PCAD 3:

Psychiatric Content Analysis and Diagnosis

GB Software LLC
8718 Bonaventure Drive
Brighton, MI 48116

http://www.gb-software.com
info@gb-software.com

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Table of Contents

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Quick Overview

PCAD3 is a software program that performs content analysis of input text on scales developed by Louis A. Gottschalk, Goldine Gleser, and their research associates (the Gottschalk-Gleser scales). These scales and associated methodology were originally created for application by trained human scorers to transcribed recordings of spoken verbal samples obtained in response to a standardized prompt. The scales measure states of neuropsychiatric interest, such as anxiety, hostility, and cognitive impairment.

In the years since the original scales and procedures were devised, additional scales have been created, and the techniques have been adapted to a wide variety of uses. Numerous studies have confirmed the validity and reliability of the scales in measuring affect, including cross-language and cross-cultural studies.

PCAD was developed to eliminate extensive training of human scorers and decrease the time required to analyze samples. The current program is the most recent in a succession of software dating back over twenty years, and is used for research around the world. It runs under the Microsoft Windows operating system. *PCAD does not run on Linux or MacOS at this time*[1].

This manual provides the information needed for a professional to use PCAD as a tool in research or clinical practice. Recognizing that it can be difficult and time-consuming to do extensive research into the content analysis method itself, we provide a summary of the scales, their development, and their employment in a range of areas, with literature citations for further detail where desired. Installation and operation of the software is described, as is preparation of samples for processing by the program. Finally, in recognition that no software that is complex enough to be useful is likely to be free of all errors, we describe what errors may look like, and how to react if they occur.

[1]It may be possible to run in a Windows environment on a virtual machine, such as Parallels. GB Software has not tested PCAD in a virtual environment, and cannot assure that it will operate properly.

Installing the Software

System Requirements

PCAD is designed to run under Microsoft Windows. PCAD (in its various versions) has been successfully installed and executed on all versions of Windows since Windows 3.1 up through Windows 10.

GB Software recommends at least 256MB of memory when running PCAD. The PCAD software and dictionaries occupy approximately 7 megabytes of disk space, not including your samples and for scoring output. It is not unusual for a one-to-two page long input sample to produce over twenty pages of scoring output, if all output options are enabled.

So far as we have tested, PCAD runs on any processor capable of running the required Windows operating system. GB Software has tested on both genuine Intel and AMD processors without encountering problems, but we cannot be responsible for any incompatibilities caused by your particular hardware configuration. Obviously, faster processors will produce results more quickly.

GB Software is aware of no special requirements on keyboards, pointing devices, or displays. It is worth noting that printer output is straight ASCII.

Packing List

PCAD is delivered as an on-line download from the GB Software website (www.gb-software.com), or, by special order, on one CD-ROM. The installation package includes this user manual and reference guide.

The PCAD installation process is automated, but does require that you either confirm choices that the installation program makes or provide alternative choices. The installation program will place things in a directory named PCAD3 under the Program Files (x86) directory on your main drive.

Check for Available Space

As with the storage location, the installation process will attempt to check for adequate space. However, it is usually a good idea to check by yourself before running the installation program, since there are (rare) conditions that can fool the installation program. Also, even if the installation program does properly detect that there is insufficient space, the installation must halt for you to remedy the problem, and then must be restarted. The installation simply goes more smoothly if you ensure that there is sufficient free space on the drive you wish to use.

Run Installation Program

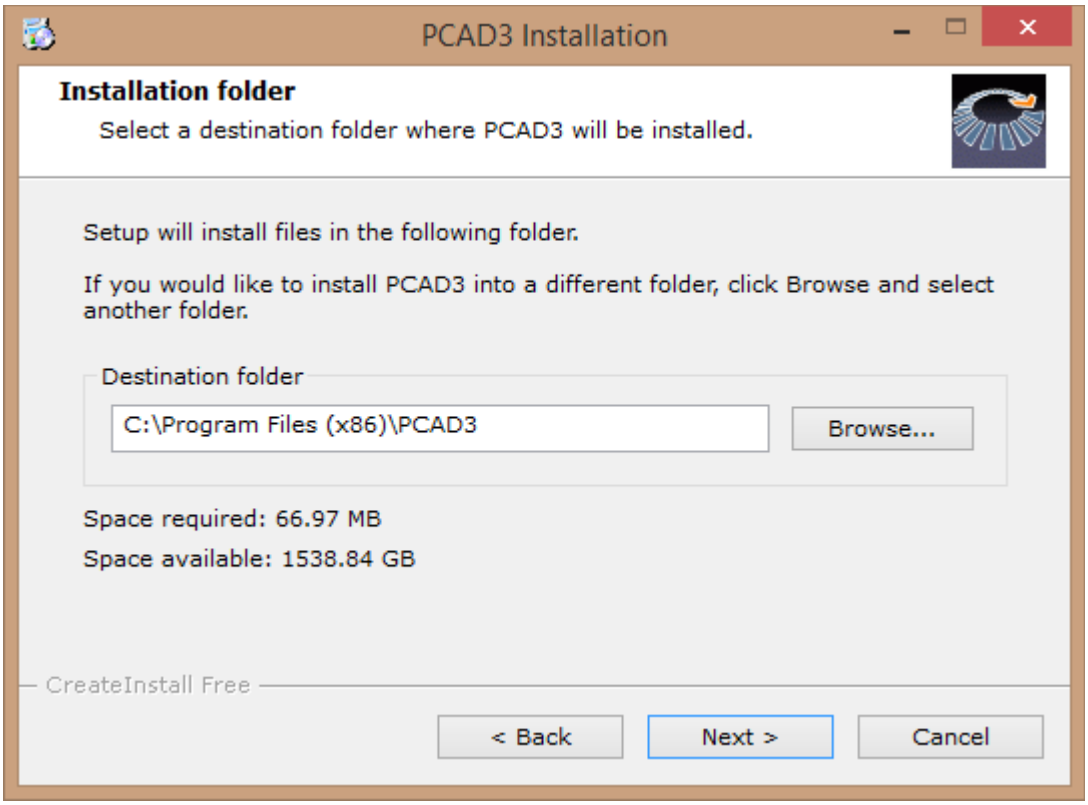
Installing From Download

After downloading the installation file “install-pcad3.exe” from the website, locate it on your hard drive and double-click on the file to start installation. (Downloads are frequently placed in a folder named Downloads under This PC, though you may have placed the file elsewhere during the download.)

The installer will bring up a new dialog[2].

Click on the "Next>" button at the bottom of the dialog area.

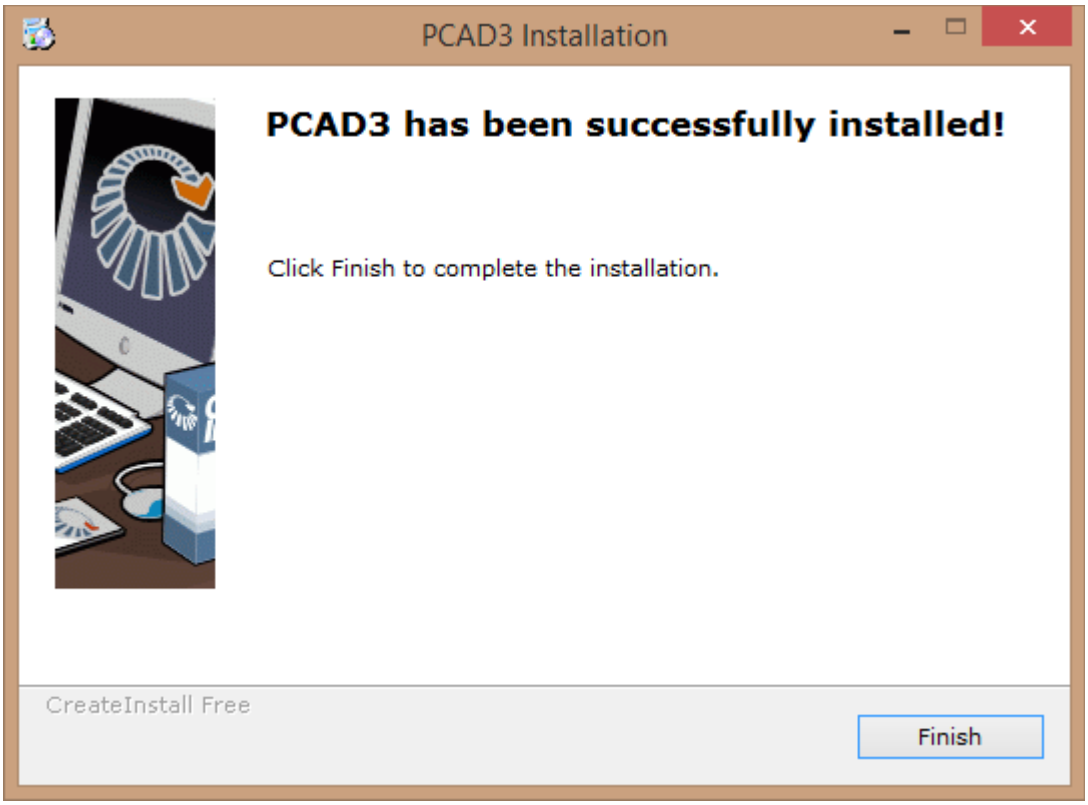
[2] If you are not logged in as an Administrator, Windows is likely to pop up a User Access Control (UAC) screen, asking that you confirm that it's OK for the PCAD installer to change the configuration on the computer. Click on “OK” to proceed. PCAD makes no changes to the registry, and simply places files in a directory on your drive.



The installer will provide a recommended default installation location, but you may change this if you have good reason.

When you have finished selecting the installation folder, click on the "Next" button to actually perform the installation. Progress of the install will be shown, though it may go by quickly.

When the installation is finished, you will be notified.



Click on the "Finish" button to close the installer. You do not need to reboot your computer.

The installation will add new options to the "All Programs" list associated with your start button, under the category "PCAD3". To run PCAD3, click on the Start button, select the PCAD3 group, then click on PCAD3.

PCAD3 installs documentation in its directory (usually C:\Program Files (x86)\PCAD3), all of which may be accessed via the PCAD3 group. The documents include:

- PCAD3 Manual
- A scanned copy of the original version of *Manual of Instructions for Using the Gottschalk-Gleser Content Analysis Scales*
- A scanned copy of the original version of *The Measurement of Psychological States Through the Content Analysis of Verbal Behavior*
-

All of these are provided in PDF format.

Installing From CD-ROM

Place the CD-ROM in a CD-ROM drive. (This could be a CD-ROM compatible DVD drive, a CD-R, or CD-RW drive.) Navigate to that drive, and double-click on the

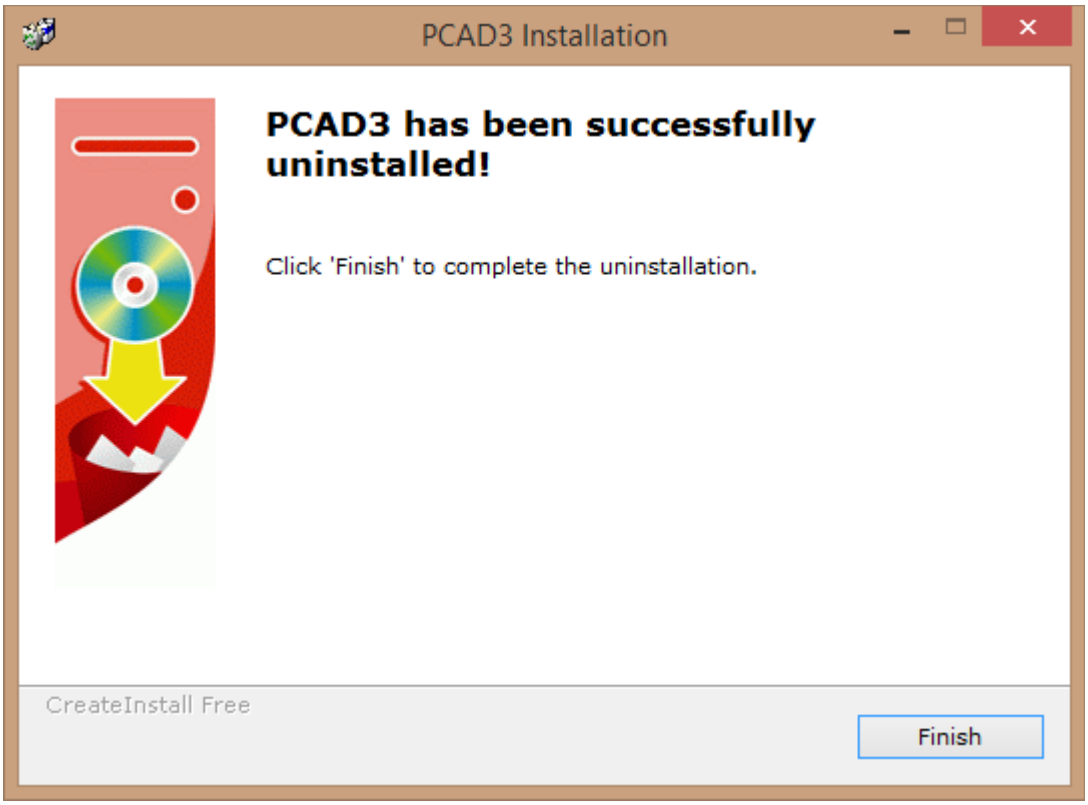
“install-pcad3.exe” file. From that point, installation should proceed as described in the “From Download” section above.

Uninstalling PCAD

The PCAD3 group in the Start menu has an Uninstall option. Click on this to remove PCAD3 from the target computer. Alternatively, you can use the Control Panel section for Programs and Features, where you would select PCAD3 to start the uninstall process.

When you click on either Uninstall option, you should see the following dialog:

Click on the "Next" button to remove PCAD3 from the computer. A progress window will appear briefly. When everything associated with PCAD3 has been removed, you will be notified.



Click on the "Finish" button to close the uninstall program. Again, no reboot is needed.

Any samples or scoring output that you have saved in the PCAD3 directory will not be removed by the uninstall process[3]. If you wish to remove them, you must do so manually.

[3] Usually, the only sample files or scoring output that is placed in the installation directory is that which is provided with the installation itself. You will most likely save your samples and output in a location that is more convenient, typically in a subdirectory under the Documents folder.

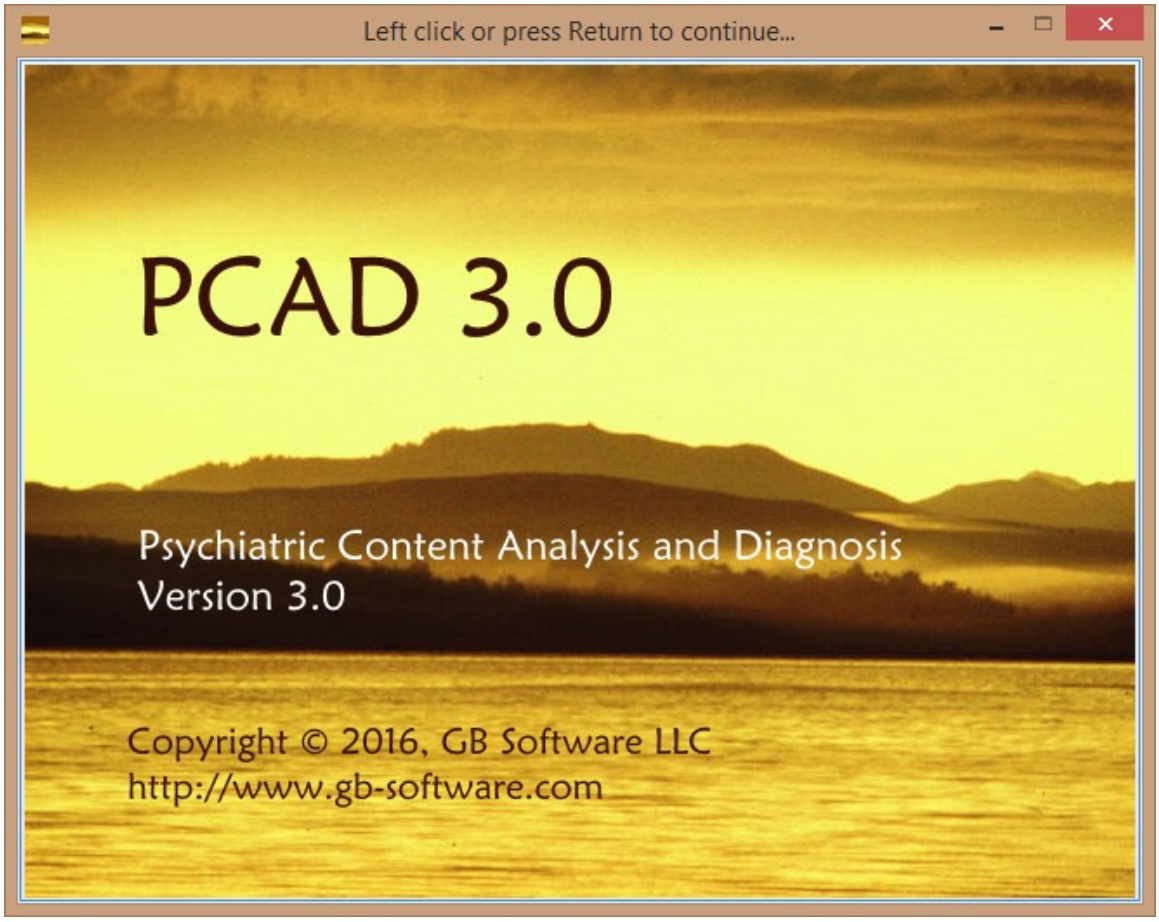
Running PCAD

Windows Start Menu

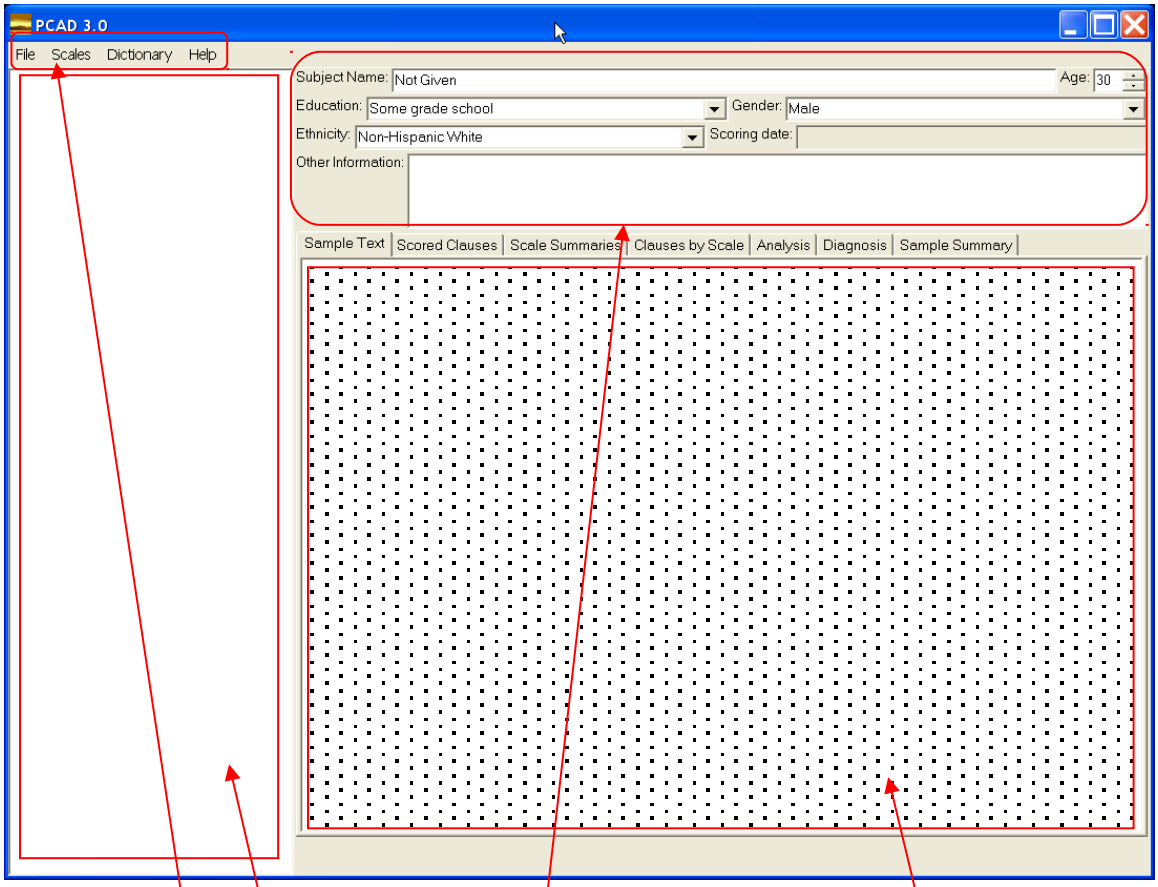
The process for starting PCAD will vary with the version of Windows you are running and any customizations you have done. For most versions of Windows, you can click on the Start button, select All Programs, then locate the PCAD3 folder). Selecting this folder should offer a submenu with PCAD3 as one of the choices (see Figure 1). Click on PCAD3 to launch the program.

Figure 1: Starting PCAD

On startup, the initial PCAD3 screen should look something like this:



As instructed in the title bar, you may either click on the left mouse button or press the Enter key to continue to the main PCAD3 screen. At first, the main screen has very little content:

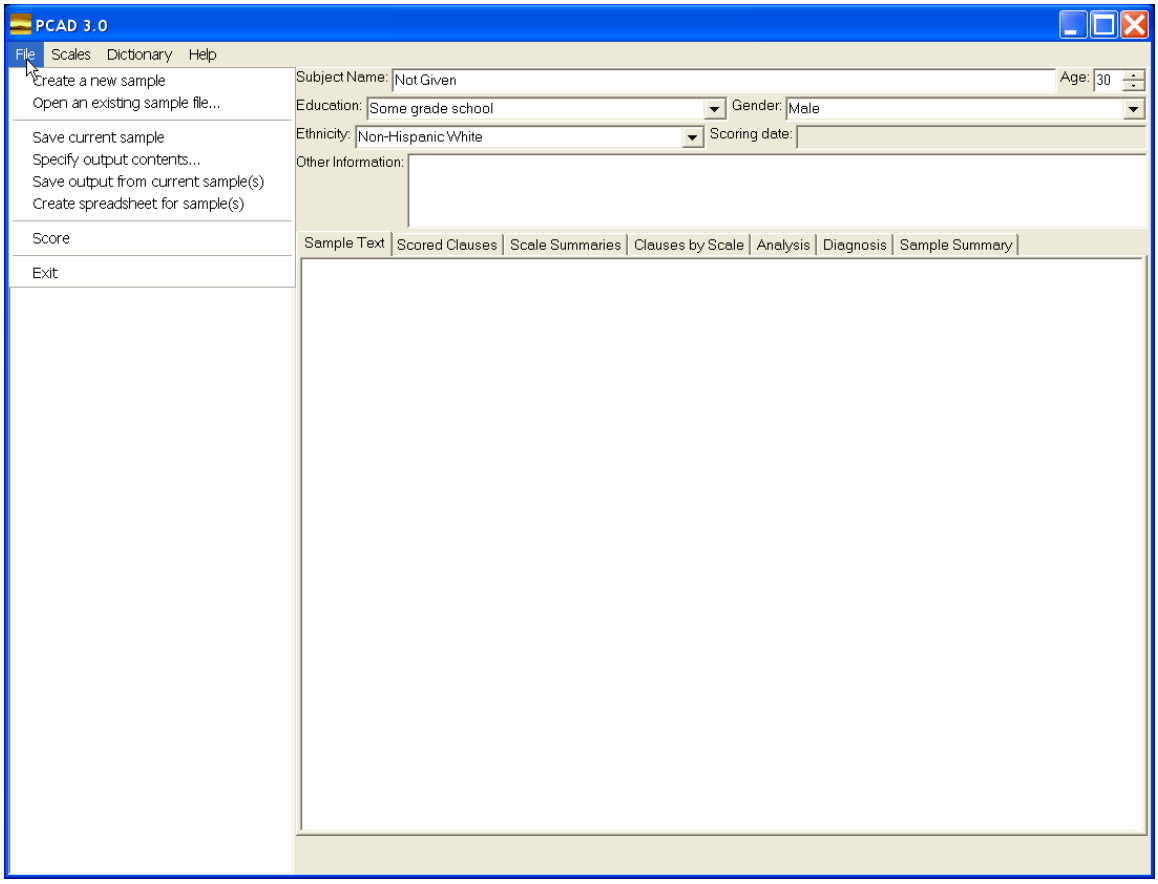


The main screen contains:

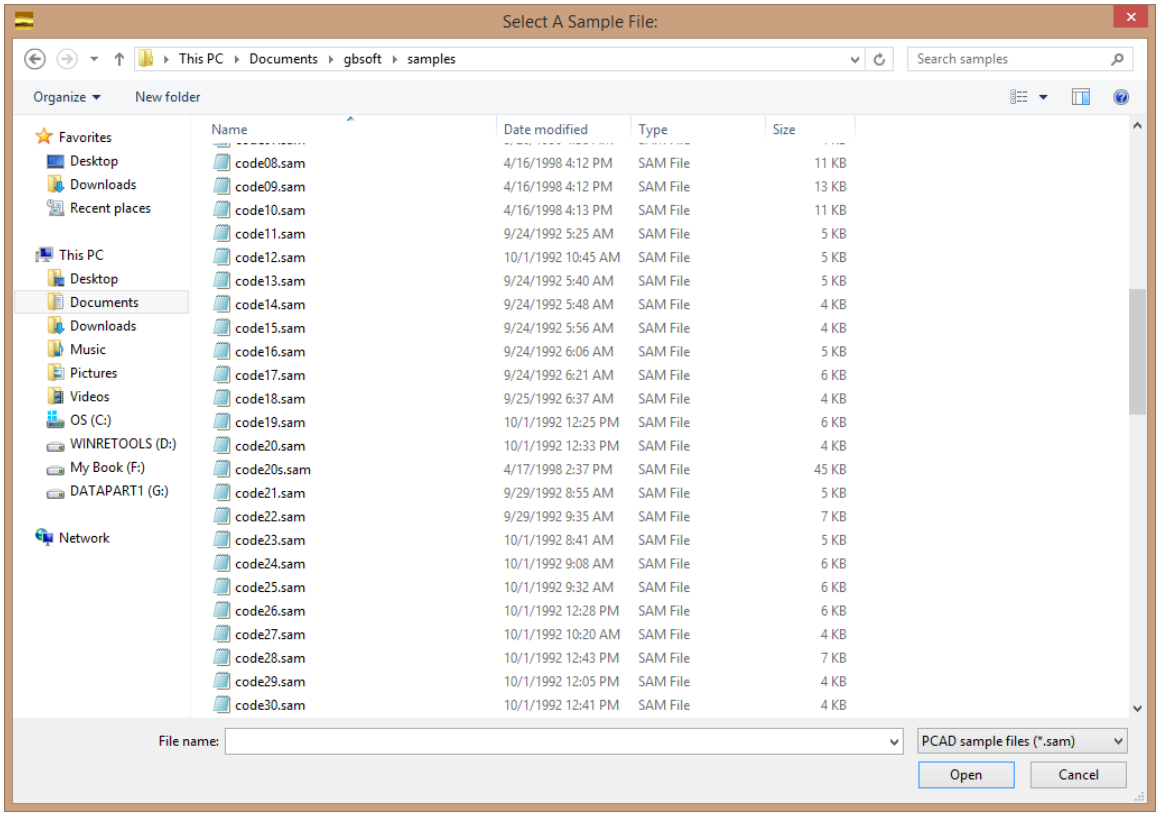
*0 a menu bar at the top,
*1 a file content tree at the left,
*2 information (if available) about the subject who provided the current sample in the upper right
*3 an area for sample input and analysis output occupying most of the right side of the screen.

(The red lines and boxes are not part of the actual PCAD3 screen.)

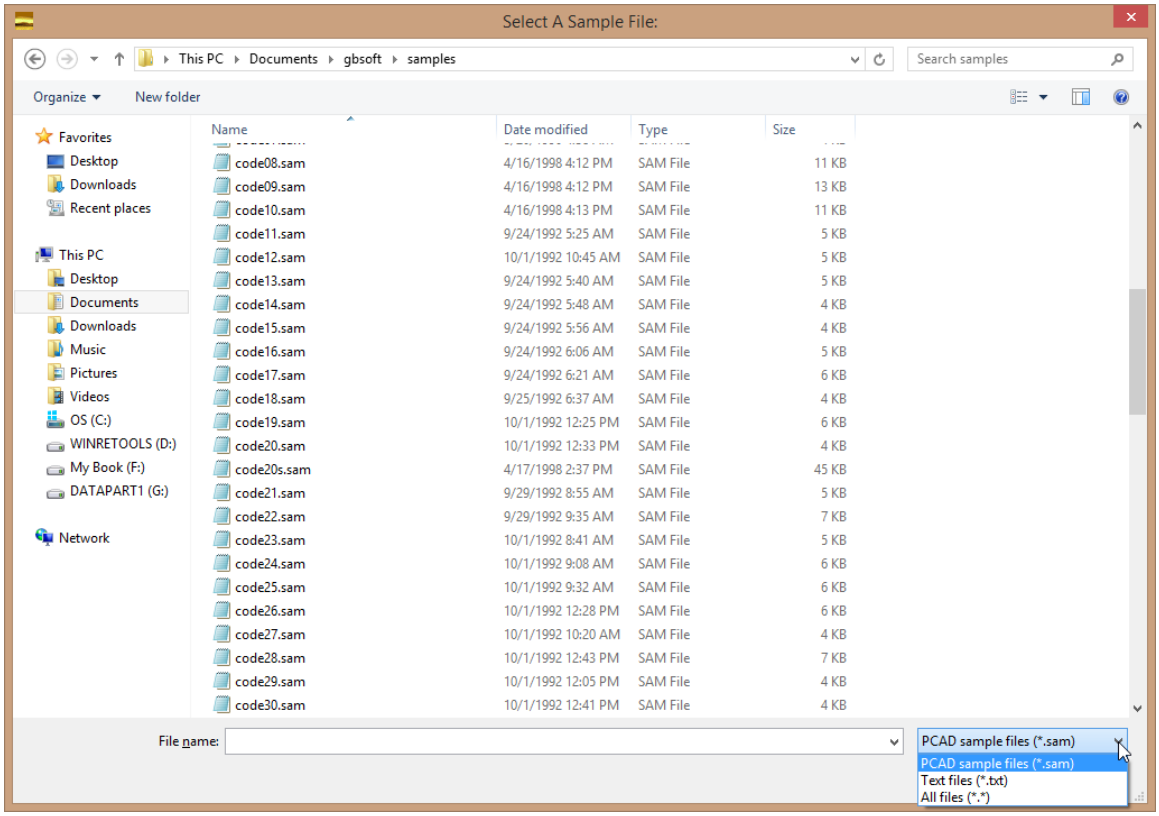
If you have a sample file already prepared in a file for analysis, you may analyze it by selecting "Open an existing sample file" from the File menu.



A file selection dialog will pop up.



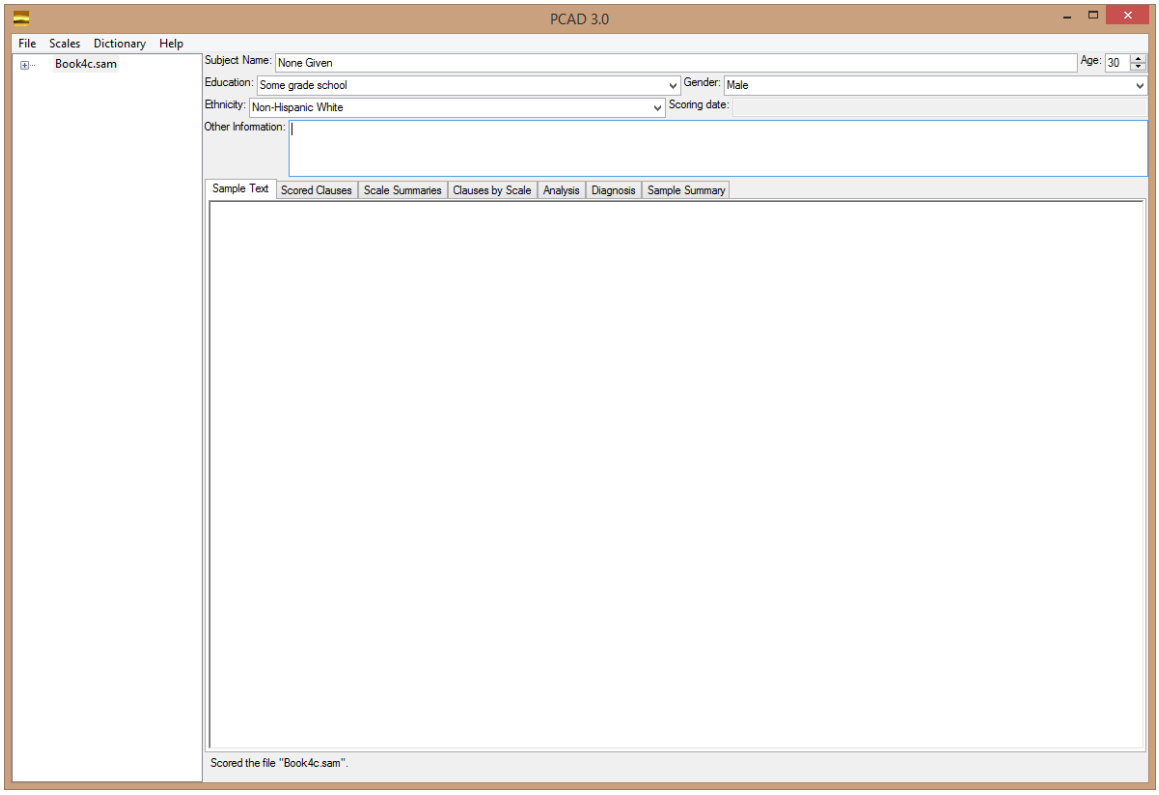
By default, PCAD3 looks for files ending in ".SAM", but you may use the "Files of type:" option on the Select A Sample File dialog to see and select other types of files.



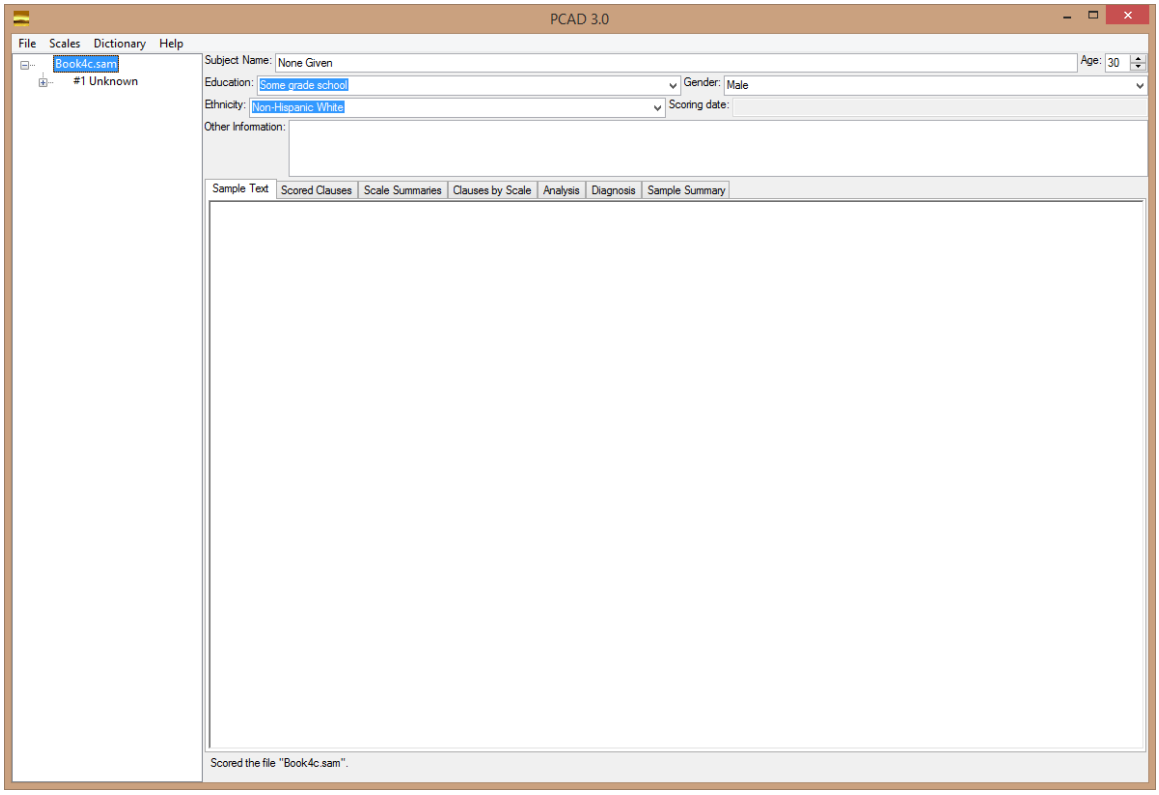
Navigate to the desired sample file (which may involve moving up and down through the folder tree), click on it to select it, then click on the "Open" button to open and score it.

NOTE: PCAD3 expects files to be in text format. The results of opening a file in, for example, Microsoft Word format (.DOC) are unpredictable, and may range from incomplete scoring to unexpected termination with an error. If you have files in Word format (or that of some other program), you can usually save them in a plain text format before using them as input to PCAD3.

Once the file is analyzed, the file name will appear in the file content tree.

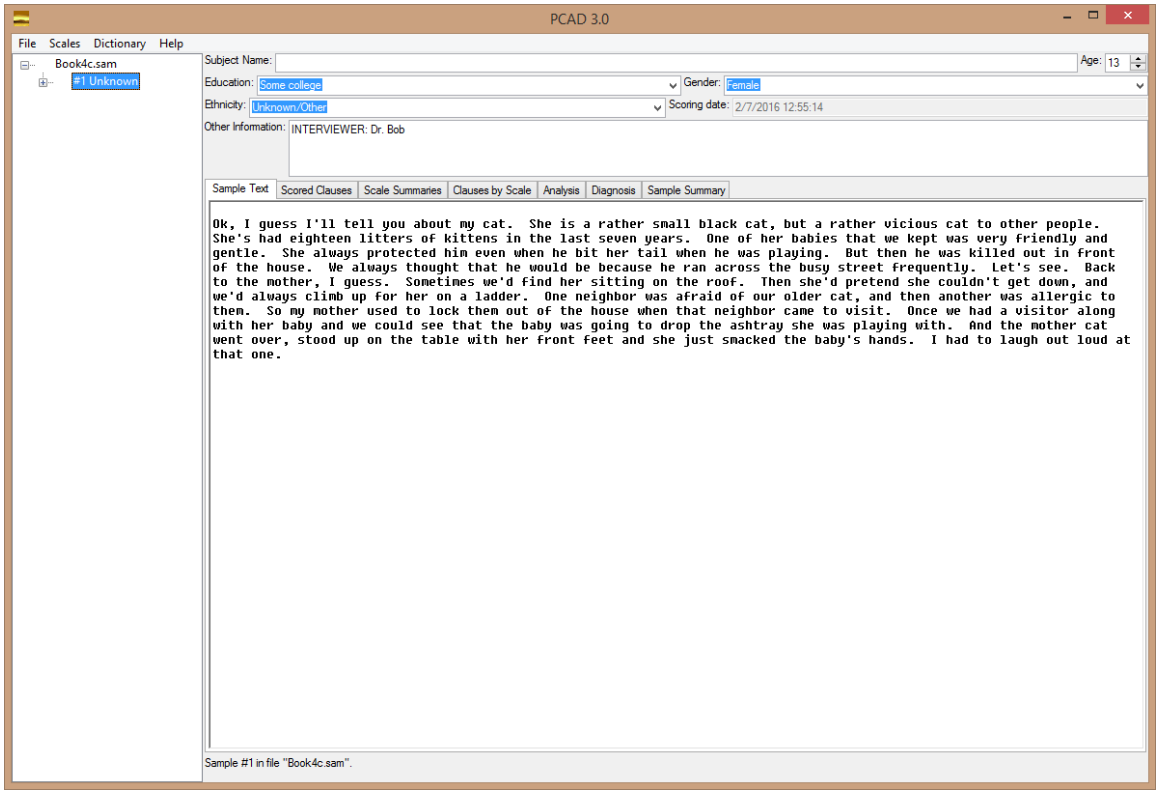


To see the results of the analysis, click on the + next to the file name to expand it and see all the samples in the file.



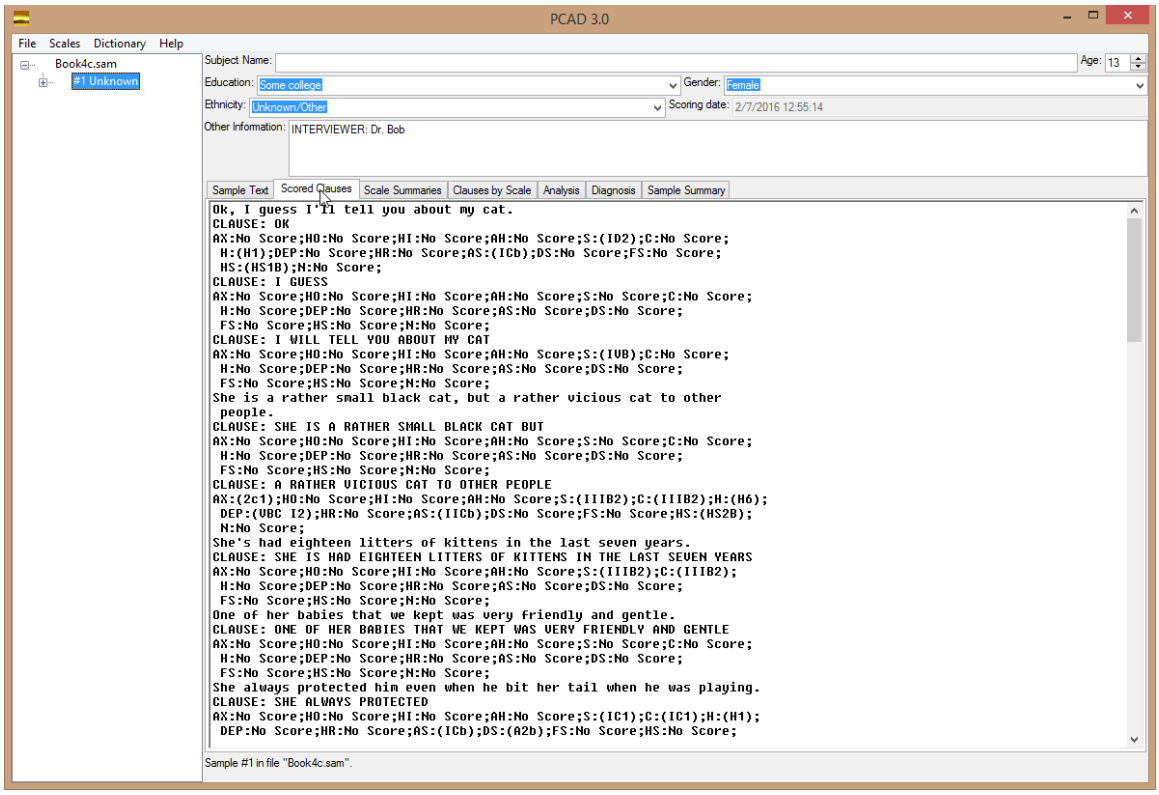
The samples in the file appear below the file name. (In the example shown here, there is only one sample in the file.

To view a sample and scoring results for that sample, click on it in the file tree area.

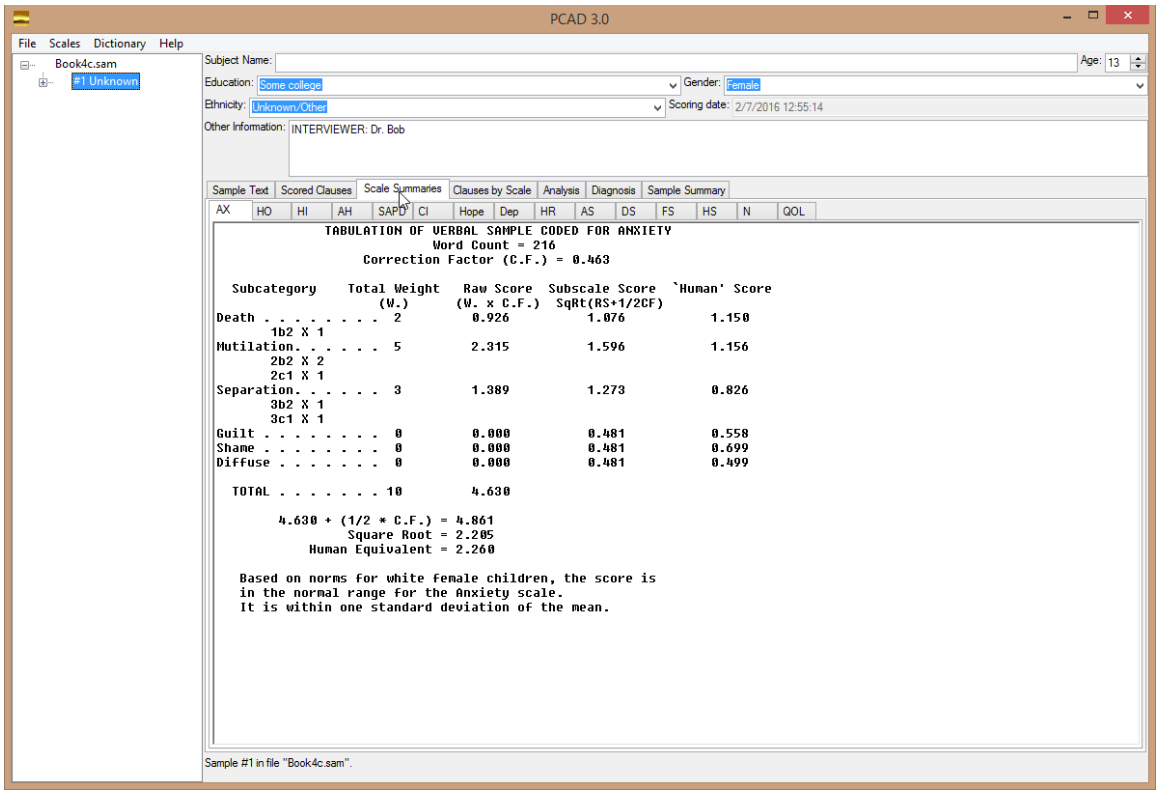


Any information found in the file about the subject providing the sample will be shown in the subject area. The input/output area has a number of tabs, each displaying a different bit of information about the sample. Select a tab by clicking on it.

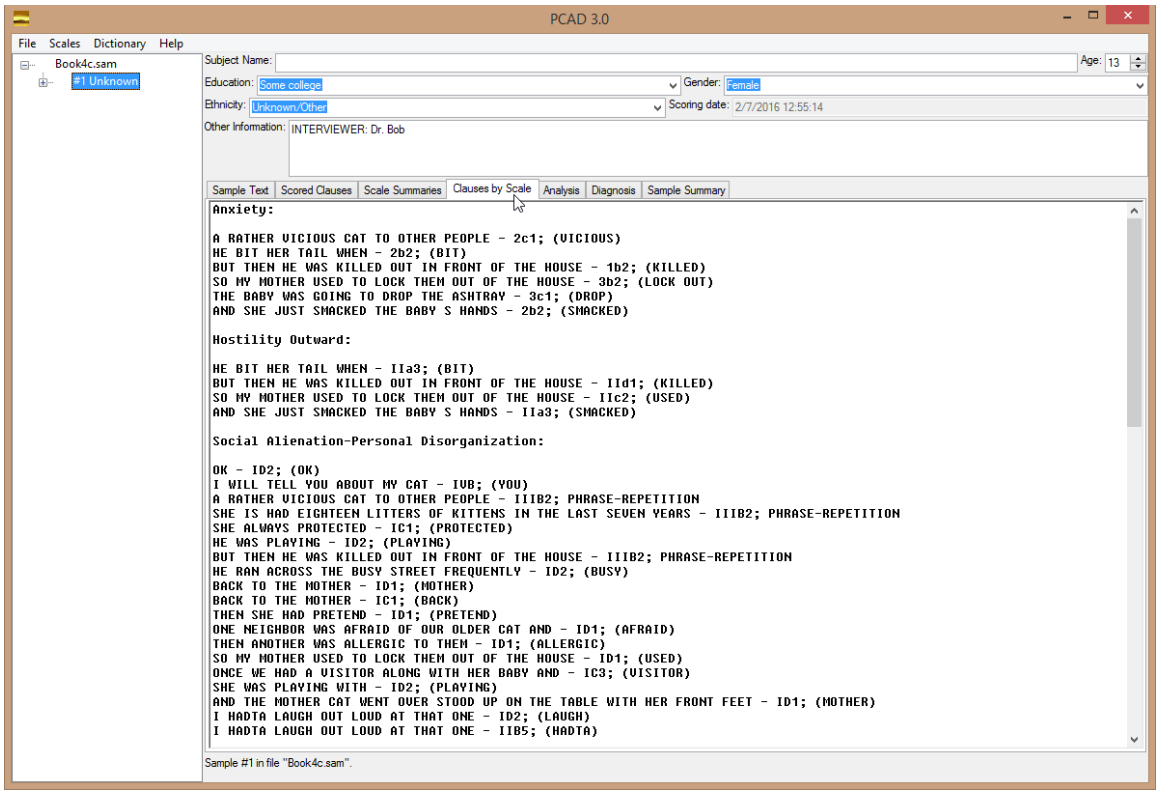
The leftmost tab ("Sample Text") shows the original text of the sample. The other tabs show various outputs from analysis, as shown below:



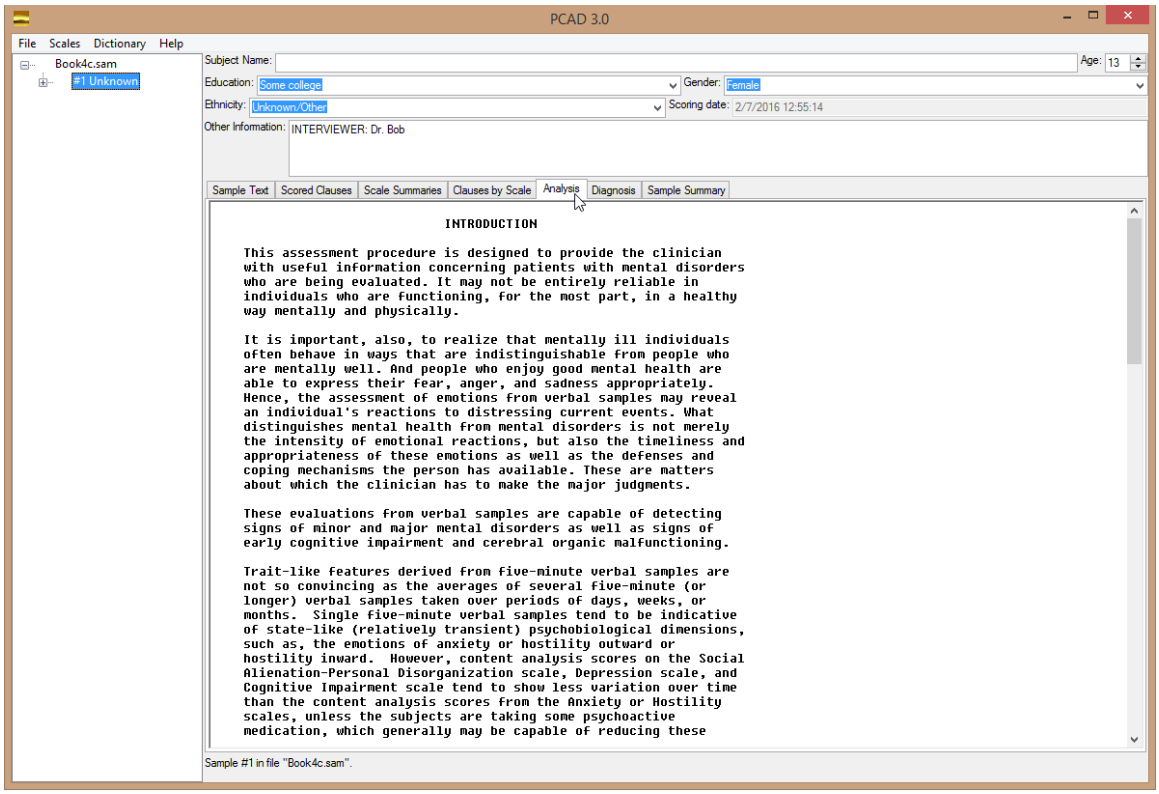
The "Scored Clauses" tab shows each clause in the input and the psychological scores assigned to that clause.



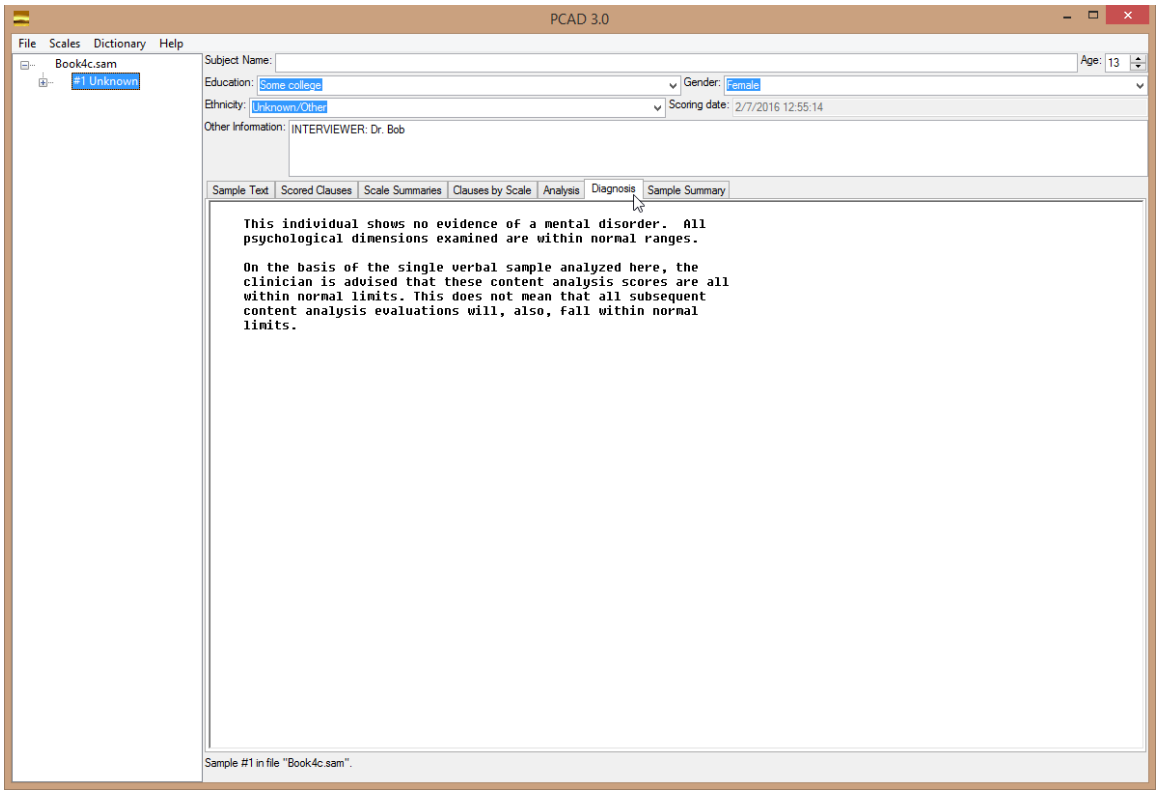
The "Scale Summaries" tab has several sub-tabs. Each sub-tab summarizes the psychological analysis for that scale. Select sub-tabs by clicking on them.



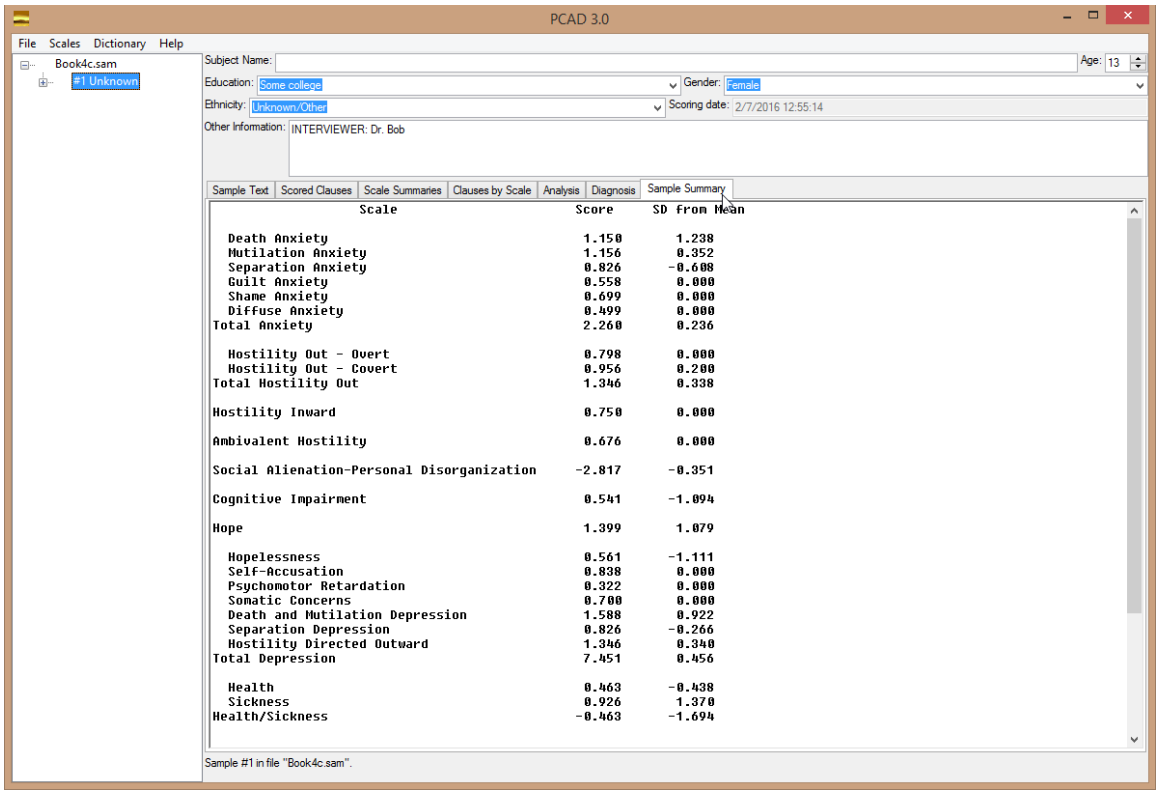
The "Clauses by Scale" tab shows, for each psychological category, all clauses that were found to fall into that category.



The "Analysis" tab gives a textual summary of the psychological analysis, along with some introductory material that provides other important considerations in assessing the subject's mental status.

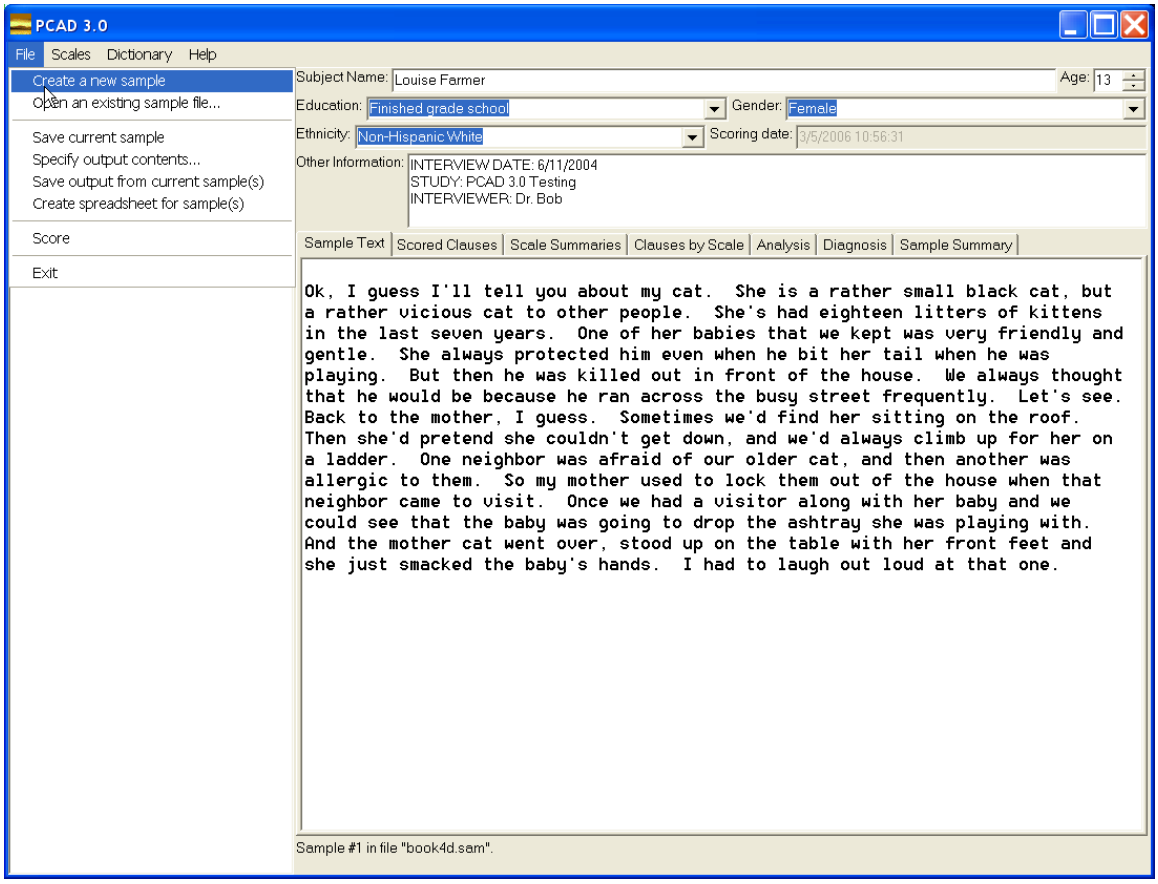


The "Diagnosis" tab lists psychiatric diagnoses (if any) that have been judged to be consistent with the psychological content of the sample.

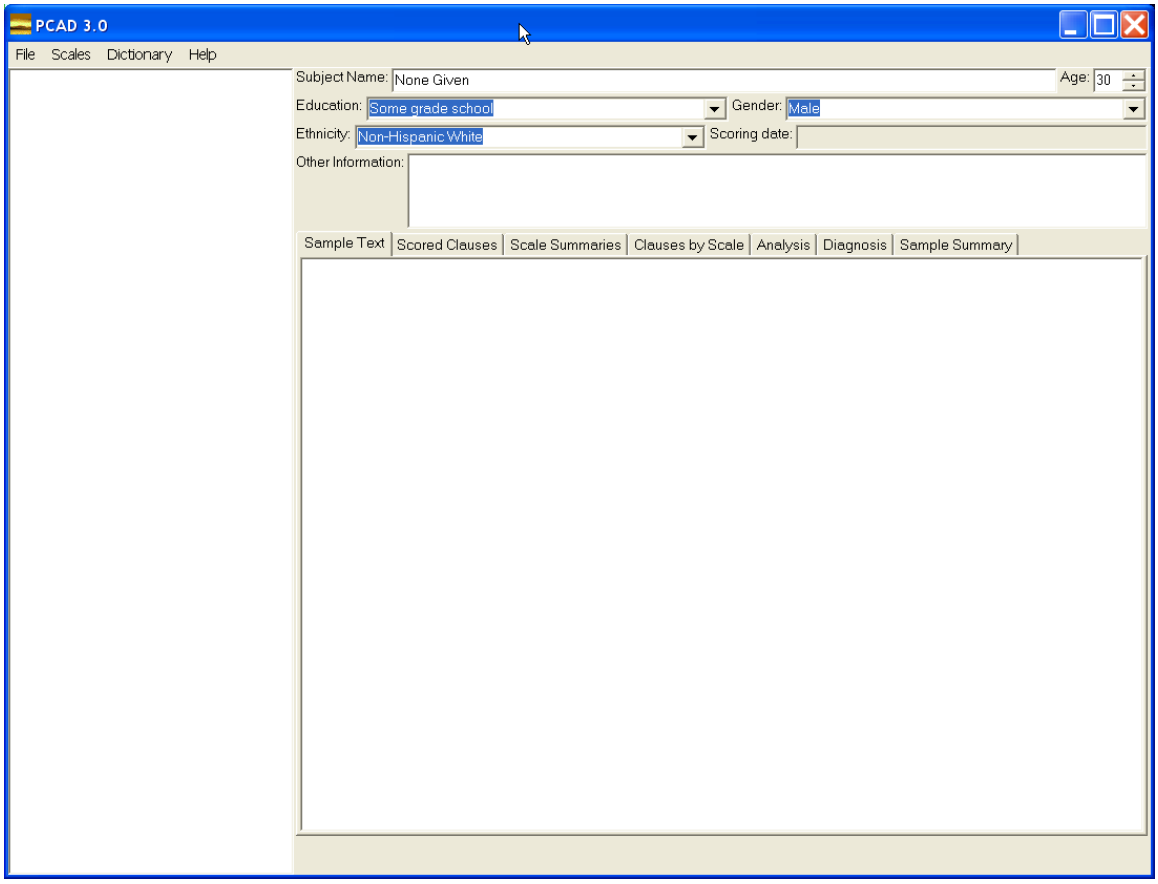


The "Sample Summary" tab provides a quick overview of all psychological categories for the sample.

If you do not have an already prepared sample, you may enter one by typing in the "Sample Text" tab. Begin by selecting "Create a new sample" from the File menu.

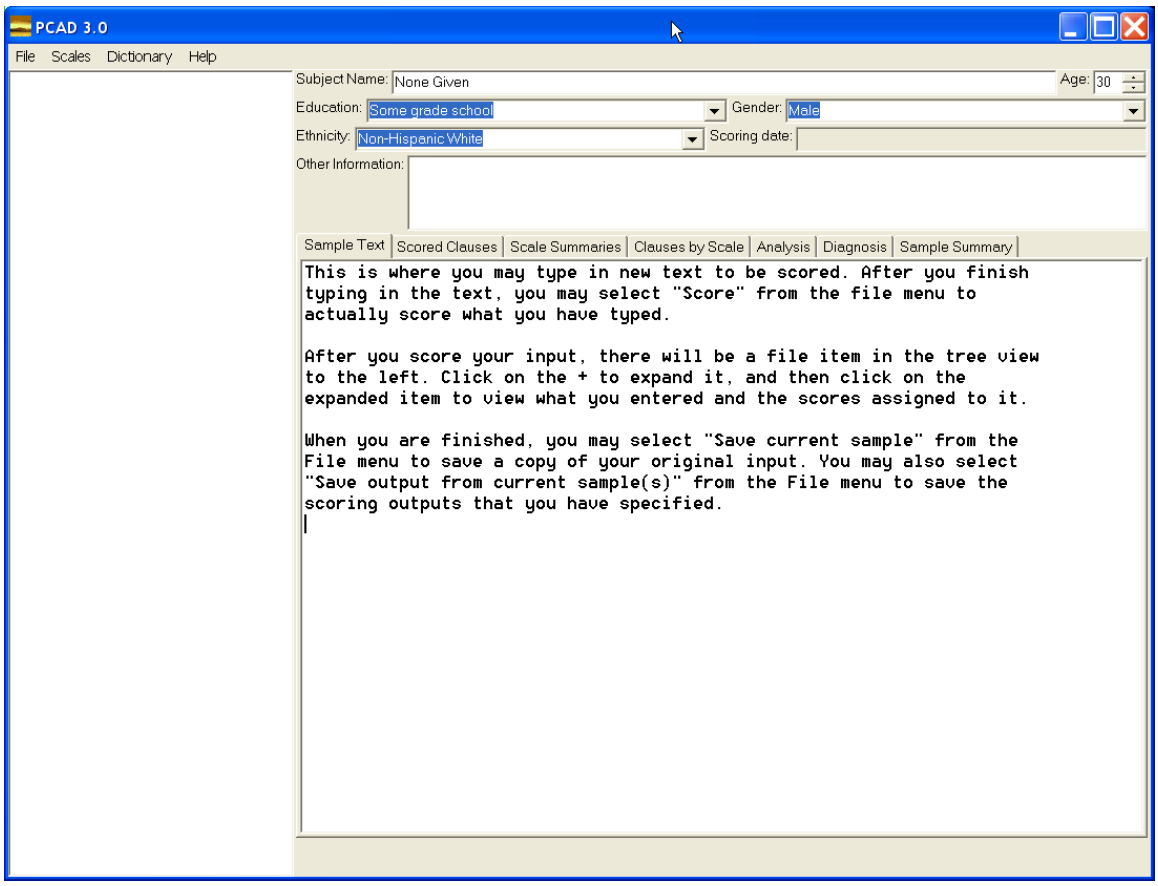


Any existing sample file will be cleared and you will have a fresh main screen.



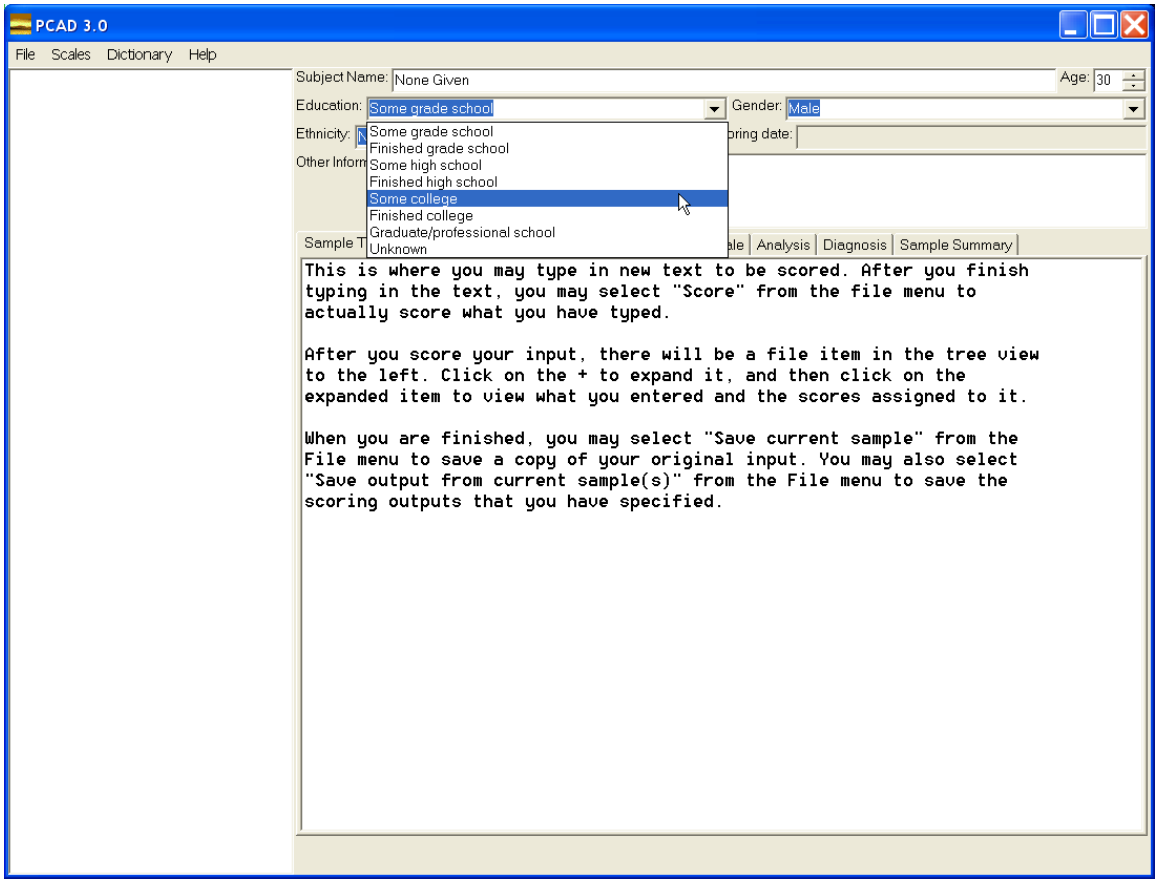
If necessary, click on the "Sample Text" tab to bring it to the top, and click in the text area on that tab to place the cursor there.

You may then type your sample.



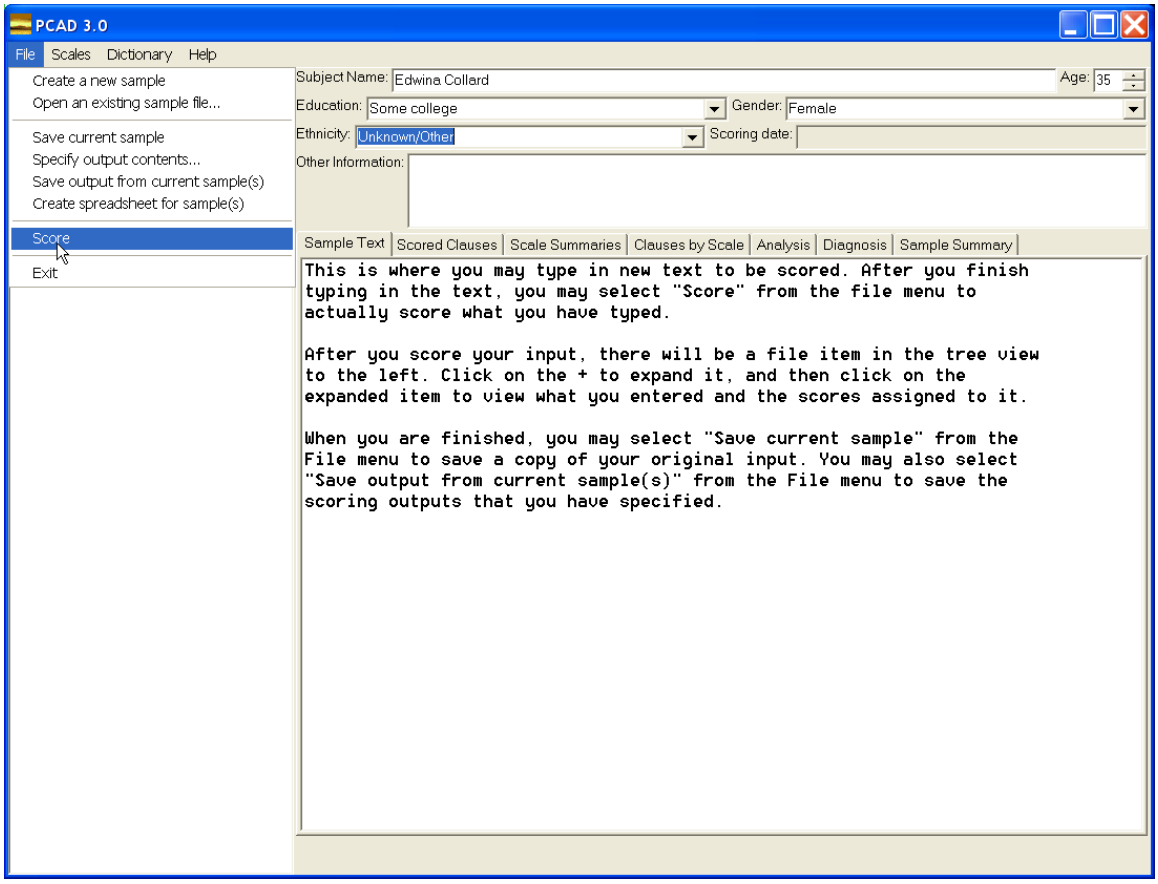
Provide information about the subject who supplied the sample by filling in the blanks in the subject information area. The subject name and "Other Information" may simply be typed in. Age may be typed in or you may use the up- and down-arrows next to the age to set it. Education, gender, and ethnicity are set by using pull-down menus.

The following shows the process of selecting a subject education level:

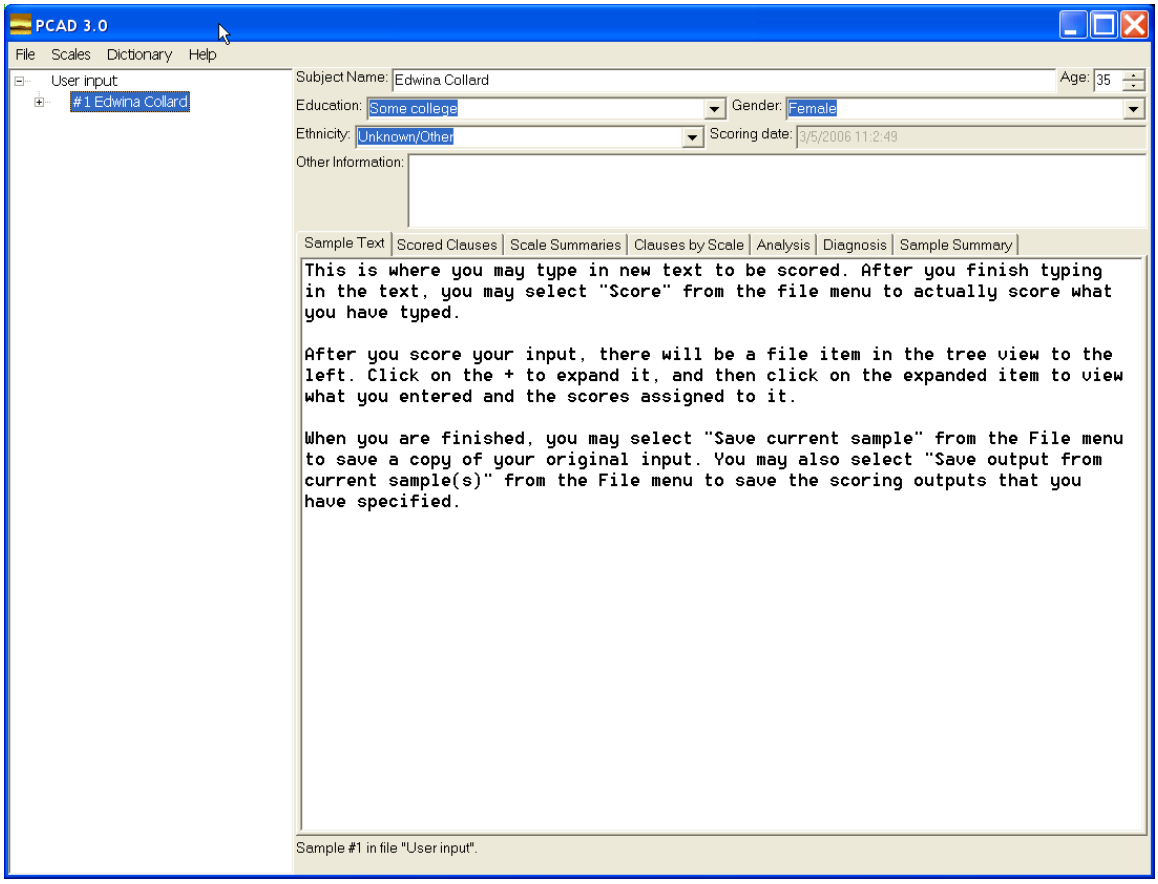


If you don't provide any specific information about the subject, PCAD3 will use the default values shown in the subject area.

Once you've typed in your sample (and possibly provided subject information), you may analyze it by selecting "Score" from the File menu.



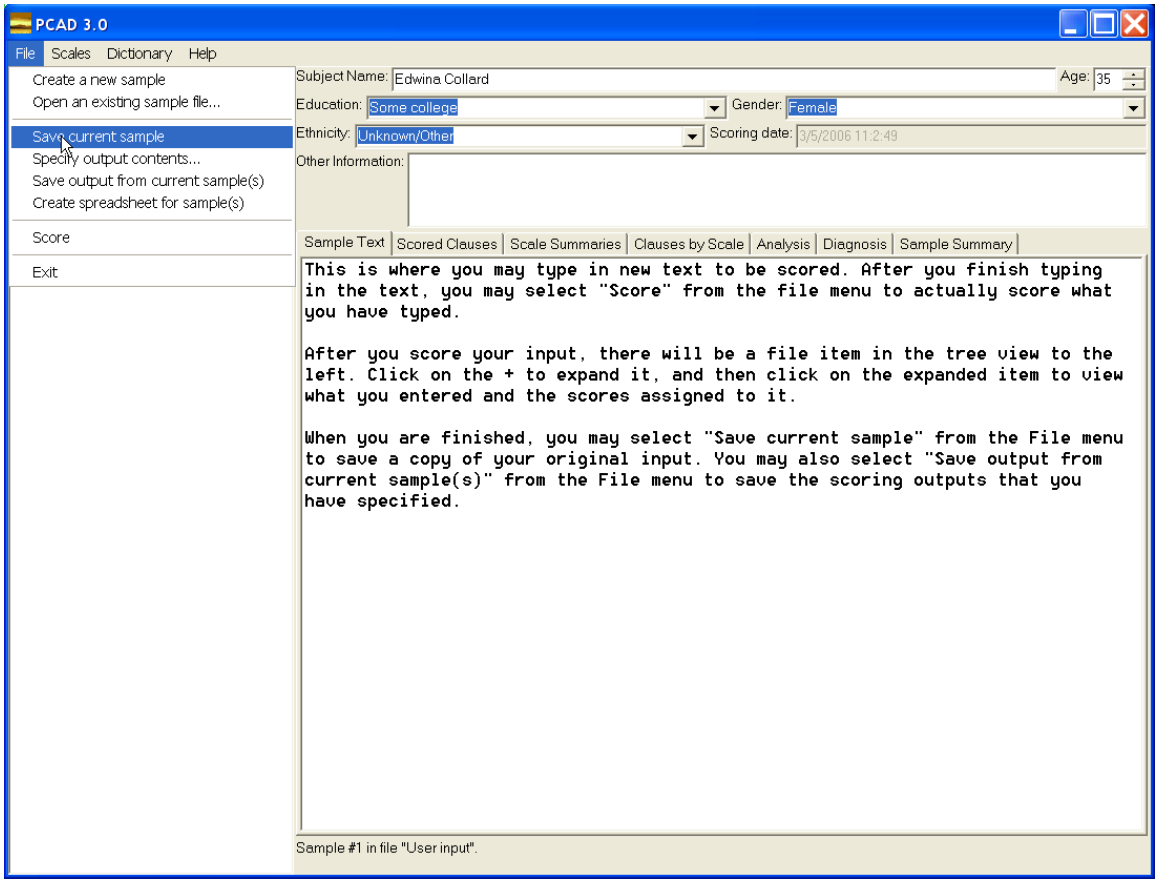
You will have to expand the file content tree to view the analysis outputs:



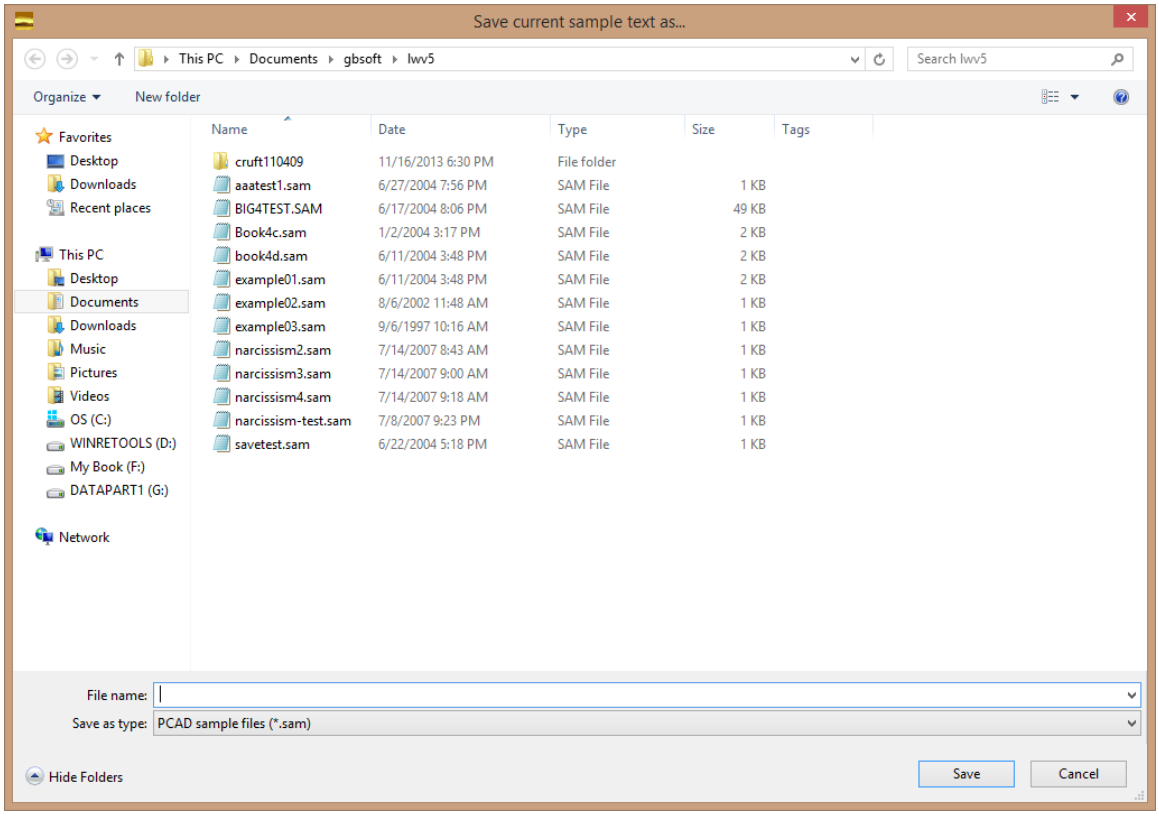
Use the tabs to move around the various sample analysis outputs. (Described earlier.)

PCAD3 can save your sample input (with no analysis) in a text file, as well as saving analysis output.

To save just the sample, select "Save current sample" from the File menu.



You will be prompted to provide a name for the sample file. Navigate to the desired directory (if different than the one offered), type in a file name, then click on "Save" to store the sample. (Click on "Cancel" to return to the main window without saving.)

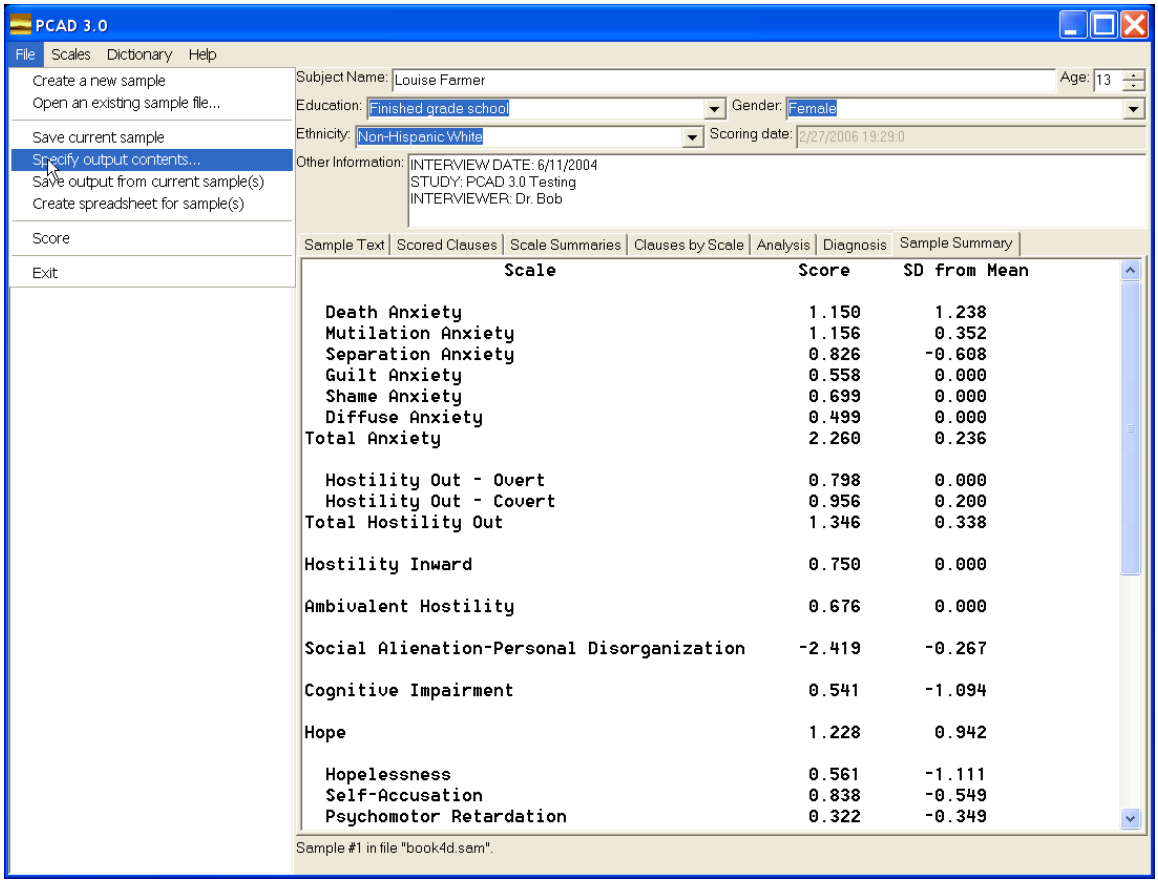


By default, the file will be saved with ".SAM" extension. You may override this if desired.

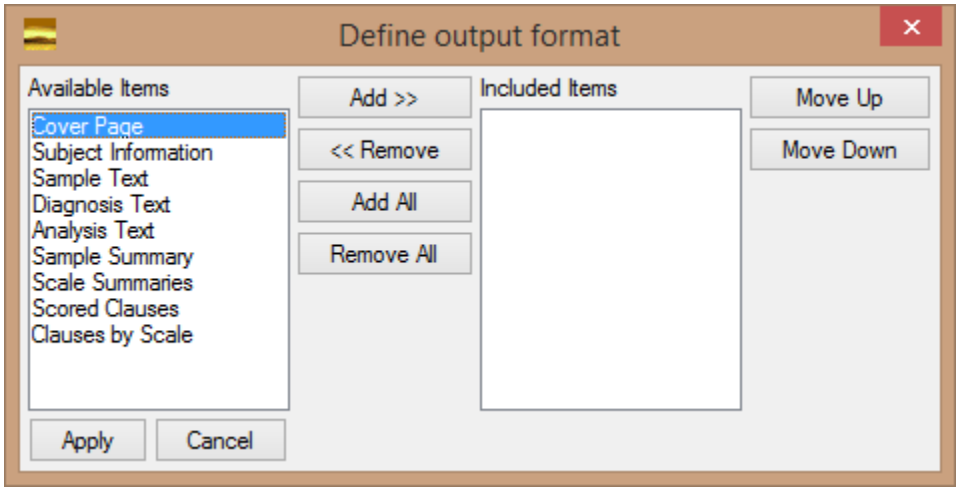
NOTE: PCAD3 only saves information you specifically ask it to - there is no "Autosave" mode. Samples that you enter as well as any analyses will be lost if you exit without saving.

Recommended practice is to create sample files outside PCAD3, e.g., using a text editor. This helps to ensure that the sample itself is not lost by accidentally exiting from PCAD3 without saving.

Saving the sample analysis output is slightly more complex. Clearly, there is a lot of sample output. Not all of it may be needed or desired in a saved form. To select what parts of the analysis output to save, select "Specify output contents..." from the File menu.



A dialog will pop up listing the various analysis components.



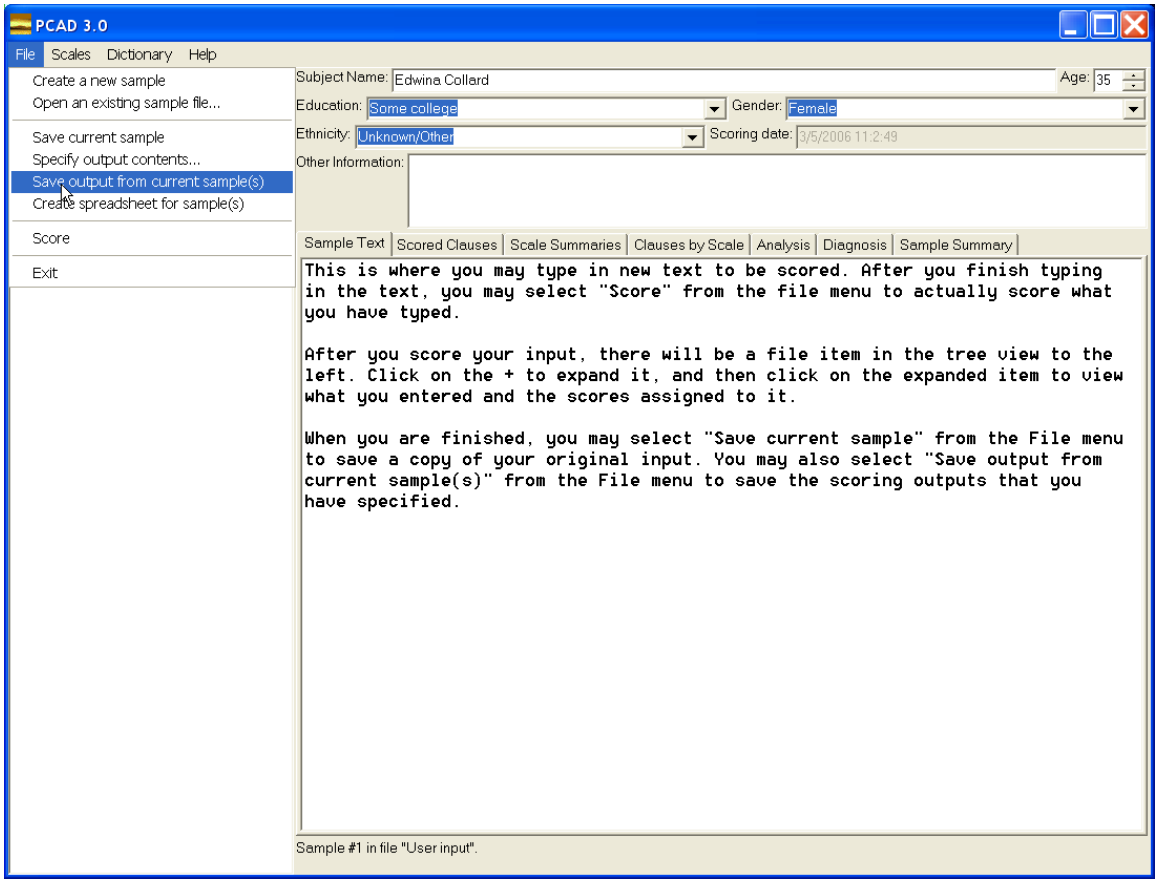
Components on the left are currently not selected for inclusion in the output, while components on the right are selected for inclusion in the output. To add a component in the "Available Items" list to the output, click on it and then click on the "Add>>" button between the lists. To remove a component from the "Included Items" list, click on it then click on the "<<Remove" button between the lists. The "Add All" button will place all items into the "Included Items" list, where they will be included in the saved output. The "Remove All" button will remove all items from the "Included Items" list, leaving nothing for output.

Items in the "Included Items" list are output in order from top to bottom. To change the order, use the "Move Up" and "Move Down" buttons at the right of the definition window. Select an item, then click on "Move Up" or "Move Down" to change its position in the "Included Items" list.

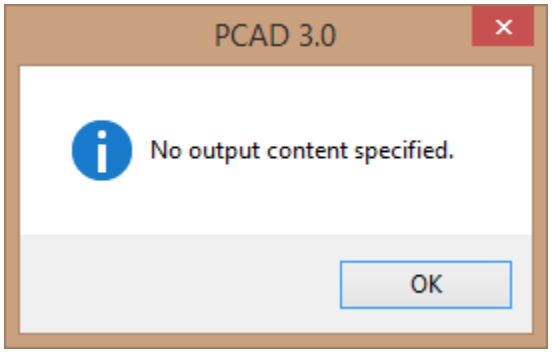
Once you are happy with your output selections, click on the "Apply" button to put your choices into effect. If you change your mind and want to return to the main screen without making any changes, click on the "Cancel" button.

NOTE: The choices are reset every time PCAD3 is restarted.

Once you have selected the components to include in the output, you can save the PCAD3 output to a file by selecting "Save output from current sample(s)" from the File menu.



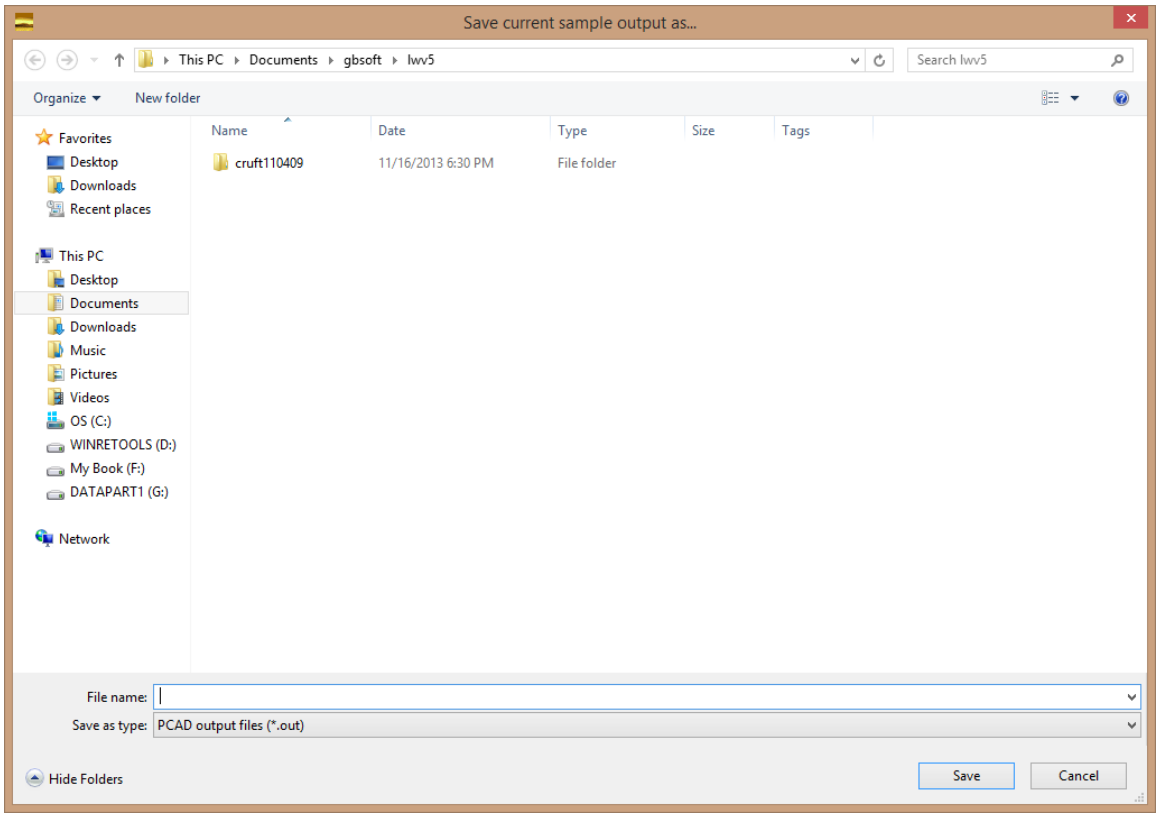
If you have not selected any output components, a small window will pop up to warn you that no output can be produced.



Click on "OK" to continue. Select some components for output, then "Save output from current sample(s)" again.

NOTE: If no sample is selected in the file content tree area, no output will be generated because PCAD3 cannot tell what to report on.
If there are multiple samples in a file, you may select the file name in the tree area (rather than a specific sample) before requesting output, and PCAD3 will attempt to generate output for each sample in the file.

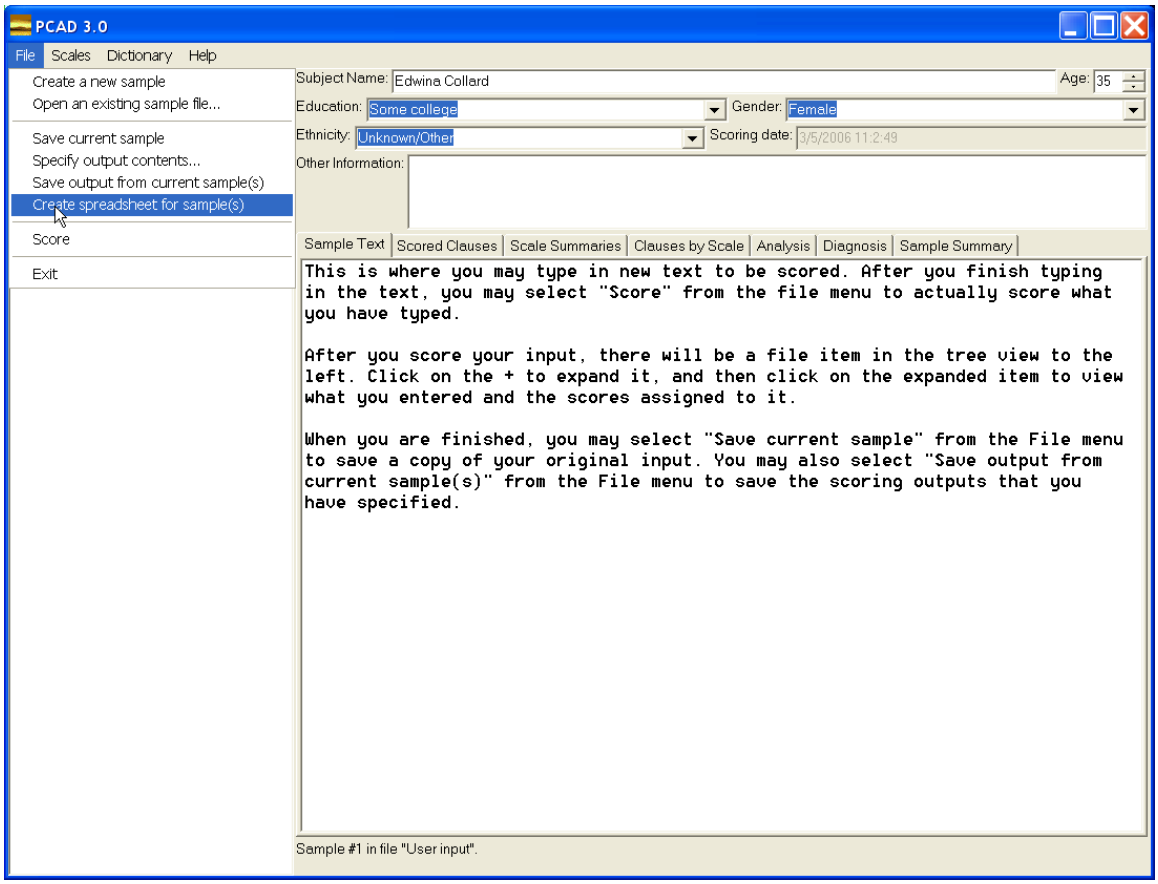
When all conditions are satisfactory, "Save output from current sample(s)" will open a file save window where you can specify the name of the file to hold the output.



Navigate to the desired directory (if different than the default), type in a file name, then click on the "Save" button to create the output file. By default, the extension on PCAD3 scoring output files is ".OUT", but you can override this if you wish.

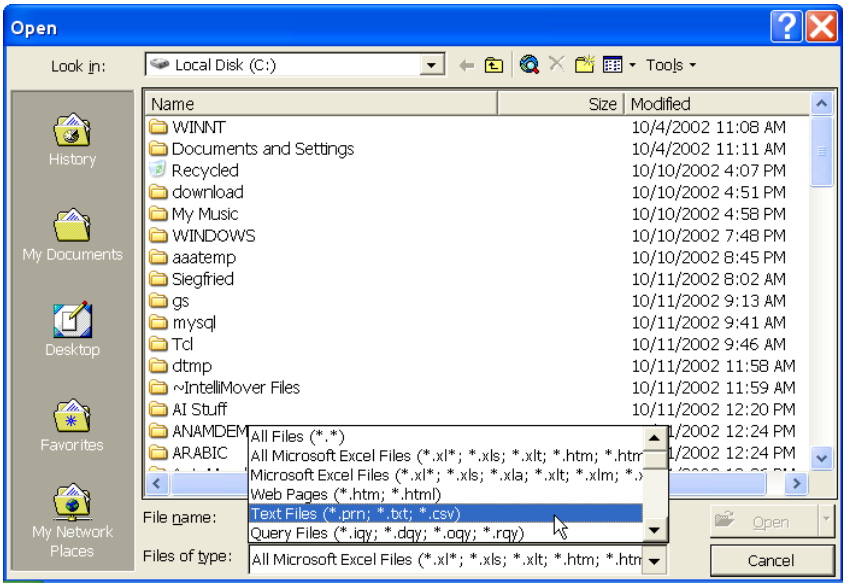
The scoring results (scores on each scale and subscale, and tallies on each scale item) can be dumped to comma-separated value (CSV) files, which may in turn be read by Microsoft Excel. PCAD3 CSV files have a row of labels and one row of data for each sample in the selected sample file. (If only a single sample is highlighted in the tree area, then only that single sample will be dumped to the CSV files.) Because there are so many output values, they are spread over three CSV files. The file names are derived from the input file name. In the case of direct user input into the sample area, a base name of "User Input" is used.

There is an option under the File menu to save results to a spreadsheet file.

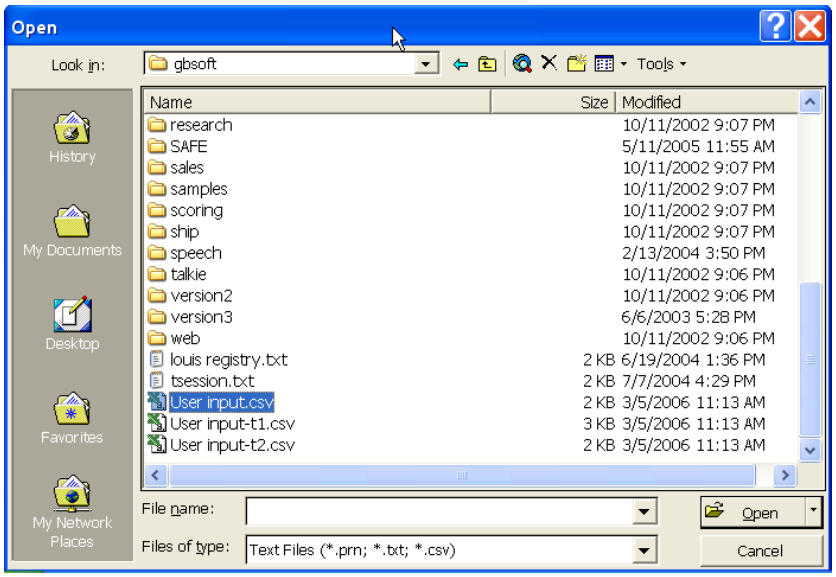


There is no option to select a file name or destination - the spreadsheets will named based on the sample file name, and will be placed in the directory where the sample was found.

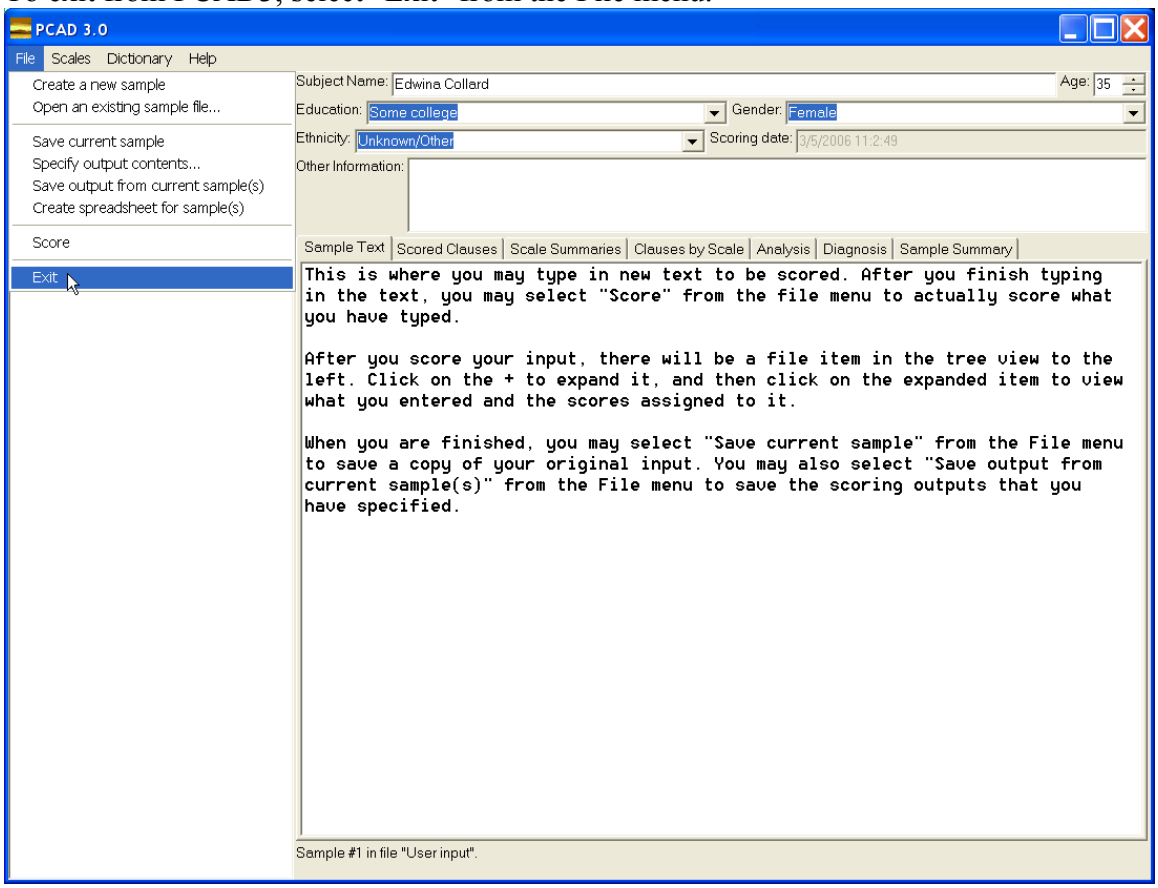
In Microsoft Excel, you may use the File|Open command to view the resulting spreadsheets. It will be necessary to indicate that Excel should look at non-XLS files:



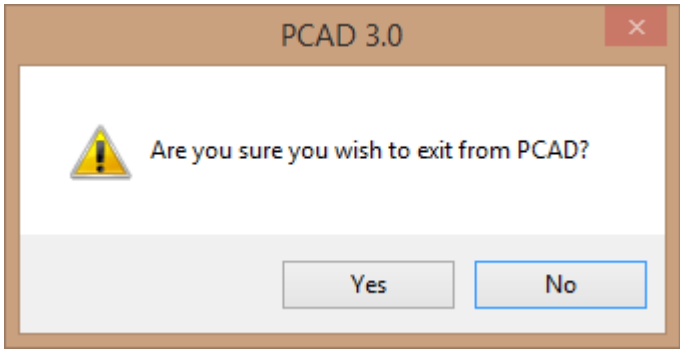
The file can be selected by highlighting it, and opened by clicking on the Open button.



To exit from PCAD3, select "Exit" from the File menu.



A confirmation window will pop up.



Click on "Yes" to exit, or "No" to return to the PCAD3 main screen.

Using PCAD3

Determining the Goals for a Session

PCAD is a tool that can be used to support many different activities, in the same way that a word processor can be used for to prepare brief informal notes, to write complete books, and a whole host of writing tasks that fall between these extremes. Just as what kind of document you are preparing determines what features of your word processor you use in any one session, so may your overall project goals affect how you will use PCAD. Every user has different goals, and GB Software hopes that new uses will continue to be found for the capabilities of PCAD. However, most uses do tend to fall into one of two categories: those focused in detail on a single sample, and those primarily concerned with groups of samples, rather than the details of any one sample.

Clinical uses of PCAD tend to focus on a small number of samples in great detail. For example, a therapist might elicit a verbal sample from a client at each meeting, scoring each sample as it is collected, and using the analytical and diagnostic results to confirm and cross-check the professional judgments being made based on other criteria. Scoring single samples from a single subject over time can also be helpful in monitoring the efficacy of a particular therapeutic regime. A clinician could use a single sample from a new client as a fast and inexpensive screening test for cognitive impairment, with more extensive testing scheduled if PCAD indicates an elevated score.

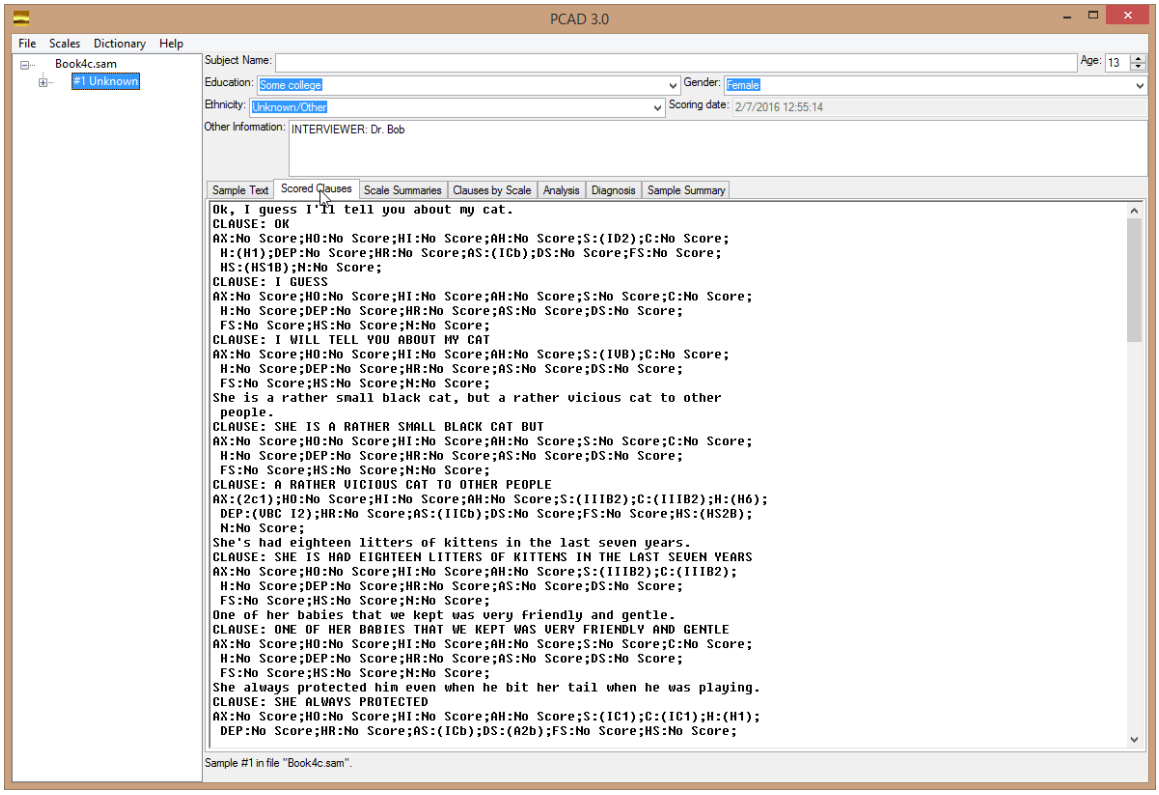
Forensic uses also tend to collect a very small set of samples and utilize PCAD to provide very fine-grained analyses specific to particular cases.

Research uses, on the other hand, tend to involve large numbers of samples and generally do not use the analytic and diagnostic features of PCAD. Instead, they usually rely on scale summaries to allow statistical characterization of the phenomenon under study. For example, in a drug study, verbal samples may be obtained from all subjects and the summary scale data used to determine whether or not the drug under study reduces anxiety. To support this type of use, PCAD supports output of scale summary information in a format (comma-separated values, or CSV) that is acceptable for input to the Excel spreadsheet program and many statistical analysis programs.

Outputs from the Scoring Process

Scored Clauses

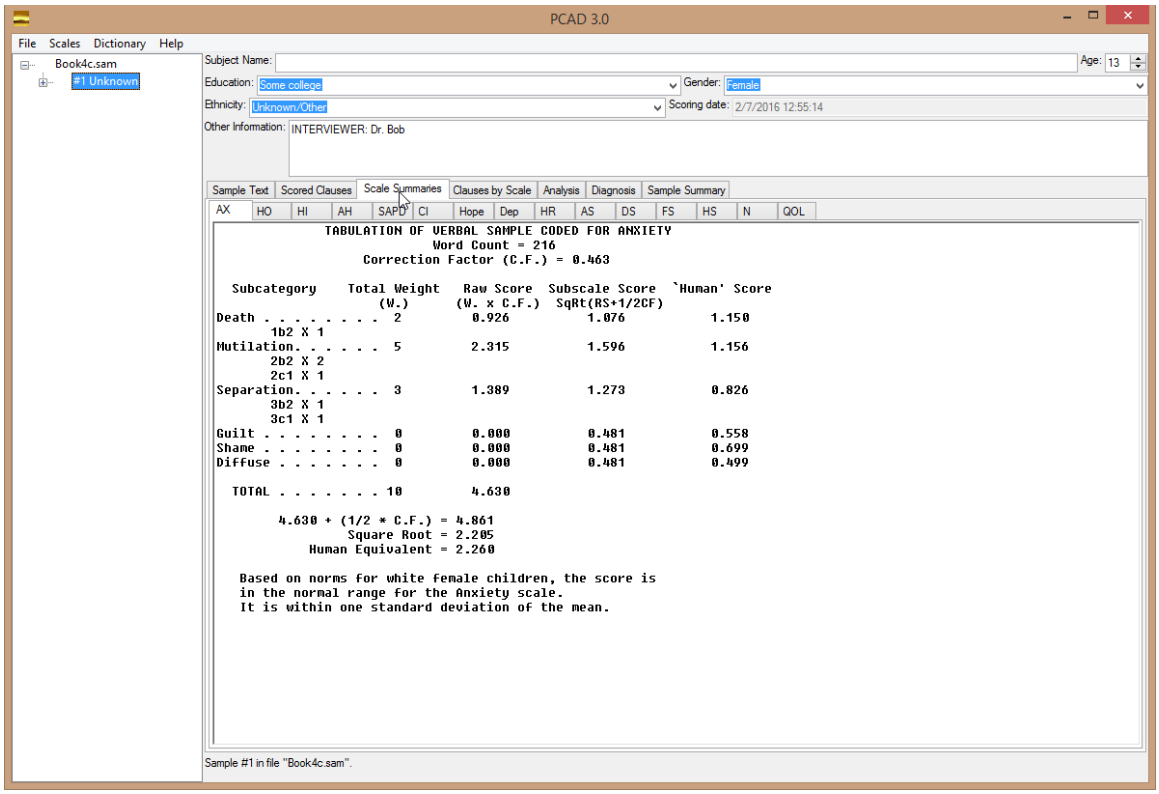
The initial output from every sample scoring session is a listing of clauses and the scores they are assigned. Each clause is printed on a line followed by one (or more) line(s) of scores, depending on what scales have been selected.



If the sample is long enough, it will completely fill the space allocated for the on-screen listing. You can scroll down to see more.

Scale Summaries

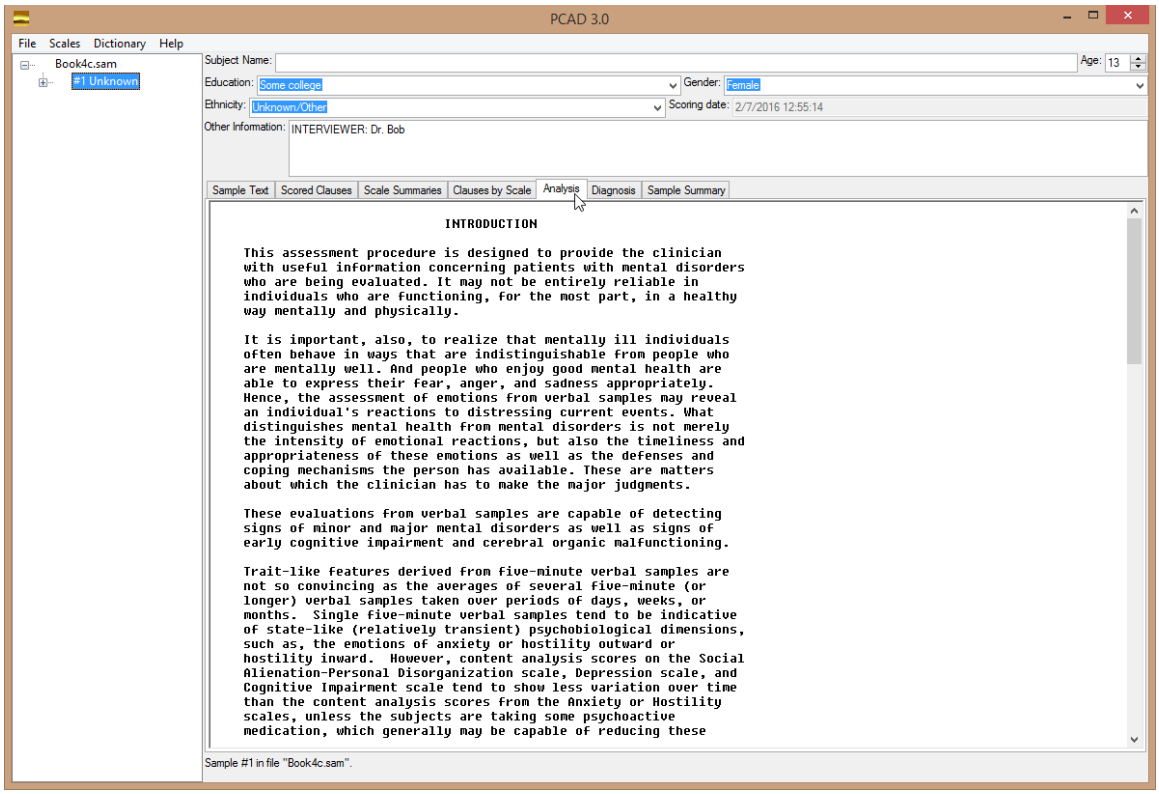
A summary for each scale is provided on the scale summaries tab.



You can examine the summary for each scale by clicking on the appropriate tab.

Sample Analysis

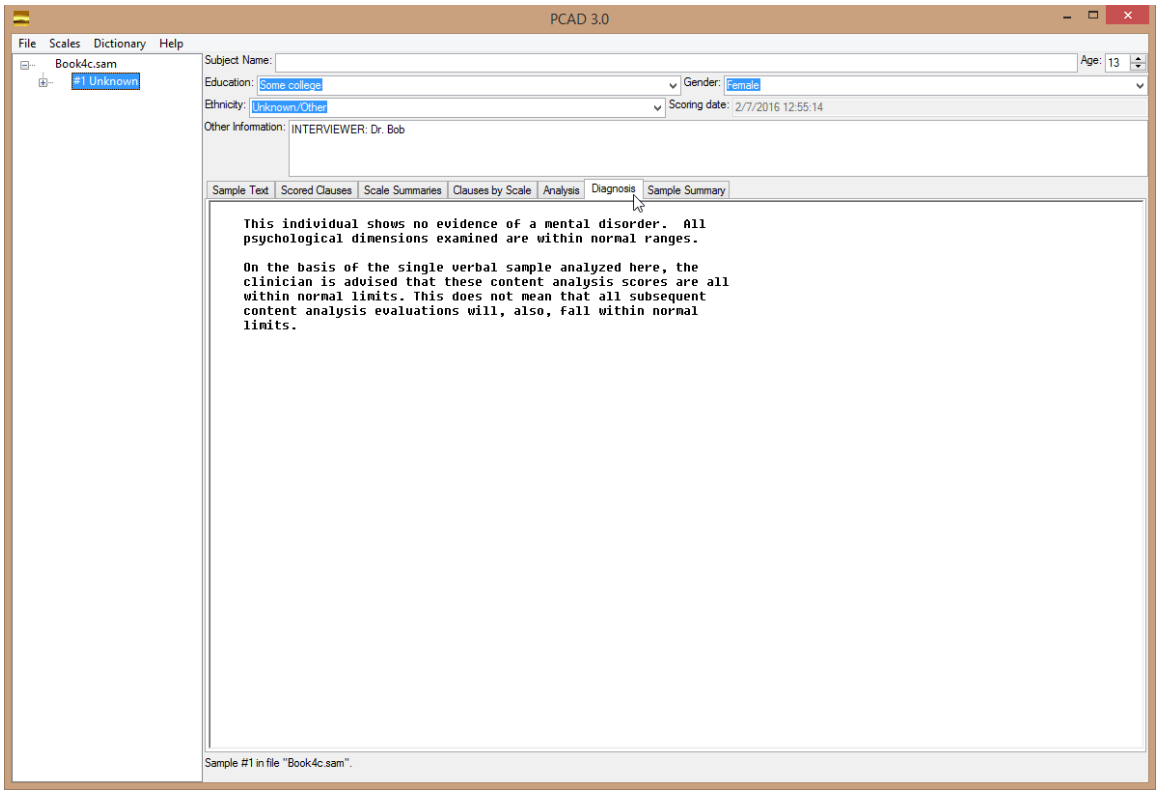
PCAD3 provides a written analysis of the scoring results. This analysis includes important information about the limits and capabilities of the scoring system, and should be provided with any use of the system for diagnostic purposes. The analysis output will look something like that below.



Suggested Diagnosis

PCAD will also produce a list of suggested DSM-IV diagnoses that should be considered by a clinician, as suggested by the scores generated from the sample[4]. Accompanying the suggested diagnoses are important information about mitigating factors that should also be considered, as well as some material regarding limitations of the system. Diagnostic output will typically look like that shown below.

[4] Updating to DSM-V is an active development task. If you have a specific requirement for DSM-V suggestions, please contact support@gb-software.com.


PCAD 3.0
File Scales Dictionary Help
Book4c.sam
#1 Unknown
Subject Name:
Age: 13
Education: Some college
Gender: Female
Ethnicity: Unknown/Other
Scoring date: 2/7/2016 12:55:14
Other Information: INTERVIEWER: Dr. Bob
Sample Text Scored Clauses Scale Summaries Clauses by Scale Analysis Diagnosis Sample Summary
This individual shows no evidence of a mental disorder. All psychological dimensions examined are within normal ranges.
On the basis of the single verbal sample analyzed here, the clinician is advised that these content analysis scores are all within normal limits. This does not mean that all subsequent content analysis evaluations will, also, fall within normal limits.
Sample #1 in file "Book4c.sam".

Theoretical Background and Development

Introduction

The Gottschalk-Gleser Content Analysis Method for measuring the magnitude of various psychobiological states and traits from the content analysis of verbal behavior has been successfully applied to many different neuropsychiatric dimensions. Extensive empirical research has established the validity and reliability of Scales measuring a variety of emotional and psychobiological states including Anxiety (including Death, Mutilation, Separation, Guilt, Shame, and Diffuse Anxiety subscales), Hostility Outward (including Overt Hostility, Covert Hostility, and Total Hostility Outward subscales), Hostility Inward, Ambivalent Hostility (hostility originating externally and directed towards the self), Social Alienation-Personal Disorganization, Cognitive Impairment, Hope, Depression (including 7 subscales), Human Relations, Achievement Strivings, Dependency Strivings, and Health/Sickness.

While the utility of these Scales has been demonstrated repeatedly through decades of research, widespread everyday use of content analysis of verbal behavior for research and clinical practice has been hampered by the relatively high training and performance requirements associated with the manual application of the technique. For example, Gottschalk and Gleser [1969] recommend an inter-coder reliability coefficient of 0.80 or better with the scoring of qualified experts in the use of these content analysis Scales. To achieve this level of familiarity and skill in coding these Scales requires some practice with previously published and unpublished examples of scoring these content analysis Scales and continual monitoring of trained scorers. Manual scoring is also not a particularly quick process, requiring not only trained content judgments, but also extensive post-processing of scores to prepare Scale-based summaries and analyses.

To address the training and performance obstacles to wider use of the Scales, GB Software has developed and tested computer program software that is capable of reliably scoring computer-readable transcriptions of verbal (speech) samples on the Scales named above. In operation, the program assigns scores on the user-selected Scales to each clause in the input sample, then, at the user's option, reports score summaries for each scored Scale with comparisons to established norms for the subject's demographic group, provides an analysis of the score profile, and suggests possible diagnoses drawn from the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV).

Brief Descriptions of the Content Analysis Scales

The full definition of each of the scales available for computerized scoring is given in Appendix A. This section provides a narrative description of the various scales. Reliability and validity studies for each of these scales have been published in the literature, and references are available either from GB Software or from our Web page.

Anxiety Scale

The type of anxiety that this Scale measures is what could be termed "free" anxiety in contrast to "bound" anxiety, which manifests itself in psychobiological mechanisms of conversion and hypochondriacal symptoms, in compulsions, in doing and undoing, in withdrawal from human relationships, and so forth. Some aspects of bound anxiety are registered by this Scale, particularly by means of displacement and denial. This type of bound anxiety is relatively accessible to consciousness, usually in defensive form and is capable, along with grossly conscious "free" anxiety feelings, of activating autonomic nervous system and central nervous system signs of arousal..

On the basis of clinical observation the Anxiety Scale is classified into six subtypes: *death*, *mutilation*, *separation*, *guilt*, *shame*, and *diffuse* or *non-specific anxiety*. Fear of death is assessed by those content items dealing directly with death and destruction. Mutilation anxiety is synonymous with "castration" anxiety, and the descriptive items in the Scale pertaining to this subtype of anxiety are derived from clinical psychoanalytic psychology. The concept of separation anxiety and the descriptive items designating what references in speech are to be included under this heading are also derived from psychoanalytic psychology. The descriptive items differentiating shame from guilt anxiety distinguish shame through verbal references to ridicule, inadequacy, embarrassment, humiliation, exposure of shortcomings or details of a person's private life, and distinguish guilt through verbal references to adverse criticism, abuse, condemnation, or moral disapproval, especially based on internalized attitudes or values. Diffuse or non-specific anxiety is the category of anxiety in the Scale where it is impossible to distinguish the type of anxiety-fear which is being verbalized.

Hostility Scales

The *Hostility Scales* are designed to measure three types of hostility of a transient, rather than sustained, affect. The hostility scores derived from several verbal samples obtained from the same individual will provide a trait-like measure.

The *Hostility Directed Outward* Scale measures the intensity of adversely critical, angry, assaultive, asocial impulses and drives towards objects outside oneself.

The *Hostility Directed Inward* Scale measures degrees of self-hate and self-criticisms and, to some extent, feelings of anxious depression and masochism.

The *Ambivalent Hostility* Scale, though derived from verbal communications suggesting destructive and critical thoughts or actions of others to the self, also measures

not only some aspects of hostility directed inward, but at the same time some features of hostility directed outwards.

All three hostility scales assign higher weights to scorable verbal statements communicating hostility that, by inference, is more likely to be strongly experienced by the speaker; whereas, completely repressed hostility is not scored.

Social Alienation-Personal Disorganization Scale

This Scale was originally designed to measure the relative degree of personal disorganization, social alienation, and isolation of schizophrenic patients. The common denominators of the schizophrenic syndrome are considered to be disturbances in the coherence and logicality of thinking processes and disturbances in human relationships, especially in the form of withdrawal, avoidance, and antagonism. Another principal characteristic of this concept of the schizophrenic syndrome is that it is a phenomenon quantitatively describable, that is, there are relative degrees of severity of schizophrenia and, in some schizophrenic individuals, severity can fluctuate considerably from day-to-day. This concept of the schizophrenic syndrome, in fact, holds that these principal, and characteristic features of schizophrenia -- social alienation and personal disorganization -- are present to a varying extent in non-schizophrenic individuals but not in such a continuous and/or extreme fashion as in schizophrenia.

Cognitive and Intellectual Impairment Scale

The Cognitive and Intellectual Impairment Scale is designed to measure transient and reversible changes in cognitive and intellectual functions as well as permanent and irreversible changes, all due principally to brain dysfunction and minimally to transient emotional changes in the individual.

Hope Scale

The Hope Scale is designed to measure the intensity of the optimism that a favorable outcome is likely to occur, not only in one's personal earthly activities, but also to cosmic phenomena and even in spiritual or imaginary events. The favorable outcome is intended to denote one which might lead to human survival, the preservation or enhancement of health, the welfare or constructive achievement of the self or any part of mankind.

Depression Scale

This Depression Scale, derived from verbal samples, provides measurement dimensions compatible with the concept that there are a number of potentially relevant subcategories of the construct of depression which have significant statistical relationships with different underlying pathogenic processes. Thus, in addition to providing a total score, it has a broad range of phenomenological subscales. These are:

I. Hopelessness.

II. Self-Accusation.
III. Psychomotor Retardation.
IV. Somatic Concerns.
V. Death and Mutilation Depression.
VI. Separation Depression.
VII. Hostility Outward.

Human Relations Scale

This scale provides a quantitative estimate of an individual's degree of interest in and his capacity for constructive, mutually productive, or satisfying human relationships. The impetus for developing this scale has stemmed from the clinical impression that the relative magnitude of such a capacity or need has often seemed to be an important factor in how a patient responds to brief psychotherapy, or how successfully a person is advancing in a career involving mutual collaboration and dependence on other people, or even how successfully one learns at school from other people.

Achievement Strivings Scale

The purpose of this scale is to provide a means to assess both the transient swings and typical levels of motivation toward achievement and also the relative magnitude of reactions of frustration in this drive. We have not found content categories which can cover achievement strivings and accomplishments relevant to all possible fields of endeavor, since vocational and avocational strivings may be differentially pertinent, and since one person's vocation may be another person's avocation. It may be necessary to specify the achievement goals of the subjects studied to assess them meaning of any findings.

Dependency Strivings Scale

The purpose of this scale is to provide a means to assess both the transient swings and typical levels of motivation toward dependency and also the relative magnitude of reactions of frustration in this drive.

Health-Sickness Scale

This Scale distinguishes references to good and bad health, and reports each separately, together with a combined measure of total references to health issues.

Narcissistic Scale

The Narcissistic Scale was devised from a synthesis of descriptions from the scientific literature on narcissistic patients and healthy narcissistic individuals. It provides an objective measure of the relative magnitude of narcissism. The characteristic captured in the Narcissistic Scale appears to be the degree to which a person feels entitlement versus a sense of responsibility for his or her accomplishments and failures. Healthy narcissism consistes of the recognition that one's own attributes and the attributes of

others are, to a large degree, the products of choices that a person makes in life and not due to the presence or absence of some mysterious fate, birthright, or entitlement.

The Narcissistic Scale should be considered experimental: no norms have been established and research is continuing.

Quality of Life Scale

This Scale is a composite of several other scales, and attempts to represent a measure of the overall quality (positive or negative) of the subject's life, as revealed in the sample.

Rationale

A clinician has several options in obtaining objective and valid clinical evaluations. For example, precision and accuracy may be avoided and impressionistic reactions and "gut feelings" can be relied on; some clinicians feel they are able to do competent clinical work with this approach. Or a clinician can spend considerable time and care in the diagnostic and therapeutic evaluation of children and adults with the goal of assessing accurately and precisely the magnitude of diverse psychopathological processes within patients at different times. Another approach is to use various observer psychiatric rating scales, such as the Brief Psychiatric Rating Scale, the Hamilton Anxiety or Depression Rating scales or various self-report measures, such as, various adjective checklists. Although such measures are widely used in many research projects, their use carries with them a false sense of security since quite often no inter-rater reliability tests are done with the rating scales, the assumption being that anybody can follow the instructions for rating and no measurement errors are likely to occur. With rating scales, however, raters vary widely on how much of the range of ratings they use with the same subjects, and some raters characteristically select the lower range of the ratings; whereas others habitually chose the higher range of the ratings. With self-report measures, though it is true that the self-rating comes directly from the individual being evaluated, the assumption is that self-raters are all, indeed, in good and equivalent contact with themselves and are not likely to be falsifying, consciously or unconsciously, their self-evaluations.

These kinds of measurement errors in observer rating scales and self-report scales, usually disregarded by researchers and clinicians, are minimized in the measurement method of content analysis of verbal behavior. For the subjects being rated are usually not aware what speech content or form is being analyzed and have difficulty covering up, even if they have some notions about such matters. Furthermore, the unstructured approach customarily used to elicit speech avoids the questionnaire or “prosecuting attorney” method, and allows the subject to elaborate and use free-will to the extent desired by the self on choice of topics to verbalize. Emotions, self-reflections, doubts, and defensive maneuvers are recorded, and these all contribute to the content analysis scores eventually calculated. The content analysis approach to the measurement of psychological dimensions includes the strengths of both the self-report approach and the

observer rating scale approach, and minimizes the weaknesses of both in terms of measurement errors.

Development of the Scales

The development of an objective and reliable method of measuring the magnitude of various psychological dimensions from natural language was motivated by the recognition that diagnosticians and therapists use speech as the major source of information. In doing so, they assess how and what is said in an impressionistic manner that allows for a relatively high likelihood of distortion and/or error from potentially incorrect empathic responses and inferences during the process of evaluating the subject's talk. How to minimize such error variance and how to maximize the uniformity and consistency of the inferential evaluations concerning the speaker's subjective experience and the relative magnitude of these psychological states and conflicts became a compelling aim. In the process of probing the emotional reactions of subjects or patients, an effort was made to minimize reactions of guarding or covering. Hence the instructions to elicit speech from subject were purposely relatively ambiguous and non-structured. Speakers were asked to tell about personal or dramatic life experiences. From such standardized instructions it was found possible to compare individuals in a standard context so that demographic and personality variables could be explored and investigated, while holding relatively constant the influence of such variables as the instructions for eliciting speech, the nature and personality of the interviewer, the context, and the situation. The effects of varying these non-interviewee variables have been subsequently investigated, one by one, after reliable and valid content analysis scales were developed.

The development of the Gottschalk-Gleser method of content analysis has involved a long series of steps.

1. It has required that the psychological dimensions to be measured (for example, anxiety, hostility outward, hostility inward, cognitive and intellectual impairment, social alienation-personal disorganization, depression, and hope) be precisely defined,
2. that the lexical cues be carefully pinpointed by which a receiver of any verbal messages infers the occurrence of any of these psychological states,
3. and the linguistic, principally syntactic, cues conveying intensity (for example, the word “very” in the proper context) be specified.
4. Next differential weights were assigned to these semantic and linguistic cues conveying the magnitude of a subjective experience whenever appropriate.
5. Furthermore, a systematic means had to be arrived at for correcting for the number of words spoken per unit of time so that one individual could be compared to himself on different occasions or to others with regards to the magnitude of any particular psychological state.
6. A series of weighted thematic categories had to be specified for every psychological dimension to be measured and

7. research technicians were trained to score these typescripts of human speech according any one scale an at inter-scorer reliability of 0.80 or above.
8. Moreover, a set of construct-validation studies had to be carried out to recheck exactly what each content analysis scale measured, and these validation studies have included the use of four kinds of criterion measures: psychological, physiological, pharmacological, and biochemical.
9. On the basis of these construct-validation studies, changes have been made in the content categories and their assigned weights of each specific scale, in the direction of maximizing the correlations between the content analysis scores with these various independent criterion measures.

The theoretical framework from which this measurement approach has been developed has been an eclectic one and has included behavioral and conditioning theory, psychoanalytic clinic theory, and linguistic theory. In addition, the formulation of these psychological states has been deeply influenced by the position that they all have biologic roots. Both the definition of each separate psychological scale and the selection of the specific verbal content items used as cues for inferring each dimension have been influenced by the decision that whatever psychological dimension is measured by this content analysis approach should, whenever possible, be associated with some biologic characteristic of the individual in addition to psychological aspect or some social situation.

The content analysis technician applying this procedure to typescripts of tape-recorded speech has not had to worry about approaching the work of the content analysis following one theoretical orientation or another. Rather, the technician follows a strictly empirical approach, scoring the occurrence of any content or themes in each grammatical clause of speech according to a set of various, well-delineated language categories making up each of the separate verbal behavior scales. Two manuals (Gottschalk, Winget, Gleser, 1969; Gottschalk, 1982) and a book (Gottschalk, 1995) are available as well as journal articles (Gottschalk, 1975; Gottschalk and Hoigaard-Martin, 1986) which indicate what verbal categories should be looked for and how much the occurrence of each one is to be weighted. Following initial coding of content in this way, the content analysis technician, then, follows prescribed mathematical calculations leading up to a final score for the magnitude of any one psychological dimension or another.

Many individuals, mostly researchers, have achieved an acceptable level of proficiency coding the content and form analysis of verbal behavior, specifically, scoring content analysis scales based on the Gottschalk-Gleser content analysis method,. and they have published excellent work involving them. Some investigators or clinicians, however, have not wanted to take the time or acquire the expertise to use these content analysis scales reliably.

Digest of Known Uses

The Gottschalk-Gleser content analysis method provides a means of making many kinds of measurements in psychology and neuropsychiatry, including the measurement of psychological changes, making initial diagnostic formulations, providing suggestions for further evaluations (if necessary), and serving as guidelines for possible therapeutic interventions. It has been used in psychotherapy research to measure changes occurring in adults and children during the process of therapy, to predict psychotherapeutic outcome, to evaluate psychotherapeutic outcome, to assess the importance of defense mechanisms (such as displacement and denial) in different diagnostic groups of clients, and even to teach psychodynamic psychotherapy. It has been used to measure the relative severity of many mental and neuropsychiatric disorders, such as anxiety disorders, schizophrenia, depression, and dementia in aging and with alcohol abuse, and cognitive impairment associated with other drugs, such as, marijuana and the benzodiazepines It has been used in and recommended for psychosomatic research. It has been used to study the effects of partial and total body irradiation and sensory overload. It has proven to be very useful in neuropsychopharmacological studies, such as in the testing of new anti-anxiety drugs, the effects of major tranquilizers, antidepressants, analgesics, and in studying the relationship of the pharmacokinetics of psychoactive drugs and clinical response. It has been widely used to assess the emotional status of medically ill patients, for example, in diabetes mellitus, with bruxism, with mastectomy for breast cancer and with cholecystectomy, and with attention-deficit-hyperactive children. More recently it has been used to assess the quality of life as well as the relationship of cerebral glucose metabolic rates (as assessed by positron emission tomography) and emotions occurring during dreams or silent wakeful mentation or while feeling hopeful or hopeless. Two other interesting applications of this content analysis method involved reviewing and demonstrating its cross-cultural validity and using it to assess the relative degree of cognitive impairment manifested by presidential candidates during their campaign debates.

Computerizing the Scoring Process

One of the first hurdles in developing an automatic system of speech content analysis has been that a person (instead of a machine) has had to label each word in a speech transcript with the appropriate syntactical tag indicating how the word is used in a sentence. Without the use of an automated parser, several early and interesting attempts have been made to apply computer techniques to content analysis. Philip Stone and his colleagues have pioneered a large group of these studies and have developed computer programs capable of classifying content (the General Inquirer System) and of ordering these content categories with one another in interesting ways. Benjamin Colby has also successfully used a computer to perform content analysis of primitive folk tales from Eskimo, Japanese, and Ixilmaya cultures.

In the field of psychiatry and psychoanalysis, the attempts to use computerized methods to analyze content have been limited mostly to the analysis of various classes of words that manifestly denote certain psychological categories, such as love, anxiety,

hostility, intellectual processes, and so forth. Most of the automated content analysis projects have been based on single-word or single-phrase tag schemes. The shortcomings of these systems are mainly that they discard too much highly pertinent information. They fail to identify who did or felt what about whom. They throw away the meaningful classification of referents, such as “it,” “that,” “which,” “those,” “these,” and so forth. They ignore the scoring of emotionally charged words that, out of context, cannot be properly classified, such as, “get” as in “I'll get you” or “bucket” as in “He kicked the bucket.” They entirely miss the meaning of idiomatic or colloquial expressions, as in the latter examples.

The goal we set was to develop computer software that was able to understand grammar and syntax, that could parse natural language, and that could be taught to understand idioms and slang. Collaborating with two computer scientists, Gottschalk joined Hausmann and Brown, and using a PDP-10 computer, demonstrated that the Gottschalk-Gleser Hostility Outward scale could be successfully machine-scored from typescripts of speech (Gottschalk, Hausmann & Brown, 1975). They used a parser, namely Wood's Augmented Transition Network parser that was translated into UCI LISP, and they modified this software to run on a PDP-10. They changed its grammar to cover certain linguistic constructions that frequently occur in spoken discourse. In addition, a small dictionary of several hundred entries was created which could be maintained in the computer core. Since the Gottschalk-Gleser content analysis method derives a score on the basis of the action verb in a clause in conjunction with noun-phrases that function as actors and recipients of this action, a technique was developed for assigning meaning to each of these constituents. Verbs were assigned semantic features called "verb-types" based on the thematic categories and their weights on the Gottschalk-Gleser Hostility Outward scale. In initial testing of this automated method on 100 sentences taken at random from the Manual of Instructions for Using the Gottschalk-Gleser Content Analysis Scale, 60% were correctly recognized, parsed, and scored. The typescripts of six five-minute speech samples were also scored for hostility outward by expert human content analysis technicians, and these scores correlated 0.80 (by a Spearman rank difference method) with the scores obtained by the computerized method. This result was considered equal to the lowest level criterion for acceptable human intercoder reliability in scoring the Gottschalk-Cleser Content Analysis scales. But the computer scoring missed many codable categories readily recognized by human scoring.

In 1982 Gottschalk and Bechtel reported research in which they developed a computerized method of scoring the Gottschalk-Gleser Anxiety scale. The computer software used was again written in UCI LISP, running on a mainframe-class computer. Whereas the average computer-derived anxiety score from 25 five minute speech samples was significantly lower than the average anxiety score obtained by human scoring, the intercorrelations between the two sets of anxiety scores was highly significant for total anxiety scores ($r=0.85$, $p<.0001$). The intercorrelations for the six anxiety subscale scores ranged from 0.58 (for shame anxiety) to 0.92 (for mutilation anxiety).

A more recent report by Gottschalk and Bechtel (1989), applying an improved PC-based program to the problem, demonstrated much improved results with respect to

the computer's ability to recognize scorable clauses applicable to both the Gottschalk-Gleser Anxiety and three Hostility scales. Interscorer reliability between automated and human scoring was in the range of 0.80 and above for total scores and most subscale scores.

Further research by Gottschalk and Bechtel (1995) resulted in the development of PCAD 2000, a commercial version of the content analysis scoring software. PCAD 2000 demonstrated significant improvement in precision, speed of scoring, and the capacity to code serially long sequences of speech samples from computer files. Not only did PCAD 2000 do a reliable job of scoring the Gottschalk-Gleser Anxiety and Hostility scales, but it also derived scores on the Social Alienation-Personal Disorganization, Cognitive Impairment, Depression, and Hope Scales. Using PCAD 2000, a user could obtain a printout of the scores for each clause, a count of the total number of words spoken in the verbal sample, raw and corrected scores for every scale and subscale, and comparisons of the scores with norms for children and adults, males and females..

Optionally, PCAD 2000 also provided an explanation of the significance and clinical implications of the derived scores, a summary of the strengths and limitations of this content analysis method, and possible clinical diagnostic classifications (derived from DSM-IV developed by the American Psychiatric Association) that the test user might consider.

PCAD3 further extends the computer-based scoring approach, adding the (still experimental) Narcissistic scale, updating the user interface to provide greater flexibility and ease of use, and addressing performance issues raised by users and internal testing.

Methods of Collecting Samples

Almost any method of collecting language samples can be used with PCAD. The utility, validity, and reliability of a collection technique are beyond the control of the program. However, the user must be aware that, as with any other computer program, the quality of the output from PCAD is determined by the quality of the input, and care should be taken to ensure that verbal transcriptions are accurate and complete, that subject selection (where appropriate) satisfies the standards of good experimental design, and that any potential bias in the elicitation instructions is clearly recorded along with the verbal sample. In particular, users should be aware that PCAD results cannot be considered reliable on input samples shorter than about 85-90 words, and that the reliability and accuracy of the system improves with the length of the sample.

For research involving spoken language, the verbal behavior can be elicited in many different ways, depending on the research purposes and design of the study. The content of psychotherapeutic interviews can be analyzed: an individual can be asked to report their feelings and attitudes towards another person or person (Keating & Gottschalk, 1994), the speaker may be asked to relate their angry or anxious experiences or the speaker may be asked to report dreams.

"Standard Procedure"

One of the most useful ways of eliciting speech samples involves a procedure that enables the clinician or researcher to compare the content analysis scores obtained from the same individual at different times or across persons. This method also has available norms for children and adults, males and females. This approach elicits speech samples by using purposely ambiguous standardized instructions simulating a projective test situations as follows: "This is a study of speaking and conversation habits. I would like you to talk for five minutes about any personal interesting or dramatic life experiences you have ever had. If you finish telling about one life event, you can continue on telling about another one until the five minutes is over. While you are talking I would prefer not to reply to any questions you have until the five minutes is over. If you have any questions now, I will be happy to response to them now." The subject may possibly respond that he does not know what will be "interesting or dramatic" to the interviewer, and the interviewer can respond to this in a noncommittal fashion by saying he does not have to be concerned about what might be "interesting or dramatic" to the interviewer, but only what he finds "interesting or dramatic." Although speakers, on the average, produce around 500 words in five minutes, some speakers are unable to produce this quantity. As mentioned earlier, a verbal sample of 85-90 words has been demonstrated to be a reliable sample.

Users should note that since this neutral probe and five-minute sample protocol was used to elicit the samples that form the basis for the scoring norms, comparisons to the norms may not be valid for samples collected using a different collection protocol.

Transcriptions not Using Standard Procedure

Any form of English language verbal behavior that can be transcribed can be scored by PCAD. Caution should be taken in interpreting the results, especially in relying on comparisons to norms. However, research has been reported on material gathered from such diverse sources as psychotherapeutic interviews and presidential debates (Gottschalk, Uliana & Gilbert, 1988).

Written Text

PCAD can be applied equally readily to written as well as spoken verbalizations**.** In the seminal book on the Gottschalk-Gleser method of measuring psychological states and traits, mention was made of this broad applicability (Gottschalk and Gleser, 1969, pp. 256-257), although the method has been much more widely applied to typescripts of verbal communications than to archival, textual, or handwritten language. Some work has been done and reported in the literature, such as analysis of suicide notes (Gottschalk & Gleser 1960) and the writings of the Unabomber (Gottschalk & Gottschalk, 1999). Users need to design their collection protocols carefully, especially when using "found" materials not produced in response to a specific request. We anticipate that this method will be used more widely by historians, journalists, and social scientists since its introduction at an interdisciplinary workshop recently at Carnegie Mellon University, Pittsburgh, Pennsylvania, August 28-29, 1993 from which a book was published (Carl W. Roberts, Ed. *Text Analysis for the Social Sciences*, 1997).

Preparing Samples for Scoring

Historically, most samples to be scored using the Gottschalk-Gleser method have been written transcriptions of spoken verbal behavior, captured originally on audio recording tape. Over the years, a number of standard practices have developed to ensure that the transcription process is accurate and complete. With the introduction of computerized scoring techniques, additional requirements have been placed on the input format to avoid incorrect interpretation by the computer software. The suggestions and requirements provided in this section apply to the machine-readable text provided as input to PCAD, regardless of whether that text originated as spoken or written. Careful review of this section, and thoughtful application of its guidance will result in fewer difficulties in use of PCAD, and fewer anomalous results.

Machine-Readability

File Format

After recording a verbal sample, the first step in preparing the sample for scoring is to transcribe the sample – that is, to write down what the subject said. Since this transcription must be in a form that can be read by the machine, it will usually be prepared in a word processor or a text editor. PCAD3 does provide a limited text entry capability, but users are welcome to rely on existing editing tools that they have available.

Many different word-processing and text-editing programs are available, such as Microsoft Word. To support advanced features such as fonts, alternate printers, document formatting and the like, these programs typically insert "hidden" information into text files. This “hidden” information tells the word-processing program how to display text on the screen and how to print it when requested. Unfortunately, the “hidden” information can confuse the scoring program and cause it to assign incorrect scores or even (in extreme cases) cause it to cease functioning. To avoid the problem caused by hidden codes, sample files should be created in “ASCII” or “TEXT” form whenever possible. Most, if not all, word processing programs have this as an option. Microsoft Word has format options (such as "text only") under the Save As... command. In some cases, files without hidden commands may be created by "printing" the sample file into a disk file instead of to the printer. Finally, some word processors come with conversion programs that are used outside the word processor to change the format of files.

Microsoft Windows offers some "built-in" editor capability in a utility called "Notepad." Files created using Notepad cannot be more than about 30,000 characters long, but this is rarely a problem for a single verbal sample. By default, Notebook stores its files in text format, which is appropriate for input to PCAD.

Storing Samples

Samples may be stored on any medium that is readable by the computer where PCAD is running. Typically, this includes the primary drive, and may also include

network accessible drives or "cloud" services like Dropbox. So long as the storage medium is available to be read through a standard Windows File Open dialog, samples may be stored there.

PCAD will place any machine-readable output in the same directory as the sample. Since scoring transcripts, for example, tend to be much larger than the sample that generates them, care should be taken when using low-capacity media such as diskettes as a source and destination.

GB Software strongly recommends that all PCAD users follow good computing practice by carefully backing up all critical data (such as input samples) on a regular basis to a location that can be stored separately from the subject computer.

Naming Samples

You may give any name you wish to your sample files (within the limits imposed by Windows). However, PCAD begins by assuming that sample file names end in ".SAM", and it will ordinarily only show files with that extension in the **File Open** dialog box. For this reason, GB Software strongly recommends that you select names that end in .SAM, such as "SAMPLE01.SAM", etc.

Transcription Issues

Listening to and Typing the Tape-Recorded Speech Sample

Since the typed audio transcript of the verbal sample is of primary significance in verbal behavior research, its accuracy is of extreme importance to the reliability and validity of the results. In the process of typing a recorded speech sample, for a number of reasons there may be words that cannot be heard clearly.

1. Remove the earphones and attempt to distinguish words by playing the sound directly to the room at large.
2. Vary the volume. Words sometimes become more easily distinguishable at a lower or higher volume.
3. Use a second person to listen.
4. When all else fails, do not guess. Try to determine how many words are being omitted. Indicate the approximate number of words omitted in parentheses at the appropriate point in the transcript.
5. Ask the person who took the verbal sample for assistance. Especially if the word or phrase is difficult to perceive because of the use of unusual names or words, or odd sentence construction, the person who obtained the verbal sample can frequently be helpful.
6. While in rough draft form, the verbal sample may be relistened to by an independent observer to check its accuracy. This step is especially crucial for those verbal samples where many nonverbal vocalizations have been used or where there has been difficulty with indistinct words..

The Coding Unit

The unit to be coded is the clause, whether independent or dependent. Subordinate or dependent clauses are ordinarily those related to the primary clauses by such words as "because," "since," "when," "which," "who," or "that." GB Software has found inaccurate clausing to be the primary cause of user problem reports. For this reason, the current version of PCAD will determine clause boundaries automatically, without requiring special preparation by the user.

Dependent clauses may be scored whether they are classified as adverbial, adjectival, or noun clauses. It should be noted that a phrase serving to make for a multiple predicate or a multiple subject or object is not considered as a series of separate clauses. Where such phrases contain different scorable ideas, the rule usually followed is to assign the score that indicates the greatest intensity. Instances where the subject or the predicate is omitted but is understood are considered as scorable clauses. On those occasions where one must make a decision as the whether there is a missing but understood (elliptical) subject or predicate or whether a phrase is part of a multiple subject or predicate, differences of opinion can certainly arise. Often, these controversies cannot be simply resolved by consultation with grammarians or English professors, for grammatical rules themselves may permit several alternative solutions to such issues. In any event, unpublished studies performed by GB Software indicate that slight differences in determining clauses arising from such ambiguities make a relatively small contribution to error variance in the overall score.

PCAD treats normal sentence-ending punctuation (the period, question mark, and exclamation mark) as end-of-clause. It also treats the forward slash character ("/") as an end-of-clause marker. Although the current version of PCAD determines clause boundaries automatically, it is still possible to manually indicate boundaries. This is primarily offered to support backward compatibility with samples prepared for earlier versions of PCAD. To indicate clause boundaries that do not fall at the end of a sentence, insert a forward slash in the transcript. For example

```
I lived with my mother, father, and this brother / before
we moved sort of in the country / where we had a large
plot of land / that our house was on.
```

Because PCAD already recognizes sentence-ending punctuation, it is not necessary to add a forward slash at the end of a sentence.

Special Material within Samples

Sometimes, material within a sample needs to be treated specially. There are currently two such special situations: (a) material which should be ignored, and (b) material which provides "hints" to the scoring system.

(a) Material to ignore. The original sample collection protocol was built around uninterrupted verbal samples with a target length of about five minutes. Since those early days, the Scales have been used with a variety of collection techniques, including interviews, dialogs, and group discussions. Scoring the utterances of a single speaker

from a literal transcription of such multiple-speaker activities can be difficult, because the non-relevant material must be deleted or otherwise ignored. To make these types of investigations easier, the computerized system permits portions of samples to be marked as "invisible." The material is then read and copied to any scoring log without being scored.

To have the system ignore material within a sample, enclose the material to be ignored within braces ({}). For example, `I don't know what to say. {Tell me about some interesting experience you have had.} Well, I went hang-gliding once.`

In this example, the first and third sentences would be scored, and the second would be ignored.

The capability to flag material as "invisible" to scoring also provides a means for investigators to place notes or comments into transcripts to draw attention to specific clauses or areas of the sample, or to record relevant non-verbal information that needs to be correlated with the verbal sample.

(b) Hints to the system. Some scoring categories are extremely difficult to automate. For example, determining that an utterance is "bizarre" or "nonsensical" (as required by the IIIA subscale of the Social Alienation/Personal Disorganization scale) is beyond the capabilities of the automated system. People, however, are generally good at making such determinations, even if they have not been formally trained as scorers. To exploit this role reversal, the system understands a limited set of annotations in samples and will translate those annotations directly into scores that it is unlikely to assign on its own.

All scoring "hints" are enclosed in square brackets ([]). Currently, scoring hints are used only on the Social Alienation-Personal Disorganization (SAPD) and Cognitive Impairment (CogImp) scales. The currently recognized hints and their assigned scores are:

Hint	SAPD Score	CogImp Score
[UNINTELLIGIBLE]	IIIA1	none
[MISSING]	IIIA1	none
[INCOMPLETE]	IIIA2	IIIA2
[BIZARRE]	IIIA3	none
[ILLOGICAL]	IIIA3	none

Case is not significant in hints. Additional text may appear within the square brackets, following the hint word. For example, [missing 4 words].

Other Details Involving Preparation of the Verbal Sample

- **Partial words and stutters**. Words such as “um” and “er” and “ah” are counted by the program, but then ignored for scoring.
- **Non-verbal sounds**. It is not necessary to type, for example, "(laughs)" or "(cries)" in samples to indicate non-verbal sounds. Such entries are not scorable and can bias the system. If you wish to include them, please set them off with braces {} as indicated in the preceding section.
- **Pauses**. It is not necessary to type "(pause)" or "(long pause)" to indicate gaps in verbal production. As with non-verbal sounds, please enclose them in braces if present.
- **Unclear words**. See the preceding section, Special Material within Samples, if the material is completely unintelligible.
- **Word count**. It is not necessary to count the number of words per verbal sample. The scoring program counts words and reports that count in the output record.
- **Ellipses**. As described earlier, PCAD identifies clause and sentence boundaries by looking for punctuation characters, including period (.), question mark (?), exclamation mark (!), and forward slash (/ -- for intra-sentence clause boundaries). Because these characters have special meaning, the use of ellipses (...) can confuse the program and should be avoided. Similarly, marking an end-of-sentence clause boundary with both a sentential punctuation mark (.?!) and a slash (as in "./" or "/?") should be avoided.
- **Abbreviations**. For the same punctuation-recognition reasons, occasional inaccuracies in recognizing abbreviations can occur. While these are usually minor, they can be avoided altogether by spelling out all abbreviated material.
- **The number 1**. For historical reasons, many typists are accustomed to using a lower case letter “l” to indicate the numeral “1”, as, for example, in “l990”. The scoring program distinguishes clearly between the two characters, and will not interpret a lower case “l” as the numeral “1”. Since the scoring program converts all numerals to text word equivalents, the use of “l” in place of “1” should be avoided if possible.
- **Whitespace**. Whitespace is a term used to refer to blank characters, sequences of blanks, tabs, carriage returns, and page breaks, all of which affect the positioning of text on a page or screen, but which are not themselves visible. In general, the scoring program treats all whitespace identically. Thus, multiple spaces are the same as a single space. Indentation, page boundaries, and similar positioning which may be of assistance to the person preparing the sample are ignored by the program, and will not (usually) be reflected in the output report.
- **“Funny” characters**. Personal computers and word processing software are often capable of producing glyphs outside the normal range of text and punctuation (e.g. smiley faces, musical notes, line drawing characters). In general, the scoring program ignores such characters if they are present. However, unexpected and unusual combinations of such “funny” characters can cause problems, including unexpected program termination. Whenever possible, do not use characters outside the normal text, number, and punctuation range.

- **Spell checking**. Since the scoring program assumes correct spelling in the sample file, incorrect results may occur if words in the sample are misspelled. Most word processing programs come with a spell-checking option, and we advise that you use it to minimize problems with unknown and misspelled words.

Providing Information about the Subject

In addition to the verbal sample transcripts themselves, the sample file may contain identifying data such as the name (or other identification) of the speaker, the date that the sample was obtained and by whom. The computer program looks at a certain character sequence in the file to determine sample boundaries and to distinguish between sample content and information which identifies the samples.

The special character sequence is ten or more equal signs in a row at the start of a line, for example, ==========. The program starts reading a sample file assuming that there is only scorable content in the file. It scores all of the input as a single sample until it encounters the end of the file or a line of equal signs as described above.

When the scoring program sees a line of equal signs, it stops scoring, assumes that the current sample (if any) is completed, and produces a summary report about that sample. It further assumes that the input is now identifying material which should be copied to the output record file, but which should not be scored. The program reads from the input, copying to the output, until it either encounters the end of the file or a second line of equal signs as described earlier.

In addition to simply copying the inter-sample information to the output record file (if any), PCAD also watches for the occurrence of special keywords that indicate the presence of useful information about the subject who provided the next (upcoming) sample. This information is used to guide the selection of norms for score comparisons. Each keyword is immediately followed by the value of that attribute for the next subject. The currently defined keywords and their expected following values are:

Keyword	Value
Subject	Name of subject or study
Age	Subject age in years
Gender	Female or Male
Ethnicity	White, African-American, Native American, Hispanic, Asian
Education	Number as follows: 1 Some grade school 2 Finished grade school 3 Some high school 4 Finished high school 5 Some college 6 Finished college 7 Graduate/professional school

A second line of equal signs signals the program that the identifying information is complete and that scoring should resume. The program returns to its scoring state and scores until end of file or a line of equal signs are encountered. The process continues alternating between scoring and copying identifying information until the end of the file is reached.

The lines of equal signs must be placed in the file by the sample file preparer. Remember that the sequences of equal signs must be at least ten characters long, and that they must start at the beginning of a line. In general, it is good practice to place a blank line before the line of equal signs to be sure that they are actually at the start of a line in case margin changes shift text locations in your word processor.

PCAD3 allows a user to directly input sample text through the program. In such cases, the values of inter-sample information may be provided by using the data fields above the text area in the main PCAD window.

Multiple Samples in a Single File

Sample files may contain transcripts of more than one verbal sample. Using the method described in the preceding section to mark the end and beginning of a sample (lines of equal signs), a user may place several samples into a single file. These samples can be taken from the same subject or different subjects – each is treated independently. This feature is offered only as a convenience, to enable a batch of samples to be scored in a single session.

To illustrate this concept, here is a (very brief) example of a multi-sample file. The file text runs down the left side of the page with comments (which are NOT part of the file) to the right.

```
====================================        Flag "end of sample".
Subject: Adolfo                             Non-scorable material
Age: 25                                      describing following
Gender: Female                               sample.
====================================        Switch back to new
I don't know what to say.  I'm happy to help  sample.
with this study, but I don't know what to   Sample 1 text.
talk about.  Thank you for the chance.

====================================        Flag "end of sample".
Subject: Adolfo                             Non-scorable
Age: 42                                      descriptive
Gender: Male                                 material.
====================================        Start second sample.
I enjoy doing this. I'm a willing volunteer, Sample 2 text.
though I've run out of interesting things to
talk about.  I told you about my divorce and
suicide attempts, but that's all behind me now.
====================================        End sample 2.
```

There is a limit to the number of samples that PCAD will handle in a single file. This limit is determined by the total number of words in the file, and so will vary with the size of the samples. We currently recommend that multiple-sample files contain no more than ten separate samples, though we have successfully handled files with up to fifty separate samples. If an error is received because a multiple-sample file is too long, try removing samples to shorten it.

Major Errors

Recognizing Errors

Although GB Software has taken careful steps to reduce or completely eliminate errors, experience indicates that complex software like PCAD is likely to fail to perform in accordance with expectations from time to time. Wherever possible, we have tried to anticipate ways in which the system could do something unexpected, and have placed error warnings and recovery in those locations so that an overall user session will not be affected.

There remains a slight possibility of some sort of severe fault that our extensive analysis and testing has failed to uncover.

Reporting Errors

Should you encounter such a window in your use of PCAD, please

1. Write down the name of the file you were scoring, and (as best you can) where in the scoring process you had reached.
2. Write down the message in the error notification window.
3. Click on the **Abort** or **Exit** button. If PCAD continues to be available, please select **Exit** from the **File** menu to leave PCAD, since the internal state may be compromised. You should be able to restart PCAD and use it normally for other tasks, and perhaps even for the task you were doing when the problem arose.
4. Send the information about what happened to GB Software (support@gb-software.com), along with what you were trying to do and what the error message said. If possible, include the file you were scoring as an email attachment, to allow us to attempt to recreate the error.

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Appendix A: Scales Available in PCAD3

Definitions of the Gottschalk-Gleser content analysis scales available for computer scoring are given on the following pages. Scale definitions and weights for the Anxiety Scale, Hostility Scales, Social Alienation-Personal Disorganization Scale, Human Relations Scale, Dependency Strivings Scale, and Health/Sickness Scale are taken from *The Measurement of Psychological States Through the Content Analysis of Verbal Behavior*, by Louis A. Gottschalk and Goldine C. Gleser (University of California Press, 1969). The Hope Scale is taken from Louis A. Gottschalk, "A hope scale applicable to verbal samples," *Archives of General Psychiatry*, 30, 779-785, 1974. The Depression Scale is taken from Louis A. Gottschalk and Julia Hoigaard, "A depression scale applicable to verbal samples," *Psychiatry Research*, 17, 312-227, 1986. The Cognitive Impairment Scale is taken from Louis A. Gottschalk, "The development, validation, and applications of a measurement of cognitive impairment from the content analysis of verbal behavior." *Journal of Clinical Psychology*, 50, 349-361, 1994. The Achievement Strivings Scale given here is a modification of that given in Gottschalk & Gleser, 1969, as updated by Louis A. Gottschalk in his work at GB Software in 2000.

Anxiety Scale

1. Death anxiety -- references to death, dying, threat of death, or anxiety about death experienced by or occurring to:

    a. self (3).
    b. animate others (2).
    c. inanimate objects (1).
    d. denial of death anxiety (1).

2. Mutilation (castration) anxiety -- references to injury, tissue or physical damage, or anxiety about injury or threat of such experienced by or occurring to:

    a. self (3).
    b. animate others (2).
    c. inanimate objects destroyed (1).
    d. denial (1).

3. Separation anxiety -- references to desertion, abandonment, ostracism, loss of support, falling, loss of love or love object, or threat of such experienced by or occurring to:

    a. self (3).
    b. animate others (2).
    c. inanimate objects (1).
    d. denial (1).

4. Guilt anxiety -- references to adverse criticism, abuse, condemnation, moral disapproval, guilt, or threat of such experienced by:

    a. self (3).
    b. animate others (2).
    d. denial (1).

5. Shame anxiety -- references to ridicule, inadequacy, shame, embarrassment, humiliation, overexposure of deficiencies or private details, or threat of such experienced by:

    a. self (3).
    b. animate others (2).
    d. denial (1).

6. Diffuse or nonspecific anxiety -- references by word or phrase to anxiety and/or fear without distinguishing type or source of anxiety:

    a. self (3).
    b. animate others (2).
    d. denial (1).

Hostility Directed Outward Scale: Destructive, Injurious, Critical Thoughts and Actions Directed to Others

	(I) Hostility Outward -- Overt Thematic Categories		(II) Hostility Outward -- Covert Thematic Categories
a3	Self killing, fighting, injuring other individuals or threatening to do so.	a3	Others (human) killing, fighting, injuring other individuals or threatening to do so.
b3	Self robbing or abandoning other individuals, causing suffering or anguish to others, or threatening to do so.	b3	Others (human) robbing or abandoning, causing suffering or anguish to other individuals, or threatening to do so.
c3	Self adversely criticizing, depreciating, blaming, expressing anger, dislike of other human beings.	c3	Others adversely criticizing, depreciating, blaming, expressing anger, dislike of other human beings.
a2	Self killing, injuring or destroying domestic animals, pets, or threatening to do so.	a2	Others (human) killing, injuring or destroying domestic animals, pets, or threatening to do so.
b2	Self abandoning, robbing, domestic animals, pets, or threatening to do so.	b2	Others (human) abandoning, robbing, domestic animals, pets, or threatening to do so.
c2	Self criticizing or depreciating others in a vague or mild manner.	c2	Others (human) criticizing or depreciating other individuals in a vague or mild manner.
d2	Self depriving or disappointing other human beings.	d2	Others (human) depriving or disappointing other human beings.
		e2	Others (human or domestic animals) dying or killed violently in death-dealing situation or threatened with such.
		f2	Bodies (human or domestic animals) mutilated, depreciated, defiled.
a1	Self killing, injuring, destroying, robbing wildlife, flora, inanimate objects or threatening to do so.	a1	Wildlife, flora, inanimate objects, injured, broken, robbed, destroyed or threatened with such (with or without mention of agent).
b1	Self adversely criticizing, depreciating, blaming, expresing anger or dislike of subhuman, inanimate objects, places, situations.	b1	Others (human) adversely criticizing, depreciating, blaming, expressing anger or dislike of subhuman, inanimate objects, places, situations.
c1	Self using hostile words, cursing, mention of anger or rage without referent.	c1	Others angry, cursing without reference to cause or direction of anger; also instruments of destruction not used threateningly.
		d1	Others (human, domestic animals) injured, robbed, dead, abandoned or threatened with such from any source including subhuman and inanimate objects, situations (storms, floods, etc.).
		e1	Subhumans killing, fighting, injuring, robbing, destroying each other or threatening to do so.
		f1	Denial of anger, dislike, hatred, cruelty, and intent to harm.

Hostility Directed Inward Scale: Self-Destructive, Self-Critical Thoughts and Actions

I. Hostility Inward

	Thematic Categories
a4	References to self (speaker) attempting or threatening to kill self, with or without conscious intent.
b4	References to self wanting to die, needing or deserving to die.
a3	References to self injuring, mutilating, disfiguring self or threats to do so, with or without conscious intent.
b3	Self blaming, expressing anger or hatred to self, considering self worthless or of no value, causing oneself grief or trouble, or threatening to do so.
c3	References to feelings of discouragement, giving up hope, despairing, feeling grieved or depressed, having no purpose in life.
a2	References to self needing or deserving punishment, paying for one's sins, needing to atone or do penance.
b2	Self adversely criticizing, depreciating self; references to regretting, being sorry or ashamed for what one says or does; references to self mistaken or in error.
c2	References to feelings of deprivation, disappointment, lonesomeness.
a1	References to feeling disappointed in self; unable to meet expectations of self or others.
b1	Denial of anger, dislike, hatred, blame, destructive impulses from self to self.
c1	References to feeling painfully driven or obliged to meet one's own expectations and standards.

Ambivalent Hostility Scale: Destructive, Injurious, Critical Thoughts and Actions of Others to Self

II. Ambivalent Hostility

	Thematic Categories
a3	Others (human) killing or threatening to kill self.
b3	Others (human) physically injuring, mutilating, disfiguring self or threatening to do so.
c3	Others (human) adversely criticizing, blaming, expressing anger or dislike toward self or threatening to do so.
d3	Others (human) abandoning, robbing self, causing suffering, anguish, or threatening to do so.
a2	Others (human) depriving, disappointing, misunderstanding self or threatening to do so.
b2	Self threatened with death from subhuman or inanimate object, or death-dealing situation.
a1	Others (subhuman, inanimate, or situation) injuring, abandoning, robbing self, causing suffering, anguish.
b1	Denial of blame.

Content Analysis Scale of (Schizophrenic) Social Alienation and Personal Disorganization

Scores (Weights)	Categories and Scoring Symbols
	I. Interpersonal references (including fauna and flora).
	A. To thoughts, feelings or reported actions of avoidance, leaving, deserting, spurning, not understanding of others.
0	1. Self avoiding others.
+1	2. Others avoiding self.
	B. To unfriendly, hostile, destructive thoughts, feelings, or actions.
+1	1. Self unfriendly to others.
$+^{1}/_{3}$	2. Others unfriendly to self.
	C. To congenial and constructive thoughts, feelings, or actions.
-2	1. Others helping, being friendly toward others.
-2	2. Self helping, being friendly toward others.
-2	3. Others helping, being friendly towards self.
	D. To others (including fauna, flora, things and places).
0	1. Bad, dangerous, low value or worth, strange, ill, malfunctioning.
-1	2. Intact, satisfied, healthy, well.
	II. Intrapersonal references.
	A. To disorientation-orientation, past, present, or future. (Do not include all references to time, place, or person, but only those in which it is reasonably clear the subject is trying to orient himself or is expressing disorientation with respect to these. Also, do not score more than one item per clause under this category.)
+2	1. Indicating disorientation for time, place, or person or other distortion of reality.
0	2. Indicating orientation in time, place, person.
0	3. Indicating attempts to identify time, place, or person without clearly revealing orientation or disorientation.
	B. To self.
0	1a. Physical illness, malfunctioning (references to illness or symptoms due primarily to cellular or tissue damage).
+1	1b. Psychological malfunctioning (references to illness or symptoms due primarily to emotions or psychological reactions *not secondary* to cellular or tissue damage.
0	1c. Malfunctioning of indeterminate origin (references to illness or symptoms not definitely attributable either to emotions or cellular damage).
-2	2. Getting better.
-1	3a. Intact, satisfied, healthy, well; definite positive affect or valence indicated.
-1	3b. Intact, satisfied, healthy, well; flat, factual, or neutral attitudes expressed.
+½	4. Not being prepared or able to produce, perform, act, not knowing, not sure.
+½	5. To being controlled, feeling controlled, wanting control, asking for control or permission, being obliged or having to do, think, or experience something.
+3	C. Denial of feelings, attitudes, or mental state of the self.
	D. To food.
0	1. Bad, dangerous, unpleasant or otherwise negative; interferences or delays in eating; too much and wish to have less; too little and wish to have more.
0	2. Good or neutral.

Scores (Weights)	Categories and Scoring Symbols
	E. To weather.
-1	1. Bad, dangerous, unpleasant or otherwise negative (not sunny, not clear, uncomfortable, etc.).
-1	2. Good, pleasant or neutral.
	F. To sleep.
0	1. Bad, dangerous, unpleasant or otherwise negative; too much, too little.
0	2. Good, pleasant or neutral.
	III. Miscellaneous.
	A. Signs of disorganization.
+1	1. Remarks or words that are not understandable or inaudible.
0	2. Incomplete sentences, clauses, phrases; blocking.
+2	3. Obviously erroneous or fallacious remarks or conclusions; illogical or bizarre statements.
	B. Repetition of ideas in sequence.
0	1. Words separated only by a word (excluding instances due to grammatical and syntactical convention, where words are repeated, e.g., "as far as," "by and by," and so forth. Also, excluding instances where such words as "I" and "the" are separated by a word).
+1	2. Phrases, clauses (separated only by a phrase or clause).
	IV. References to the interviewer.
+1	A. Questions directed to the interviewer.
+½	B. Other references to the interviewer.
+1	V. Religious and biblical references.

Cognitive and Intellectual Impairment Scale

Scores (Weights)	Categories and Scoring Symbols
	I. Interpersonal References (including fauna and flora).
	B. To unfriendly, hostile, destructive thoughts, feelings, or actions.
-½	1. Self unfriendly to others.
	C. To congenial and constructive thoughts, feelings, or actions.
-½	1. Others helping, being friendly toward others.
-½	2. Self helping, being friendly toward others.
-½	3. Others helping, being friendly towards self.
	II. Intrapersonal references.
+3	A. To disorientation-orientation, past, present, or future. (Do not include all references to time, place, or person, but only those in which it is reasonably clear the subject is trying to orient himself or is expressing disorientation with respect to these. Also, do not score more than one item per clause under this category.)
	B. To self.
-½	1. Injured, ailing, deprived, malfunctioning, getting worse, bad, dangerous, low value or worth, strange.
+¼	3. Intact, satisfied, healthy, well.
+1	5. To being controlled, feeling controlled, wanting control, asking for control or permission, being obliged or having to do, think, or experience something.
+1	C. Denial of feelings, attitudes, or mental state of the self.
	D. To food.
-1	2. Good or neutral.
	III. Miscellaneous.
	A. Signs of disorganization.
+1	2. Incomplete sentences, clauses, phrases; blocking.
	B. Repetition of ideas in sequence.
+1	2. Phrases, clauses (separated only by a phrase or clause).
	IV. References to the interviewer.
+½	A. Questions directed to the interviewer.

"Hope" Scale

Weights	Symbols	Content Categories
+1	H1	References to self or others getting or receiving help, advice, support, sustenance, confidence, esteem (a) from others; (b) from self.
+1	H2	References to feelings of optimism about the present or future (a) others; (b) self.
+1	H3	References to being or wanting to be or seeking to be the recipient of good fortune, good luck, God's favor or blessing (a) others; (b) self.
+1	H4	References to any kinds of hopes that lead to a constructive outcome, to survival, to longevity, to smooth-going interpersonal relationships (this category can be scored only if the word "hope" or "wish" or a close synonym is used).
-1	H5	References to not being or not wanting to be or not seeking to be the recipient of good fortune, good luck, God's favor or blessing.
-1	H6	References to self or others not getting or receiving help, advice, support, sustenance, confidence, esteem (a) from others; (b) from self.
-1	H7	References to feelings of hopelessness, losing hope, despair, lack of confidence, lack of ambition, lack of interest; feelings of pessimism, discouragement (a) others; (b) self.

Depression Scale

Weights	Content Categories and Scoring Symbols
	I. Hopelessness.
1	1. References to not being or not wanting to be or not seeking to be the recipient of good fortune, good luck, God's favor or blessing.
1	2. References to self or others not getting or receiving help, advice, support, sustenance, confidence, esteem (a) from others; (b) from self.
1	3. References to feelings of hopelessness, losing hope, despair, lack of confidence, lack of ambition, lack of interest; feelings of pessimism, discouragement (a) others; (b) self.
	II. Self-accusation
	A. Guilt depression. References to adverse criticism, abuse, condemnation, moral disapproval, guilt, or threat of such experienced by:
3	a. Self
2	b. Others
1	c. Denial
	B. Shame depression. References to ridicule, inadequacy, shame, embarrassment, humiliation, overexposure of deficiencies or private details, or threat of such experienced by:
3	a. Self
2	b. Others
1	c. Denial
	C. Hostility directed inward
4	1a. References to self attempting or threatening to kill self, with or without conscious intent.
4	1b. References to self wanting to die, needing or deserving to die.
3	2a. References to injuring, mutilating, disfiguring self or threats to do so, with or without conscious intent.
3	2b. Self-blaming, expressing anger or hatred to self, considering self worthless or of no value, causing oneself grief or trouble, or threatening to do so.
2	3a. References to self needing or deserving punishment, paying for one's sins, needing to atone or do penance.
2	3b. Adversely criticizing, depreciating self; references to regretting, being sorry or ashamed for what one says or does; references to self mistaken or in error.
2	3c. References to feelings of deprivation, disappointment, lonesomeness.
1	4a. References to feeling disappointed in self; unable to meet expectations of self or others.
1	4b. Denial of anger, dislike, hatred, blame, destructive impulses from self to self.
1	4c. References to feeling painfully driven or obliged to meet one's own expectations and standards.
1	III. Psychomotor retardation. References to general retardation and slowing down in thinking, feeling, or action.

Weights	Content Categories and Scoring Symbols
	IV. Somatic concerns.
1	A. Hypochondriacal component. References to bodily malfunctioning or physical problems in total body or any parts or systems.
1	B. Sleep disturbances. References to any disturbances in sleeping.
1	C. Sexual disturbances. References to sexual malfunctioning of any kind, including menstrual disturbances or complaints.
1	D. Gastrointestinal disturbances. References to appetite disturbances, changes in bowel habits, abdominal discomforts.
1	E. General somatic symptoms, including heaviness in limbs, back, or head, backaches, headaches, muscle aches, loss of energy, fatigibility, and loss of weight.
	V. Death and mutilation depression.
	A. Death depression. References to death, dying, threat of death, or anxiety about death experienced by or occurring to:
3	a. Self.
2	b. Animate others.
1	c. Inanimate objects.
1	d. Denial of death anxiety.
	B. Mutilation depression. References to injury, tissue or physical damage, or anxiety about injury or threat of such experienced by or occurring to:
3	a. Self.
2	b. Animate others.
1	c. Inanimate objects destroyed.
1	d. Denial.
	VI. Separation depression. References to desertion, abandonment, ostracism, loss of support, falling, loss of love or love object, or threat of such experienced by or occurring to:
3	a. Self.
2	b. Animate others.
1	c. Inanimate objects.
1	d. Denial.
	VII. Hostility outward.
	A. Hostility outward -- overt.
3	1a. Self killing, fighting, injuring other individuals or threatening to do so.
3	1b. Self robbing or abandoning other individuals, causing suffering or anguish to others, or threatening to do so.
3	1c. Self adversely criticizing, depreciating, blaming, expressing anger, dislike of other human beings.
2	2a. Self killing, injuring or destroying domestic animals, pets, or threatening to do so.
2	2b. Self abandoning, robbing, domestic animals, pets, or threatening to do so.
2	2c. Self criticizing or depreciating others in a vague or mild manner.
2	2d. Self depriving or disappointing other human beings.
1	3a. Self killing, injuring, destroying, robbing wildlife, flora, inanimate objects or threatening to do so.
1	3b. Self adversely criticizing, depreciating, blaming, expressing anger or dislike of subhuman, inanimate objects, places, situations.
1	3c. Self using hostile words, cursing, mention of anger or rage without referent.

Weights		Content Categories and Scoring Symbols
	B.	Hostility outward -- covert.
3	1a.	Others (human) killing, fighting, injuring other individuals or threatening to do so.
3	1b.	Others (human) robbing or abandoning, causing suffering or anguish to other individuals, or threatening to do so.
3	1c.	Others adversely criticizing, depreciating, blaming, expressing anger, dislike of other human beings.
2	2a.	Others (human) killing, injuring or destroying domestic animals, pets, or threatening to do so.
2	2b.	Others (human) abandoning, robbing, domestic animals, pets, or threatening to do so.
2	2c.	Others (human) criticizing or depreciating other individuals in a vague or mild manner.
2	2d.	Others (human) depriving or disappointing other human beings.
2	2e.	Others (human or domestic animals) dying or killed violently in death-dealing situation or threatened with such.
2	2f.	Bodies (human or domestic animals) mutilated, depreciated, defiled.
1	3a.	Wildlife, flora, inanimate objects, injured, broken, robbed, destroyed or threatened with such (with or without mention of agent).
1	3b.	Others (human) adversely criticizing, depreciating, blaming, expresing anger or dislike of subhuman, inanimate objects, places, situations.
1	3c.	Others angry, cursing without reference to cause or direction of anger; also instruments of destruction not used threateningly.
1	3d.	Others (human, domestic animals) injured, robbed, dead, abandoned or threatened with such from any source including subhuman and inanimate objects, situations (storms, floods, etc.).
1	3e.	Subhumans killing, fighting, injuring, robbing, destroying each other or threatening to do so.
1	3f.	Denial of anger, dislike, hatred, cruelty, and intent to harm.

Human Relations Scale

Weights	Content Categories and Scoring Symbols
	A1. References to giving to, supporting, helping, or protecting others.
+2	a. Self to others -- specific.
+1	a'. Self to others -- references in which the giving etc. is inferential or the object is unspecified.
+1	b. Others giving to others or others receiving from and being taken care of by others.
	A2. References to warm, loving, congenial human relations or human relations in which a desire to be closer is expressed. The reference should be specific rather than inferred.
+2	a. Involving self or self and others.
+1	b. Involving others.
	A3. Concern for other people; references to missing others when they are away. References should be to specific others only.
+1	a. Self about others.
+1	b. Others about self.
+½	c. Others about others.
	A4. Praise or approval of others, indicating more than neutral relations but not conveying as much positive feeling or warmth as A2, above.
+1	a. Self to others.
+1	b. Others to self.
+½	c. Others to others.
	B1. References to manipulative relationships with other human beings. The reference should involve demanding someone do something largely in the service of one's own needs (exploitive) or deliberately making someone feel shame or guilt, e.g., by putting emphasis on how one is made to suffer.
-½	a. Self manipulating others.
-1	b. Others manipulating self.
-½	c. Others manipulating others.
	B2. Neutral: nonevaluative references to any kinds of human relations which specify the person(s) interacted with, but which do not specify the nature of the deeper involvement and which are not classified elsewhere. All references to sellf and others (e.g., we drove, we reached, we thought, etc.) not scorable elsewhere are coded B2a.
+¼	a. Self or self and others.
+¼	b. Others.
-½	B3. Neutral: nonevaluative references to any kinds of human relations, which are generalized, ambiguous as to person(s) interacted with and impersonal.
	C1. Explusive: references to competitive, hostile, depreciating, and smearing attitudes, impulses, actions.
-½	a. Self to others.
-1	b. Others to self.
-½	c. Others to others.
	C2. Retentive: references to withholding affection, interest, approval or attention from people; references to disapproval.
-1	a. Self from others.
-1	b. Others from self.
-½	c. Others from others.
	C3. Distancing: reference in which people are alienated, drawn apart, kept at a distance from one another.
-1	a. Focus on self.
-½	b. Focus on others.

Weights	Content Categories and Scoring Symbols
	D1. Optimism: references to self receiving from, getting from, being taken care of by other people in gratifying and positive ways; interest in other people based on what they can do for oneself; asking others for help; emphasis on the self as the recipient of nurturance and sustenance.
+2	a. Self receiving from others.
	D2. Pessimism: references to frustration in being taken care of or to poor or inadequate protection, support, or care.
-½	a. Self.
-½	b. Others.
	D3. Separation: any reference to separation, loss, death, not scored elsewhere.
-1	a. Self.
-½	b. Others.
	D4. References to eating or to food in connection with others.
+½	(1) Positive valence.
	a. Self.
	b. Others.
+½	(2) Neutral valence.
	a. Self.
	b. Others.
	(3) Negative valence.
-1	a. Self.
-½	b. Others.
0	D5. References to difficulty talking, to not knowing what to say, to being at a loss for words with interviewer or others.
	D6. Direct interaction with interviewer.
+½	a. Asking questions of interviewer when standardized verbal sample instructions have been used.
+½	b. Other direct references: "you know," or statements addressing interviewer directly by name or as "you."
-2	E1. References to lack of humans or subhumans in the environment. The references must contain evidence of lack of interest in or need for human or subhuman objects.
-1	E2. References to eating, food, drinking, meals, etc. out of the context of other people. Code both self and others.
-1	E3. References to bathing alone (no other people in view) or to undifferentiated or amorphous substances or surroundings involving no discernible human beings.

Achievement Strivings Scale

Weights	Content Categories and Scoring Symbols
+1	I. Achievement
	A. Vocational. Reference to work, occupation, job, including naming and identification.
	a. Self or self and others.
	b. Others.
	B. Avocational. Reference to hobby, leisure activity, recreation, including naming and identification.
	a. Self or self and others.
	b. Others.
-1	II. Deterrents to Achievement
	A. External dangers or problems or fear of loss of control or limit setting on part of others. References to lack control by others; references to errors or misjudgments by others that might injure the self.
	a. Self or self and others.
	b. Others.
	B. Internal obstacles: references to difficulties in setting limits on oneself or problems in disciplining the self; references to error or misjudgments by self that might harm the self.
	a. Self or self and others.
	b. Others.
	C. Other deterrents -- which cannot be distinguished as to cause.
	a. Self or self and others.
	b. Others.

Dependency Strivings and Frustrated Dependency Scales

Scale of Dependency Strivings

Types of Reference about Dependency Strivings

A. Statements referring to having, getting, wanting or needing help, support, protection, care, approval, love, doctoring, and divine assistance.
B. References to oral activities, food, etc. Includes any oral activity, such as chewing gum, eating, smoking, drinking, swallowing, sucking, and biting.
C. Denial of dependency strivings.

Person Involved in Dependency Strivings

1. Self or self and others
2. Others or unspecified.

Time of Occurrence of Strivings

a. Past.
b. Present.
c. Future or unspecified.

Scale of Frustrated Dependency Strivings

Types of Reference about Frustrated Dependency Strivings

A. References to self being frstrated in having, getting, wanting, or needing help, support, protection, care, approval, love, doctoring, and divine assistance.
B. References to oral frustration. Includes any oral-gastric frustrations, e.g., difficulties or delays in getting food, water, or other objects to relieve oral tension. Need to resort to scraps or waste products for food, hunger, thirst, food deprivation, dry throat, difficulty in obtaining food, empty stomach, being out of cigarettes, difficulty in swallowing, etc.
C. Denial of oral frustration.
D. Reference to others being frustrated in wanting help, support, protection from speaker.

Person Involved in Frustrated Dependency Strivings

1. Self or self and others
2. Others or unspecified.

Time of Occurrence of Frustrated Dependency Strivings

a. Past.
b. Present.
c. Future or unspecified.

Health/Sickness Scale

Coding Symbol	Category	Weight
HS1a	References to feelings of well-being, health, being symptom-free (mental or physical) as experienced by others.	+1
HS1b	References to feelings of well-being, health, being symptom-free (mental or physical) as experienced by self.	+1
HS2a	References to feelings of poor health, having symptoms, pain, suffering (mental or physical) as experienced by others.	+1
HS2b	References to feelings of poor health, having symptoms, pain, suffering (mental or physical) as experienced by self.	+1

Narcissistic Scale

Category	Tag	Subtag	Target	Description
I.				Primary narcissism (not attributable to effort or achievement)
	A.			Positive (presence of) PRIMARY NARCISSISM (special characteristics or entitlements not based on any achievement or effort by the subject, e.g., based on birthright, lineage, religious indoctrination, paternal teachings, nationality, or any other ways unearned or undeserved)
		1.		Physical qualities (references to superior physical characteristics, powers, strength, beauty etc., that are based on birthright, etc.)
			a.	Involving the self.
			b.	Involving others.
			c.	Involving the self and others.
		2.		Mental qualities (references to special or superior mental, emotional, or spiritual characteristics or entitlements that are based on birthright, etc. Exclude all references to mental illness.)
			a.	Involving the self.
			b.	Involving others.
			c.	Involving the self and others.
		3.		Social qualities (references to special interpersonal or social skills, entitlements, or interactions based on birthright, etc.)
			a.	Involving the self.
			b.	Involving others.
			c.	Involving the self and others.
		4.		Primary narcissistic qualities through substitution (references to various substitute means of acquiring narcissistic gratification, such as alcoholism, drug use, eating disorder, gambling, extravagance or crime. This is an exception to the general principle that "A" refers to positive qualities and to the principle that primary narcissistic qualities are innate or not acquired. All references to the presence of any of the substitutes given here, whether acquired or innate, are to be scored under IA4.)
			a.	Involving the self.
			b.	Involving others.
			c.	Involving the self and others.
		5.		Primary narcissistic qualities through mental illness (all references to presence of mental illness whether specified as innate or not

acquired. Again, this is an exception to the general principle that "A" designates positive qualities as well as to the general rule that primary narcissism qualities are not acquired.)

a. Involving the self.
b. Involving others.
c. Involving the self and others.

6. Other primary narcissistic qualities (references to the presence of positive qualities that are not the product of effort and do not fit any of the specified content areas.).

a. Involving the self.
b. Involving others.
c. Involving the self and others.

B. Negative qualities (references to the absence of positive characteristics or entitlements or to the presence of negative characteristics or deprivations that are based on birthright etc.)

1. Physical qualities (references to the absence of physical strength, health, beauty, etc. or the presence of negative physical qualities that are innate or nondeserved).

a. Involving the self.
b. Involving others.
c. Involving the self and others.

2. Mental qualities. (references absence of positive mental, emotional, or spiritual characteristics or entitlements, or presence of negative mental, emotional, or spiritual qualities that are innate or nondeserved. Exclude all references to mental illness).

a. Involving the self.
b. Involving others.
c. Involving the self and others.

II. Achievement narcissism (references to qualities, conditions, circumstances that are based on efforts or achievements rather than on birthright or some other innate characteristics.)

A. Positive achievements.

1. Physical qualities (references to achievements in the areas of bodily development, sports or physical attractiveness.)

a. Involving the self.
b. Involving others.
c. Involving the self and others.

2. Mental qualities (references to mental, emotional, intellectual or spiritual accomplishments.)

a. Involving the self.
b. Involving others.
c. Involving the self and others.

3. Social qualities. (references to the achievement of positive interpersonal relationships or social skills).

a. Involving the self.
b. Involving others.
c. Involving the self and others.

4. Vocational, educational, economic or political (all references to achievement in these areas).

a. Involving the self.
b. Involving others.
c. Involving the self and others.

6. Other (references to other positive achievements.)

a. Involving the self.
b. Involving others.
c. Involving the self and others.

B. Deficient or absent achievements (references to lack of or inadequacy of achievements or negative qualities that are acquired)

1. Physical qualities (references to absence of achievement in the areas of bodily development, sports or physical attractiveness).
a. Involving the self.
b. Involving others.
c. Involving the self and others.

2. Mental qualities (references to lack of mental, emotional, intellectual or spiritual accomplishments.)
a. Involving the self.
b. Involving others.
c. Involving the self and others.

3. Social qualities (references to lack of achievement or interpersonal relationships or social skills, loss of, or negative, interpersonal relationships).
a. Involving the self.
b. Involving others.
c. Involving the self and others.

4. Vocational, educational, economic or political (all references to lack of achievement or negative achievement in these areas.)
a. Involving the self.
b. Involving others.
c. Involving the self and others.

6. Other (references to other negative achievements).
a. Involving the self.
b. Involving others.
c. Involving the self and others.

III. Nonspecific narcissism (not specified whether narcissism is primary or achievement type)

A. Positive qualities (references to the presence of qualities not specified as either primary or achievement).

1. Physical qualities (strength, beauty, health, etc.)
a. Involving the self.
b. Involving others.
c. Involving the self and others.

2. Mental qualities (intellectual, spiritual, emotional, etc.)
a. Involving the self.
b. Involving others.
c. Involving the self and others.

3. Social qualities (interpersonal, social, skills, etc.).
a. Involving the self.
b. Involving others.
c. Involving the self and others.

6. Other qualities (any other qualities)
a. Involving the self.
b. Involving others.
c. Involving the self and others.

B. Negative qualities (references to the absence of positive qualities or the presence of negative qualities not specified as either primary or achievement type)

1. Physical qualities (absence of beauty, strength, health, etc).
   a. Involving the self.
   b. Involving others.
   c. Involving the self and others.
2. Mental qualities (absence of intellectual, emotional, spiritual, etc. qualities).
   a. Involving the self.
   b. Involving others.
   c. Involving the self and others.
3. Social qualities (absence of interpersonal relationships, personal skills, etc.)
   a. Involving the self.
   b. Involving others.
   c. Involving the self and others.
6. Other qualities (absence of other qualities).
   a. Involving the self.
   b. Involving others.
   c. Involving the self and others.

Quality of Life Scale

The Quality of Life score is computed on a total sample basis -- no score is assigned to individual clauses. Quality of Life is determined by combining scores on other scales as indicated in the formula below:

Quality of Life = (Human Relations + Positive Hope) -
(Social Alienation/Personal Disorganization + Depression + Health/Sickness)

Notice that both the Human Relations and Social Alienation/Personal Disorganization scales can have scores that are either positive or negative. Thus, a negative Human Relations score will reduce the overall Quality of Life score, while a negative Social Alienation/Personal Disorganization score will increase the Quality of Life score. This should match intuition.

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