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## ProcoderDV

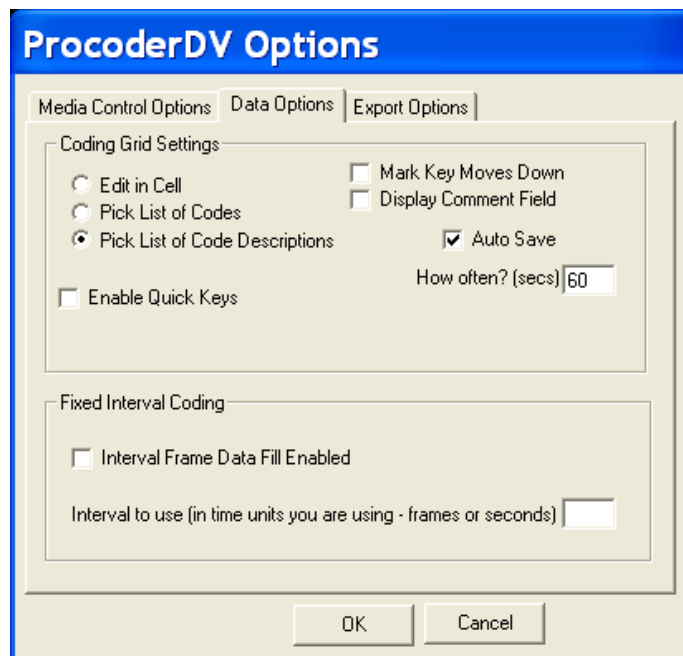
ProcoderDV is the computer program you will use to watch and code the CSBS and BOSCC assessment videos. Please see the following information for setup, general use, and keyboard shortcuts.

### I. Setting Options for ProcoderDV

A. Open ProcoderDV. The ProcoderDV menu bar looks like the following:



B. Select 'Edit > Options' to get the following dialogue box:

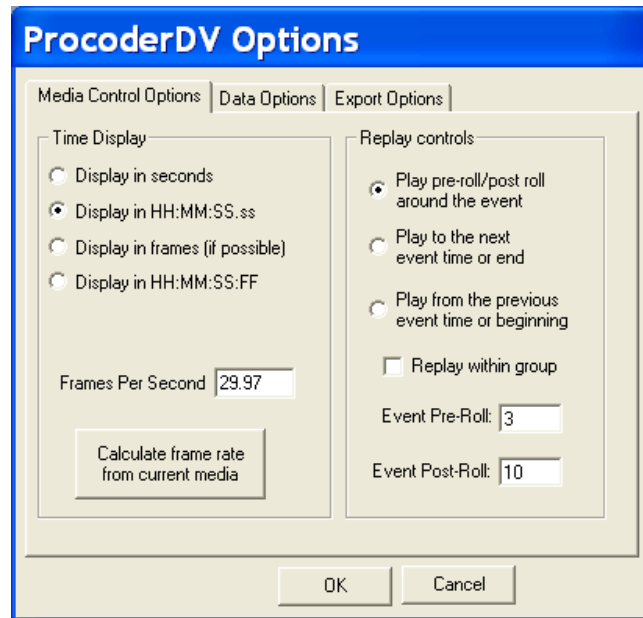


C. Set the 'Data Options' tab as shown above to:

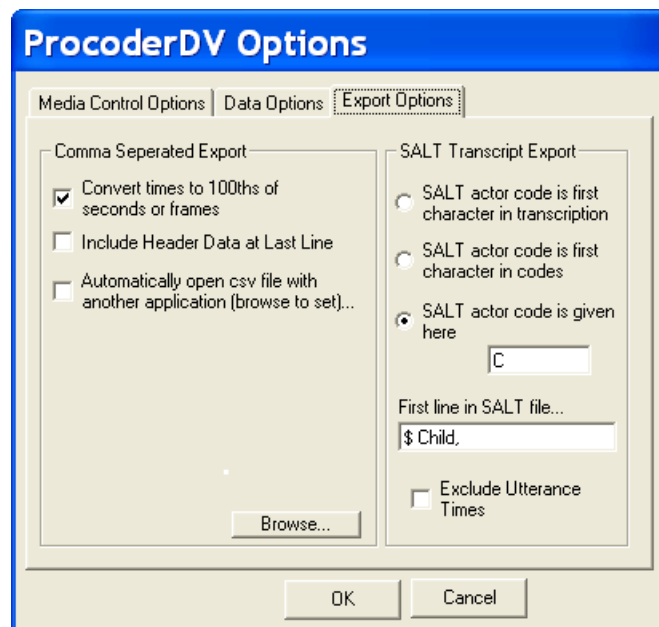
1. 'Coding Grid Settings' → 'Pick List of Code Descriptions'
2. Check 'Auto Save'
  - a. 'How often? (secs)' → 60
3. Under 'Fixed Interval Coding' nothing is selected or entered

D. Select the 'Media Control Options' tab and the settings (illustrated on following page):

1. 'Time Display' → 'Display in HH:MM:SS.ss'
2. 'Frames Per Second' → 29.97
3. 'Replay controls' → 'Play pre-roll/post roll around the event'
4. 'Event Pre-Roll' → 3
5. 'Event Post-Roll' → 10



- E. Set 'Export Options' tab (indicated below):
1. 'Comma Separated Export' → 'Convert times to 100ths of seconds or frames'
  2. 'SALT Transcript Export' → 'SALT actor code is given here'
    - a. The letter C is entered in the box following this option
  3. 'First line in SALT file...' → \$ Child,
    - a. Note: There is a space between \$ and Child,
  4. The 'Exclude Utterance Times' box is left UN-checked
  5. Press the 'OK' button at the bottom of the window to accept and save these option settings



F. Import Code File from the Network

1. Copy the Code file, **csp 12\_22\_15(2)** (\\KRUPA\Yoder\8-TADPOLE PROJECT\Coding\Assessment\CSP Coding), onto your hard drive
  - a. Never code a file using a code file that is on the server. Doing so can result in corrupting the code file.
  - b. Save the copied code file to a location that can be easily found each time you make a new ProCoderDV transcription file.
2. Use this code file when coding both CSBSs and BOSCCs.

II. The ProCoderDV File

A. Open ProCoderDV

B. Open a new *transcription* data file by selecting 'File > New > Transcription Data File'

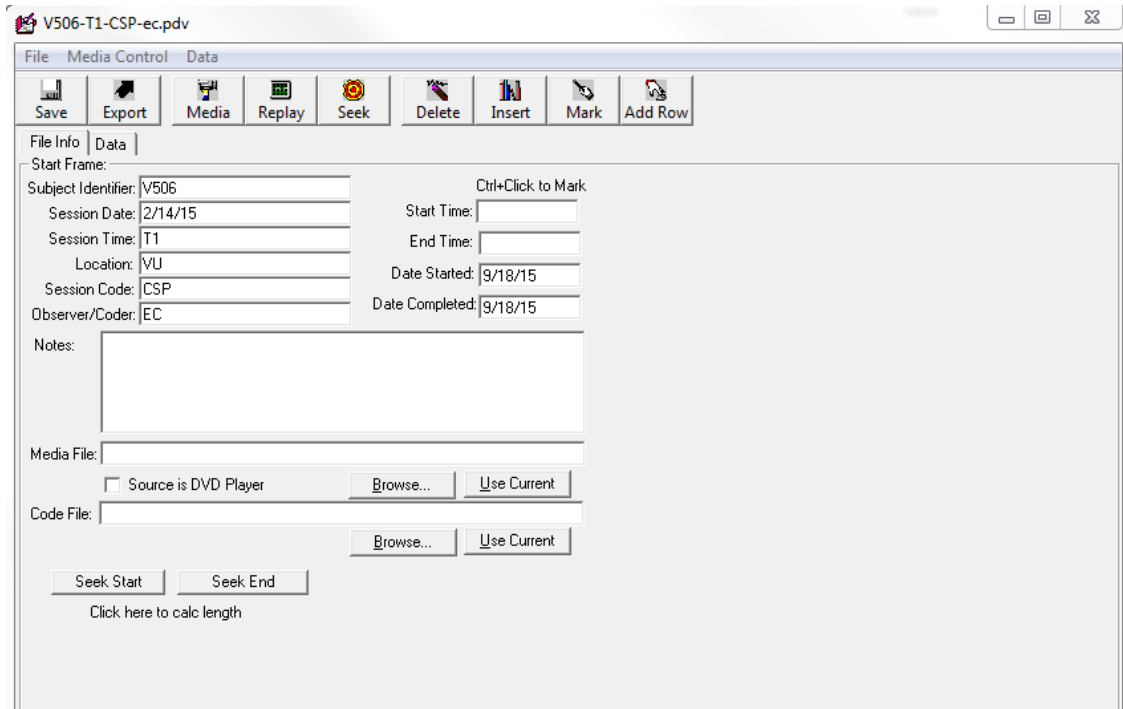
C. Name the transcription file. Use the following convention, separating each component of the following list with a hyphen (-):

1. Site initial + Research ID# (V1XX)
2. Time of visit (T1, T2, T3, or T4)
3. Procedure initials (BOSCC or CSBS)
4. Coder's initials, first and last
5. End file name with "-reliability" if this is a reliability check by a secondary coder
6. There is no need to put the extension on the filename (e.g., .pdv) because ProCoderDV does this automatically.
7. Save file to a designated folder on your computer
  - a. Ex: "V106-T1-BOSCC-ec" for a primary coding file, or "V106-T1-BOSCC-ec-reliability" for a reliability coding file

D. Fill out the information in the 'File Info' tab (illustrated on the following page):

1. 'Subject Identifier' → Site initial + Research ID# (Ex: V104, W104)
2. 'Session Date' → Date of Assessment (MM/DD/YY)
  - a. You may have to watch the beginning of the video to get the date from the assessor's announcement, then go back and fill in this information.
3. 'Session Time' → The month or time-visit of the appointment
  - a. In the Impact Project, CSBS and BOSCC visits occur at each time period (T1-T4).
  - b. Write "T + time-visit#" (T1, T2, etc.)
4. 'Location' → The initials of the site where the assessment was recorded
  - a. Vanderbilt University = "VU"
  - b. Washington University = "WU"
5. 'Session Code' → The initials of the assessment (CSBS or BOSCC)
6. 'Observer/Coder' → Your initials
7. 'Date Started' → Date you began coding this file
8. 'Date Completed' → Date you finished coding the file
  - a. While you *can* start coding a file and finish it at another time, be certain that the length of time between 'Date Started' and 'Date Completed' is no longer than two days. Only start a

file if you are certain you can complete the file that day or the following day. Never start coding a file on a Friday afternoon if you cannot finish coding it before the weekend.

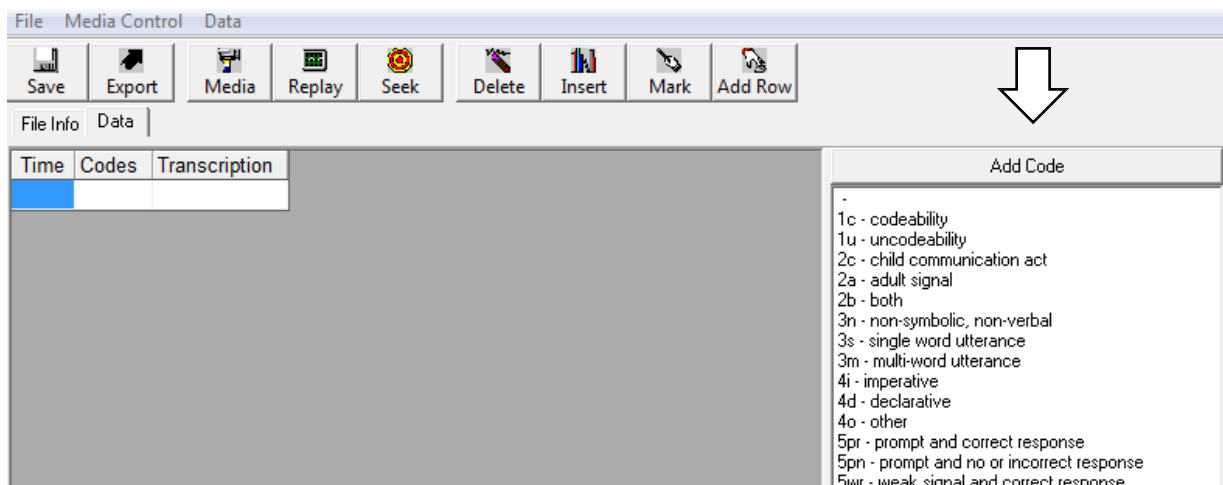


- E. Copy the media file that corresponds with the selected assessment from the media server (vu1file) onto your hard drive
  1. NEVER link a ProCoderDV transcription file with a media file on the media server. Doing so can result in corrupting the media file.
  2. Store the copied media file into a designated folder on your desktop
  3. Remove the media from your desktop folder after you've completed coding by placing it in the Recycle Bin. The original media file will still be accessible on the network.
  
- F. Link the media file and the code file
  1. Under 'Media File' in the 'File Info' tab, select the 'Browse' button.
    - a. Browse to where you saved your copy of the media file and select the target video.
  2. Under 'Code File' select the 'Browse' button.
    - a. Browse to the location on your hard drive where you saved the copied code file (when setting up ProCoderDV initially—see section I., F. "Import Code File" on previous page)

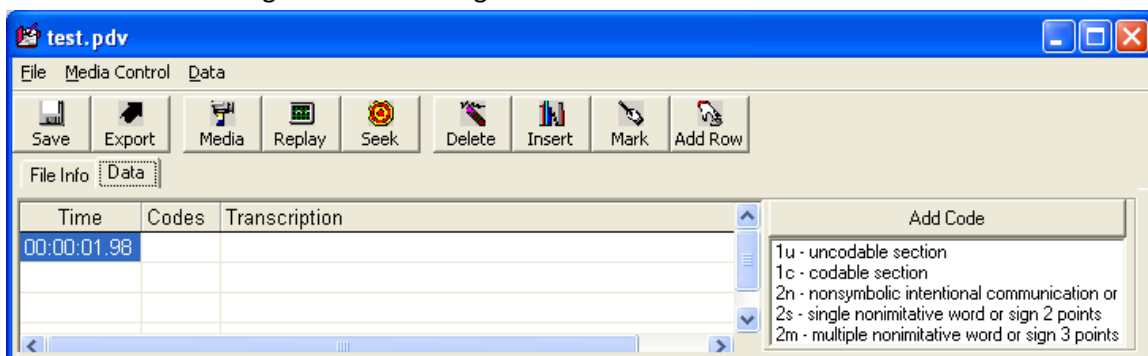
### III. ProCoderDV Controls and Keyboard Shortcuts

1. Getting Ready to Code
  - a. Make the media file visible
    - i. Select the 'Media' button (it has an image of a hand holding a camcorder over the label 'Media')—this should make the media file open through ProCoderDV.
  - b. Playback volume standards—standardizing the volume supports reliability on word approximations and vocal communication

- i. Set the Master Volume on the computer to maximum.
  - ii. Set the volume setting on the headphones themselves to roughly  $\frac{3}{4}$  of maximum intensity.
- c. Make the codes show
- i. Select the 'Data' tab of the ProCoderDV window (below the buttons with images, *not* the 'Data' dropdown menu above the icons).
  - ii. The code descriptions should appear in a list on the right hand of the transcription window.
    - If you don't see your code descriptions shown, select the 'Data' dropdown menu option and select 'Show loaded code file.'



- d. Expand the cells to display the full 'Time,' 'Codes,' and 'Transcription.'
    - i. Put the cursor on the margins of the cells and, holding the left mouse button down, stretch the margin of the cells (like you might in Excel).
- e. Indicate the start time
- i. Put the cursor in the first 'Time' cell.
  - ii. Press **Ctrl+D** to play the media file, and press **Ctrl+F** to pause the video at the offset of the examiner saying "Start coding here," and starting the assessment timer.
  - iii. Press **Ctrl+E** to mark the time of the video in the paused position. It should look something like the following:



- f. Position the media and transcription windows on different halves of the screen so that you can see both simultaneously.

2. Controls while coding

- a. To begin playing media
  - i. Use the mouse to place cursor in cell for 'Time,' 'Codes,' or 'Transcription' in the transcription window.
  - ii. Press **Ctrl+D** on the keyboard.
- b. To stop playing/pause media
  - i. Make sure the cursor is in the 'Time,' 'Codes,' or 'Transcription,' cells in the transcription window.
  - ii. Press **Ctrl+F** on the keyboard.
- c. If a selected cell is highlighted blue, the media will not play.
  - i. Place your cursor in a different cell to remove the highlight.
- d. To pause media and mark the time on a new entry line
  - i. Make sure your cursor is in a correct position (not highlighting a cell blue, but rather framing it with a bold border).
  - ii. Press **Ctrl+X** on the keyboard.
  - iii. The video will pause at the time mark you've selected.
  - iv. The time will display in a newly created row at the bottom of the transcription rows.
  - v. The time serves as the "pivot" for REPLAY and SEEK features in ProCoderDV.
- e. To mark the time without pausing the video or creating a new entry-line
  - i. Make sure your cursor is highlighting a cell in the row for which you want to change the time.
  - ii. Press **Ctrl+E** on the keyboard.
    - A good example of when we use this control is to indicate the start time— instead of creating a new, bottom row (and having to go back and delete the pre-existing, but unused rows above it), the **Ctrl+E** option lets you mark the first, empty row in the transcription window and use it as your first entry-line.
- f. To rewind the media playback
  - i. Whichever cell your cursor has selected dictates from where the media will rewind (3 seconds).
    - If you do not have any cell selected, the media will play from the beginning of the video.
  - ii. Press **Ctrl+A**.

- iii. The media will play from 3 seconds before the time-mark selected and pause after 10 seconds.
    - If you do not want the media to pause after 10 seconds, you can press **Ctrl+D** (play) at any time.
  
  - g. To write in the cell
    - i. Make sure your cursor has selected (not blue highlighting) the cell you want to type in.
    - ii. Simply double click, hit the “Enter” key, or hit the “Space Bar” to begin typing.
    - iii. After you’ve finished your typing in the cell, use the arrow keys or mouse to navigate away from the cell.
  
  - h. To delete a row
    - i. Make sure you have selected a cell in the row you wish to delete.
    - ii. Either press the “Delete” button on the keyboard or click the “Delete” icon/button at the top of the transcription window (has a pencil end + eraser image).
  
  - i. To sort time stamps
    - i. The “time stamp” is the time that appears in the left hand column of the ProCoderDV file; it “stamps” the time of each of the marked parts in coded video.
    - ii. There may be times when the time-stamps get marked out of order.
    - iii. To sort the time, select the data tab at the top of the menu bar. Then select “Sort Data Grid by Time” or press F12.
3. List of keyboard controls to manipulate media playback
- Ctrl+A** = Pre-roll (3 sec.) & stop (at 10seconds)
  - Ctrl+B** = Pre-roll & play (3 sec. pre-roll that continues to play until stopped)
  - Ctrl+D** = Play
  - Ctrl+E** = Mark (no stop)
  - Ctrl+F** = Stop
  - Ctrl+G** = Go to start
  - Ctrl+H** = Hide or unhide selected columns
  - Ctrl+K** = Delete current row
  - Ctrl+N** = Insert a row
  - Ctrl+M** = Add a row
  - Ctrl+R** = Find/Seek
  - Ctrl+X** = Stop & mark
  - F5** =  $\frac{3}{4}$  speed
  - F12** = Sort Data Grid by Time



## Coding

These are the five coding groups; each group represents a different facet of coding communication samples. We'll go into detail about each group in this section.

Group 1: Codeable and Uncodeable Time [1c/1u]

Group 3: Types of Communication Acts [3n/3s/3m]

Group 4: Types of Pragmatic Function [4i/4d/4o]

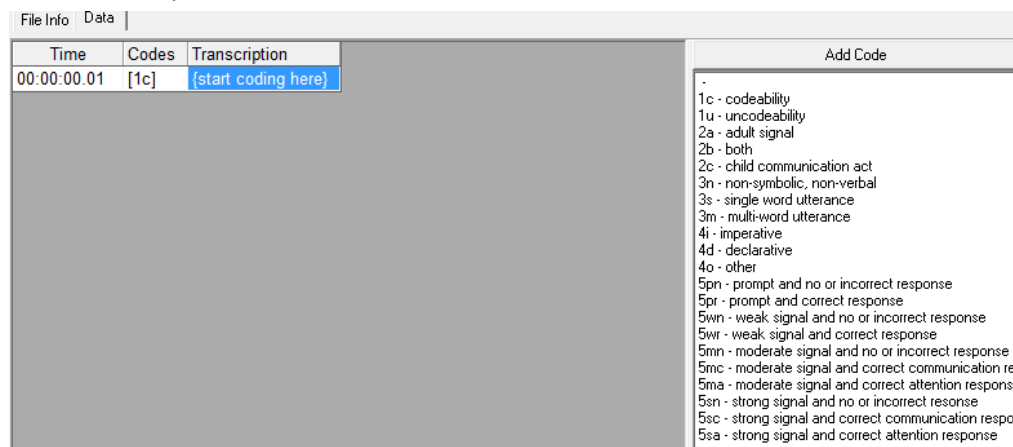
### I. Coding Group 1: Codeable and Uncodeable Time [1c/1u]

- A. These are used to mark the onset [1c] and offset [1u] of codeable sections of the assessment so that the SALT software program can compute the total duration of analyzable time in the session. Intentional communication acts can only be coded during a codeable section of the session.
- B. [1c] and [1u] are always coded on their own transcription lines.

### C. Codeable Time [1c]

#### 1. Onset of Assessment

- a. At the beginning of the assessment, stop the media, code [1c], and transcribe {start coding here} when the following occurs:
  - i. The examiner says, "Start coding here" and starts the timer.
    - The examiner may forget to say "start coding here;" use the timer or other behaviors to make a judgment of when the examiner believes the assessment has begun
      - Ex: Child and examiner begin playing with the CSBS or BOSCC toy sets.
      - Ex: The examiner may say, "Here are some toys for you to play with."
    - If the examiner forgets to make an announcement or forgets to start the timer, make a note of when you began coding the file in the coding log.
  - ii. Your ProcoderDV file should look like the following screenshot at the beginning of *every* transcription file.



#### 2. Resuming Codeable Time

- a. There may be portions of the assessment that are uncodeable (see D below). Coding may be resumed, however, if:

- i. After being obscured for an uncodeable amount of time, the child's face becomes visible again for at least 10 seconds
    - Note: 10 seconds is determined by the clock on the ProCoderDV counter, not by the media or by mental counting.
  - ii. There are at least 10 consecutive seconds of child engagement with the clinician or the toys
- b. Once the session becomes codeable again, mark [1c] and continue coding.
    - i. Code [1c] at the *beginning* of this 10 second period.
  - c. A transcription file with resumed codeable time will look like the following:

Time	Codes	Transcription	Add Code
00:00:00.10	[1c]	{start coding here}	-
00:01:04.20	[3n]	{give}	1c - codeability
00:03:06.01		{voc; coord. attn}	1u - uncodeability
00:04:08.56	[1u]	{child's face not visible > 10 sec}	2a - adult signal
00:04:20.71	[1c]	{child's face visible; resume coding}	2b - both
00:04:30.01	[3s]	car	2c - child communication act

3n - non-symbolic, non-verbal  
3s - single word utterance  
3m - multi-word utterance  
4i - imperative  
4d - declarative  
4o - other  
5pn - prompt and no or incorrect response  
5pr - prompt and correct response

#### D. Uncodeable Time [1u]

##### 1. Offset of Assessment

- a. At the end of the assessment, stop the media, code [1u], and transcribe {stop coding here} when the following occurs:
  - i. The examiner says "stop coding here" as the timer signals the end of the assessment
    - The examiner may forget to say "stop coding here;" use the timer or other behaviors to make a judgment of when the examiner believes the assessment has ended.
      - Ex: The examiner may say, "We're all done with these toys."
  - ii. Your ProCoderDV file should look something like the following screenshot at the end of every transcription file (following page):

Time	Codes	Transcription	Add Code
00:00:00.10	[1c]	{start coding here}	-
00:01:04.20	[3n]	{give}	1c - codeability
00:03:06.01		{voc; coord. attn}	1u - uncodeability
00:04:08.56	[1u]	{child's face not visible > 10 sec}	2a - adult signal
00:04:20.71	[1c]	{child's face visible; resume coding}	2b - both
00:04:30.01	[3s]	car	2c - child communication act
00:06:00.10	[1u]	{stop coding here}	3n - non-symbolic, non-verbal

3s - single word utterance  
3m - multi-word utterance  
4i - imperative  
4d - declarative  
4o - other  
5pn - prompt and no or incorrect response  
5pr - prompt and correct response

## 2. Uncodeable Time Within Assessment

- a. There may be portions of the assessment that are uncodeable. Mark these times with [1u]:
  - i. The child's face is obscured from view for at least 10 seconds
    - To ensure coder reliability, we do not code when the child's face is not visible for at least 10 seconds. This includes:
      - When the adult or a toy blocks the camera's view of the child's face
      - When the child's head is turned away from the coder's view
      - When the child is off screen
  - ii. The child and/or examiner leave the room for a diaper change, snack break, to retrieve a parent, etc. for at least 10 seconds
  - iii. The child commences crying and persists in doing so for 10 seconds or longer
    - The crying must be to the point that other communication (besides protests or requests to leave testing, such as "all done") cannot or are highly unlikely to occur.
    - Simple whining is not sufficient to stop coding. If the child is still able to interact with the examiner or toys in a controlled manner, then it is codeable.
- b. Once the session becomes uncodeable, mark [1u] and stop coding until criteria for codeable time is met.
  - i. Code [1u] at the *beginning* of the 10 second period of uncodeable time
- c. A transcription file with an uncodeable portion will look like the following:

00:04:08.70	[1u]	{child's face not visible +10 sec}
00:04:20.10	[1c]	{resume coding}

- d. If the assessment contains uncodeable time, the duration of assessment is reported in the data as: Duration of Codeable Time = Assessment Length – Duration of Uncodeable Time.

## II. Coding Group 3: Types of Communication Acts [3s/3m/3n]

## A. Defining Communication Acts

1. For the purposes of this study, **communication acts** will be defined as words (spoken, signed, or imitated), non-word vocalizations with evidence of coordinated attention, or one of the 15 gestures specified in this manual (pg. 26) with evidence of coordinated attention to message/referent and communication partner. We will only be coding child behaviors that meet this definition of communication.
  - a. See the definitions that follow in this section for each behavior to be certain that the candidate behavior meets codeability requirements.

## B. Types of Communication Acts:

1. Symbolic [3s/3m]
  - a. A single non-imitated word—spoken or signed [3s]
  - b. Multiple non-imitated words—spoken or signed [3m]
2. Non-Symbolic [3n]
  - a. Imitated words or phrases [3n]
  - b. Non-word vocalizations [3n]
  - c. Gestures [3n]

## C. Weights For Types of Communication

- a. Group 3 codes are weighted to quantify the child's intentional communication acts.
  - i. [3n] carries a weight of 1 point
  - ii. [3s] carries a weight of 2 points.
  - iii. [3m] carries a weight of 3 points.
  - iv. If 2 communication acts with different weights occur simultaneously, refer to the segmenting section (pg. 44).
- b. Once you've coded a sample's communication acts, calculate the weighted frequency based on the point system above and using the following formula.
  - i. Weighted Frequency formula of intentional communication acts:

$$\begin{array}{rcccccc}
 ([3n] \times 1) & + & ([3s] \times 2) & + & ([3m] \times 3) & = \\
 ([3n] \times 1) & + & ([3s] \times 2) & + & ([3m] \times 3) & = \\
 & + & & + & & = \underline{\hspace{2cm}}
 \end{array}$$

## D. Symbolic Communication Acts [3s/3m]

1. Symbolic communication acts are the non-imitative, referential **words** that a child speaks or signs.
  - a. Conceptually, a "word" is a culturally-defined symbol that represents a consistent meaning and must be spoken with sufficient accuracy to be recognized as part of the culture's lexicon and have nonlinguistic or conversational support to indicate that the word is being used referentially.

## 2. The Word Rules

a. When coding samples of children with Autism, it's imperative to understand how language delay, one of the core features of the disorder, can affect the frequency and intelligibility of utterances. Production of words may be incomplete or contain inaccurate phonemes.\* You'll come across child utterances that may seem like words, but are not codeable. Deciding whether a possible word is a codeable word can be difficult; for this reason, we have developed 3 "word rules" to assist coders in determining if a child's vocalization has sufficient accuracy of word approximation. If all of the word rules criteria are met, the child's vocalization may gain codeable word status.

### b. Word Rules Criteria

i. The established "word rules," are:

- Pronunciation Threshold
- Referential Use
- Analyzable content

ii. Word Rule #1: Pronunciation Threshold

- An acceptable approximation requires sufficient similarity to the adult production of the word.
- Accuracy/Phonetic Support
  - Phonetic support partially depends upon the syllabic structure of the child's approximation:
    - When the syllable structure is intact, at least one of the following must be present:
      - An accurate vowel (or functionally equivalent vowel approximation, see Appendix B)
      - An accurate initial consonant (or child-like consonant substitution, see Appendix C)
    - When the syllable structure is *not* intact, both of the following must be true:
      - The vowel nucleus must be in the appropriate position and be an accurate (or functionally equivalent) production of the adult target-vowel
      - There must be at least one accurate consonant (or approximation) in the appropriate position
  - Note: If the target word is "a" or "I," there have to be other words in the utterance that support the inference that "a" is the article and "I" is the personal pronoun.
    - If a word contains only one consonant and that consonant is omitted, the child's vocalization is not considered close enough to the word target and should not be coded.

---

\* Phoneme refers to the specific sounds that combine to form words.

- Ex: A child attempts to say “at” but only produces the vowel sound. This approximation does not meet word status.

iii. Word Rule #2: Referential Use

- To count as a codeable “word,” the child’s utterance cannot be an imitation of the adult’s immediately preceding communication as there is no clear referent for this imitated word.
  - See pg. 25 for specifics about coding imitations.
  - An exception to the non-imitativeness restriction is expanded imitations. An expanded imitation is similar to the adult’s previous utterance but adds additional words or changes the words in the adult’s utterance (such as adding an article or pluralizing the noun). Expanded imitations are coded and transcribed as symbolic communication acts.
    - Ex: A: Look at that car  
C: Look at cars
      - Transcribe → [3m] Look at car/s {expanded imitation}
- The proposed word-target for the child’s approximation must be used in a semantically and pragmatically conventional manner, not as a possible idiosyncratic child meaning.
  - Ex: A child consistently uses the word “milk” to mean “I want” in multiple contexts. “Milk” in this case does NOT meet the referential use word rule criteria and is not codeable.
  - To determine if a word is used in a semantically appropriate manner, the examiner must determine that there is either:
    - Immediate nonlinguistic support
      - **Nonlinguistic support** means that just before, during, or after the word is said, there is visual evidence providing context for the word target. The child may be looking at the referent object or commenting on an action or event temporally close to the vocalization (within 3 seconds).
      - Ex: The child is looking at a jar of bubbles and says “buh.” The child’s gaze at the bubbles gives nonlinguistic support for the word-target “bubbles.”
    - Conversational support
      - **Conversational support** means that the word-target is supported by the conversation either through the child’s approval of an adult’s interpretation or through further elaboration on the topic that provides more clarity. We use conversational support especially with an absent referent, as nonlinguistic support is unavailable.
      - Ex: The child says “buh.” The adult asks, “You want bubbles?” The child nods in affirmation. Even though there are no bubbles visible, the child confirms the adult’s interpretation by nodding, which provides conversational support for the word-target “bubbles.”

- There may be times when the adult misinterprets a child’s attempted word. You should code the adult’s word target *conservatively*.
  - Ex: Child points to a barn and says, “Fmm,” and looks to the adult. The child’s non-word vocalization is unclear, and the adult responds to the child saying, “Oh, friend! Yes, we are friends.” In this case, “fmm” would **not** be orthographed as a word, as there is neither non-linguistic nor true conversational support.
- There may also be times when the child’s parent is present for the BOSCC or CSBS administration and provides word-target suggestions for absent referents. Before coding the parent’s suggestion, be certain the child’s production of the word meets all other word rules criteria and remember to be conservative.
  - Ex: Child looks to the star rattle and and says, “Gooh,” then looks to the adult. The child’s non-word vocalization is unclear, but the child’s parent tells the examiner, “Oh that’s how he says star.” In this case, “Gooh” would **not** be orthographed as a word as the child’s production of the word does not meet the pronunciation threshold and there is neither non-linguistic nor true conversational support.
- The word-target must have a unique phonetic shape compared to all other words transcribed within the same sample.
  - If a child’s approximations for two different referents sound exactly the same, only code the first production and the following vocalizations that refer to that same, initial referent.
  - Ex: A child says “hoss” while playing with a horse towards the beginning of a sample, then later says “hoss” while evidently referring to a house.
    - Only code the initial production of “hoss” referring to horse and any later productions for which the word-target is undoubtedly “horse.” Any productions of “hoss” in this sample that are not clearly related to horses should be coded as unintelligible (x).
  - The coder should transcribe whichever word first occurs in a pragmatically and semantically appropriate context.
    - We don’t expect coders to go back over the file and “correct” a transcription due to the word candidate being used for a potentially different meaning later in the session. Just don’t transcribe the later uses.
- The word-target must be the only suitable candidate for the child’s approximation.
  - Ex: A child requests toys from a box which contains a ball and a set of blocks. The child says “bah,” which could plausibly refer to the box, the ball, or the blocks. Because the approximation meets the word rules criteria for all three word-targets, the coder should consider this utterance unintelligible.
    - Transcribe → x {possibly box, ball, blocks}
- Small Words

- When coding small words, remember the word must be clearly appropriate and developmentally plausible (rather than simply “conceivably appropriate”).
  - Coders should apply their knowledge of language development and other language performance within the sample to judge the feasibility of a hypothesized word-target.
    - For example, if the child’s age equivalency score is under 20 months, it is unlikely that the child uses multi-word phrases. In order to credit a child with an age equivalency score under 20 months with a multi-word utterance, the utterance must be clearly articulated.
- Articles, auxiliary, and copula verbs that meet the approximation rules are glossed *only* if the words they modify are also gloss-able. Coding these small words can be difficult in terms of coder reliability. For that reason, articles, auxiliary, and copula verbs may be transcribed without the words they modify *only if* there is a higher level of evidence to support the child’s use of the word—there must be clear linguistic support.
  - Example: child is describing toys and says “This is blue. This is red. (Unintelligible) is (unintelligible).”
    - Transcribe → [3m] This is blue  
[3m] This is red  
[3s] x is
    - The third utterance would be transcribed as “x is” only because the child has just previously used the same verb/sentence structure, which gives us more support for transcribing the word “is” alone.
- Remember: Place-holders such as “um” or “uh” are not coded, as they do not pertain to any referent.

#### iv. Word Rule #3: Analyzable Content

- Any potential word target must be considered analyzable, meaning:
  - The word target must not be listed under unanalyzable content (pg. 41)
  - The word target must be in the Merriam-Webster English dictionary or be one of the accepted “Child-Like” words (See Appendix D)
- For further information on analyzable content, see pg. 40 in the orthographing section of this manual.

### 3. Non-imitative Signs [3s/3m]

- a. In this coding manual, conventional signs are those that are accepted in American Sign Language (ASL; see <http://www.aslpro.com/><sup>†</sup>).
- b. Like spoken words, a child may try to approximate a given sign. A child’s hand movements are classified as signs when:

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<sup>†</sup> See Appendix A: Signs and Sign Approximations for more information on acceptable ASL signs



- i. The hand movement and location with respect to the rest of the body are like the conventional sign.
  - The hand shape does not have to match the conventional sign exactly, but the movement and location of the sign should be a close fit, given the child's motor limitations.
  - Two-step signs require the child to only complete one-step of the sign.
    - Ex: The sign "dog" is to pat one's leg and then snap. A child can only pat his leg and still have the sign coded as long as other criteria are met (such as semantic appropriateness).
    - Ex: Patting the table when signing "dog" is considered an appropriate adaptation, given the constraints of the Tripp Trapp chair and the child's inability to pat his/her leg while sitting.
      - For both examples, transcribe → [3s] dog {approximated sign}
- c. Like spoken words, both actual signs and their approximations are coded without the need for the child to demonstrate attention to adult and/or attention to object/event IF the signs are not imitated and if they meet the referential word rule.
- d. In order to code a sign, be certain that:
  - i. The sign does not have the same shape as another sign transcribed earlier in the video for the same child.
    - If this occurs, the coder should transcribe whichever sign is most pragmatically and semantically appropriate.
    - Apply the protocol outlined on pg. 15 for similar productions of signed word approximations.
  - ii. The word being signed is in the unabridged Merriam-Webster English dictionary, which includes some interjections and highly routinized speech that can be reproduced in the manual modality.
  - iii. It does not qualify as an imitation; this includes when the child signs an adult's immediately preceding orally produced word (or vice versa).
    - Ex: If the adult says, "Do you want more cookies?" and the child signs, "more," this is coded as in imitation.
      - Transcribe → [3n] {sign imitation: more}
  - iv. The coder must determine that the child is using the sign in a semantically and pragmatically conventional manner (not as a possible idiosyncratic child meaning).
    - The coder must determine that the context of the discourse and/or play is appropriate for this sign to be used.
    - The sign must be truly appropriate and developmentally plausible, rather than simply "not inappropriate" or "conceivably appropriate."
- e. If a word is both signed and spoken, it should be treated only as a spoken word.

- f. When judging whether a possible signed form should be given signed word status, judges should apply their knowledge of:
- i. The child's language development
  - ii. The child's vocabulary
  - iii. A general attitude of conservatism
- g. Overgeneralizations of Signs
- i. A "possible sign" may be accorded sign status in some contexts because of its semantic and pragmatic appropriateness, yet not be judged as a word in other contexts. This occurs when the child uses the same sign in accurate contexts as well as in contexts that appear to be overgeneralizations.
    - Ex: If the child appropriately uses the sign for "horse" and then points to a cow and makes the same sign, the latter sign would also be given word status. The child's second use of the sign "horse" appears to be an overgeneralization (semantic neighbor) when pointing to the cow.
  - ii. If a child's use of a sign does not reflect an understanding of the word, it may be judged as a non-word, even in those few contexts in which semantic and pragmatic conditions make word status plausible.
    - Ex: If the child signs "horse" indicating a horse but also uses that same sign shape in reference to objects which are not close semantic neighbors of "horse" (such as door, chair, want, etc.), it would not be given word status in any context.
      - Consider coding as a non-symbolic communication act [3n] if there is evidence of coordinated attention.
- h. Gestures<sup>‡</sup> with Sign-like Qualities
- i. More vs. Claps
    - If the child claps during or immediately following bubbles being blown, these hand movements will be considered claps (and not a sign for "more") if the child is smiling and/or laughing and there is coordinated attention. Code [3n].
    - If the child claps during or immediately following the bubbles but is not laughing and smiling, these acts would be considered a sign for "more" and be coded as [3s].
  - ii. Pointing & Pantomiming
    - If the child points to himself, this should not be coded as the sign "me;" it should be coded [3n] as a proximal point, assuming it meets the criteria to be coded as a communication act.
    - If the child puts his hand to his ear to indicate "telephone," this should be coded as a sign, not pantomime.
      - Transcribe → [3s] telephone {sign}

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<sup>‡</sup> See pg. 26 for a full list of acceptable gestures.

## E. Non-Symbolic Communication Acts [3n]

1. A **non-symbolic communication act** is any of the 3 following communication cues that also show coordinated attention to a referent and the communication partner:

- a. Non-word vocalization
- b. Imitated word or sign
- c. Gesture recognized in this manual

## 2. Attention

## a. Coordinated Attention

i. **Coordinated attention**, for our purposes, refers to the child displaying evidence of sequential or simultaneous attention to both a person and an object or event within 3 seconds of his communication act.

- For **sequential coordinated attention**, the evidence of attention to object and adult must occur within a 3-second interval without the occurrence of any possible distractions to potentially influence the child's shift in attention; the shift must be of the child's initiation.

- Note: The order of attention shifts may vary as long they occur within 3 seconds of one another without disruptions.

- Gazes to "another focus of attention" need to last at least 1 second for us to code a shift in attention. This criteria applies to any coded look or gaze, not just for attention to adult.

- A temporal criterion (e.g. 1 second) helps coders determine whether a gaze shift is sufficient to be considered a "change in focus of attention." There would need to be more than a momentary fixation of the child's gaze for the gaze shift to be considered a "change in focus of attention" and thus considered a gaze shift.

- "Momentary" gaze shift within a communication act occurs when a child displays a transitory look or glance toward another entity "on the way" from one focus of attention to the other. We do not count momentary gaze shifts as sufficient evidence of attention.

- For **simultaneous coordinated attention**, the child shows evidence of attention to an object or event *while* showing evidence of attention to an adult.

ii. Our study has defined specific standards of what constitutes "evidence of attention." See below.

## b. Attention to Adult

i. Attention to adult, in order to be coded, may be directed toward the examiner or the parent.

ii. Attention to the adult is evidenced when a child:

- Gazes to the adult's face
- Answers an adult's question

- Imitates the adult through word or sign
  - Uses one of the gestures that shows intrinsic attention to adult (pg. 28).
- iii. The following elaborates upon the list above.
- **A gaze to the adult's face**, in order to count as sufficient evidence of attention to adult, is defined as the child looking at the adult's face without the adult doing something to draw the child's attention.
    - Use the orientation of the child's eyes and face to determine if the child is looking at the adult's face.
    - If there is a question as to whether the child is looking at the adult, then do not code. REMEMBER TO BE CONSERVATIVE.
      - If there is an object within an "imaginary box" delineated by the adult's shoulders and top of the adult's head, it becomes difficult to distinguish between gaze to object and gaze to adult. In these instances, the coder must be able to see clear and distinct evidence of attention to adult and attention to object through eye shift.
        - If eye shift is ambiguous, assume the child is looking at the object instead of the adult's face.
        - Ex: The adult pretends to drink from a cup, then lowers it below her chin but still holds it within the "imaginary box" around her head. The child looks at the adult's face above the cup, then *clearly* lowers his gaze and looks at the cup. We would consider this as both a look to adult and look to object since there was a clear eye shift.
        - Ex: The adult pretends to eat fruit and the child looks to the area around the adult's face. Since we cannot determine if the child is looking at the adult, the fruit, or both, we do not code attention to adult.
  - **An answer to an adult's question** that it is "precise and accurate" shows attention to adult.
    - The answer can be spoken, signed, or gestural as long as it precisely and accurately answers the question.
    - Such acts show attention to the adult as evidenced by the accurate answer to the question.
      - Note: By "accurate" we mean that the child's answer pertains to the adult's question and is a logical response.
        - Ex: An adult holds up a blue ball, asking, "What color is this?" Without looking up the child says, "green." Although the child's answer is technically incorrect, it is considered "accurate" in terms of attention because it clearly shows that the child was listening and is responding to the adult's question.
 

Transcribe → [3s] green {attn. to adult's question}
    - Ex: Adult holds up a puzzle and a car and says, "Which toy do you want first?" The child looks and points to the car without looking at the adult. Because this

is an appropriate gestural response that precisely answers the question, attention to adult has been met (and a communication act can be coded because there is also attention to object).

- Transcribe → [3n] {distal point; attn. to adult's question; attn. to obj.}

- Note: Even if a child's vocalization is temporally proximal to the adult's question (within 3 seconds of the offset), it does not necessarily show attention to adult's question if the "answer" is inaccurate.

- Ex: An adult holds up a blue ball, asking, "What color is this?" Without looking up the child says, "meow." The child's response, though within 3 seconds, is inaccurate and does not show evidence of attention to adult.

- Transcribe → [3s] meow {no attn. to adult}

- A **complete or reduced imitation** of the immediately preceding adult utterance counts as evidence of attention to adult.
  - See Coding, pg. 25 for more details on imitation.
- A **gesture** that shows attention to adult (see pg. 28).

c. Attention to Object/Event

i. An object or event refers to:

- Any physical item (such as a toy, chair, door, etc.)
- Any auditory or visual events that occur in or within earshot of the testing area

ii. Attention to object is demonstrated when the child:

- Looks at an object
- Deliberately moves an object
- Deliberately manipulates an object
  - Simply touching, holding, or picking up an object without looking or manipulating it does not qualify as attention to object
- If an object is not in the visual field of the camera, the child can meet the criteria for attention to object if the adult verbally interprets the child's look or distal point as evidencing attention to object.
  - Ex: The child looks off-screen, points, looks to the adult, and vocalizes. The adult says, "You see the light?"
    - Transcribe → [3n] {attn. to obj; distal point; attn. to adult; voc}
  - Ex: The child looks off-screen, points, looks to the adult, and vocalizes. The adult **does not** respond to the child or name the object of the child's focus; this would not be considered a communication act because there is insufficient evidence of the child's attention to object. Do not code.
    - In these cases, the responsibility lies upon the interacting adult to confirm attention to object since it is off-screen.
    - The same rule would apply if the child's back is to the camera and the coder cannot reliably judge if the child is attending to an object.

- iii. Attention to an event is demonstrated when the child:
  - Looks to a physical act performed by the adult
  - Actively looks to or seeks out the source of an auditory event
  - Ex: While in the testing room, sirens can be heard outside. The child looks up from play to the adult, vocalizes, and looks around the room for the source of noise.
    - Transcribe → [3n] {voc; attn to adult; attn to event}
  
- d. Intervening and Potentially Influencing Adult Behaviors (IPIAB)
  - i. Adult behaviors may interrupt and/or potentially influence child behaviors which would otherwise be codeable as communication acts. These **intervening and potentially influencing adult behaviors (IPIAB)** may affect child communication acts that involve sequential coordinated attention.
    - When a communication act involves a gesture or a non-word vocalization, the necessary attention components cannot be prompted or cued by adult vocalization or movements which could be viewed as “potentially influential.” The child’s look must be independent of the adult’s behavior.
      - Ex: A child looks at a car and vocalizes. The adult says “car,” and the child looks to the adult.<sup>§</sup>
      - The adult’s verbalization potentially usurps the child’s attention to the adult. We are uncertain if the child would have looked to the adult independently had the adult not spoken. Do not code as a communication act.
  
  - ii. The following is an exhaustive list of adult behaviors that may intervene and potentially influence one or more key behavioral components of an otherwise codeable communication act:
    - Gross movements in head/body (getting up out of seat, moving head, shoulders, trunk to examine or get something on other surface, raising arms, etc.)
    - Vocal or verbal communication acts
    - Moving object of interest, especially into the child’s line of sight or into the square near the adult’s face.
  
  - iii. “Intervening” vs. “Potentially Influencing”
    - If an adult behavior is **both** intervening *and* potentially influencing, we do not consider the child’s surrounding behaviors for communication act coding, as we cannot be sure if the child would have independently met all criteria for a communication act without the IPIAB.
    - Intervening
      - An adult’s behavior is considered to “intervene” or interrupt if it occurs AFTER some key behavioral components of the child’s possible communication act and

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<sup>§</sup> Assume components described in the examples of this section occurs within the 3 second communication act interval.

BEFORE others (eg., after a gaze to the examiner's face and before a gaze shift to an object).

- It is possible for an adult behavior to be intervening but not potentially influencing. Intervening-but-not-potentially-influencing adult behaviors do not affect the codeability of a child's potential communication act.
  - Ex: The child claps after putting in a puzzle piece. The adult crosses and uncrosses her legs. The child then looks to the adult's face.
    - Transcribe → [3n] {claps; attn to obj; attn to adult}
    - Although the adult's behavior does intervene (comes after the clapping and before the child's gaze shift), it is unlikely to have influenced the "missing component" of the otherwise codeable communication act (attention to the adult's face).
- Potentially Influencing
  - An adult behavior included in the exhaustive list above is considered "potentially influential" if it may have brought about some "missing" component(s) of an otherwise codeable child communication act.
    - Ex: A child produces a non-word vocalization, then looks to an adult's face, but then shifts his gaze to an object *only after* the examiner begins to move or shake the object.
      - This combination of behaviors should not be coded as a communication act because the adult's manipulation of the object may have usurped the child's attention. We cannot assume that the child would have looked at the object within 3 seconds of his gaze to the adult's face had the adult not moved the object.
  - Note: If an adult's potentially influencing behavior occurs before or after all components necessary for a child's communication act, the communication act should be coded because the potentially influencing behavior does not interrupt the communication act.
  - See the table on the following page for additional examples

Components of Child Communication Act	IPIAB—NOT CODEABLE	Potentially Influential Behavior Does not Intervene—CODEABLE	Intervening Behavior is not Influential—CODEABLE
Gesture + Attention to Adult	<ul style="list-style-type: none"> <li>The child shakes his head.</li> <li>Adult begins to shake her own head and verbalize, “Oh, you don’t like that!”</li> <li>Child looks to adult.</li> </ul> <p>The adult’s behavior intervenes and may have influenced the “missing component” (gaze to adult’s face) of the otherwise codeable communication act.</p>	<ul style="list-style-type: none"> <li>The child shakes his head, then looks to the adult’s face.</li> <li>After child has initiated gaze to the adult’s face, the adult shakes her head and says, “Oh, you don’t like that!”</li> </ul> <p>The adult’s behavior does not come between the child’s head shake and gaze to the adult’s face.</p>	<ul style="list-style-type: none"> <li>The child shakes his head.</li> <li>The examiner hands the child a toy.</li> <li>The child gazes to the adult’s face.</li> <li>The adult then says “Oh, you don’t like that!”</li> </ul> <p>The adult’s behavior (handing the child a toy) comes between the child’s gesture and gaze to the adult’s face but probably did not cause the latter.</p>
Gesture + Coordinated Attention	<ul style="list-style-type: none"> <li>The child proximally points to the bubble bottle.</li> <li>The adult begins to move her head and torso down towards the child.</li> <li>Simultaneous with the adult’s movement, the child looks to the examiner’s face.</li> </ul> <p>The IPIAB begins after the child’s point and before the child’s gaze shift. The adult’s movement could have influenced the child’s gaze to her face.</p>	<ul style="list-style-type: none"> <li>The child proximally points to the bubble bottle, then looks to the adult’s face.</li> <li>After the onset of the child’s gaze to her face, the adult moves her head and torso down towards the child and says, “Bubbles!”</li> </ul> <p>The adult’s behavior does not intervene.</p>	<ul style="list-style-type: none"> <li>The child proximally points to the bubble bottle.</li> <li>The child’s <i>mother</i> moves her torso down towards the child.</li> <li>The child then shifts his gaze from the bubble bottle to the <i>examiner’s</i> face.</li> </ul> <p>Although the mother’s behavior does intervene, her movement is unlikely to have influenced the child’s attention to the examiner’s face.</p>
Non-word vocalization + Coordinated Attention	<ul style="list-style-type: none"> <li>The child looks to the examiner’s face.</li> <li>The examiner shakes the bubble bottle and moves it closer to the child.</li> <li>After the onset of the adult’s movement, the child shifts his gaze to the bubble bottle and produces a non-word vocalization.</li> </ul> <p>The onset of the adult’s behavior comes <i>after</i> the child’s gaze to her face and before the onset of the child’s vocalization and gaze shift to the object. Shaking the bottle may have influenced the child to shift his attention to the object.</p>	<ul style="list-style-type: none"> <li>The child looks to the examiner’s face, then shifts his gaze to the bubble bottle and produces a non-word vocalization.</li> <li>After the onset of the vocalization, the examiner shakes the bubble bottle and moves it close to the child.</li> </ul> <p>The adult’s behavior does not intervene.</p>	<ul style="list-style-type: none"> <li>The child looks to the examiner’s face.</li> <li>The examiner asks the parent, “Does he like these?”</li> <li>After the onset of the adult’s utterance, the child shifts his gaze to the bubble bottle and produces a non-word vocalization.</li> </ul> <p>The examiner’s statement came between the child’s shifts in gaze, but it is unlikely that the adult utterance influenced the child’s gaze to the object and his vocalization.</p>



## 3. Non-word vocalizations

- a. A **non-word vocalization** is a sound, other than a word, where there is evidence of egressive phonation (sound made during exhaling) and voicing (vocal folds vibrate to give voice to a sound).
  - i. The sounds "p," "f," "t," "k," or "h" have no voicing. These vocalizations are hard to get reliable on if they are the only sound made; coder reliability is more dependable if they are produced along with a vowel (which has voicing).
- b. We don't code whispered sounds that are usually voiced when said loudly enough.
- c. Voiced laughs, voiced sighs, and voiced cries can be considered non-word vocalizations if there is accompanying evidence of coordinated attention.
  - i. If a child uses words while laughing/sighing/crying, those words are codeable and should be orthographed as long as they meet word rules criteria.
- d. Non-word vocalizations cannot consist of reflexive, vegetative sounds resulting from burps, hiccups, coughs, sneezes, throat clearings, trills, raspberries, or clicks with the tongue.
- e. Ingressive phonation (vocalization made while inhaling) will not be credited as a vocalization.
- f. Any unintelligible content produced by the child that is not transcribable (does not meet the word rules criteria) can be coded as non-word vocalizations if there is evidence of coordinated attention.

## 4. Imitations

- a. An **imitative word** is a word approximation that otherwise meets the definition of a word (see word rules, pg. 13) and is an exact or reduced imitation of an immediately preceding adult utterance.
- b. The adult model that is considered "immediately preceding" must end no more than three seconds before the onset of the child's imitated utterance and the imitation may not be usurped by any event or topic shift.
- c. An imitative word is treated as a non-word vocalization because it is not clearly meaningful or referential.
  - i. Imitative words are NOT transcribed as analyzable data. Rather, they are transcribed between brackets.
  - ii. Imitated words or reduced imitations require attention to object/event in order to be coded; attention to adult is implied.
  - iii. Ex: The adult says "Oh look, a cow!" Within 3 seconds, the child says "cow" while looking at the cow figurine.
    - Transcribe → [3n] {imitation: cow; attn to obj.}
- d. Types of imitated words:
  - i. An **exact** imitation is a child utterance that includes all of the words in the adult's immediately preceding utterance. The degree to which the child's word approximation is like the adult model need only meet word rules criteria.
    - Ex: A: Look at that car  
C: Look at that car (said within 3 seconds, with attention to object)

- Transcribe → [3n] {imitation: look at that car; attn to obj.}
- ii. A reduced imitation is a child utterance that contains one or more of the words from the immediately preceding adult utterance and does not add any additional words or variations.
  - Ex: A: Look at that car.  
C: Look car (said within 3 seconds, with attention to object)
    - Transcribe → [3n] {imitation: look car; attn to obj.}
- e. Remember: Echolalia is considered an imitation. It is codeable if there is also evidence of a child's attention to an object/event.

## 5. Codeable Gestures

- a. Gestures are non-symbolic communication acts that are coded [3n].
- b. The following is an exhaustive list of actions identified as "gestures" for this project:
  - i. Some gestures do not intrinsically convey communication; they require evidence of attention to both a referent and a communication partner in order to be coded.
  - ii. Other gestures intrinsically show attention to the message that they convey because the meaning is already defined by the culture (i.e., conventional gestures). Other, unconventional gestures can show attention to an object because they are directed to or involve touching the object. To be codeable, these gestures only require additional evidence of attention to the communication partner (for our purposes, an adult).
  - iii. Another group is comprised of gestures that already show attention to object *and* communication partner by virtue of touching or moving objects toward an adult or by moving the adult toward an object.
- c. Gestures Requiring Evidence of Attention to Object and Adult
  - **Tapping with fingers/hand** in an attempt to get the adult to attend to an object or event. Includes tapping, or touching (one tap is sufficient) with finger or fingers, palm, or back of hand. The entity being tapped can be an object or person or part of either.
    - Example: Adult asks "Where's the hat?" Child touches the doll's head with palm of his hand.
      - Transcribe → [3n] {tapping hat w/ attn. to obj and adult}
  - **Claps:** A clap must consist of hand-to-hand contact which occurs two or more times in order to be coded as such. Flapping of hands in a clapping-like gesture where contact is not made or the bringing of hands together to rest (in which contact between hands is made only once) cannot be coded as a clap.
  - **Reaching:** A reach must be open-handed involving an extended arm and a momentary, expectant pause by the child. The child's hand may open and close as

part of the reach. The intention of the act may be imperative or declarative. A reach is not scored if either of the following occur:

- The child touches the desired object without the adult's assistance
  - An object is in the "reaching" hand
  - **Proximal pointing:** Child refers to an object by touching it with a finger.
    - The index or middle finger must be extended, must touch the referent, and finger must be separated from the adjacent fingers. It is not necessary to actually see the finger make contact with the object if it is clear that the object has been touched (eg., the object moves or spins).
    - At least two of the adjacent fingers should be curled under or arched up.
    - When the child is using the extended index finger to operate a toy (e.g., cash register buttons), this is not a proximal point.
- ii. Gestures Requiring Evidence of Attention to Adult Only
- **Distal point:** In a distal point the index finger or thumb is extended towards the object/person of interest, or a group of unspecified objects. The other fingers should be clearly separated from the index finger or thumb making the point obvious.
  - **Shh** gesture
  - **Head nod (yes) or head shake (no)**
  - **Wave**
  - **Shoulder shrug**
  - **Pantomime-like actions & depictive gestures:** Pantomime is the use of a part of the body to imitate an object (or the use of an object) or to act out a meaning *without the object being present*.
    - Ex's:
      - Pretending to brush one's hair without a hairbrush
      - Moving arms in a "rocking baby" movement without a doll
      - Fingers "walking" like a mouse in "walk-mouse-creep-mouse"
      - Finger plays such as "Here's the church, here's the steeple..."
      - Blowing a kiss.
  - **Moving object toward adult:** Since this gesture intrinsically shows attention to object (child purposefully moves the object), the only additional evidence it needs to be coded a communication act is attention adult (usually looks to adult).
    - When seated across from each other, the child must move the object across the midline of the table. If seated in any other arrangement, the object must be moved at least half the distance between the two.
    - The child *does not need to release the object* if the move is considered an "offer" or "rejection" that is not received by the adult listener.
    - If the child begins to move the object to the adult then changes his mind, **this is not coded.**

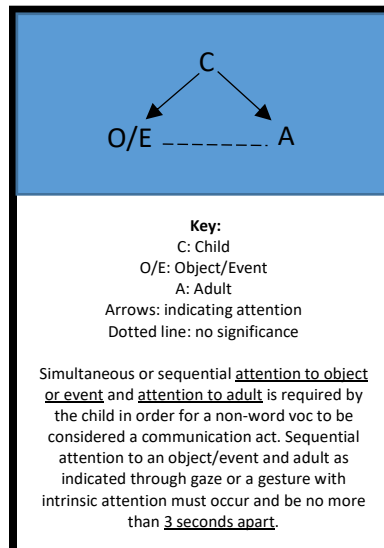
- A 'move' is different from a 'give' in that the object is not placed in the adult's hands. However, objects are often moved for the same presumed reason as a give.
  - Moving the object toward the adult does not include the child moving an object to another object either in front of the adult or to an object in the adult's hand unless the act is dependent on the adult's presence (e.g., putting object in a bag the adult is holding would not be coded).
    - Ex: A prompted "move" occurs when the adult has his/her hand(s) out/open in expectation of the object and the child pushes the object toward the adult.
      - Transcribe → [3n] {prompted move}
        - The child's compliance with the adult's non-verbal prompt shows evidence of attention to adult.
  - Throws to the adult should be considered a move as long as the child does so intentionally, with the purpose of having the adult complete some action such as catching, hitting, or returning.
    - Ex's: A child bats a Nerf ball with a stick to a stick in the adult's hand for the adult to bat it back
    - A child rolls a ball to the adult.
    - These *do* count as moves towards adult and require attention to adult (look to adult) to be coded as communication acts.
      - The child would not have moved the Nerf ball to the other stick or rolled the ball (with the expectation for it to come back) if the adult was not present.
- iii. Gestures with Implicit Attention to Both Object and Adult
- **Upturned palm:** The palm should be upturned as if to say "give that to me." There should be an expectant pause in which the child waits for the adult to react. The upturned palm must not be part of an act designed to retrieve an object independently.
  - **Giving object to adult:** The coder can see or CLEARLY infer from the context that the child has a grasp on the object AND moves the object in the direction of the adult.
    - There must be at least a brief moment when they are both touching the object OR child drops the item into the adult's upturned hand in an intentional and controlled way.
    - An object must be deliberately transferred *to* an adult by the child rather than just placed on the floor in close proximity of an adult. Placing an object on the floor by an adult does not constitute a "give."
    - Two planes of movement constitute gives:
      - Upward movement of the object
      - Forward movement of the object towards the recipient.

- **Showing an object to the adult:** The child must extend the object toward the adult with momentary pause. The intention of the act must be solely to "show" the object. The adult is not expected to take or do anything with or to the object except to look and perhaps to comment upon it.
  - Only one plane of movement is needed to constitute a show:
    - Upward movement of the object
    - OR
    - Outward movement of the object
- **Hand as tool:** Moving an adult's hand to an object to be operated or opened. Child grasps or leads the adult's hand to touch or toward the object that the child apparently wants opened, operated, or retrieved.

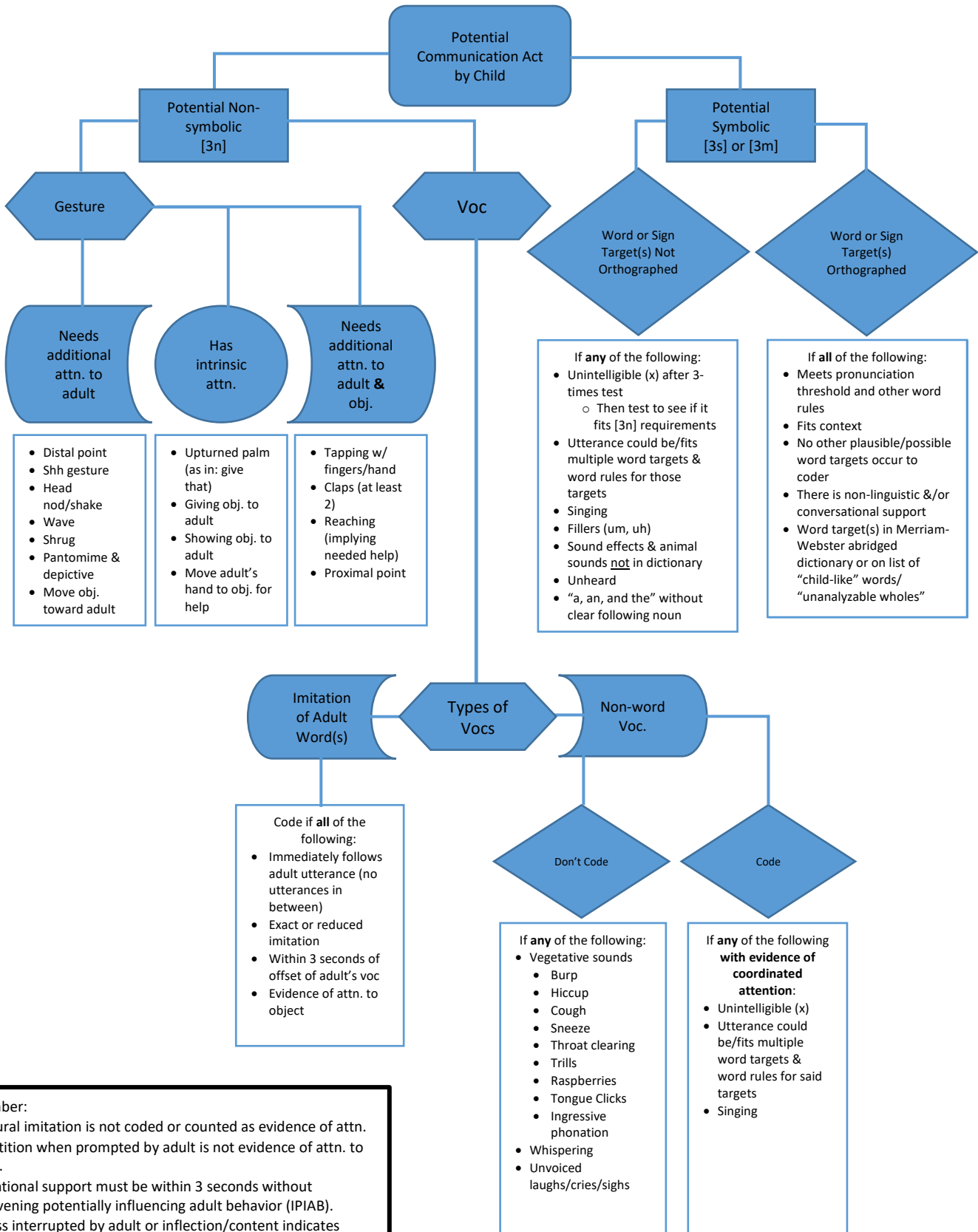
6. Illustrative Flow Charts

- a. The charts on the following few pages were created to aid the coder in applying the communication code to the CSBS and BOSCC samples. These charts do not replace the information above, but summarize the information visually.

i. Coordinated Attention Diagram



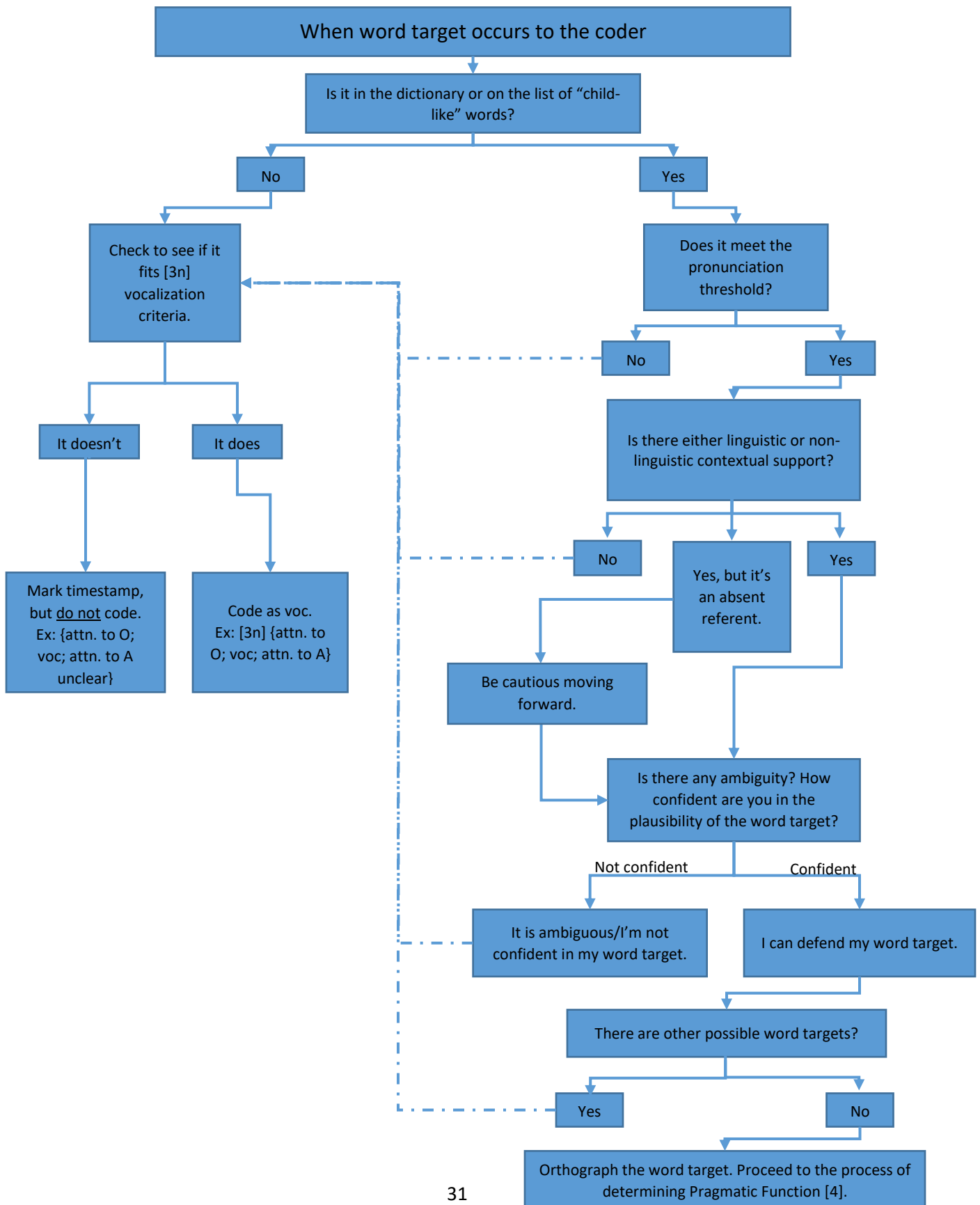
ii. Symbolic/Non-Symbolic Organizational Chart



**Remember:**

- Gestural imitation is not coded or counted as evidence of attn.
- Repetition when prompted by adult is not evidence of attn. to adult.
- Attentional support must be within 3 seconds without intervening potentially influencing adult behavior (IPIAB).
- Unless interrupted by adult or inflection/content indicates otherwise, repeated words & phrases within 2 seconds of initial statement are not segmented from each other.
- When in doubt, err on side of coding CONSERVATIVELY.

iii. Determining Word Target Flow Chart



## III. Coding Group 4: Type of Pragmatic Function [4i/4d/4o]

- A. For each coded communication act, we also designate a corresponding “pragmatic function,” or the behavioral purpose of performing the act.
- B. Definitions of Self-initiated “Imperative,” “Declarative,” and “Other” Pragmatic Functions<sup>5</sup>
1. Imperative [4i]
    - a. **Imperative pragmatic functions** are self-initiated communication acts (both verbal and non-verbal) that are meant to elicit action from the adult.
    - b. Imperatives must do at least one of the following:
      - i. Direct the adult to action
      - ii. Request something (such as an object or action; not request information)
      - iii. Protest something
    - c. Nonsymbolic communication acts that we classify as imperative include:
      - i. Self-initiated give
        - For the purposes of our coding, we will assume that any time a child hands an object to an adult without prompting, the child expects *some* form of action from the adult—even if that is just to hold the object or take/remove it.
      - ii. Upturned palm (with the expectation of receiving an object)
      - iii. Hand-as-tool
      - iv. Other gestures with evidence of coordinated attention that meet “imperative” criteria
    - d. Examples
      - i. Symbolic
        - Ex: A child looks to his mother, then to her purse, and says, “gimme snack.”
          - Transcribe → [3m] [4i] gimme snack {coord attn}
      - ii. Nonsymbolic
        - Ex: A child is holding the jar of beads and is unable to open it. He places it in the adult’s hands.
          - Transcribe → [3n] [4i] {self-initiated give}
  2. Declarative [4d]
    - a. **Declarative pragmatic functions** are self-initiated communication acts (both verbal and non-verbal) that have coordinated attention and which aim to establish a social connection through shared experience.
    - b. Declaratives are *purely social* and must do at least one of the following:
      - i. Comment on an object or event
      - ii. Request a label or information about an object or event
        - We consider requests for information/labels as social in nature because they involve the sharing of knowledge between parties.
      - iii. Request attention from the adult
    - c. Nonsymbolic communication acts that we classify as declarative include:
      - i. Shows
      - ii. Clapping *if* there is evidence of positive affect and social connection

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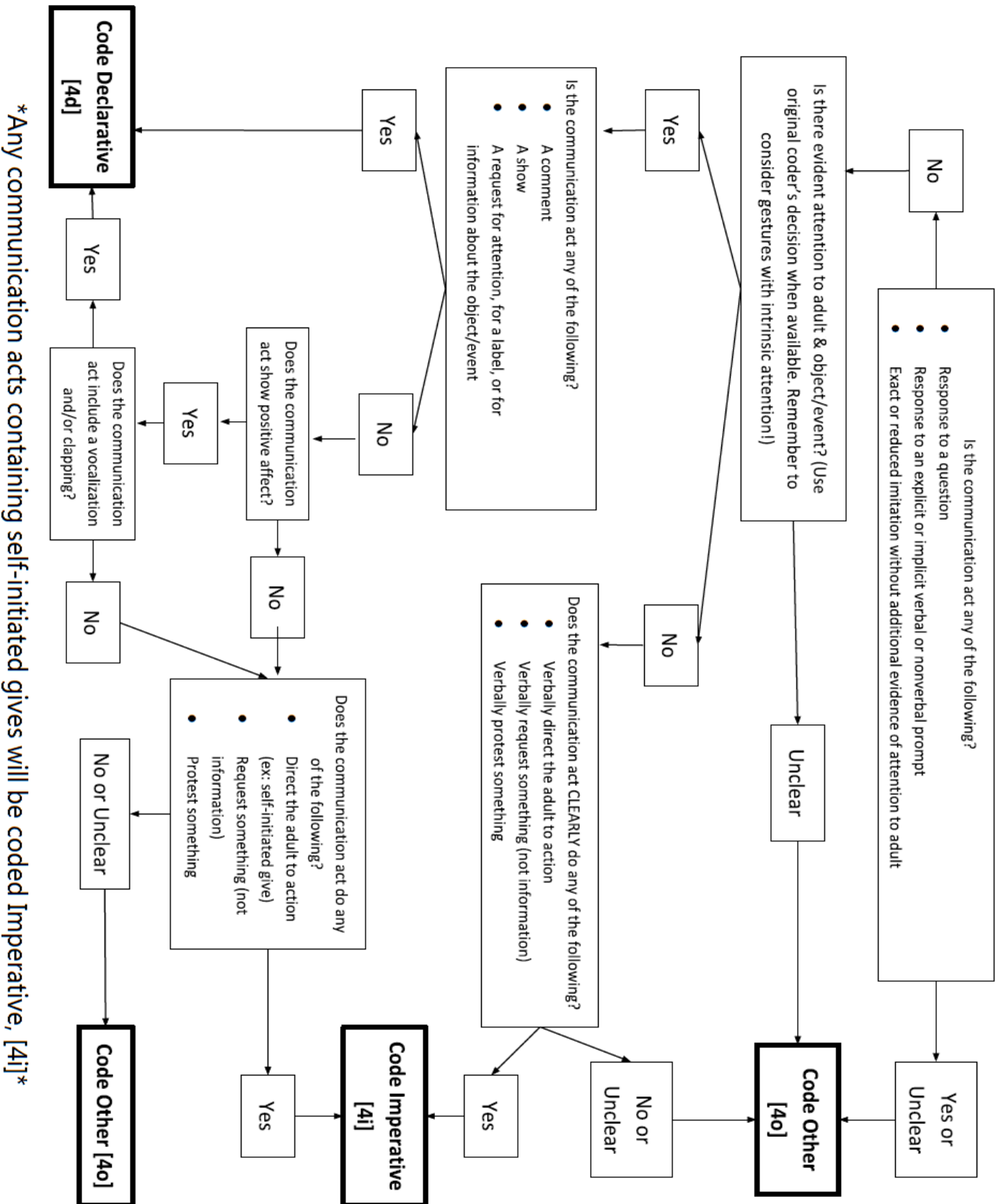
<sup>5</sup> For the purposes of this manual, self-initiated imperative pragmatic functions, self-initiated declarative pragmatic functions, and other self-initiated pragmatic functions will be labeled as “Imperative,” “Declarative,” and “Other.”



- iii. Other gestures with evidence of coordinated attention that meet “declarative” criteria
  - d. Examples
    - i. Symbolic
      - Ex: A child is stacking blocks, then gazes to the adult and says “look!”
        - Transcribe → [3s] [4d] look {coord attn}
          - Words like “look” and “watch” call attention to the speaker but do not require any action from the listener other than to attend. Thus, they are declarative if there is evidence of coordinated attention.
    - ii. Nonsymbolic
      - Ex: A child is playing with a doll, then holds it up to show the adult.
        - Transcribe → [3n] [4d] {show}
3. Other [4o]
- a. Pragmatic functions classified as “Other” include a child’s response to an adult’s question, prompt, or signal; imitations (reduced, exact, and expanded); and all communication acts (symbolic or nonsymbolic) that do not satisfy the criteria for “imperative” or “declarative” pragmatic functions.
  - b. This includes acts that:
    - i. Appear to be requests or social bids, but do not have coordinated attention.
    - ii. Have an unclear function.
  - c. In addition, [4o] is *always* coded in the following situations:
    - i. Any responses to an adult’s question
    - ii. Any responses to explicit or implicit verbal or non-verbal prompts
      - Note: This includes all of the child’s responses to an adult’s prompt or signal given in the reciprocity section of the CSP.
    - iii. All imitations
4. **Always** refer to the Pragmatic Functions Coding Tree that follows this section.
- a. The tree mentions “positive affect.” This project has operationalized affect as:
    - i. Negative affect: Whining, fussing, crying (tears), tantruming, frowning
    - ii. Positive affect: Laughing or smiling
      - Laughing: If the child laughs unambiguously, there is “positive affect.”
        - If the child produces a vocalization and the coder is unsure whether it is a laugh, it qualifies only if there is other support in the child’s expression to lead one to believe it is a laugh (usually smiling).
      - Smiling: A third of the child’s mouth must be visible to determine a smile. If 1/3 of the child’s mouth is visible and the child smiles unambiguously, there is “positive affect.”
        - If the child’s expression resembles a smile but the coder is unsure about whether or not it is one, there is “positive affect” only if *all* of the following are true:
          - It appears to the coder that the expression accompanies positive feelings in the child

- The “smile” is held for a count of at least 1/2 second (measured by the length of time it takes to say “ten”)
- The “smile” can be distinguished from the child’s overall expressions surrounding the act in question
- The “smile” is not transitory with something in the child’s mouth (like food)

iii. Pragmatic Function Classification: Imperative [4i], Declarative [4d], and Other [4o]



\*Any communication acts containing self-initiated gives will be coded Imperative, [4i]\*

IV. Coder Protocols:

- A. Determine who will be the primary coder and who will perform reliability checks (or be the “reliability coder”).
  1. The primary coder will do the majority of coding, but both primary and reliability coders should follow all “Coder Protocols.”
  2. It is possible for there to be more than one primary coder. The primary coders will then be responsible for completing regular reliability checks on one another.
  
- B. Before coding, become familiar with each of the toy sets used in the CSBS and BOSCC play samples.
  1. Specific details of the toys may provide clarity to word-targets and contexts of play.
  2. If you do not have access to the toys, review the administration manuals of each assessment as these manuals contain photos of the toy sets.
  
- C. Code in a quiet place with the headphones pre-approved by your PI.
  1. Use Sony Professional MDR-7506
  2. Never use earbuds or non-approved headphones to code a sample
  3. Limit distractions:
    - a. Turn cell phone on silent/off, minimize/close-out email, close door, and keep noises in office to a minimum.
    - b. Never code while listening to music
  
- D. Code in sections
  1. Watch the video in sections before you begin applying this code.
    - a. Never begin coding a video without previewing parts of the video first. Coding a video that you have not previewed can lead to incorrect conclusions, invalid word-targets, or overall assumptions about the adult/child interactions that would otherwise not be made if the coder had previewed parts of the video first.
    - b. NOTE: do not watch the entire video before coding, as this may lead to coder-reliability issues. It is best to only watch it in small sections.
    - c. While previewing the video, be an active observer:
      - i. Look for context
      - ii. Listen for word-targets
      - iii. Watch the child’s eyes and hands (where is the child looking; watch for gives, shows, and other gestures; what toys is the child manipulating; etc.).
      - iv. Observe the child’s abilities (is he verbal, does he say multi-word phrases, does he look to the adult).
      - v. Listen and watch the adult’s interactions with the child (what is the adult saying, what is she looking at, how is her interaction with the child effecting the child’s play).
      - vi. Listen for outside noises or events that might influence the child’s play/communication
  2. You may choose to preview the video in several ways:
    - a. Temporally: Watch the first 2 minutes of the video uninterrupted, then stop the media and go back to code those 2 minutes. Afterwards, watch the next 2 minutes uninterrupted and go back and code. Continue on in this manner for the remainder of the sample.

- i. 2 minutes is the recommended length of viewing time, but you may choose to watch the video in intervals of time that are shorter or longer than 2 minutes.
  - ii. Be certain to watch the video in no more than 5 minute intervals.
- b. Content
- i. Child's focus of play: Watch the video uninterrupted as the child plays with his first toy selection. When the child abandons the first toy for a new toy, stop the media and code the child's play with the first toy. Afterwards, watch the next section of media until the child selects another new focus of play. Stop the media and go back to code what you've just previewed. Continue on in this manner for the remainder of the sample.
  - ii. Adult's assessment administration: In the CSBS, the adult will transition between different phases of assessment. Watch the video uninterrupted up until the adult moves from the first phase to the second (wind-up toy → toys in bag). Stop the media and code the portion of the video up until the change. Then watch the media until the next assessment "phase" progression. Stop the media and go back to code this section. Continue on in this manner for the remainder of the sample.
  - iii. Note: do not watch more than 5 minutes at a time while using either one of these two methods. If the child's focus of play or the adult's administration sections last(s) more than 5 minutes, opt for using the temporal method described above.
- E. Finishing a coded file: Once a video file has been completely coded through ProCoderDV, take the following steps:
1. Review ProCoderDV file for any spelling or coding mistakes!
  2. Export the ProCoderDV file into the SALT program.
    - a. See the Generating SALT Files section of this manual for extensive step-by-step instructions on exporting the ProCoderDV file (pg. 53).
    - b. Print all relevant pages from the SALT analysis.
      - i. For the purposes of this study, only the Code Summary and Word and Morpheme Summary will be printed unless the file is unreliable (see instructions below for further detail on coding procedures for unreliable files)
      - ii. NOTE: If an individual is training up for code-reliability, he or she may choose to print additional SALT pages for learning purposes.
    - c. Save the .pdv and the .slt files to a specific folder designated on your computer hard drive.
    - d. Place a copy of both the completed .pdv and the .slt files on the network: \\krupa\Yoder\9-ImPACT Study\Assessment Team\Coding
      - i. BOSCC: \\krupa\Yoder\9-ImPACT Study\Assessment Team\Coding \BOSCC\BOSCC Coded Files
      - ii. CSBS: \\krupa\Yoder\9-ImPACT Study\Assessment Team\Coding \CSBS\CSBS Coded Files
    - e. Delete the copy of the video from your computer (NOTE: the video **should still be saved on vu1file!**).
  3. Obtain the information needed for data entry:
    - a. Fill out a pre-made summary form based on the information collected from SALT (See Appendix H).

- i. This summary form will be used in obtaining the information necessary for the data entry on each coded video file.
- ii. The following information will be used in data entry:
  - Date of assessment
  - Coder's initials
  - Weighted Frequency
  - Duration of assessment
  - Child's MLU
  - Child's Lexical Density
- b. Enter the following information into the IMPACT Coding Log; do NOT enter any summary statistics for the samples you have just coded—it may unintentionally bias the reliability coder:
  - i. Initials
  - ii. Date coded
- c. Staple the summary form to the Code Summary/Word and Morpheme Summary printouts.
- d. Set summary and SALT papers aside for reliability

#### F. Reliability

1. In this project, 20% of all coded files will be coded for reliability; once a set of 5 video files has been collected, one of the 5 files will be selected randomly for reliability.
  - a. To be considered reliable, the ratios of each of the coder's SALT data (see data points listed above) must be greater than or equal to 0.80 (small/large).
    - i. Ratios involving numbers less than 5 will be recorded as  $V < 5$ 
      - Ex:  $2/3 = V < 5$
      - $V < 5$  will be considered reliable
        - Ex: The primary coder has a weighted frequency of 3 and the reliability coder has a weighted frequency of 4. This ratio of  $3/4 = 0.75$ , but we will record this as  $3/4 = V < 5$ , and it will be considered a reliable value.
      - Note: if the denominator of this ratio is 5, then, take the following considerations:
        - The numerator is  $\geq 4$ ,  $4/5 = 0.80$ , which is reliable.
        - The numerator is  $< 4$ , the ratio is not reliable.
          - Ex:  $3/5 = 0.60$ , which is not reliable.
  - b. Enter the following information into the IMPACT Coding Log after reliability coding has been completed:
    - i. Initials
    - ii. Date coded
    - iii. Reliability ratios
  - c. After reliability for the selected file is complete, the set of 5 files will be ready for data entry. See data entry manual for further instructions.
    - i. Save the reliability .pdv and the .slt files to a specific folder designated on your computer.

- ii. Place a copy of both the completed reliability .pdv and the .slt files on the network:  
\\krupa\Yoder\9-ImPACT Study\Assessment Team\Coding
    - BOSCC: \\ krupa\Yoder\9-ImPACT Study\Assessment Team\Coding \BOSCC\BOSCC Coded Files
    - CSBS: \\ krupa\Yoder\9-ImPACT Study\Assessment Team\Coding \CSBS\CSBS Coded Files
  - iii. Delete the copy of the video from your computer (NOTE: the video **should still be saved on vu1file!**).
2. Unreliable files
- a. If the file is unreliable, each coder must stop coding primary samples until the two coders can meet to discuss all discrepancies between the files.
  - b. Each coder will fill out a coders' discrepancy summary form (see Appendix H) and print the following pages before meeting:
    - i. SALT Transcript Summary
    - ii. SALT Word and Morpheme Summary
    - iii. SALT Word-root table
    - iv. ProcoderDV transcription file
  - c. Together, the primary and reliability coders will discuss the coders' discrepancy forms and review the video file side-by-side.
  - d. If the discrepancies are large, they may choose to code the video file side-by-side to create a consensus file.
    - i. Labeled: Project ID – Time/Month period - coders' initials – consensus
      - Ex: V103-T3-CSBS-mwec-consensus
  - e. If the two coders have three consecutive files that are unreliable, both coders must retrain and obtain three consecutive files at reliability before they can code again independently as primary coders.

## Orthographing

When coding transcription files, it's essential to know the mechanics of how to write the words involved in certain communication acts (specifically: the child's non-imitative words and expanded imitations, **IF** they fit the word rules criteria—pg. 13). You will need to transcribe these words in a particular way so that the SALT program can extract quantifiable data from your file after you've finished coding. For the most part, you will be using the "adult spelling" (with a few exceptions—see Sections F and G below) of words and distinguishing word roots from their bound morphemes.

### I. Morphemes

- A. **Morphemes** are the smallest units of meaning in a language. There are a number of different types of morphemes; however, only 2 are relevant to your coding orthography: free morphemes & bound morphemes.
  
- B. Free morphemes (also known as "word roots")
  1. **Word roots** are the most basic forms of words in a language; they can stand alone, without any adjoining prefixes or suffixes, and still maintain their grammatical status as a "word." Word roots constitute most of the words said in a sample.
  2. Example: the child says, "I am jumping to songs."
    - a. The word roots are: I, am, jump, to, song
    - b. While the -ing in "jumping" and the -s in "songs" modify the original word roots "jump" and "song," they are not part of the word root.
  3. Word Root Mis-articulation
    - a. Even when the child mis-articulates a word root, if the word is close enough to be identified, meets the word rules criteria, and there is contextual and/or linguistic support for the proposed word target, you should type it in its correctly articulated, adult form.
    - b. Example: the child says "dwink."
      - i. Orthograph into the ProCoderDV transcription field → drink
  4. Word Root Approximations
    - a. When the child expresses part of a word and the approximation meets the word rules, communication act criteria, and has proper contextual and/or linguistic support, enter the entire adult word into the transcription field.
    - b. Example: the child says "bo" for the target word "boat."
      - i. Orthograph → boat
    - c. In the transcription field, you may wish to add approximation notes for yourself or others for later file review.
      - i. Example → boat {"bo"}
      - ii. Make sure you put your notes **between braces {}** so that SALT will not include these in the child's speech sample analysis.
  
- C. Bound morphemes
  1. **A bound morpheme** is a unit of meaning that attaches to a free morpheme, altering or expanding upon the original word root's definition, as prefixes and suffixes do. Bound morphemes cannot stand alone as "words."



2. Example: a child says “I am jumping to songs!”
  - a. The bound morphemes are: -ing, -s
    - i. They modify the word roots “jump” and “song” to change/elaborate upon the word’s meanings.

## II. Spelling Conventions

- A. The lexical density variable for the Impact Project is the number of different word roots transcribed in a session. Because this number can be affected by how you orthograph words in ProCoderDV, it is important to adhere to the following conventions.

### B. Separating Free Morphemes from Bound Morphemes

1. Word roots with bound morphemes are orthographed as the word root followed by a forward slash (/), and then the bound morpheme marker (see chart below for the complete list of bound morpheme markers).
2. Example: “balls” is 2 morphemes—ball (also word root) + plural S→ ball/s
3. Example: “cries” is 2 morphemes—cry (also word root) + 3rd person singular conjugation → cry/3s
4. Notice that there are no spaces between the word root, the slash, and the bound morpheme marker!
  - a. The SALT program only recognizes bound morphemes when they immediately follow a slash without blank spaces.

### C. Word Root Spelling Conventions

1. Example: the child says “the pig’s hiding.”
    - a. Transcribe→ the pig/’s hide/ing
  2. Note that the word root is always spelled as if it did not have a bound morpheme on it. ALWAYS REVERT TO THE SPELLING OF THE ORIGINAL ROOT WORD WHEN MARKING ANY MORPHEMES OR INFLECTIONS.
    - a. Example: the child asks, “Why he cries?”
      - i. Transcribe → why he cry/3s
        - Note: Remember: **don’t use regular grammatical punctuation in ProCoderDV**
          - This is necessary for the computer software program (i.e. SALT) to analyze the transcripts correctly and count the number of unique word roots.
3. Coder Expectation Bias
  - a. Every time you are considering transcribing a bound morpheme, make sure you actually hear RATHER THAN EXPECT TO HEAR an adult-like morpheme or a dialectic form of the morpheme. DO NOT CREDIT THE CHILD WITH A BOUND MORPHEME THAT THE CHILD DID NOT SAY.
    - i. Example: the child says “two ball” in reference to 2 balls.
    - ii. Transcribe → two ball
  - b. Example: the child says “give bead heres” in reference to multiple necklaces.
    - i. Transcribe → give bead here/s

### D. Conventions for Marking Bound Morphemes

1. This table of bound morphemes is an exclusive collection, not just examples. The morphemes on the following page should **always** be orthographed as follows:

Conventions for Marking Bound Morphemes			
Type of Inflection	Notation Conventions	Notes	Examples
Possessive Inflections	Indicated by <b>"/z"</b> after the word root	<ul style="list-style-type: none"> <li>Does NOT include pronouns (like "hers," "ours," "yours") that are considered entire units</li> </ul>	Dad's → Dad/z Mom's hat → Mom/z hat the dog's bowl → the dog/z bowl
Plural Noun Inflections	Indicated by <b>"/s"</b> after the word root	<ul style="list-style-type: none"> <li>Does NOT include nouns which only have a plural form (like "pants" and "clothes")</li> <li>Over-generalizations of the form ARE included in this category (as in "money/s")</li> </ul>	toys → toy/s babies → baby/s couches → couch/s the fishes → the fish/s
Plural/Possessive Inflections Combined	Indicated by <b>"/s/z"</b> after the word root	<ul style="list-style-type: none"> <li>Apostrophes are omitted</li> </ul>	babies' → baby/s/z fathers' → father/s/z
3 <sup>rd</sup> Person Singular Verb Forms	Indicated by <b>"/3s"</b> after the word root	<ul style="list-style-type: none"> <li>The same marker is used for both the -s and -es forms of this inflection</li> <li>Does NOT include "does," as it is considered one morpheme</li> <li>Over-generalizations of the form ARE included</li> </ul>	tells → tell/3s he goes → he go/3s I gots it → I got/3s it
Present Progressive Tense Inflections	Indicated by <b>"/ing"</b> after the word root	<ul style="list-style-type: none"> <li>The dialectic pronunciation of "in" is transcribed as the standard pronunciation: "ing"</li> <li>Does NOT apply to predicate adjectives (like "bowling pin," "swimming pool," or "running shoes")</li> </ul>	runnin' fast → run/ing fast doing → do/ing having → have/ing
Past Tense Inflections	Indicated by <b>"/ed"</b> after the word root	<ul style="list-style-type: none"> <li>The same marker is used for both the -ed and -d forms of this inflection</li> <li>Over-generalizations of the inflection ARE marked as bound morphemes</li> <li>Does NOT include predicate adjectives (like "tired man," "scrambled eggs," "the door is closed," "the toy is broken," "the dog is gone," or "I am bored")</li> </ul>	Loved → love/ed died → die/ed doed → do/ed falled → fall/ed
Contractible Verb Forms	Indicated by <b>"/contracted verb stem"</b> after the word root	<ul style="list-style-type: none"> <li>Possible contracted verb stems: -'m, -'s, -'ll, -'re, -'ve</li> </ul>	I'm → I/'m it's → it/'s you'll be → you/'ll be we're here → we/'re here they've → they/'ve
Negative Contractions	Indicated by <b>"/n't"</b> after the word root	<ul style="list-style-type: none"> <li>Does NOT apply to "don't," "won't," or "ain't," which are considered single-morpheme words</li> </ul>	can't → can/n't didn't → did/n't doesn't → does/n't
Contracted Question Forms	Indicated by <b>"/'d"</b> after the word root		where'd it go → where/'d it go how'd we do → how/'d we do
Comparative and Superlative Forms (Contrastives)	Indicated by <b>"/er"</b> and <b>"/est"</b> after the root word		colder → cold/er hottest → hot/est

## E. Special Notes and Exceptions to Morpheme Marking

1. Do NOT mark or separate morphemes for the following; instead, transcribe them as whole, single-morpheme words:
  - a. Irregular verb forms like FELL and WENT
  - b. Catenatives like GONNA and WANNA
  - c. Predicate adjectives like 'I am TIRED,' 'they look BORED,' 'the door is CLOSED,' 'the toy is BROKEN,' 'the dog is GONE,' 'SWIMMING pool,' 'RUNNING shoes,' or 'BOWLING pins'
  - d. DON'T, WON'T, and AIN'T, which are considered single-morpheme words
  - e. Nouns which only have a plural form like PANTS and CLOTHES
  - f. Pronouns—like HERS, OURS, and YOURS—that are considered entire units
  - g. Words that end in "-LY," like SLOWLY
  - h. DOES
  - i. LET'S; transcribed → let's

## F. Child-Like Words &amp; Diminutives

## 1. Child-Like Words

- a. The term "child-like words" refers to a sampling of words that are often used in spoken English (esp. by children), but do not usually appear in written English (or the dictionary).
- b. So that we may be consistent with ourselves and other transcribers, please refer to the list we have compiled (Appendix D) and learn their spellings.
- c. If you find an instance similar to those listed, use what's on the table.

## 2. Diminutives

- a. Diminutives are often used in a context similar to that of child-like words. A diminutive is a word (or shortened-version of a word) that has been joined with a suffix which denotes small size, tenderness, or informality. People tend to use these words when speaking with children who then, in turn, add them to their lexicon.
- b. Several examples: frog → froggy, Mom → Mommy, blanket → blankie
- c. If a word is in the dictionary with such an ending (like the examples above), then transcribe it as it is found in the dictionary.
  - i. Example: a child says "piggy go down."
    - Transcribe → piggy go down
- d. If a word is not in the dictionary, only transcribe the root word. You may wish to add your own notes (BETWEEN BRACES {!}) indicating actual pronunciation.
  - i. Example: a child says "trucky go fast."
    - Transcribe → truck go fast {"trucky"}

## G. Unanalyzed Wholes

1. Unanalyzed wholes are pairs of words used as a single-meaning unit and are transcribed as one word.
2. The logic is that giving the child "credit" for two words is probably overestimating the child's ability to combine words in unique ways to create multiword sentences and phrases.
3. Below are several types of unanalyzed wholes:
  - a. **Proper names** like "Mickey Mouse" should be entered as a single word → Mickeymouse

- b. **Ritually reduplicated words** like “choo choo” should be entered as a single word → choochoo
  - c. **Compound words** like “pocketbook” that are probably ‘understood’ as one word to the child because they are used together very frequently should be transcribed as a single word (often adjective-noun combinations).
  - d. **Hyphenated words** like “Jack-in-the-box” should be entered as a single word; SALT will not accept hyphens → jackinthebox
  - e. **Readyssetgo**
    - i. Note: if “readyssetgo” is broken into three words (there is pausing between the words), segment by rules given in the segmenting section of the manual (pg. 44).
4. See Appendix E for more examples of unanalyzed wholes

#### H. Mazes

1. A **maze** occurs when a child reformulates, revises, or repeats portions of an utterance as it is being said. These can occur within the middle of an utterance or at the beginning, in which case the maze would be considered a “**false start.**”
2. Mazed utterances should be written between parentheses ( ) in order to exclude them from analysis. Only put in parentheses those words that don’t add to the meaning of the sentence.
3. Example: a child says “I want need that.”
  - a. Transcribed → I (want) need that
  - b. “Need” is considered a self-correction of “want,” so “want” is excluded from analysis.
4. Example: a child says “He she I go there.”
  - a. Transcribed → (he, she) I go there
5. Example: a child says “Mi mi mi mi mine!”
  - a. Transcribed → mine

#### I. Abandoned Utterances

1. **Abandoned utterances** occur when the speaker starts a phrase or sentence but does not complete the thought. The speaker either changes his focus of attention before finishing his utterance or something interrupts the utterance.
2. When a child abandons an utterance that contains words, that utterance is transcribed and coded as a communication act up to the point of abandonment/interruption, using the carrot symbol (>)<sup>6</sup> for end punctuation.
3. Example: the child says “I want some...” but trails off and does not finish this thought.
  - a. Transcribed → I want some >
4. Example: The child begins to say “I want s—” but is interrupted by the adult speaking.
  - a. Transcribed → I want {interrupted by A speech} >
    - i. Remember that the descriptive notes are optional but **must be between braces.**

### III. Analyzable vs. Unanalyzable Words

#### A. Analyzable

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<sup>6</sup> The “>” symbol used at the end of a transcription line will exclude this line from SALT analysis.

1. Analyzable words are the speech that should be transcribed in the transcription field of your ProCoderDV file.
2. Analyzable speech includes any audible approximation of a word that is in the Merriam Webster English dictionary (or a proper noun not appearing in the dictionary), meets the word rules (pg. 13), and which has a substantial amount of contextual and/or linguistic support.
  - a. In general, an adult's response to a child's utterance should not dictate what you transcribe. Rather, use the adult's response to suggest possible targets to test against the word rules and other criteria.
  - b. Here are a few helpful hints for determining if a child's word approximations are analyzable:
    - i. Sometimes one must hypothesize what the child might be trying to say in order to transcribe his words. The following questions are helpful in this process.
      - What is the context?
      - What did the adult just do or say?
      - What did the child just do or say?
      - What are their eyes doing?
      - What are their hands doing?
      - What might the proposed word target be?
    - c. NOTE: It is not uncommon for children with autism to talk to themselves. Their speech is not directed toward the adult and does not change based on the adult's responses or interjections. This speech can still be orthographed if it meets the word rules criteria (see coding section of this manual).

## B. Unanalyzable

1. Unanalyzable speech should *not* be transcribed or included in analysis. Instead, indicate the unanalyzable portions of the child's speech in the following manners.
2. Unintelligible
  - a. **Unintelligible speech** is not understood because of phonological errors; does not meet the word rule.
  - b. Transcribed → x
  - c. Ex: A child's communication act is one utterance composed of an unintelligible portion, followed by several distinct, intelligible words, followed by another unintelligible portion. You may transcribe the phrase with an "x" indicating each section of unintelligible speech:
    - i. Transcribe → x doll toe/s x
    - ii. If the only intelligible portions of an utterance are small words such as articles, pronouns, or prepositions, the more conservative coding decision is to consider the entire utterance unintelligible.
  - d. If a child says a multiple word phrase, but only one word is intelligible, code as [3s], not [3m].
    - i. Ex: Child says, "Car (unintelligible)". The coder can determine that the child did say more than the word "car," but should only credit the child with a single word utterance. Do not count the unintelligible indicator "x" as a word when coding symbolic communication acts.
    - ii. Code and transcribe → [3s] car x

- e. REMEMBER: coders should be conservative when transcribing word approximations—if you're debating whether or not the child said a particular word target, consider it unintelligible.
  - f. In general, coders should examine a particular vocalization in the media file **NO MORE THAN 3 TIMES** to determine whether it is a gloss-able (transcribe-able) word which meets the word rule criteria.
    - i. It may be helpful for the coder to slow down the media playback speed during these times of review.
  - g. If the coder is still not clear after 3 repetitions, she should consider that utterance to be a **non-word vocalization** instead of a word.
    - i. The coder should then consider the child's focuses of attention surrounding the non-word vocalization (time frame: 3 seconds before → 3 seconds after the voc.) to determine if it is a codeable non-symbolic communication act ([3n]).
3. Unheard
- a. Unheard words may be due to noise in the room (e.g. toy noise, ambient noise, adult interruption) or environmental noise (e.g. siren, noise outside of testing area), blocking the coder from clear dialogue audio.
  - b. These utterances should NOT be transcribed if you cannot properly hear them.
  - c. Ex: a child says "I have that (potential word spoken under toy noise so that the child's voice is completely inaudible or unclear)."
    - i. Transcribe → I have that {unheard}
  - d. If a child says a multiple word phrase, but only one word is audible, code as [3s], not [3m].
    - i. Ex: Child says, "Car (unheard)". The coder can determine that the child did say more than the word car, but should only credit the child with a single word utterance as the coder has no way in deciphering if the unheard word would have appropriately met the word rules.
      - Code and transcribe → [3s] car {unheard}
4. Singing
- a. Singing is not transcribed because it is not clear whether or not the child is using the words to convey a meaning or to socially communicate.
  - b. If the child has coordinated attention while singing, it can be still be coded as a nonsymbolic communication act.
    - i. Example: a child sings "The wheels on the bus go round and round..." while looking back and forth between the car and the adult.
      - Code and transcribe → [3n] {singing: wheels on the bus; coordinated attention}
    - ii. Example: a child sings "The wheels on the bus go round and round..." while looking to the car, but he does not look to the adult.
      - Transcribe → {singing: wheels on the bus; no coordinated attention}
        - Note: without coordinated attention the song does not qualify as a communication act, is not orthographed, and does not receive a code.
5. Non-referential Language

- a. **Non-referential language** occurs if a child appears to be communicating about a subject outside of the testing room.
  - b. Be particularly cautious when transcribing non-referential language.
    - i. Look for a higher level of nonlinguistic and/or conversational support to back your word target argument.
    - ii. The adult may try to provide context for the utterance, but remember: only use this as guidance in your coding, not confirmation.
    - iii. REMEMBER TO BE CONSERVATIVE!
6. Fillers
- a. Fillers are not transcribed even though they are in the dictionary.
  - b. Examples: “um,” “uh”
7. Sound Effects and Animal Sounds
- a. Sound effects or animal sounds are not transcribed UNLESS they are in the Merriam-Webster English dictionary.
  - b. Note: words like “crash” and “oink” ARE words in the dictionary. Refer to the dictionary for decisions on orthographing animal sounds and sound effects.
    - i. If they are not in the dictionary but you choose to include them in your transcription notes, transcribe → {animal sounds: elephant} or {elephant sounds}

## Segmenting

- I. Segmenting is the separating of child's utterances in ProCoderDV.
  - A. The coder must decide if the child's actions or words are to be considered as a single act or are to be coded as 2 or more separate acts. It is important to know when one child communication act ends and when another begins.
    1. Decisions on whether or not to segment these acts influences the length and frequency of communication acts.
      - a. Not segmenting often enough may inflate the child's mean length of utterance (MLU)
      - b. Segmenting too often may inflate the child's weighted frequency and number of communication acts.
      - c. Appropriately segmenting child communication acts is vital to achieving coding reliability.
    2. The following guidelines will assist the coder in making segmenting decisions.
- II. General Guidelines to Segmenting:
  - A. Segmenting guidelines for when the child has multiple, uninterrupted communication acts:
    1. Often it is difficult to determine whether an act is one continuous act or two or more acts that occur in rapid succession.
    2. Segment the child's communication acts if any of the following situations occur:
      - a. There is at least a 2 second pause in the child's vocalizations, gestures, or talking.
        - i. 2 second pauses are often taken as a signal in the conversation for the other person to take a turn.
      - b. There is a change in focus of attention
        - i. A change in the child's focus of attention is an indication of a change of interest or thought.
      - c. There is a change in pragmatic function
        - i. Ex: Child says, "I like goldfish" and then within 2 seconds gives the adult a ball.
          - These two acts are seemingly unrelated and do not share the same pragmatic function. No pause is necessary to segment these two utterances.
          - Code these separately → [3m] I like goldfish  
[3n] {give}
        - ii. Ex: Child says, "Play," and then within 2 seconds gives the adult a ball.
          - Transcribe → [3s] play {give}
          - These two acts carry one message and should be coded as one communication act; do not segment them as there is *no* change in pragmatic function.
          - Per this coding manual, the heavier weighted item will always receive credit (i.e. in this example [3s]).
      - d. There are multiple messages in one utterance



- i. If there are two messages and one refers to what just occurred and the other is meant to elicit a response, to elicit a new action by the adult, or to draw the adult's attention to a new topic, segment as two utterances. No pause is necessary to segment these two utterances.
    - Example: The adult asks, "Which block do you want?" The child responds "blue block let's stack them."
      - Transcribe → [3m] blue block  
[3m] let's stack them
  - ii. Acknowledging words in responses to questions:
    - An acknowledging word is when a child responds "yes" or "no" to an adult's immediately preceding verbal or non-verbal prompt.
    - The following are examples of possible responses to the adult asking the child if he/she wants a snack. The child can respond in a number of different ways; note the segmenting in each of these possible responses (assume there is no 2-second pause between the child's words):
      - Child responds with an acknowledging word + a phrase, which carry the same message. Do not segment.
        - Transcribe → [3m] yeah I want a snack
        - Transcribe → [3m] no I don't want a snack
      - Child responds with an acknowledging word + a phrase, which carry different messages. Segment.
        - Transcribe → [3s] yeah  
[3s] cheerios
          - The child answers the adult's question and then elaborates upon his answer by giving a snack preference.
        - Transcribe → [3s] no  
[3s] play
          - The child answers the adult's question and then provides an additional comment.
  - iii. If you are in doubt of whether the child's utterance contains one or more messages, attempt to fill out the child's utterance with an "adult-like" response.
    - *Note: The parenthetical phrases below represent the possible "adult-like" responses. These parenthetical phrases should not appear in the ProCoderDV Transcription file; instead, do this on a sheet of scrap paper.*
    - A: Do you want a snack  
C: [3s] yeah (*I want a snack*)  
C: [3s] (*the snack I want is*) Cheerios
    - A: Do you want a snack  
C: [3s] no (*I don't want a snack*)  
C: [3s] (*I want to*) play
- e. There is conflicting prosodic information
- i. Prosodic information is another way to refer to inflection, pauses, and rhythm in speech.

- ii. In general, falling intonation occurs at the end of declarative sentences and rising intonation occurs at the end of interrogative sentences.
  - iii. If you are uncertain of how to consider inflection when segmenting, ask yourself, “When the child was finished speaking, did I expect him or her to say more?”
    - If yes, more than likely the child was using an upward inflection. **Do not** segment this utterance from the following utterance (as long as the following utterance does not meet any of the other conflicting prosodic information points listed above).
    - If no, more than likely the child was using downward inflection. Segment this utterance from the following utterance.
  - iv. Remember, at times, children with autism have irregular prosodic function, so inflection alone is not enough to determine segmenting. In such cases, apply the above general guidelines and remember to be conservative.
- f. Use “adult grammar” as a guide to segment a child’s utterances.
- i. Even if one utterance is comprised of 2 phrases which both have the same pragmatic function, follow the rules of grammar and segment the phrases.
    - Ex: The child says “me try that you help me”
      - Code these separately → [3m] me try that  
[3m] you help me
- B. Segmenting guidelines for when adult actions are present during the child’s communication acts:
1. Here, we impose a turn-taking structure on the exchange, as the child is often responding to something the adult is saying or doing.
    - a. Remember: at times, children with autism don’t always understand the idea or purpose of turn-taking in speech, which can make segmenting difficult.
    - b. In such cases, apply the general guidelines and remember to be conservative.
  2. Adult speaks over the child
    - a. If the adult begins to talk over the child while the child is speaking, only segment if the adult’s utterance causes a disruption in the child’s focus of attention.
      - i. Ex: The child is examining a few trains. While he is talking about the trains, the adult speaks over the child and says, “Look at these blocks!”
      - ii. The adult’s comment can affect the child in one of two ways:
        - The adult’s comment **does not** cause a shift in the child’s attention. The adult’s interjection does not influence segmenting.
          - C: [3m] I like red train/s and green train/s
          - C: [3m] trains go really {really} fast **(Overlapping, A: Look at these blocks)**
        - The adult’s comment **does** cause a shift in the child’s attention and the child shows interest in the adult’s blocks. Segment the child’s utterances with the change of attention.
          - C: [3m] I like red train/s and green train/s
          - C: [3m] trains go really > **(Overlapping, A: Look at these blocks)**
          - C: [3m] yeah let’s play with blocks


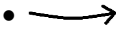
- b. There may be times that the adult talks over the child and the child's speech cannot be deciphered. Refer to the transcription section of this manual to review "unheard speech." (pg. 42).
3. Refer to pg. 22 of this manual for more on how "Intervening Potentially Influencing Adult Behavior" affects segmenting a child's communication acts.

### III. Exceptions to the General Guidelines

- A. Segment the following instances only if there is a pause of two seconds or greater between the two communication acts (each of these cases are exceptions to the rules provided in the general guidelines):
  1. Vocatives
    - a. Vocatives are nouns used to get the listener's attention to oneself, such as calling a person's name and then delivering a message.
    - b. Ex: Child says, "Mom help;" this can be segmented in 1 of 4 ways:
      - i. Child is directing the utterance towards his/her parent as a request for assistance. In this example, the child does not pause more than two seconds between the two words.
        - Transcribe → [3m] mom help
      - ii. Child is not directing the utterance towards his/her parent as a request for assistance. In this example the child does not pause more than two seconds between the two words and the meaning is unclear (is the child using a vocative or possibly saying something else, such as, "Mom helped/helps/is helping me"?).
        - Transcribe → [3m] mom help
      - iii. Child is directing the utterance towards his/her parent as a request for assistance. In this example, the child does pause for 2 or more seconds between the two words.
        - Transcribe → [3s] mom  
[3s] help
        - Child pauses for two seconds; segment even if there are no adult intervening CAs.
      - iv. Child is not directing the utterance towards his/her parent as a request for assistance. In this example, the child does pause for 2 or more seconds between the two words, giving the two words an unclear connection (in this instance, segment even if the words do seem connected).
        - Transcribe → [3s] mom  
[3s] help
        - Child pauses for two seconds; segment even if there are no adult intervening CAs.
  2. Single-word directives
    - a. Words used to direct the listener's attention, such as "look" or "watch." Even if the child is not looking at the adult, we will assume he/she is directing the adult, as these words hold inherent meaning as directives.
    - b. Ex: Child says, "look broken."
      - i. Child is directing the comment towards the adult and is commanding the adult's attention. In this example, the child does not pause between the two words.

- Transcribe → [3m] look broken
  - ii. Child is directing the comment towards the adult and is commanding the adult's attention. In this example, the child does pause for 2 or more seconds between the two words.
    - Transcribe → [3s] look  
[3s] broken
    - Child pauses for two seconds; segment even if there are no adult intervening CAs.
3. Attentional Devices
- a. Words used to call the listener's attention to oneself. Even if the child is not looking at the adult, we will assume he/she is calling the adult attention as these devices are inherently attention-seeking.
  - b. Ex: Child says, "hey stop"
    - i. In this example, "Hey" is the attentional device and "stop" is a directive.
    - ii. Child is directing the comment towards the adult and is directing the adult's attention. In this example, the child does not pause between the two words.
      - Transcribe → [3m] hey stop
    - iii. Child is directing the comment towards the adult and is directing the adult's attention. In this example, the child does pause for 2 or more seconds between the two words.
      - Transcribe → [3s] hey  
[3s] stop
      - Child pauses for two seconds; segment even if there are no adult intervening CAs.
4. Tag-questions
- a. Tag questions are used in spoken language, but are not often found in written speech.
  - b. These devices are not always meant as questions, but instead are more often understood as requests for confirmation. Tag questions are used as a way of asking the other person to make a follow-up comment.
  - c. Tag questions are only segmented from their declarative utterance if there is a two or more second pause.
  - d. Ex: Child says, "This is a ball, right?"
    - i. If the child says this utterance without pausing for two or more seconds:
      - Transcribe → [3m] this is a ball right
    - ii. If the child says this utterance and pauses for two or more seconds between the statement and question:
      - Transcribe → [3m] this is a ball  
[3s] right
      - Child pauses for two seconds; segment even if there are no adult intervening CAs.
- B. Segment the following instances using these specific guidelines (each of these cases are exceptions to the rules provided in the general guidelines and do not strictly follow the "2 second pause" pattern described above):

### 1. Listing

- a. At times, children will form lists, such as listing the colors on a toy or listing their favorite food items for lunch.
- b. If there are clear prosodic transitions (pauses, rhythm, stress, and intonation of speech) indicating the end of an utterance, then transcribe each item separately.
  - i. Falling intonation at the end of the list signals the end of an utterance; any utterances following this falling intonation would be segmented from the group
  - ii. Rising intonation signals that that the list is not complete; any utterances following this rising intonation would not be segmented from the group.
  - iii. Intonation in this manual will be represented with arrows.
    -  Shown over a word = falling intonation is being used on that word
    -  Shown over a word = rising intonation is being used on that word
- c. How to segment lists:
  - i. Falling intonation:
    - Ex: "Child says, "I want to eat apples, bananas, carrots."
      - Child uses falling intonation at the end of carrots to signal he/she did not intend to list any more items.
      - Transcribe → [3m] I want to eat apple/s banana/s carrot/s
    - Ex: Child says, "I want to eat apples, bananas, (child pauses for < 2 seconds) carrots."
      - Child uses rising intonation in the word bananas to signal he/she did intend to list more items.
      - Transcribe → [3m] I want to eat apple/s banana/s carrot/s
  - ii. If the child uses the word "and" do not segment the utterance, regardless of intonation and pausing:
    - Transcribe → [3m] I want to eat apple/s, banana/s, and carrot/s
  - iii. There is a pause of two or more seconds between the items:
    - Transcribe → [3m] I want to eat apple/s (2 second pause)  
[3m] banana/s carrot/s

## 2. Counting

- a. Rote counting: the child begins to count organically without any prompting; here the child is not counting items.
  - i. If there is not a pause of two or more seconds between the numbers, then only the first number is orthographed, and any numbers in succession will be coded in brackets.
    - Transcribe → [3s] one {two, three, four}
    - Use the same convention even if the child counts out of numerical order.
      - Transcribe → [3s] one {three, four, two}
  - ii. If there is a pause of two or more seconds between the numbers, then segment the numbers:
    - Ex: Child counts "One, two" (pauses for two or more seconds) three, four."
      - Transcribe → [3s] one {two}  
[3s] three {four}
    - Use the same convention even if the child counts out of numerical order.
      - Ex: Child counts "One, three" (pauses for two or more seconds) two, four."

- Transcribe → [3s] one {three}  
[3s] two {four}
- iii. There are instances when you will need to segment the child's counting by following his/her inflection regardless of any pausing between the numbers:
- When the child's inflection declines (in an exaggerated fashion) at the end of a number, the following number will be orthographed separately.
    - [3s] one {two, three} (*number three said with downward inflection*)  
[3s] four
  - Note: When in doubt about child's inflection dictating segmenting of lists, ask yourself "Am I expecting something to come after that number?"
    - If the answer is yes, do **not** segment from previous numbers, even if child's inflection is irregular
      - Ex: In this example, "three" is said with upward inflection and indicates that there are more numbers to follow
      - Transcribe → [3s] one {two, three, four}
    - If the answer is no and there is another number utterance afterwards, segment the final/"surprise" number only.
      - Ex: "Three" is said with downward inflection and indicates to coder that there is nothing to follow; then, a following number is spoken. Pausing between the numbers is not necessary to segment in this example.
        - Transcribe → [3s] one {two, three}  
[3s] four
  - If all numbers are said in monotone, segment the numbers according to pausing.
- b. One-to-one counting: the child counts items one by one, assigning a number to each item.
- i. Ex: Child counts the number of crayons: "one" (referring to first crayon), "two" (referring to second crayon), "three" (referring to third crayon).
    - Child typically "refers" to each of the items by pointing to the item, transferring the item, or showing the item to the adult.
  - ii. If there is not a pause of more than two seconds between the numbers, then only the first number is orthographed, and any numbers in succession will be coded in brackets. Note: in this example, the child does not say "one crayon." He says "one" labeling the first crayon and "two" labeling the second crayon (the following two examples apply even if the child is counting out of numerical order).
    - Ex: one-to-one counting (i.e. the child is counting crayons <2 seconds apart)
      - Transcribe → [3s] one {two, three, four}
      - Transcribe → [3s] one {three, four, two}
  - iii. If there is a pause of more than 2 seconds between numbers in one-to-one counting, the coder will segment the utterance. Note: in this example, the child does not say "one crayon." He says "one" labeling the first crayon and "two" labeling the second crayon (the following two examples apply even if the child is counting out of chronological sequence):
    - Ex: one-to-one counting (i.e. the child is counting crayons >2 seconds apart).
      - Transcribe → [3s] one (*referring to crayon number one*)

[3s] two (*referring to crayon number two*)

- Child pauses for two seconds; segment even if no adult intervening CAs
- Ex: The child is counting four crayons and pauses for longer than two seconds between the third and fourth crayon.
  - Transcribe → [3s] one {two, three}  
[3s] four
  - Child pauses for two seconds; segment even if no adult intervening CAs
- iv. If the child includes a corresponding noun along with each number: each item counted is orthographed separately. Segment regardless of intonation and pausing.
  - Transcribe → [3m] one crayon  
[3m] two crayon  
[3m] three crayon  
[3m] four crayon
- v. In one-to-one counting, if the child precedes the last number in the list with “and,” all numbers are coded in the same line (none in brackets) regardless of intonation, pausing, and direct object labeling.
  - Transcribe → [3m] one two three and four
  - Transcribe → [3m] one crayon two crayon and three crayon

### 3. Repeated words

- a. When a child’s utterance has repeated words or phrases that are less than two seconds apart and are not separated by intervening adult communication act, transcribe as one utterance.
  - i. Put the second and subsequent instance of the repeated word in brackets { } so that the SALT program excludes them from analysis.
  - ii. Example:
    - Child repeats a phrase:
      - Transcribe → [3m] I want go home {I want go home}
    - Child seems to “get stuck” on a particular word in a sentence:
      - Transcribe → [3m] I want to go {go, go, go, go} home
- b. Transcribe repeated words or sentences as separate utterances only when one of the following applies:
  - i. Separated by a two-second pause or longer
    - Ex: child says, “No, no, no, no.” All “no”s are said with at least two seconds between them and the adult does not intervene between the child’s utterances.
      - Transcribe → [3s] no  
[3s] no  
[3s] no  
[3s] no
    - Ex: child says an animal sound multiple times, without pausing for more than 2 seconds.
      - Each “quack” is said less than two seconds apart and the adult does not intervene between the child’s utterances.
      - Transcribe → [3s] quack {quack x 8}

ii. Topic referent has shifted

- Ex: child points to different objects around the room while repeating the phrase “I want that.”
  - Transcribe → [3m] I want that {pointing to teddy bear}  
[3m] I want that {pointing to fire truck}

iii. Adult utterance intervenes

- Example of intervening gesture: The child is holding a jar of cheerios, says “open, open,” and the examiner then reaches her hand out toward the child. The child then says “open” again.
  - This would be coded as two acts. The first “open, open” is considered a single word (because it is repeated with fewer than 2 seconds between the words). The second act is segmented from the first act by the examiner’s outstretched hand, and so the third production of the word “open” is transcribed a second time.
  - Transcribe → [3s] open {open}  
[3s] open
- Example of intervening adult utterance: The child says “gimme” multiple times. The word is repeated at 1 second intervals and the topic did not shift, but the adult intervened.
  - Transcribe → [3s] gimme {gimme} (A: Give you what?)  
[3s] gimme {gimme}



## Using SALT

- I. Review the ProCoderDV File
  - A. Check for errors with the code file (such as incorrectly labeling a [3m] as a [3s]).
  - B. Review the transcription and all orthographed words for spelling conventions, “child-like” words, “unanalyzed wholes,” etc.
  - C. Adjust the sample to the appropriate elapsed time by reviewing [1c] {Start coding here} and [1u] {Stop coding here} time stamps.
    1. In this example below, the coder started coding when the clinician began the 6-minute timer for the measure and stopped coding when the timer sounded at the end of the 6 minutes. See that the start time is 00:00:10.90 and the end time is 00:06:11.01:

Time	Codes	Transcription
00:00:10.90	[1c]	{start coding here}
00:00:40.81	[3n]	{attn to obj; voc; attn to adult}
00:03:06.74	[3n]	{attn to obj; voc; attn to adult}
00:03:20.08		{attn to obj; voc; no attn to adult}
00:03:24.80		{attn to obj; voc; no attn to adult}
00:03:33.75		{voc w/o attn to adult}
00:04:21.26	[3m]	uhoh ah
00:05:14.09		{sounds w/o attn to adult}
00:05:26.22		{sounds w/o attn to adult}
00:05:39.27		{voc w/o attn to adult}
00:05:42.67		{voc w/o attn to adult}
00:06:11.01	[1u]	{stop coding here}

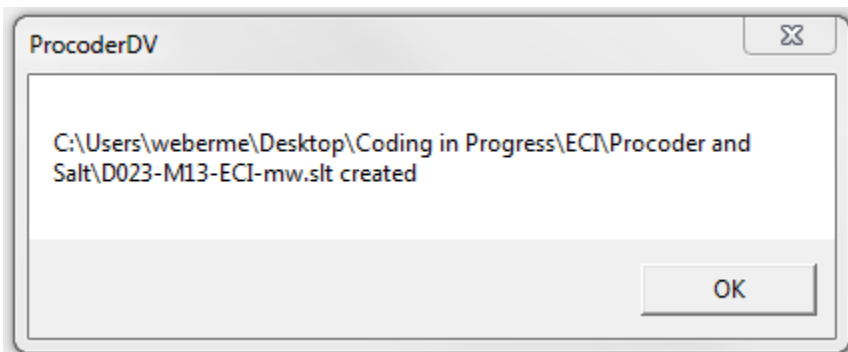
- a. This discrepancy in time is due to human error and the difficulty of “marking” the exact moment the timer sounds.
  - b. We adjust the SALT file to account for this error.
2. Adjust the stop coding time to fit an exact elapsed time of 6 codeable minutes. See that the start time is 00:00:10.90 and the end time is 00:06:10.90:

Time	Codes	Transcription
00:00:10.90	[1c]	{start coding here}
00:00:40.81	[3n]	{attn to obj; voc; attn to adult}
00:03:06.74	[3n]	{attn to obj; voc; attn to adult}
00:03:20.08		{attn to obj; voc; no attn to adult}
00:03:24.80		{attn to obj; voc; no attn to adult}
00:03:33.75		{voc w/o attn to adult}
00:04:21.26	[3m]	uhoh ah
00:05:14.09		{sounds w/o attn to adult}
00:05:26.22		{sounds w/o attn to adult}
00:05:39.27		{voc w/o attn to adult}
00:05:42.67		{voc w/o attn to adult}
00:06:10.90	[1u]	{stop coding here}

3. Be certain to account for any uncodeable time in each sample (see Group #1: Codeable and Uncodeable Time [1c/1u], pg. 10) and subtract it from the total amount of codeable time (you may have to calculate this manually).
4. The acceptable ranges of codeable time are:
  - a. CSP: Minimum: 10 minutes 0 seconds; Maximum: 15 minutes 0 seconds
  - b. ECI: Minimum: 4 minutes 0 seconds; Maximum: 6 minutes 0 seconds
  - c. Any samples that do not meet the minimum criteria for codeable time will be considered 999.
  - d. Any samples that exceed the maximum criteria for codeable time will be truncated.

## II. Export the ProcoderDV File to Create the SALT File

- A. With your ProcoderDV file open, select the “Export” button on the icon bar at the top of the ProcoderDV page (it has a diagonal arrow pointing upward and to the right). A dialogue box will open.
- B. Use the drop down menu at the top of the dialogue box to select the location to which you wish to save the file you are about to create (Ex: C:\Users\weberme\Desktop\Coding in Progress\ECI\ProcoderDV and SALT).
- C. Use the Save As type: drop down box at the bottom of the dialogue box to select the kind of file you want to create (SALT files (\*.slt)).
- D. Click Save at the bottom of the dialogue box.
- E. A new box will appear:



1. Select OK. Save the ProcoderDV file and exit the program.

## III. Print SALT files needed for Data Entry:

- A. From the generated SALT files, we may obtain duration of assessment, MLU, lexical density, frequency of intentional pragmatic functions, weighted frequency of intentional communication, and the weighted number of reciprocal acts.
- B. Open the SALT file you have created.
- C. Identify formatting errors in the SALT program
  1. Remove the “-” on the lines above the beginning and below the end of the transcript
  2. From the toolbar, select “Check.” From the dropdown menu, select “Check for errors.”

3. If errors are reported in the Check for Transcript-Entry Errors dialogue box, click the "Move to 1<sup>st</sup> Error" button. If more than one error is listed, select "Check" and then select "Next error" and SALT will locate the next error.
  4. After amending all errors, repeat step 2 to ensure that there are no errors remaining in the transcript.
- D. In the toolbar, select Analyze. From the dropdown menu, select: Transcript Summary.
1. Scroll to the bottom of this page to view the "Elapsed Time."
    - a. Refer to your ProcoderDV file to see if this time matches the elapsed time calculated above.
    - b. If this time does not match what you have calculated as codeable time in the ProcoderDV file, ignore this number.
      - i. Caution: If there is at least one portion of uncodeable time within the body of the assessment, SALT's "Elapsed Time" will not take this into account.
  2. Write the correct time on your summary slip.
- E. From the toolbar, select Analyze. From the dropdown menu, select: Word and Morpheme summary.
1. The word and Morpheme summary will open. Print this page.
  2. Example of word and morpheme summary:

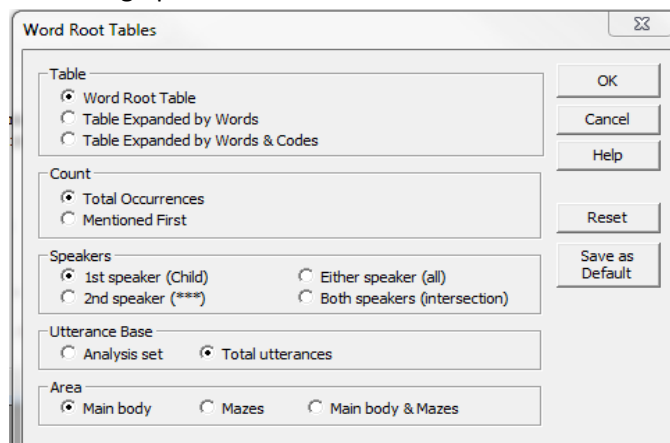
WORD AND MORPHEME SUMMARY

	Child		***	
	Analysis Set	Total Utterances	Analysis Set	Total Utterances
MLU in Words	1.56	0.84	---	---
MLU in Morphemes	1.67	0.87	---	---
Brown's Stage	Late I	---	---	---
Expected Age Range (mos.)	18 - 31	---	---	---
Number Different Words	12	19	0	0
Number Total Words	14	38	0	0
Type Token Ratio	0.86	0.50	---	---
No. Bound Morphemes	1	1	0	0
No. Maze Words	0	0	0	0
No. Omitted Words	0	0	0	0
No. Omitted Bound Morphemes	0	0	0	0

- F. Obtain data from this page such as:
1. "MLU in Morphemes" under the Analysis Set column
    - a. If this number is blank (--), this means the child did not speak any words and his/her MLU in morphemes = 0.00.

	Child	
	Analysis Set	Total Utterances
MLU in Words	---	0.00
MLU in Morphemes	---	0.00

- b. If the child did say any codeable/transcribable words, this number will always be  $\geq 1.00$ .
2. "Number of different words" in the Total Utterance column (be certain this matches the Word Root Table):
- In the ProcoderDV program, the coder should have orthographed any unintelligible words spoken by the child as "x."
  - On this page, "x" is included in the total of different words, so to gather the true number of different words, you must see if the child had any unintelligible utterances by referring to the word root table (see below). If the child did have unintelligible utterances, then subtract "1" from the "number of different words" total.
    - Ex: Number of Different words under Total Utterances Column on the Word and Morpheme page = 19.
      - Word Root Table shows 18 intelligible words + "x" to indicate unintelligible words.
      - Thus, the true total number of different words =  $19 - x = 19 - 1 = 18$ ; "x" in this formula will always = 1 even if the child said multiple unintelligible utterances.
- G. From the toolbar, select Analyze. From the dropdown menu, select Code Summary.
- Print this page.
- H. Use the formula below to calculate the weighted frequency of intentional communication acts:
- Weighted Frequency formula of intentional communication:
 
$$\begin{array}{rccccccc} ([3n] \times 1) & + & ([3s] \times 2) & + & ([3m] \times 3) & = & \\ ( [3n] \times 1) & + & ( [3s] \times 2) & + & ( [3m] \times 3) & = & \\ & + & & + & & = & \underline{\hspace{2cm}} \end{array}$$
- M. Obtain other data from this page such as:
- Frequency of Pragmatic Functions ([4i], [4d], and [4o])
- I. From the toolbar, select Analyze. From the dropdown menu, select: Word Root Tables...
- Select the following options.



2. Press Save as Default. Select Yes on the next dialogue box, then Select OK.
3. Once These options have been selected, simply press OK on the Word Root Tables dialogue box for future SALT files.
4. The Word Root Table of the child's words will appear. Review this page to see that each word orthographed in the ProcoderDV file is accounted for and each word is spelled and orthographed correctly.
  - a. Ex: ELEPHANT and ELELEPHANT are both listed (one version is misspelled)
    - i. Correct this in the ProcoderDV and re-export to create a new SALT file so that only the correctly spelled word appears in the word list.
    - ii. Ex: ELEPHANTS is listed (should be orthographed elephant/s).
  - b. Ex: YOU'LL is listed; (should be orthographed you'll).
    - i. Correct this in ProcoderDV and re-export to create a new SALT file so that only the correctly orthographed word – in this case the morpheme “you” – appears in the word list.

#### IV. Useful Information about SALT

- A. Parentheses are reserved for mazes. All text within parentheses are analyzed as mazes.
  1. Ex: Child says “He was he was he was five.”
    - a. All of these words were spoken by the child, but we will only count the words outside of the maze.
      - i. Transcribe → [3m] (he was he was) he was five {attn. to obj.; no attn. to A}
    - b. The coder's comments should not be in parentheses but should be transcribed within {braces}.
- B. Acceptable Codes
  1. A code consists of characters enclosed within square brackets (ex: [1u]; [3s]; [4d]).
  2. Do not use a blank space within the code (ex: [ 4d]).
  3. Avoid using symbols in your transcription; many symbols have a special meaning in SALT.
    - a. Ex: Avoid using the “@” sign and the “=” sign as their usage will generate a warning message in SALT.
- C. Ending Punctuation & Other Punctuation Marks
  1. SALT uses the ending punctuation mark to determine the type of utterance. Every utterance in the SALT file must end with one of these end-of-utterance punctuation marks (SALT will automatically insert a “.” upon export of the ProcoderDV file into SALT).
  2. Ending punctuation may include a period, exclamation mark, question mark, tilde, greater-than sign, or caret. No other characters should follow the ending punctuation, not even quotation marks or special codes.
  3. If a special character is used (?, !, >), SALT will initially detect this as an error in the Check for Transcript-Entry Errors dialogue box because the punctuation is duplicated. It appears like this:

C who/'s there? [3m]?

To fix the error, remove the punctuation from the end of the transcribed utterance so it looks like this:

C who/'s there [3m]?

**Appendices****Appendix A: Signs and Sign Approximations**

I. Below is a list of grammatical signs as found in A Basic Course in American Sign Language (Humphries et al., 1980). These may occur during an assessment. Familiarize yourself with these signs at [aslpro.com](http://aslpro.com).

**Animals**

Alligator  
Bear  
Bee  
Bird  
Butterfly  
Cat  
Caterpillar  
Cow  
Chicken\*  
Duck\*  
Dog  
Elephant  
Fish  
Giraffe  
Goat  
Gorilla  
Hippo  
Horse  
Kangaroo  
Lion  
Monkey  
Owl  
Penguin  
Pig  
Rabbit  
Rooster  
Seal  
Sheep  
Snake  
Spider  
Turtle  
Zebra

**Colors**

Black  
Blue  
Grey  
Green  
Orange

Pink  
Purple  
Red  
White  
Yellow\*\*

**Clothing**

Coat  
Dress  
Gloves  
Hat  
Mittens  
Pants  
Shirt  
Shoes  
Socks  
Sweater  
Watch

**Food**

Apple  
Banana  
Bread  
Carrot  
Corn  
Cheese  
Chocolate  
Hamburger  
Ice cream  
Lemon  
Milk  
Orange  
Pizza  
Peach  
Peas  
Strawberry  
Tomato

**People**

Baby

Boy  
Clown  
Dad  
Girl  
Man  
Mom  
Woman

**Other Objects**

Book  
Bed  
Chair  
Clock  
Cup  
Fire  
Flag  
Flower  
House  
Moon  
Plate  
Stars  
Telephone  
Toilet  
Tree

**Other Relational Signs**

All done/Finish\*  
Big  
Down  
Little  
More\*  
Up

**Toys**

Ball  
Balloon  
Bubbles  
Blocks  
Doll  
Drum  
Kite

Piano  
Puzzle  
Robot  
Rocket  
Slide  
Swing  
Trumpet

**Vehicles**

Bicycle  
Boat  
Bus  
Car  
Motorcycle  
Train  
Truck  
Tractor  
Wagon

**Verbs**

Drink\*  
Eat\*  
Fall  
Go\*  
Help\*  
Look  
Open\*  
Play\*  
Sit  
Sleep  
Stand  
Stop  
Swing  
Wash

\*Must be different from bird

\*\*Must be different from one-handed "play" sign.

Sign approximations are coded according to the procedures in the manual (pg. 16). Hand shape does not have to match the conventional sign exactly, but the movement and location of the sign should be a close fit, given the child's motor limitations. This table has a description of possible sign approximations that a child may produce.

<b>Possible Sign Approximations</b>	
<b>Signs</b>	<b>Examples of Additional Acceptable Approximations</b>
Drink	▪ Touches thumb to side of mouth
Eat	▪ Touches index finger to mouth
Open	▪ Twists both flat palm-down hands once so that the palms are facing
Help	▪ Raises both closed fists
More	▪ Claps flat hands ▪ Taps/places index finger or thumb against palm of opposite hand
All done/Finish	▪ Places one forearm on top of other forearm with fingers pointing in opposite direction ▪ Rotates wrists of both hands with fingers spread
Play	▪ Child uses only one hand
Go	▪ Child moves index finger from pointing up to pointing away from body
Stop	▪ Child uses one hand only, palm must face to the side

\*Of note: Touch happens early in signing

Hand shape often different

Location of sign approximation with respect to trunk has to be the same as traditional sign

### **Interpreting Signs**

There may be times when a child appears to be signing a word or phrase that the clinician does not understand during the assessment and the coder has difficulty interpreting later. The website <http://www.handspeak.com/word/asl-eng/> may be helpful in interpreting this possible sign.

- 1.) First, identify a handshape of the ASL word based on the dominant hand (see ASL Handshape Chart on the following page), regardless of the one-handed or two-handed production.
- 2.) Next, identify the child's hand-movement (see options in drop down box).
- 3.) Finally, identify a location of the base part of the body where the dominant hand makes contact or close contact (see options in drop down box).
- 4.) Press Search and view each of the video options to see if any the suggested signs fit the conversation contextually. Code accordingly.
- 5.) If the child's hand movements are not represented in any of the videos and are none of the approximated signs given in the chart above, it is possible the child making a non-communicative hand movement. In that case, the hand movement is not a codeable communication act. Code conservatively and only credit the child with true communication.



ASL Handshape Chart

<b>0-num</b>	<b>0-flat</b>	<b>1-baby</b>	<b>0-babyflat</b>	<b>0-babyc</b>	<b>1-num</b>	<b>1-claw</b>
						
opinion					for	recently
<b>1-claw2</b>	<b>1-d</b>	<b>1-bend</b>	<b>1-g</b>	<b>1-i</b>	<b>1-thumb (L)</b>	<b>2-num</b>
						
apple key	dating		nut (as in pea-brained)			
<b>2-bend</b>	<b>2-claw</b>	<b>2-close</b>	<b>2-cross</b>	<b>3-num</b>	<b>3-claw</b>	<b>3-bend</b>
						
	doubt gum	uncle	rocket realize	lousy awkward	bug mischievous	ha-ha
<b>3-flat</b>	<b>3-inverse</b>	<b>3-k</b>	<b>4-num</b>	<b>4-close</b>	<b>4-claw</b>	<b>4-bend</b>
						
no			leak	beer	rake	
<b>5-num</b>	<b>5-close</b>	<b>5-claw</b>	<b>5-half</b>	<b>5-bend</b>	<b>5-c</b>	<b>6-num</b>
						
mother+father	school		video-	seem	look-for	wine
<b>6-claw</b>	<b>6-inverse (y)</b>	<b>7-num</b>	<b>7-8</b>	<b>7-open</b>	<b>8-num</b>	<b>8-inverse</b>
						
weird	forever	nerd	hippopotamus		silver	enmity
<b>8-open</b>	<b>9-num</b>	<b>9-open</b>	<b>10-thumb</b>	<b>10-a</b>	<b>10-s</b>	<b>10-t</b>
						
advantage touch	fruit		girl sports	attitude	bicycle	

**Appendix B: Vowels**

- I. Process of determining functional Equivalence of Vowels
  - A. When the child produces a vocalization that is a potential word, first determine what word the child is attempting.
  - B. Next, pronounce the *target* vowel (or adult vowel) of the word the child is possibly attempting (sometimes it helps to say the sound to yourself aloud).
  - C. Find the target vowel on the vowel chart below and note the numbers beside the vowel.
  - D. Find the child’s production on the chart and determine whether any of the numbers on the chart match one of the numbers for the *target* vowel.
  - E. If the child’s vowel is functionally equivalent to the adult target and all other semantic, pragmatic, and phonetic (e.g., consonantal) criteria have been met, transcribe the child’s production as a word (as indicated in the orthographing section of this manual).

## II. Functional Equivalence Chart:

Front Vowels	Central Vowels	Back Vowels
/i/ (1) as in “he” or “need”	/ɜː; ə/ (3, 4) as in “her” or “hurt;” “dinner”	u (5) as in “who” or “shoe”
/ɪ/ (1, 6) as in “hit” or “him”	/ʌ; ə/ (3, 4) as in “hut” or “hum;” “enemy”	ʊ (5) as in “hood” or “should”
/e/ (1, 2) as in “hay” or “say”	/aɪ/ (3,4) as in “hi” or “bye”	/o/ (4, 5) as in “hoe” or “soap”
/ɛ/ (2, 3, 6) as in “head” or “said”	/aʊ/ (3,4) as in “how” or “bounce”	/ɔ/ (4, 5) as in “call” or “ball”
/æ/ (2, 3) (as in “hat” or “tap”)	/oi/ (3,4) as in “boy” or “toy”	/ɑ/ (3, 4) as in “hot” or “dot”

- A. Diphthongs: a diphthong is a sound made by combining two vowels, specifically when it starts as one vowel sound and goes to another.
  1. Note that diphthongs in Southern dialects tend to be produced as single vowels. Many single vowels in Southern dialects are *heavily* diphthongized).
    - a. aɪ (3, 4) (as in “hi” or “bye” in standard dialects)
    - b. aʊ (3, 4) (as in “how” or “bounce”)
    - c. oi (3, 4) (as in “boy” or “toy”)

## III. “R” colored vowels:

- A. “R-colored vowels” is a term used to describe the change in quality of a spoken vowel immediately followed by the consonant r.

B. Examples of R-Colored Vowels

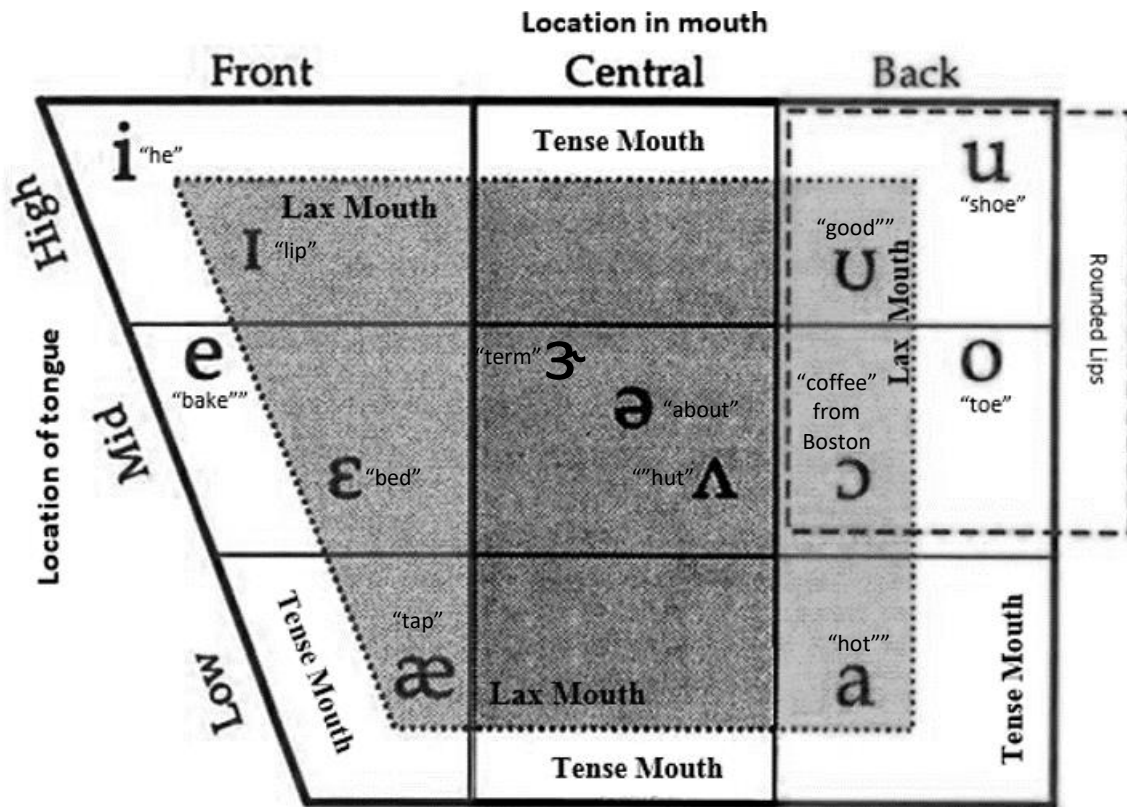
Examples of R-Colored Vowels			
Word	IPA: Vowels + r	Word	IPA: Vowels + r
Air	ɛər	Cheer	ɪr
Are	ɑr	Cure	ʊr
Oar	ɔr	Cord	ɔr
Ear	ɪr	Far	ɑr
Ire	aɪr	Fair	ɛr
Our	aʊr	Herd	ɜr
Pur	ɜr		

IV. Placement of vowels in mouth:

A. Color Key:

1. Small Gray Inner Trapezoid: the mouth and lips are lax (ɪ, ɛ, æ, ɜ, ə, ʌ, ʊ, ɔ, a)
2. Larger White Bordering Trapezoid: the mouth and lips are tense (i, e, o, u)

B. Slowly say each of the words in quotations aloud to hear each of the vowel shapes accurately



## Appendix C: Consonants and the Most Common Speech Sound Errors Found in Young Children’s Early Meaningful Speech Productions

### I. Substitutions:

<b>Lip Sounds:</b>	
Target Sound:	Produced as:
m	m (i.e., usually correct)
w	w (i.e., usually correct)
p	b, at the beginning or middle of a word (e.g., “pie” → “bie” or “happy” → “habby”)
b	p, at the end of a word (e.g., “bib” → “bip”)
f	p or b (e.g., “fat” → “pat” or “five” → “bive” or “knife” → “nipe”)
v	p or b (e.g., “very” → “bery” or “five” → “fibe”)

<b>Tongue on Teeth Sounds:</b>	
Target Sound:	Produced as:
“th,” as in “ <u>th</u> ink”	t or d or f or s (e.g., “bath” → “bat,” “bad,” “baf,” or “bas”)
“th” as in “ <u>th</u> is”	d or t (e.g., “that” → “dat” or “tat”)

<b>Tongue Behind the Teeth Sounds:</b>	
Target Sound:	Produced as:
t	d, at the beginning and middle of words (e.g., “toy” → “doy,” “top” → “dop”)
d	t, at the end of words (e.g., “bad” → “bat,” “hide” → “hite”)
s	t or d (e.g., “see” → “tee” or “dee,” “miss” → “mitt,” “missing” → “mitting” or “mittee”)
z	t or d (e.g., “zoo” → “too” or “doo,” “fuzzy” → “puddy” “bust” → “biddy,” or “buzz” → bud)
l	“d” or “w” for “y,” at the beginnings or middle of words; usually omitted or changed to a vowel, like “oh” at the end of words (e.g., “lime” → “dime” or “yime” or “wime,” “bubble” → “bubboh,” “call” → “kaw” or “kaoh”)

<b>Tongue on the Mid-Palate Sounds:</b>	
Target Sound:	Produced as:
sh	t or d (e.g., “shoe” → “too” or “doo,” “washing” → “wating” or “wadding,” and “push” → “put”)
ch	t or d (e.g., “chew” → “tew,” “watch” → “watt,” or “match” → “mat”)
j	t or d (e.g., “jam” → “dam,” “badge” → “bad,” or “judge” → “dud”)
y	y (usually correct, but sometimes d) (e.g., “you” → “dou,” “yoyo” → “dodo,” or “yeah” → “deah”)
r	w at the beginning and middle of words; usually omitted at the end of words (e.g., “run” → “wun,” “mirror” → “miwoh,” “ride” → “wide,” or “car” → “kaw” or “kaoh”)

<b>Tongue on the Back-Palate Sounds:</b>	
Target Sound:	Produced as:
k	t or d (e.g., “key” → “tey” or “dey,” “kick” → “tit” or “dit,” “back” → “bat,” or “yucky” → “yutty” or “yuddy”)
g	t or d (e.g., “go” → “do,” “get” → “tet,” “give” → “tive,” or “gar” → “daw”)
“ng” (as in <u>ng</u> )	n (e.g., “king” → “keen,” “bang” → “ban,” or “song” → “tawn,”)

## II. Other Patterns:

- A. Final Consonants: Often omitted altogether (*Final consonant deletion*)
  1. Ex: Car → “caw”
  2. Ex: Bad → “bae”
  3. Ex: Knife → “knye”
- B. Unstressed syllables; Often omitted altogether (*Weak syllable deletion*)
  1. Ex: Around → “wound,”
  2. Ex: Tomato → “mato”
  3. Ex: Banana → “nana”
  4. Ex: Giraffe → “waffe”
- C. Consonant blends: Often changed to a single consonant (*Cluster reduction*)
  1. Ex: Please → “peas” or “pea”
  2. Ex: Blue → “bue,”
  3. Ex: Sky → “kye” or “gye,”
  4. Ex: Friend → “fen” or “pen”
- D. Words with two or one sound are often changed to be the same as or similar to more consonants another, yielding a within-word consonant repetition or “near” repetition. (*Assimilation* or *Consonant Harmony*)
  1. Dog → “dod” or “gog,”
  2. Kitty → “kicky” or “titty,”
  3. Money → “momey”
- E. More than one of these changes can occur in a single word,
  1. Susan → “tutu” (s → t plus *consonant harmony*)
  2. Laughing → “yappee” (l → “y”, f → p, and *Final consonant deletion*)
- F. Remember:
  1. Common sound substitutions for “n” and “h” sounds have been omitted in the above because they are so rarely misarticulated. These two sounds are among the five or 10 most frequently BABBLED sounds across all languages of the world. So, they’re usually there in English kid’s first words.
  2. When SUBSTITUTION errors do occur, [m] would be the most common substitution for [n]. Nasals are readily confused.
  3. For [h], the most common error is omission in which case you just have a vowel. Another consonant substituted for [h] is extremely rare. Some kids have strong patterns of favorite sounds; so [t] might substitute for a whole lot of sounds, including [h]. But there’s no obvious substitution alternative for this sound.

## III. Placement of English Consonants in the mouth:

- A. Place of Articulation:
  1. **Bilabial** - uses both lips to create the sound such as the beginning sounds in pin, bust, well and the ending sound in seem.
  2. **Labiodental** - uses the lower lip and upper teeth; examples include fin and van.
  3. **Interdental** - creates sound between the teeth such as the and thin.
  4. **Alveolar** - is a sound created with the tongue and the ridge behind the upper teeth; examples include the beginning sounds of tin, dust, sin, zoo, and late and the /n/ in scene.
  5. **Palatal** - uses the tongue and the hard palate to create the following sounds: shin, treasure, cheep,

jeep, rate and yell.

6. **Velar** - makes the sound using the soft palate in the back of the mouth; sounds include kin, gust, and the -ng in sing.
7. **Glottal**- is a sound made in the throat between the vocal cords such as in the word hit

B. Manner of Articulation: The manner of articulation means how the sound is made using the different places of articulation, tongue placement, whether the sound is voiced or unvoiced and the amount of air needed.

1. **Stops** - air coming from the lungs is stopped at some point during the formation of the sound. Some of these sounds are unvoiced, such as pin, tin, and kin; some of these are voiced, such as bust, dust and gust.
2. **Affricates** - are combinations of stops and fricatives. Cheap is an example of an unvoiced affricate and jeep is an example of a voiced.
3. **Fricatives** - restricted air flow causes friction but the air flow isn't completely stopped. Unvoiced examples include fin, thin, sin, shin, and hit; voiced examples include van, zoo, the, and treasure.
4. **Nasals** - as expected, the air is stopped from going through the mouth and is redirected into the nose. Voiced examples include seem, seen, scene, and sing.
5. **Liquids** - almost no air is stopped; voiced examples included late and rate.
6. **Glides** - sometimes referred to as "semi-vowels," the air passes through the articulators to create vowel like sounds but the letters are known as consonants. Examples include well and yell.

### C. IPA Consonants Chart

IPA Consonants								
Placement →		Bilabial	Labiodental	Interdental	Alveolar	Palatal	Velar	Glottal
Stops	Voiceless	p			t		k	ʔ
	Voiced	b			d		g	
Affricatives	Voiceless					tʃ = "ch" as in chair		
	Voiced					dʒ = "j" as in judge		
Fricatives	Voiceless		f	θ = "th" as in thistle	s	ʃ = "sh" as in hush	h	
	Voiced		v	ð = "th" as in this	z	ʒ = "s" "treasure"		
Nasals		m			n		ŋ = "ing" as in "king"	
Liquids	Lateral				l			
	Flap				r			
	Retroflex					ɻ		
Glides (semi-vowels)		w				j = "yuh" sound for y		

**Appendix D: Spelling Convention for “Child-Like” Words**

Some codeable words that children say are not found in the dictionary. The list below represents “child-like” words that are codeable even though they are not spelled in the conventional manner.

AINT	HOORAY	TV (Don't put periods between the letters)
ALLDONE	HUH (as in requesting clarification)	UHHUH (indicating "yes")
ALLGONE	LET'S (not typed with a /)	UHOH (something bad just happened)
ALLTHROUGH	LIKETA	UHUH (indicating "no")
ATTA (for that/'s a)	LOOKIT	WANNA
BETCHA ("I betcha I can.")	MISTER	WHATCHA ("whatcha doing?")
BOOBOO	MISSES	WHEE
BOOM (conventional noise for loud crash or explosion)	MISS	WHOA (for “stop” or for excitement)
C'MON (child said “ ‘mon”)	MOM/DAD (child said mama or dada)	WHOOOPS (child said whoospy)
COCKADOODLEDOO	NOPE	WOE (for exclaiming distress)
DOCTOR	OH	WOOHOO
FIXINA (“fixing to”)	OK ("okay" - Don't put period between the letters)	WOW (as expression of excitement, interest, wonder, pleasure)
GIDDYUP (go verb)	OOH (“Ooh, pretty!”)	YEAH (for "yes")
GONNA	OOPS (child said “oopsy”)	YEA (as in “yay” for praise)
GOTCHA	OUGHTA ("Oughta do that")	YEP (for a short, clipped "yes")
GOTTA	OW (“ouch, that hurts”)	
GRANDMA/GRANDPA (child said mawmaw or pawpaw)	POW (conventional noise for gunshot)	
HAFTA	SPOSTA ("supposed to")	
HEY	TRYNTA ("trying to")	
HI		

**Appendix E: Spelling Conventions for Unanalyzed Wholes**

Words and word combinations are learned by children as unanalyzed wholes rather than as multiple word utterances. The list below represents unanalyzed wholes that are codeable even though they are not spelled in the conventional manner. Note that in *all* cases, proper names are spelled as one word with letters bunched together.

**Single Words:**

ALLDONE  
 ALLGONE  
 ALLTHROUGH  
 BIGBIRD  
 BURGERKING  
 CASHREGISTER (always one word)  
 CHEERIOS (always one word, never Cheeri-o's)  
 COOKIEMONSTER  
 DOCTORFRED  
 FIREENGINE  
 FRENCHFRY  
 HOTDOG  
 ICECREAM  
 KITTYCAT  
 KOOLAID  
 MISTER  
 MISTERJONES  
 MISSES  
 MISS  
 MISSMONICA  
 NIGHTNIGHT  
 OHNO  
 OSCARTHEGROUCH  
 PLAYDOH  
 READYSETGO\* Unless segmented by 3 separate actions  
 SHUTUP  
 STOPSIGN  
 TEDDYBEAR  
 THANKYOU  
 TRASHCAN  
 TV (Don't put periods between the letters)

**2 Words:**

CHOOCHOO TRAIN  
 FIRE STATION  
 FRIED CHICKEN  
 GAS STATION  
 ORANGE/GRAPE/APPLE JUICE  
 POTATO CHIP  
 ROCKING CHAIR  
 BYE BYE = bye {bye} not BYEBYE



**Appendix F: Tables**

## I. Intervening and Potentially Influencing Adult Behavior Summary Table

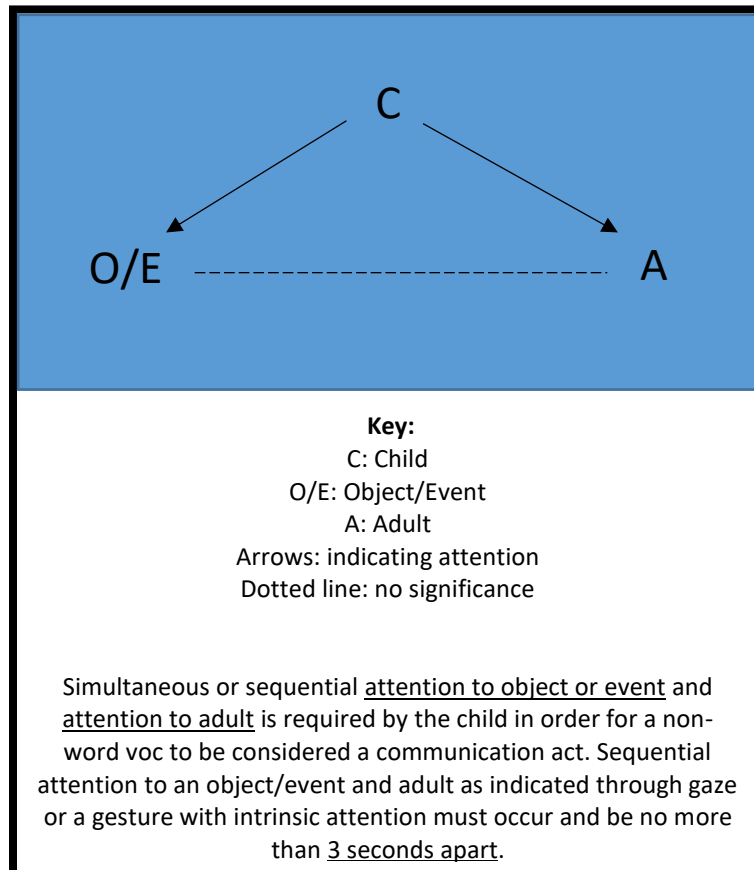
Components of Child Communication Act	IPIAB—NOT CODEABLE	Potentially Influential Behavior Does not Intervene—CODEABLE	Intervening Behavior is not Influential—CODEABLE
Gesture + Attention to Adult	<ul style="list-style-type: none"> <li>The child shakes his head.</li> <li>Adult begins to shake her own head and verbalize, "Oh, you don't like that!"</li> <li>Child looks to adult.</li> </ul> <p>The adult's behavior intervenes and may have influenced the "missing component" (gaze to adult's face) of the otherwise codeable communication act.</p>	<ul style="list-style-type: none"> <li>The child shakes his head, then looks to the adult's face.</li> <li>After child has initiated gaze to the adult's face, the adult shakes her head and says, "Oh, you don't like that!"</li> </ul> <p>The adult's behavior does not come between the child's head shake and gaze to the adult's face.</p>	<ul style="list-style-type: none"> <li>The child shakes his head.</li> <li>The examiner hands the child a toy.</li> <li>The child gazes to the adult's face.</li> <li>The adult then says "Oh, you don't like that!"</li> </ul> <p>The adult's behavior (handing the child a toy) comes between the child's gesture and gaze to the adult's face but probably did not cause the latter.</p>
Gesture + Coordinated Attention	<ul style="list-style-type: none"> <li>The child proximally points to the bubble bottle.</li> <li>The adult begins to move her head and torso down towards the child.</li> <li>Simultaneous with the adult's movement, the child looks to the examiner's face.</li> </ul> <p>The IPIAB begins after the child's point and before the child's gaze shift. The adult's movement could have influenced the child's gaze to her face.</p>	<ul style="list-style-type: none"> <li>The child proximally points to the bubble bottle, then looks to the adult's face.</li> <li>After the onset of the child's gaze to her face, the adult moves her head and torso down towards the child and says, "Bubbles!"</li> </ul> <p>The adult's behavior does not intervene.</p>	<ul style="list-style-type: none"> <li>The child proximally points to the bubble bottle.</li> <li>The child's <i>mother</i> moves her torso down towards the child.</li> <li>The child then shifts his gaze from the bubble bottle to the <i>examiner's</i> face.</li> </ul> <p>Although the mother's behavior does intervene, her movement is unlikely to have influenced the child's attention to the examiner's face.</p>
Non-word vocalization + Coordinated Attention	<ul style="list-style-type: none"> <li>The child looks to the examiner's face.</li> <li>The examiner shakes the bubble bottle and moves it closer to the child.</li> <li>After the onset of the adult's movement, the child shifts his gaze to the bubble bottle and produces a non-word vocalization.</li> </ul> <p>The onset of the adult's behavior comes <i>after</i> the child's gaze to her face and before the onset of the child's vocalization and gaze shift to the object. Shaking the bottle may have influenced the child to shift his attention to the object.</p>	<ul style="list-style-type: none"> <li>The child looks to the examiner's face, then shifts his gaze to the bubble bottle and produces a non-word vocalization.</li> <li>After the onset of the vocalization, the examiner shakes the bubble bottle and moves it close to the child.</li> </ul> <p>The adult's behavior does not intervene.</p>	<ul style="list-style-type: none"> <li>The child looks to the examiner's face.</li> <li>The examiner asks the parent, "Does he like these?"</li> <li>After the onset of the adult's utterance, the child shifts his gaze to the bubble bottle and produces a non-word vocalization.</li> </ul> <p>The examiner's statement came between the child's shifts in gaze, but it is unlikely that the adult utterance influenced the child's gaze to the object and his vocalization.</p>

## III. Orthographing Bound Morphemes Table

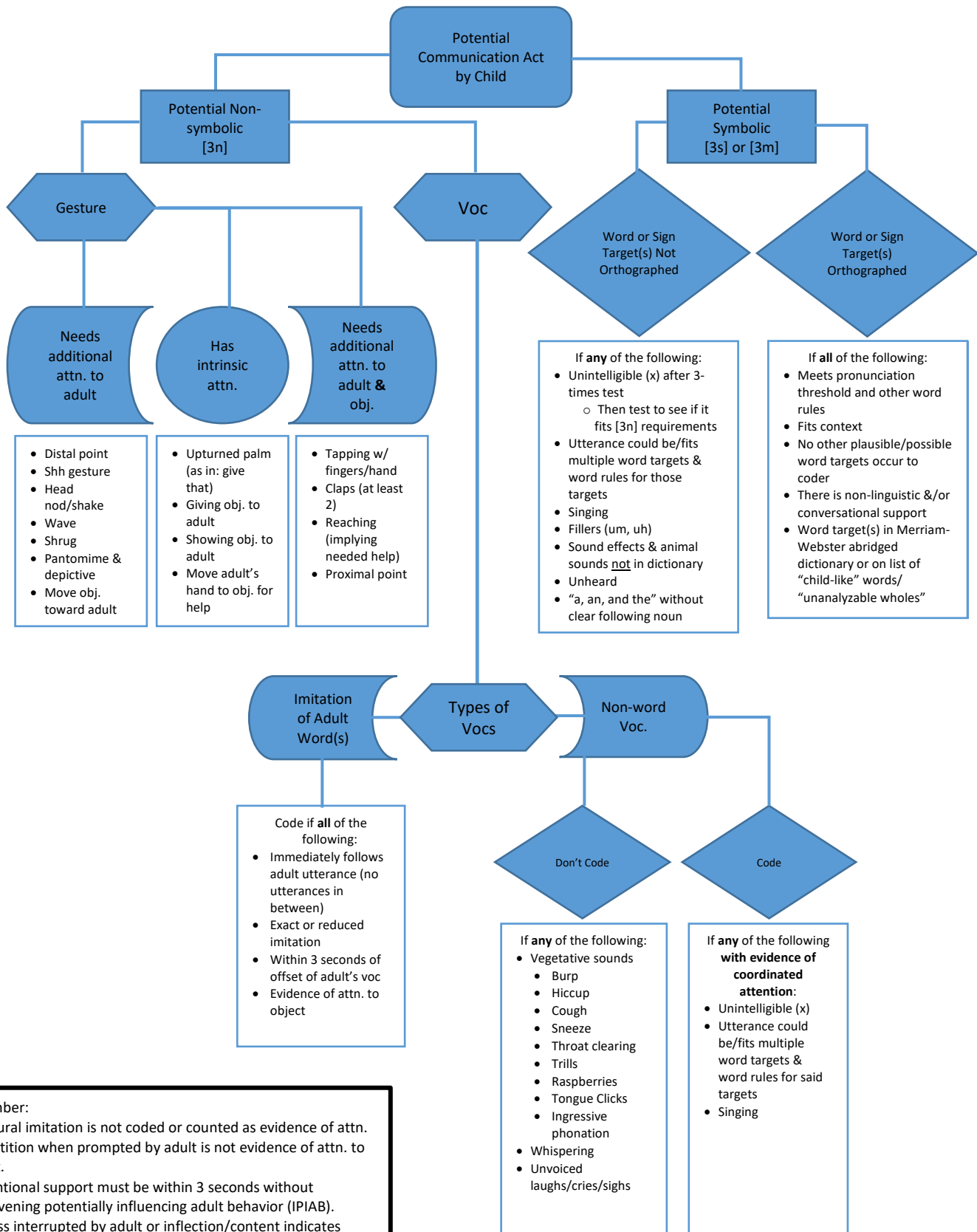
Conventions for Marking Bound Morphemes			
Type of Inflection	Notation Conventions	Notes	Examples
Possessive Inflections	Indicated by <b>"/z"</b> after the word root	<ul style="list-style-type: none"> <li>Does NOT include pronouns (like "hers," "ours," "yours") that are considered entire units</li> </ul>	Dad's → Dad/z Mom's hat → Mom/z hat the dog's bowl → the dog/z bowl
Plural Noun Inflections	Indicated by <b>"/s"</b> after the word root	<ul style="list-style-type: none"> <li>Does NOT include nouns which only have a plural form (like "pants" and "clothes")</li> <li>Over-generalizations of the form ARE included in this category (as in "money/s")</li> </ul>	toys → toy/s babies → baby/s couches → couch/s the fishes → the fish/s
Plural/Possessive Inflections Combined	Indicated by <b>"/s/z"</b> after the word root	<ul style="list-style-type: none"> <li>Apostrophes are omitted</li> </ul>	babies' → baby/s/z fathers' → father/s/z
3 <sup>rd</sup> Person Singular Verb Forms	Indicated by <b>"/3s"</b> after the word root	<ul style="list-style-type: none"> <li>The same marker is used for both the -s and -es forms of this inflection</li> <li>Does NOT include "does," as it is considered one morpheme</li> <li>Over-generalizations of the form ARE included</li> </ul>	tells → tell/3s he goes → he go/3s I got it → I got/3s it
Present Progressive Tense Inflections	Indicated by <b>"/ing"</b> after the word root	<ul style="list-style-type: none"> <li>The dialectic pronunciation of "in" is transcribed as the standard pronunciation: "ing"</li> <li>Does NOT apply to predicate adjectives (like "bowling pin," "swimming pool," or "running shoes")</li> </ul>	runnin' fast → run/ing fast doing → do/ing having → have/ing
Past Tense Inflections	Indicated by <b>"/ed"</b> after the word root	<ul style="list-style-type: none"> <li>The same marker is used for both the -ed and -d forms of this inflection</li> <li>Over-generalizations of the inflection ARE marked as bound morphemes</li> <li>Does NOT include predicate adjectives (like "tired man," "scrambled eggs," "the door is closed," "the toy is broken," "the dog is gone," or "I am bored")</li> </ul>	Loved → love/ed died → die/ed doed → do/ed falled → fall/ed
Contractible Verb Forms	Indicated by <b>"/contracted verb stem"</b> after the word root	<ul style="list-style-type: none"> <li>Possible contracted verb stems: -'m, -'s, -'ll, -'re, -'ve</li> </ul>	I'm → I/'m it's → it/'s you'll be → you/'ll be we're here → we/'re here they've → they/'ve
Negative Contractions	Indicated by <b>"/n't"</b> after the word root	<ul style="list-style-type: none"> <li>Does NOT apply to "don't," "won't," or "ain't," which are considered single-morpheme words</li> </ul>	can't → can/n't didn't → did/n't doesn't → does/n't
Contracted Question Forms	Indicated by <b>"/d"</b> after the word root		where'd it go → where/'d it go how'd we do → how/'d we do
Comparative and Superlative Forms (Contrastives)	Indicated by <b>"/er"</b> and <b>"/est"</b> after the root word		colder → cold/er hottest → hot/est

**Appendix G: Diagrams and Charts for Coding**

## I. Coordinated Attention Diagram



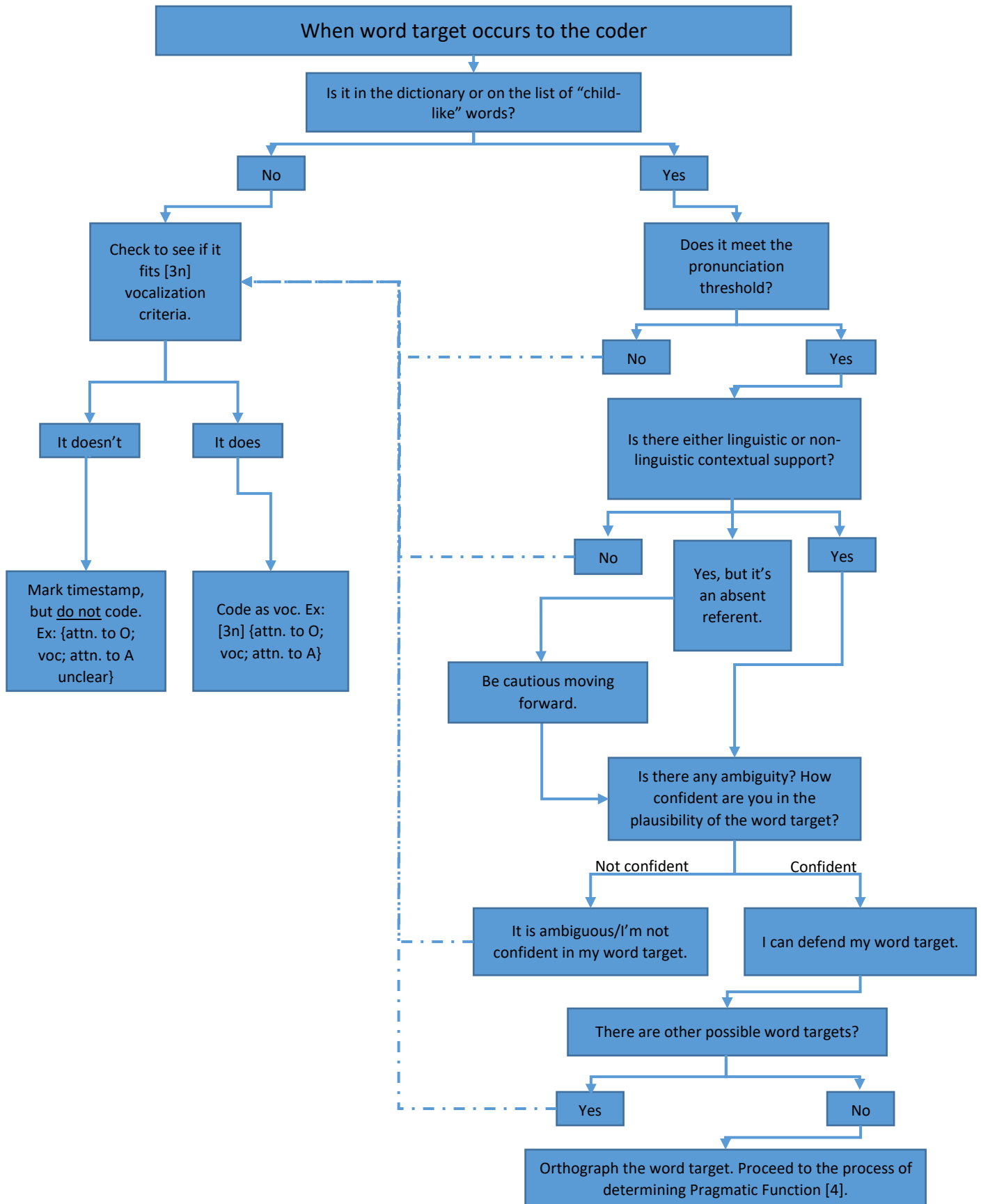
II. Symbolic/Non-Symbolic Organizational Chart



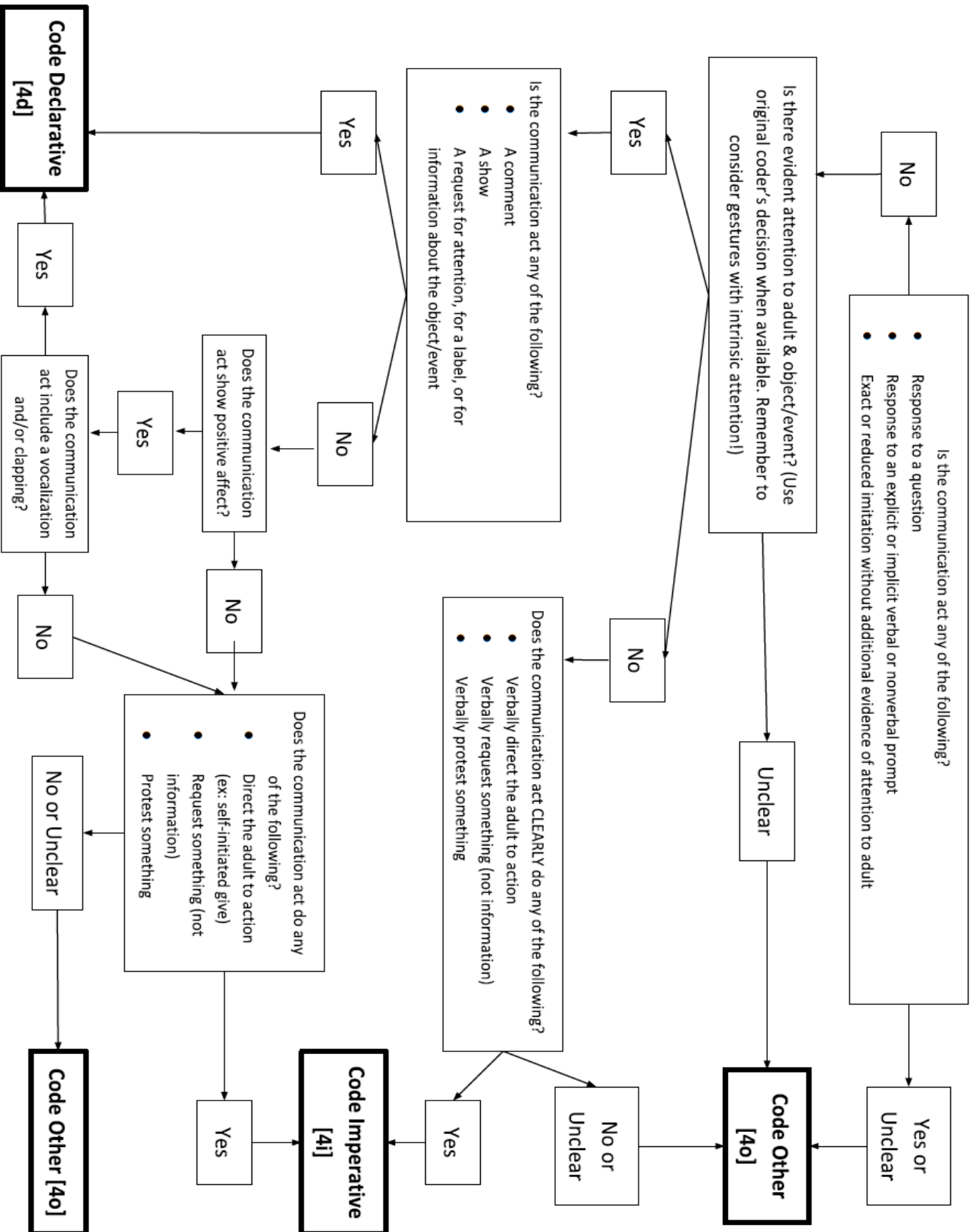
**Remember:**

- Gestural imitation is not coded or counted as evidence of attn.
- Repetition when prompted by adult is not evidence of attn. to adult.
- Attentional support must be within 3 seconds without intervening potentially influencing adult behavior (IPIAB).
- Unless interrupted by adult or inflection/content indicates otherwise, repeated words & phrases within 2 seconds of initial statement are not segmented from each other.
- When in doubt, err on side of coding CONSERVATIVELY.

## III. Determining Word Targets Flow Chart



IV. Tree for Determining Pragmatic Function: Imperative [4i], Declarative [4d], or Other [4o]



\*Any communication acts containing self-initiated gives will be coded Imperative, [4i]\*

**Appendix H: Complete Circle of Coding****Obtaining Media:**

- Media is recorded at each site (UW, and VU)
- Media is uploaded from SD Card OR Media is uploaded to vu1file remotely from UW; media upload occurs every Friday.
- Media is edited using Adobe Premiere Pro and Adobe Media Encoder on HossDog PC located in RM 416A.
- Edited media is put on the vu1file network).
- Edited/Non-edited media from VU and UW is placed on HossDog back up
- Media tracking, Impact Coding log, and New Coding Log excel sheets are updated
- Media is logged on Impact coding log; log is arranged in sets of 5
- Media is ready to be coded (media files are found on vu1file and copied from vu1file to personal desktop each time a media file is coded through ProCoderDV).

**Primary Coding of Media:**

- Files are coded using ProCoderDV and according to the order found in the Impact coding log. Code each set of 5 then wait for reliability.
- Once a set of 5 is complete, primary coder will email reliability coder informing her that reliability is needed.
- Completed files are logged on the Impact coding log and the New Coding Log (the date for the New Coding Log is updated with each entry).
- ProCoderDV files are exported to SALT immediately after each file is coded and printed; Printed SALT files and corresponding summary sheet are stapled together and placed in "incomplete sets being coded (primary)" basket
- All ProCoderDV and SALT files are saved on the server and in personal PC folders
- Copied media is removed from desktop once file is coded (ensure original version of file still exists on vu1file).

**Reliability Coding of Media:**

- Once a set of 5 is complete, the entire set is paper-clipped together, moved from the "incomplete sets being coded (primary)" basket, and is placed in "Needs reliability" basket;
- A reliability check is conducted on a random CSBS/BOSCC in each the completed set of 5
- Reliability file is exported to corresponding SALT program and printed. A reliability slip is filled out and stapled to printed SALT file
- Reliability numbers are logged on the Impact coding log and the New Coding Log
- All ProCoder and Salt files are saved on the server and in personal PC folders
- Copied media is removed from desktop once file is coded (ensure original version of file still exists on the vu1file).

**Data Entry:**

- Completed Reliability is attached to the top of the paper-clipped set of 5 in the "Needs Reliability basket," and the completed set of 5 with reliability attached on top is placed in "For Data Entry" basket.
- Data entry is completed on each file; date of data entry is written on each page and initialed. See Data Entry Manual for additional instructions.
- Once data entry is completed for the set of 5 and attached reliability, Impact coding log is updated and data is placed in "File" basket.