicitation protocols
- USB drive with MP3 audio scripts in Spanish and English for each book
- *Frog Goes To Dinner* (M. Mayer, 1974)
- *Frog On His Own* (M. Mayer, 1973)
- *One Frog Too Many* (M. & M. Mayer, 1975)
- Laminated comprehension question protocol
- Scoring pads in English and Spanish for the comprehension questions

Textbook ($20)

Provides both the conceptual background of LSA and practical guidelines for using SALT.

A PDF copy of the textbook is included with the Clinical, Student, and Research Software versions.
What are the steps?

1. Collect a language sample
   • Follow SALT elicitation protocols
   • Record a sample for later transcription

2. Type the language sample
   • Simple transcription conventions
   • Built-in editor

   $ Child, Examiner
   + Name: Kaia
   + CA: 11;4
   + Context: Conversation

   E How does she do that?
   C (She) she like/3s to (um) jump up (on it) on the door handle.
   C And she swing/3s on it.
   C (Um hang) she hang/3s on it and kind of (push) push/3s it.
   C Yeah.
   C (And get um) she push/3s her foot against the wall.
   E She sound/3s really interesting.
   C Yeah.
   E Does she have other skill/s?
   : :02
   C (Um she/’s not a) she/’s not a great hunter.
   E What is the kitty/z name?
   C (Her name is) her name is Missy_Mae.
   C And she :03 does/n’t like to be cuddled.
   C But (she like/3s to be) she like/3s to be around people.

3. Compare to database samples
   • Choose an appropriate reference database
   • Match samples to age or grade-matched peers
   Note: samples can be analyzed without a database comparison

4. Select Performance Report
   Your personal report-writing assistant
   • Identifies significant LSA outcomes
   • Generates customized text to copy and paste into your reports
   • Saves time and effort

5. Select from a variety of other reports
   Choose reports to provide further detail and to support the outcomes identified in the Performance Report. For example,
   • Standard Measures Report
   • Rate and Pause Summary
   • Maze Summary
   • Grammatical Categories
   • Omissions and Error Codes

Reference Databases Built Into SALT

Databases of English-fluent Speakers
• Play
  - ages 2;8 - 5;8 (grades Pre-K and K)
• Conversation
  - ages 2;9 - 13;3 (grades Pre-K, K - 3, 5, 7)
• Narrative SSS (student selects story)
  - ages 5;2 - 13;3 (grades K - 3, 5, 7)
• Narrative Story Retell
  - based on 4 stories
  - ages 4;4 - 12;8 (grades Pre-K, K - 6)
• Expository
  - ages 10;7 - 18;9 (grades 5 - 7, 9 - 12)
• Persuasion
  - ages 12;10 - 18;9 (grades 9 - 12)

Database of Bilingual (Spanish/English) and Monolingual Spanish Speakers
• Bilingual Spanish/English Story Retell
  - based on 3 frog stories
  - ages 5;0 - 9;9 (grades K - 3)
• Bilingual Spanish/English Unique Story
  - based on 1 frog story
  - ages 5;0 - 9;7 (grades K - 3)
• Monolingual Spanish Story Retell
  - based on 4 frog stories
  - ages 5;10 - 10;7 (grades 1 - 3)

Databases Contributed by Colleagues
• TNL Narrative Samples
  - narratives used to norm the Test of Narrative Language (Gillam & Pearson, 2004)
  - ages 5;0 - 11;11
• New Zealand/Australia databases
  - conversation, personal narratives, story retell, and expository
  - ages 4;0 - 8;9
• ENNI
  - narratives used to norm the Edmonton Narrative Norms Instrument (Schneider, Dubé & Hayward, 2005)
  - ages 3;11 - 10;0
The Standard Measures Report presents the results in table format. Values which are at least one standard deviation from the database mean are highlighted.

<table>
<thead>
<tr>
<th>LANGUAGE MEASURE</th>
<th>DATABASE INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Database: Conversation</td>
</tr>
<tr>
<td></td>
<td>25 Samples Matched by Age</td>
</tr>
<tr>
<td></td>
<td>24 Samples Cut at 621 Number Total Words</td>
</tr>
<tr>
<td>Context: Conversation</td>
<td></td>
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</tbody>
</table>

### Standard Measures Report

<table>
<thead>
<tr>
<th>LANGUAGE MEASURE</th>
<th>DATABASE INFORMATION</th>
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<tbody>
<tr>
<td></td>
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<tr>
<td></td>
<td>24 Samples Cut at 621 Number Total Words</td>
</tr>
<tr>
<td>Context: Conversation</td>
<td></td>
</tr>
</tbody>
</table>

#### Transcript Information

- **Speaker:** Kaia (Child)
- **Sample Date:** 9/11/2017
- **Current Age:** 11;4, Grade: 6
- **Context:** Conversation

#### Transcript Length

<table>
<thead>
<tr>
<th>Measure</th>
<th>Score</th>
<th>+/-SD</th>
<th>Mean</th>
<th>Min</th>
<th>Max</th>
<th>SD</th>
<th>%SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Utterances</td>
<td>92**</td>
<td>-3.16</td>
<td>233.60</td>
<td>148</td>
<td>304</td>
<td>44.79</td>
<td>19%</td>
</tr>
<tr>
<td>C&amp;I Verbal Utts</td>
<td>91*</td>
<td>-3.04</td>
<td>218.56</td>
<td>138</td>
<td>278</td>
<td>42.01</td>
<td>19%</td>
</tr>
<tr>
<td>All Words Including Mazes</td>
<td>797*</td>
<td>-1.71</td>
<td>1539.12</td>
<td>566</td>
<td>2360</td>
<td>432.89</td>
<td>28%</td>
</tr>
<tr>
<td>Elapsed Time (10:51)</td>
<td>1085**</td>
<td>-2.99</td>
<td>14.69</td>
<td>12.70</td>
<td>16.92</td>
<td>1.28</td>
<td>9%</td>
</tr>
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</table>

#### Intelligibility

<table>
<thead>
<tr>
<th>Measure</th>
<th>Score</th>
<th>+/-SD</th>
<th>Mean</th>
<th>Min</th>
<th>Max</th>
<th>SD</th>
<th>%SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Intelligible Utterances</td>
<td>98.9%</td>
<td>-0.69</td>
<td>99.30</td>
<td>98.02</td>
<td>100.00</td>
<td>0.56</td>
<td>1%</td>
</tr>
<tr>
<td>% Intelligible Words</td>
<td>99.8%</td>
<td>0.10</td>
<td>99.82</td>
<td>99.39</td>
<td>100.00</td>
<td>0.18</td>
<td>0%</td>
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</tbody>
</table>

#### Syntact/Morphology

<table>
<thead>
<tr>
<th>Measure</th>
<th>Score</th>
<th>+/-SD</th>
<th>Mean</th>
<th>Min</th>
<th>Max</th>
<th>SD</th>
<th>%SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>MLU in Words</td>
<td>6.82</td>
<td>0.32</td>
<td>6.35</td>
<td>3.72</td>
<td>9.31</td>
<td>1.48</td>
<td>23%</td>
</tr>
<tr>
<td>MLU in Morphemes</td>
<td>7.49</td>
<td>0.30</td>
<td>6.99</td>
<td>4.10</td>
<td>10.42</td>
<td>1.66</td>
<td>24%</td>
</tr>
<tr>
<td>Verbs/Utterance</td>
<td>1.33</td>
<td>0.70</td>
<td>1.12</td>
<td>0.59</td>
<td>1.69</td>
<td>0.30</td>
<td>26%</td>
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#### Semantics

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<th>Measure</th>
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<th>+/-SD</th>
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<th>Min</th>
<th>Max</th>
<th>SD</th>
<th>%SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number Total Words (NTW)</td>
<td>621</td>
<td>0.00</td>
<td>621.00</td>
<td>621</td>
<td>621</td>
<td>0.00</td>
<td>0%</td>
</tr>
<tr>
<td>Number Different Words (NDW)</td>
<td>192*</td>
<td>-1.66</td>
<td>214.13</td>
<td>183</td>
<td>235</td>
<td>13.33</td>
<td>6%</td>
</tr>
<tr>
<td>Type Token Ratio (TTR)</td>
<td>0.31*</td>
<td>-1.66</td>
<td>0.34</td>
<td>0.29</td>
<td>0.38</td>
<td>0.02</td>
<td>6%</td>
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<tr>
<td>Moving-Average TTR (100)</td>
<td>0.61</td>
<td>0.48</td>
<td>0.60</td>
<td>0.54</td>
<td>0.67</td>
<td>0.03</td>
<td>5%</td>
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</table>

#### Discourse

<table>
<thead>
<tr>
<th>Measure</th>
<th>Score</th>
<th>+/-SD</th>
<th>Mean</th>
<th>Min</th>
<th>Max</th>
<th>SD</th>
<th>%SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Responses to Questions</td>
<td>88.0%</td>
<td>0.58</td>
<td>82.10</td>
<td>60.00</td>
<td>100.00</td>
<td>10.14</td>
<td>12%</td>
</tr>
<tr>
<td>Mean Turn Length (words)</td>
<td>13.30</td>
<td>-0.05</td>
<td>13.59</td>
<td>6.16</td>
<td>27.42</td>
<td>5.95</td>
<td>44%</td>
</tr>
<tr>
<td>Utterances with Overlapping Speech</td>
<td>4*</td>
<td>-1.36</td>
<td>12.38</td>
<td>2</td>
<td>28</td>
<td>6.15</td>
<td>50%</td>
</tr>
<tr>
<td>Interrupted Other Speaker</td>
<td>1</td>
<td>0.15</td>
<td>0.79</td>
<td>0</td>
<td>6</td>
<td>1.35</td>
<td>17%</td>
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#### Verbal Facility

<table>
<thead>
<tr>
<th>Measure</th>
<th>Score</th>
<th>+/-SD</th>
<th>Mean</th>
<th>Min</th>
<th>Max</th>
<th>SD</th>
<th>%SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Words per Minute</td>
<td>73.46*</td>
<td>-1.10</td>
<td>104.42</td>
<td>53.92</td>
<td>162.19</td>
<td>28.09</td>
<td>27%</td>
</tr>
<tr>
<td>Pauses Within Utterances</td>
<td>5**</td>
<td>3.80</td>
<td>1.04</td>
<td>0</td>
<td>4</td>
<td>1.04</td>
<td>100%</td>
</tr>
<tr>
<td>Pauses Between Utterances</td>
<td>7</td>
<td>0.13</td>
<td>6.00</td>
<td>0</td>
<td>32</td>
<td>7.70</td>
<td>128%</td>
</tr>
<tr>
<td>Pause Time as % of Total Time</td>
<td>4.8%</td>
<td>0.01</td>
<td>4.69</td>
<td>0.00</td>
<td>25.18</td>
<td>5.26</td>
<td>112%</td>
</tr>
<tr>
<td>Maze Words as % of Total Words</td>
<td>22.2% *</td>
<td>5.54</td>
<td>7.51</td>
<td>2.82</td>
<td>12.66</td>
<td>2.65</td>
<td>35%</td>
</tr>
<tr>
<td>Abandoned Utterances</td>
<td>0**</td>
<td>-2.01</td>
<td>4.04</td>
<td>0</td>
<td>9</td>
<td>2.01</td>
<td>50%</td>
</tr>
</tbody>
</table>

#### Errors

<table>
<thead>
<tr>
<th>Measure</th>
<th>Score</th>
<th>+/-SD</th>
<th>Mean</th>
<th>Min</th>
<th>Max</th>
<th>SD</th>
<th>%SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Utterances with Errors</td>
<td>5.5%</td>
<td>0.20</td>
<td>4.99</td>
<td>1.47</td>
<td>9.68</td>
<td>2.49</td>
<td>50%</td>
</tr>
<tr>
<td>Number of Omissions</td>
<td>2</td>
<td>-0.12</td>
<td>2.21</td>
<td>0</td>
<td>6</td>
<td>1.72</td>
<td>78%</td>
</tr>
<tr>
<td>Number of Error Codes</td>
<td>3</td>
<td>-0.21</td>
<td>3.67</td>
<td>0</td>
<td>12</td>
<td>3.12</td>
<td>85%</td>
</tr>
</tbody>
</table>

*Calculations based on C&I Verbal Utts

*At least 1 SD (** 2 SD) from the database mean

*Database selection criteria: age +/- 6 months (10;10 - 11;4)
SALT 18 Performance Report

Language Sample Analysis with SALT Software

Elicitation Task and Database Overview
Kaia completed a conversational sample with an examiner. Her language sample was compared with samples from 25 speakers completing the same task. These database samples were within 6 months of Kaia’s age. Some language measures, such as number of different words and number of errors, are affected by the length of the sample, i.e., the longer the sample, the more opportunity to produce them. For these measures, Kaia’s sample was compared with a subset of 24 samples matched in length by the same number of words. All measures are interpreted using a standard deviation interval of 1.00 SD.

Transcript Length
Kaia produced 92 utterances using a total of 797 words in 10 minutes and 51 seconds.

Intelligibility
Kaia’s intelligibility was within normal limits with 98.91% intelligible utterances and 99.84% intelligible words.

Syntax/Morphology
Kaia’s mean length of utterance (MLU) in words was 6.82, which was within the normal range compared to her database peers. Her MLU in morphemes was 7.49, which was also within the normal range.

Semantics
Kaia used 192 different words (NDW) within an analysis set of 621 total words (NTW). NDW was 1.66 SD below the database mean. Comparing NDW to NTW across the sample shows a moving-average type token ratio of 0.61, which was within the normal limits. Although this ratio is within normal limits, low NDW may indicate reduced vocabulary diversity.

Discourse
The examiner asked 25 questions and made 46 statements. Kaia produced 92 statements and didn’t ask any questions. She responded to 88.00% of questions asked by the examiner, which was within normal limits compared to the database mean of 82.10%. Kaia used an average of 1.96 utterances and 13.30 words per speaking turn, which was within normal limits compared to database means of 2.15 utterances and 13.59 words. Her sample contained 4 utterances that overlapped with the examiner, which was within normal limits. She interrupted the examiner 1 time during the language sample, which was within normal limits.

Verbal Facility
Kaia’s rate of speech, at 73.46 words per minute, was slower than the database mean by 1.10 SD. Her sample contained 5 within-utterance pauses for a total time of 14 seconds, with an average pause time of 2.80 seconds. The total number of pauses and total pause time were both more than 3 SD higher than the database mean. The average pause time was within normal limits. Kaia’s sample also contained 7 between-utterance pauses for a total time of 17 seconds, with an average pause time of 2.43 seconds. These between-utterance pause values were within normal limits. Pause time as a percent of total time was 4.76%, which was within normal limits. In Kaia’s sample, 22.18% of the words were filled pauses, false starts, repetitions, or reformulations. This percentage of words in mazes was more than 3 SD higher than the database mean of 7.51%. Her sample contained 74 mazes, which were found in 51.65% of her utterances. Kaia’s mazes consisted of a high number of both phrase-level and word-level revisions and repetitions. A high number of pauses and mazes may indicate difficulty with word retrieval and/or utterance formulation.

Errors
5.49% of Kaia’s utterances contained errors, which was comparable to her database peers. She omitted a contracted verb form once, although she produced it 21 times. She used the plural bound morpheme 17 times, the possessive bound morpheme once, the past tense bound morpheme eight times, the 3rd person singular bound morpheme 11 times, the present progressive bound morpheme five times, and the contracted negative 11 times. She also omitted the word IS once. Her sample contained the following word-level errors: HIT/3S[EW:HITTING], IS[EW:ARE], and THERE’S[EW:THERE_ARE].

The Performance Report is a cohesive narrative which summarizes your client’s expressive language performance, noting both strengths and challenges. This narrative format allows you to quickly and easily incorporate LSA results into your reports and Individual Education Plans.
“I’ve used SALT story retells consistently as a fabulous tool to determine a student's functional language ability and as a progress measure. It is fast and efficient! I love it!”
Andrea O’Neill, SLP
Madison, WI

“SALT gives me standardized data from a language sample which is always (always!) a more exact representation of a student’s speech and language skills than a standardized test. I get thorough, detailed, and standardized information on various aspects of speech and language (including fluency, word finding, processing time) from the same 5–7 min sample. I can evaluate a Spanish speaking ELL even though I do not know Spanish. And eliciting a language sample reduces stress for the student during the evaluation process—a short, naturalistic environment instead of long, stressful, test-taking process.”
Katia Ravins, SLP
San Bernardino, CA

“I am a regular SALT user and am really pleased with the new Performance Report. It helps interpret the child’s score profile and makes the assessment results much more user-friendly and easy to understand.”
Michael Rosenthal, Ph.D.
Pediatric Neuropsychologist
Manhattan, NY

“By using SALT I have been able to use data from just a few minutes of a language sample to obtain a wealth of valuable information about various areas of a child’s language. It has helped me take a big step toward obtaining a true representation of a child’s functional language abilities.”
Robin Changarathil, SLP
Edmonton, Canada

“SALT is a great way of making a principled decision on whether a student, who oftentimes has been in speech for many, many years, is ready for dismissal. Standardized tests tell you something but SALT gives you functional performance that you really can’t get anywhere else.”
Thomas Malone, SLP
Brown Deer, WI
Winner ASHA 2014 Editor’s Award

“What our Customers are Saying about SALT

“SALT has been an invaluable aid to my clinical judgment. It really helps to ‘see’ a student’s language sample in black and white, both the actual transcript and the statistical comparison to peers on several critical measures of expressive language. Parents also appreciate being able to look at their child’s performance from this approach.”
Patty Hay-Chapman, SLP
Madison, WI

“While I use the information for eligibility purposes, the information obtained from SALT is a great way for clinicians to determine programming needs and to monitor progress. SALT is a tool that every clinician should have access to in order to better understand the language production of the students they serve.”
Brett Borne, S/L Diagnostician
Middleton, WI

“I have gained so much information about my students’ language through SALT analysis and have found it to be such a useful tool for annual IEPs and evaluations.”
Marcie Morison, SLP
Waunakee, WI

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• Online: www.saltsoftware.com
• Phone: 1-888-440-7258
• Purchase Order: fax to 608-237-2220 or email sales@saltsoftware.com

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