**Classroom Activities**

Here are some ideas that make use of the resources at RHDBank and other TalkBank language banks. Feel free to use these, modify them, and SUGGEST YOUR OWN IDEAS (by sending email and attachments to [fromm@andrew.cmu.edu](mailto:fromm@andrew.cmu.edu)). We will give due credit to you and your institution when you submit your assignment ideas.

If you are a faculty member and you are not a member of RHDBank, please see the paragraph at the top of the RHDBank webpage - <https://rhd.talkbank.org/> -- for information on how to request membership.

Some assignments make use of the CLAN program, which is free and downloadable for Windows, Mac and Unix from this webpage: <http://dali.talkbank.org/clan/> .

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**1. Use TalkBank's Grand Rounds resources to study the features of language disorders following left and right hemisphere stroke**

The Grand Rounds resources for this assignment are part of the TalkBank project, which provides repositories in over a dozen research areas to support the study of communication. Please read and honor the guidelines about ethical principles of shared databases at this link: <http://talkbank.org/share/ethics.html> . You are welcome to review and study all of this material at these Grand Rounds sites, but you are not permitted to download anything.  Downloading would be a serious infraction of IRB rules.

Using the two resources given below, please select four participants for commentary, each one from a different disorder type (perhaps two from each). For each participant, in approximately 1-2 pages:

1)  Summarize the nature of their deficits.

2)  Characterize their communicative strengths in spite of any impairments.  What do they do to help get their ideas across if they are having problems?

3)  Give examples of word-level or sound-level errors that they make.

4)  What do you notice about other aspects of their communication -- e.g., pragmatic skills, structure and organization of discourse, topic maintenance, intonation?

5)  As much as possible, suggest what might be the neurological basis for their disorder.

* **Aphasia** at [https://aphasia.talkbank.org](https://aphasia.talkbank.org/). This "Grand Rounds-students" resource provides examples with tutorial explanations.
* **RHD** at [https://rhd.talkbank.org](https://rhd.talkbank.org/). This also has a Grand Rounds component, similar to AphasiaBank.

These two resources for this assignment require the User Name (**student**) and Password (**access**) for access.

Make sure you identify each participant you choose to describe.

**2. Clinical assessment and treatment planning**

For this assignment, you will need to go to both the RHDBank and AphasiaBank webpages: <https://rhd.talkbank.org/> and <https://aphasia.talkbank.org/> . Find the headings labeled “**Education”**. Click on “***Grand Rounds – students*”.**The Username is **student**; Password is **access**.  You are welcome to review and study all of this material, but you are not permitted to download anything.  Downloading would be a serious infraction of IRB rules.  Do not share these usernames/passwords with anyone as they are restricted access for members of TalkBank.  Please read and follow the material about ethical principles of shared databases at <http://talkbank.org/share/ethics.html> .

In AphasiaBank's Grand Rounds, under Broca’s Aphasia, listen to example # 3, Gloria’s Cinderella story. Then, go to the RHDBank's Grand Rounds and listen to Phil’s Cinderella story.  As you listen, make notes as to what you observe in terms of language use (semantics and syntax), discourse (organization, information content, etc.), pragmatics and more. Then, answer the following questions:

1)  Compare and contrast Phil’s and Gloria’s use of nouns, verbs and syntax. What were each of their strengths and challenges in these areas?

2)  Compare and contrast Phil’s and Gloria’s discourse overall. How effectively were each of them able to convey the important aspects of the story? How well did they each organize the story? If you had any difficulty understanding either of their stories, what were the obstacles?

3)  Do you think either participant exhibits a motor speech disorder, as well? If so, what were the characteristics you heard?

4)  Compare and contrast Phil’s and Gloria’s pragmatic aspects of communication. How would you describe their facial expressions, eye contact, topic maintenance, etc.?

5)  Compare and contrast Phil’s and Gloria’s prosodic features (rate, rhythm, melody).  For each, which features seemed typical and which were impaired? Did either of them use prosodic variation to help tell the story? How so and was this effective?

6)  Gloria frequently uses repetition in her speech sample. In contrast, Phil provides many details.  Provide a hypothesis about why each of them uses these elements. Were they effective in conveying the story? Why or why not?

7) For each participant, identify 2 areas that you would target in treatment. Write a specific, measurable goal for each.

8) How would you involve Gloria’s and Phil’s families in the treatment. What are some strategies you might suggest for each family to help support their communication?

**3.  Observe and analyze RHD assessment**

The instructor will need to be a member of RHDBank to have access to the password-protected videos. Watch case nazareth03a starting at minute 21. You can do this in a couple of different ways:

* From the RHDBank webpage, click on the *Browsable Database* link. Then click on English, then RHD, then Nazareth, then nazareth03a. You can remove the %mor and %gra tiers by unchecking those *Dependent tiers* boxes that you don't want (above the video) and then click on the *Set options* button. Then use the arrow and the slide bar (the dot to the right of the arrow/play/pause button) to control the video. You can click the icon to the far right at the bottom of the video rectangle for full screen.
* From the RHDBank webpage, click on the *Protocol Database* link, then on English-RHD, then on Media folder, then on the Nazareth folder. Then click on nazareth03.mp4 (or right click on it and Save it (download it) to your computer. Again, use the arrow to play and pause and use the slide bar to control where you want to be in the video. Please do not allow students to download or circulate these materials.

Although it is difficult to see exactly what this participant is doing in many of these subtests, there are still several ways students can think about important aspects of assessing a person with RHD. Here are some suggestions:

1. The clinician is administering the *Cognitive-Linguistic Quick Test* to assess various cognitive domains. If you have access to this test, follow along as the clinician administers it. Make note of subtests that Phil seems to manage easily vs. ones where he struggles. Also note any questions, obstacles, challenges and/or areas you especially like that you observe in the administration of this test.
2. Make qualitative observations about how Phil approaches the tasks. How does he organize the tasks? Does he seem to plan ahead? How does he manage any perceived errors? How long does he take to complete the various tasks?
3. See Phil's CLQT subtest scores below. Which cognitive domains did he score best on and which did he struggle with (NOTE: higher scores indicate better performance). Is this what you expected based on your observations? Why or why not?
4. Given what know now, what are the gaps in your understanding of Phil’s cognitive-communication abilities. What additional assessments would you like to administer to target those?
5. With a partner, do some role playing. Practice sharing your assessment results with Phil and his family. What are some strategies you might suggest to help support their communication?
6. Identify 2 areas that you would target in treatment. Write a specific, measurable goal for each.
7. The above exercise can be repeated or modified with other participants from RHDBank and AphasiaBank. Instructors can access complete demographic and test result data for participants from each of the webpages.

CLQT results – nazareth03a

Personal Facts 8/8 Attention Domain Score 134

Symbol Cancellation 10/12 Memory Domain Score 149

Confrontation Naming 10/10 Executive Function Domain Score 17

Clock Drawing 11/13 Language Domain Score 31

Story Retelling 6/10 Visuospatial Domain Score 64

Symbol Trails 2/10 Attention Severity Rating 2

Generative Naming 7/9 Memory Severity Rating 2

Design Memory 5/6 Executive Function Severity Rating 2

Mazes 4/8 Language Severity Rating 4

Design Generation 0/13 Visuospatial Severity Rating 3

Composite Severity Rating 2.6

**4. Code an RHD transcript for global coherence and main concept analysis**

The instructor will need to:

* Be a member of RHDBank to have access to the password-protected transcripts (for downloading transcripts from <https://rhd.talkbank.org/access/English/RHD.html>) or use the transcripts we have made available for each task below.
* Decide if students will do the work within the CHAT transcript (if so, have them download CLAN) or in some other format such as a spreadsheet. Alternatively, you could do this activity together in class, displaying transcripts from the Browsable Database onto a large screen or distributing them in some other fashion to the students (via online course management programs or even hard copies).

**Global coherence**

Various systems for coherence analysis are available at the *Coherence Analysis* link at thiswebpage: <https://aphasia.talkbank.org/discourse/> .

Many of the Cinderella tasks already have global coherence coding on the speaker tier. If you choose to use any of those samples, you can just delete them one by one or with global replace of nothing for [+ g1], [+ g2], [+ g3], and [+ g4]. You may want to save a copy so you can have your students compare their ratings to those done by RHD researchers. As a shortcut, [this folder](https://rhd.talkbank.org/activities/Cinderella_uncoded/) includes Cinderella transcripts for 4 RHD (nazareth01a, nazareth02a, nazareth03a, nazareth05a) participants 1 control (nazareth04a) with the global coherence coding removed. And [this folder](https://rhd.talkbank.org/activities/Cinderella_coded/) has the same Cinderella transcripts WITH the global coherence codings from the RHD researchers.

Provide the students with the CHAT transcripts and instruct them to code global coherence using the Four-Point Global Coherence Rating Scale (Wright & Capilouto, 2012; Wright, Fergadiotis, Koutsoftas, & Capilouto, 2010) and/or the Five-Point Coherence Coding Scale (Glosser & Deser, 1990; Van Leer & Turkstra, 1999) or some other system of your choosing. If they are coding directly into CHAT transcripts, they can add the code after the final punctuation of the utterance but before the timing bullet as follows:

\*PAR: so ‡ it was up to that prince to find out who fit the slipper . [+ g4] •

After they have done this, have them learn how to compute reliability (% agreement) with another student's coding of the same transcripts or with the coding done by the RHD researchers: (# of agreements/# of agreements and disagreements) \* 100.

If students code their files in CHAT transcripts, they can save the newly coded files and run a FREQ command on the codes to get a tally for each one. As long as they set the working directory in the CLAN commands window to the folder where their coded files are located, they can run these commands:

freq +s"<+ g\*>" +t\*PAR \*.cha

This command outputs frequencies for each "g" code for each CHAT file in the folder to the computer screen.

freq +s"<+ g\*>" +t\*PAR +2 \*.cha

This command outputs frequencies for each "g" code for each CHAT file in the folder to a spreadsheet which will appear in the same folder as the CHAT files but can also be opened by triple clicking on the line at the bottom of the CLAN output page -- *Output file <stat.frq.xls>* .

(Note: it's an xls file, so please save as an xlsx file after opening it.)

**Global coherence -- questions to answer**

How would you summarize the results of this analysis? What do the results tell you about the global coherence for these individuals on this task? Do you think this measure is valid and reliable? Do you think this measure is useful for planning therapy goals? If so, how? Would you consider using this measure to evaluate progress or change over time? If so, how?

**Main concepts**

Guidelines for this type of analysis for various tasks from the AphasiaBank standard discourse protocol are available in the *Main Concept Analysis* section at this webpage: <https://aphasia.talkbank.org/discourse/> . Three of these are also included in the RHDBank protocol, so you can choose from Cat in the Tree, Cinderella, and Sandwich task.

Again, as a shortcut, we have created [this folder](https://rhd.talkbank.org/activities/Sandwich/) with Sandwich samples for 4 RHD participants (minga02a, minga05a, minga10a, minga14a) and 1 control (minga01a). But you can download the transcripts and use any of the tasks for which the main concepts have been published. You can also download these tasks from AphasiaBank participants for further comparison.

Students can code main concepts in the CHAT transcripts as post-codes (see below, where main concept #4 is coded), but sometimes there is not a one-to-one correspondence between a main concept and an utterance. It is fine to have multiple main event codes on an utterance as long as they are separated by a space. Students can also code main concepts in a separate spreadsheet.

\*PAR: get a butter knife . [+ mc5] •

If students code their files in CHAT transcripts, they can save the newly coded files and run a FREQ command on the codes to get a tally for each one. As long as they set the working directory in the CLAN commands window to the folder where their coded files are located, they can run these commands:

freq +s"<+ mc\*>" +t\*PAR \*.cha

This command outputs frequencies for each "g" code for each CHAT file in the folder to the computer screen.

freq +s"<+ mc\*>" +t\*PAR +2 \*.cha

This command outputs frequencies for each "g" code for each CHAT file in the folder to a spreadsheet which will appear in the same folder as the CHAT files but can also be opened by triple clicking on the line at the bottom of the CLAN output page -- *Output file <stat.frq.xls>* .

(Note: it's an xls file, so please save as an xlsx file after opening it.)

**Main concepts – questions to answer**

How would you summarize the results of this analysis? What do the results tell you about the the ability of these people to communicate the gist of this task? Do you think this measure is valid and reliable? Do you think this measure is useful for planning therapy goals? If so, how? Would you consider using this measure to evaluate progress or change over time? If so, how? How do you compare this measure to the global coherence measure?

**5. Compute Correct Information Units in RHD transcripts, an aphasia transcripts, and control transcripts**

The Nicholas and Brookshire (1993) article explaining CIU analysis is available at this webpage: <https://aphasia.talkbank.org/discourse/> .

Instructors can download transcripts for students to use. For convenience, we have downloaded a variety of language samples from the Cat in the Tree stimulus from the AphasiaBank (2 Broca, 1 Wernicke, 1 Anomic, 1 Conduction, 2 Controls) and RHDBank (2 RHD) collections and put them in [this folder](https://rhd.talkbank.org/activities/CIU_transcripts/). (This stimulus picture is used in the original Nicholas & Brookshire paper cited above and is viewable [here](https://aphasia.talkbank.org/protocol/pictures/cat.jpg).) We have removed the %mor and %gra tiers, so only the speaker tier appears. The ID header tiers in the CHAT transcript show the individual's age, gender, and diagnosis. For the AphasiaBank transcripts, the ID header tier also gives WAB-R aphasia type and AQ. If students do not have the CLAN program on their computers, they could download it or the instructor could convert these CHAT transcripts to Word files. (The @Time Duration header tier in the CHAT transcript shows the total time of the sample for manual calculation of efficiency measures.)

Using CLAN or Word, students can follow the rules for scoring and counting words and correct information units to calculate #CIUs, #words, and %CIUs. Using CLAN, students can also compute words per minute and CIUs per minute to measure efficiency. Guidelines for how to do CIU analysis using CLAN are at the webpage given in the first sentence of this assignment. Using Word, the students should create 2 identical files for each transcript. Then, in the first file, they will need to eliminate the words that the CIU rules say should not be counted as words; in the 2nd file they will need to delete all the words that the CIU rules say should not be counted as CIUs. Then they could use the *Word* *Count* function in Word (under *Tools* in the menu) to count the CIUs (2nd file) and total words (1st file).

Compare and contrast the results of these analyses based on the individual's diagnosis. What do the results tell you about the individual's informativeness and efficiency? How do the groups and individuals with different types and severities of aphasia differ? Do you think these measures are valid and reliable? Do you think these measures are useful for planning therapy goals? If so, how? Would you consider using these measures to evaluate progress or change over time? If so, how?

Instructors can create their own gold standard for the #CIUs, #words, %CIUs, CIUs/minute and words/minute. Students can compare their lists to the gold standards and calculate % agreement: (# of agreements/# of agreements + disagreements) \* 100.

**6. Use the EVAL program to compare RHD participants' *Cat in the Tree* picture description to those of controls**

This assignment requires that the CLAN program is downloaded (unless you choose Option #3 below). Instructors can download any RHD files they want for this task. The RHD tasks that overlap with AphasiaBank tasks are: Speech, Stroke, Important Event, Cat in the Tree, Sandwich, and Cinderella. For your convenience, we have put 5 RHD transcripts from the *Cat in the Tree* picture description task into [this folder](https://rhd.talkbank.org/activities/EVAL_transcripts/). Download these transcripts and put them together in 1 folder.

The EVAL program can be used to compare an individual's performance on a discourse task to those of a large reference group from the AphasiaBank database. The resulting spreadsheet displays the individual's results side by side with the mean scores of the comparison group, and indicates where the participant and the comparison group differ by one or more standard deviations. The use of EVAL is described in tutorial screencasts available from <https://talkbank.org/screencasts/> . The outcome measures are described in the CLAN manual in section *7.8 EVAL*: <https://talkbank.org/manuals/CLAN.pdf> .

Option 1: Be sure the working directory in the CLAN Commands window is set to the folder where the files are that you want to analyze, and then run the EVAL program on all of these RHD transcripts, comparing them with all the control transcripts (n=200+) without worrying about comparing by gender or by age, by typing (or copying) this command into the Commands window:

eval +t\*PAR: +d"control" +g"Cat" +u \*.cha

Option 2: Get fancy. Run separate EVAL commands to compare individual RHD transcripts with the Control database for the "Cat" task (called a Gem in CLAN) based on age and gender after you watched the screencasts and/or read the manual to familiarize yourself with the program. Age and gender for the RHD participants appear in the ID header tier of the CHAT transcript.

Option 3: No need for you to run anything. Look at [this spreadsheet](https://rhd.talkbank.org/activities/RHD-Control-Cat-EVAL.xlsx) that was generated after running the Option 1 command above.

Summarize the results for each individual. How does the language sample differ from the controls? Do you think any of those differences are clinically or functionally important? Would you use any of the information to plan treatment goals for the individual? Would you want to run this analysis again over time to look for changes? As a group, do the RHD transcripts show similar characteristics? What else would you want to know about these individuals to help you understand these results?