Knave Bridge Scoring Program

Paul Haffenden

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Introduction

This document describes the duplicate contract bridge scoring software currently used at the Sunday Bridge Club. The software is free to download, modify and redistribute. The software should work on any operating system that supports Perl and the Tk graphical module. The installation instructions assume that the software is being installed on a Windows system.

Download and Installation

kbs_win.zip is a zip archive of the scoring code and extra required Perl modules.

To use the **KBS** code you must first install a Perl runtime. I suggest Strawberry Perl that you can download from: http://strawberryperl.com. I've tested the installation on version 5.18.2.2 (32-bit). Once you have downloaded and installed Strawberry Perl extract **kbs_win.zip**. During the extraction create a new folder and extract the archive into it. In this example I've used C:\KBS. My extraction window looks like:
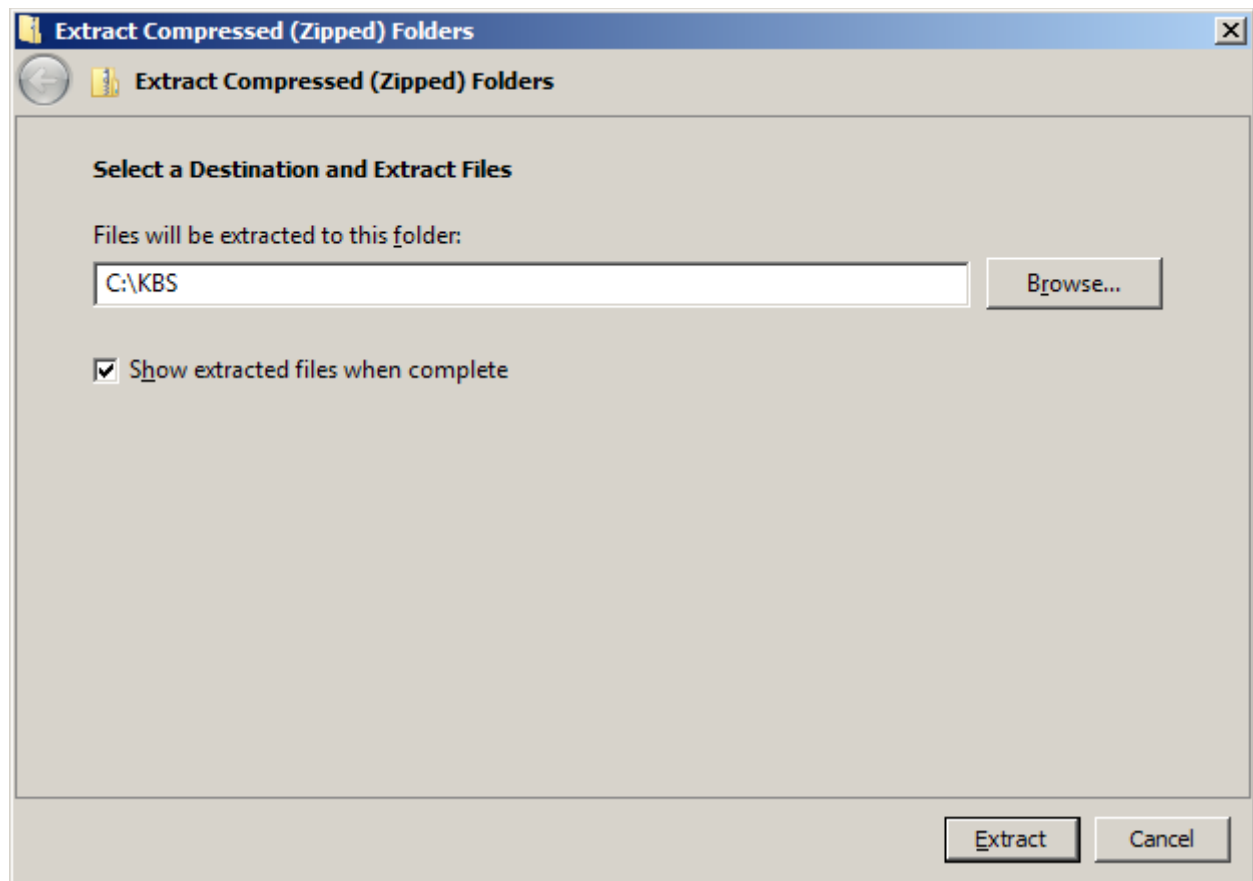
Note that I have the "Show extract files when complete" option set. This is what I see once the archive has extracted:
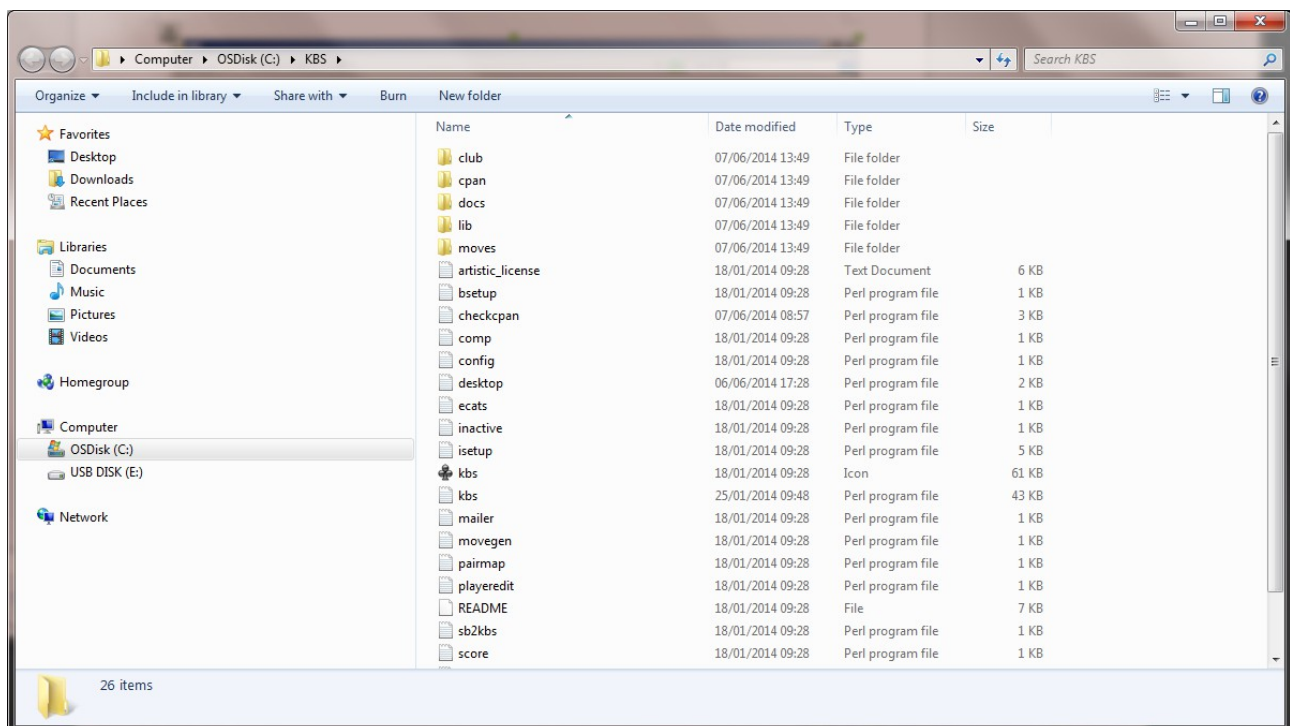

The scoring software makes use of some Perl library code that is not part of

the default Strawberry Perl distribution, so some extra packages need to be installed. I've found that the Tk module downloaded from CPAN sometimes fails to build, or fails in its testing phase which causes frustration and confusion, so I've included all the required packages in the zip archive and added a script to install them for you. Now you have the Perl runtime installed we can execute this script (it is written in Perl), from the installation area. Find the file called "checkcpan.pl" in the list of files and select it:
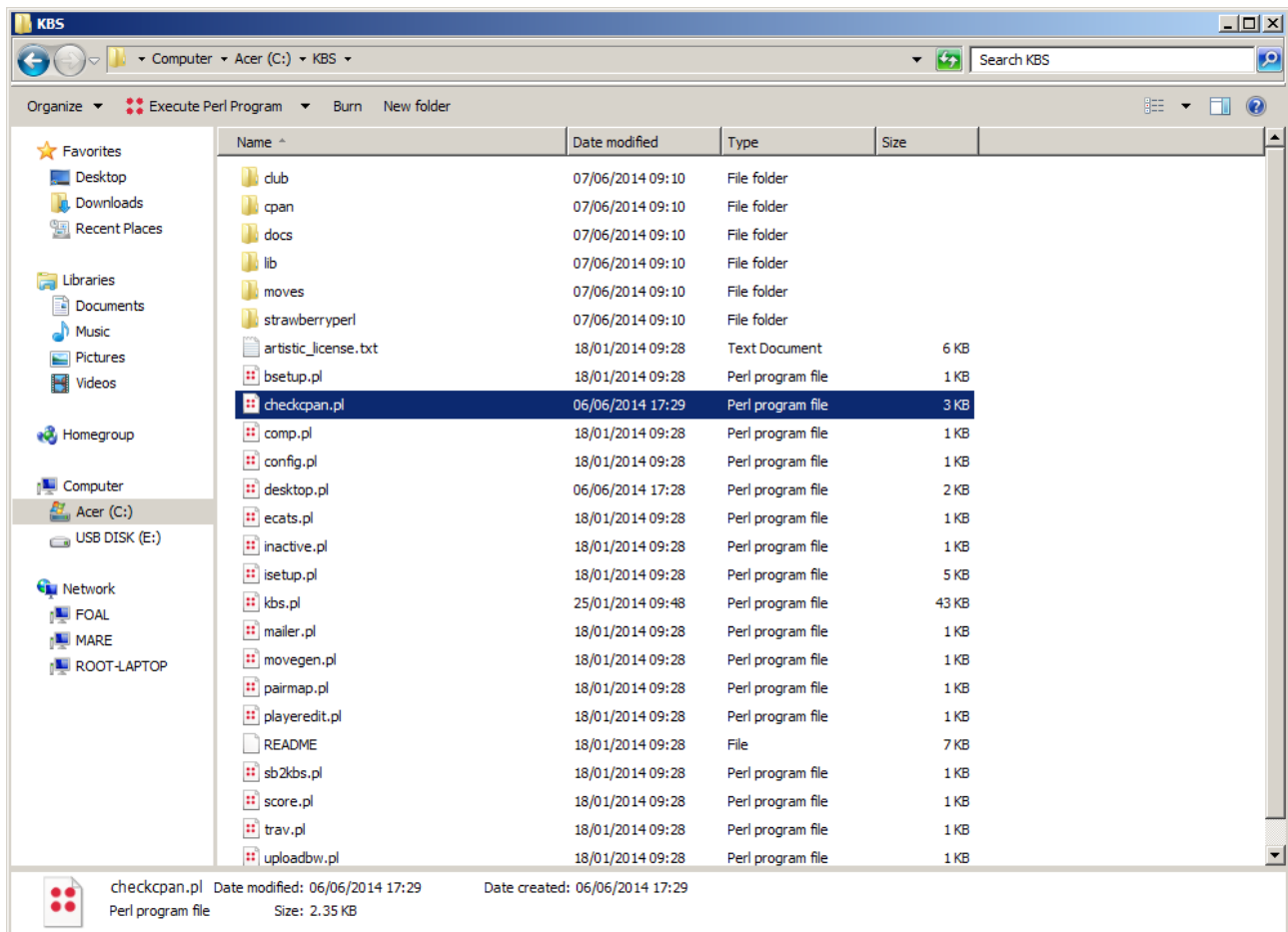
Now click the "Execute Perl Program" button near the top, with the four red dots. The script will execute and a command window will pop up:

```
C:\strawberry\perl\bin\perl.exe                                    _ | □ | X |
Finding list of installed StrawberryPerl packages. Please wait
Tk is missing. I will try to install it
Tk::DateEntry is missing. I will try to install it
Tk::NumEntry is missing. I will try to install it
Crypt::DES_PP is missing. I will try to install it
Dir::Self is missing. I will try to install it
Mail::Sender is missing. I will try to install it
Text::CSV is missing. I will try to install it
Win32::Shortcut is missing. I will try to install it
Palm is missing. I will try to install it
I need to install Tk Tk::DateEntry Tk::NumEntry Crypt::DES_PP Dir::Self Mail::Se
nder Text::CSV Win32::Shortcut Palm. Do you want me to try now? [Type y to insta
ll]
```

It will determine which required modules are missing and ask if you want them installed. Type "y" and press enter. The script will run "cpanm" to install the modules from the "cpan" folder. Tk takes a few minutes to configure and build, you will need to be patient. Once the modules have been installed a summary will be listed. Press "enter" to dismiss the window.


```
C:\strawberry\perl\bin\perl.exe                                    _ | □ | X |
Fetching file://C:/KBS/cpan/Win32-Shortcut-0.08.tar.gz ... OK
Configuring Win32-Shortcut-0.08 ... OK
Building Win32-Shortcut-0.08 ... OK
Successfully installed Win32-Shortcut-0.08
1 distribution installed
--> Working on C:\KBS\cpan/p5-Palm-1.2.4.tar.gz
Fetching file://C:/KBS/cpan/p5-Palm-1.2.4.tar.gz ... OK
Configuring p5-Palm-1.2.4 ... OK
Building p5-Palm-v1.2.4 ... OK
Successfully installed p5-Palm-v1.2.4
1 distribution installed

Summary
Tk                 : Has been installed
Tk::DateEntry      : Has been installed
Tk::NumEntry       : Has been installed
Crypt::DES_PP      : Has been installed
Dir::Self          : Has been installed
Mail::Sender       : Has been installed
Text::CSV          : Has been installed
Win32::Shortcut    : Has been installed
Palm::PDB          : Has been installed

Press enter to exit
```
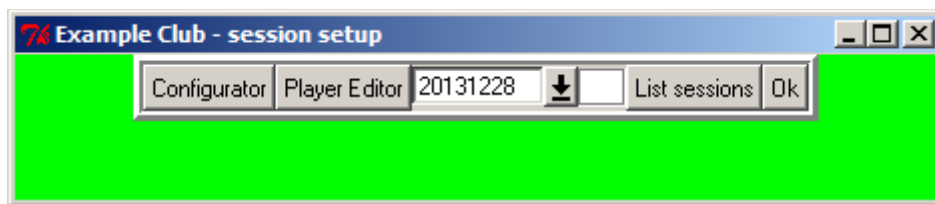
I find it much easier to run the scoring program from the desktop, so I have included a script to create two desktop shortcuts for you. Select "desktop.pl" and clicking the "Execute Perl Program" button. The script will run and ask you to "Press enter to exit". You should find these items have appeared:
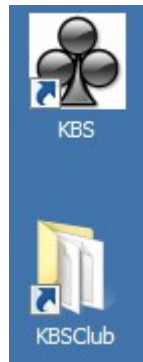
KBS is the shortcut to the main program called **kbs.pl**. double click on this icon to launch the main program. The KBSClub shortcut gives easy access to the club folder. This is useful if you need to print out the results.

First Time Setup

Before using the scoring software for the first time you must set some configuration variables. To do this double click on the KBS icon and it will launch the program. A window like this should appear:

Click on the Configurator button. This window will appear:

The most important field to set is the top one; the name of your bridge club. Without this set all the result files will have an empty club name which will look very odd. Here is a description of the rest of the fields in order from the top.

- **Input scores without trailing 0** – If ticked/set this lets you omit the trailing '0' character when inputting the scores from the travelers.

- **Sort travelers** – If ticked/set then the order of the results within a traveller will be sorted in ascending order by the North/South pair number. You should set this if your travelers have the North/South pair number preprinted on them.

- **Contracts not entered on travellers** – If ticked/set then the files

containing the results will not include fields to describe the contract, played by and tricks made fields. This affects the native HTML result and Brigdewebs upload files. Set this field if you just type the points scored from the travellers.

- **Generate result file for Bridgewebs** – If ticked/set then a Bridgewebs' result upload file will be produced when scoring the session. You want this set if your club uses Bridgewebs.

- **Bridgeweb club identifier** – Bridgewebs will assign a club identifier to your club, type this identifier into this field. This allows the program to automatically upload the results to Bridgewebs after the session has been scored.

- **Bridgeweb club password –** The Bridgewebs' club password.

- **Ecats Club name** – If you take part in Ecats' Simultaneous pairs events, then fill in this field with your club name. If you don't play Ecats' sims, then you can leave this field and the following Ecats related variables unchanged.

- **Ecats Town –** The town where your club is situated.

- **Ecats County –** The county where your club is situated.

- **Ecats Country –** The country where your club is situated.

- **Ecats Contact name** – A contact name that Ecats can contact is case of a scoring problem.

- **Ecats Contact telephone number** – The telephone number of the person above.

- **Ecats Contact email address –** The email address of the contact person.

- **Enable sending of result email** – If set/ticked then the following configuration variables about your mail service need to be filled in. If you do not plan to send the result via email then leave this field and the following email related ones unchanged.

- **The 'From' address to appear in the result email** – This field is placed in the 'From' field of the outgoing result email. If one of your member's clicks on their 'Reply' button in their mailer, then the email will be sent to this address.

- **The SMTP host used to send the result email –** This is the address of your outgoing SMTP server as provided by your Internet Service Provider. I use BT and so my server is "mail.btinternet.com".

- **Authentication scheme used by the SMTP host** – Specify the

authentication scheme that you ISP uses. BT uses the simple "LOGIN" scheme.

- **Authenticated user for SMTP host** – Specify the authenticated user name. This is your email username.
- **Authenticated password for SMTP host** – The authenticated user name's password.

Once you have filled in your desired fields, click on the "Save Configuration" button to commit your changes. You can abandon your changes by clicking on the "Exit without saving" button. You can change your options at anytime by re-running this configuration editor program.

Scoring a session

To score a new duplicate bridge session, double click on the KBS icon. The program should launch and display this window:
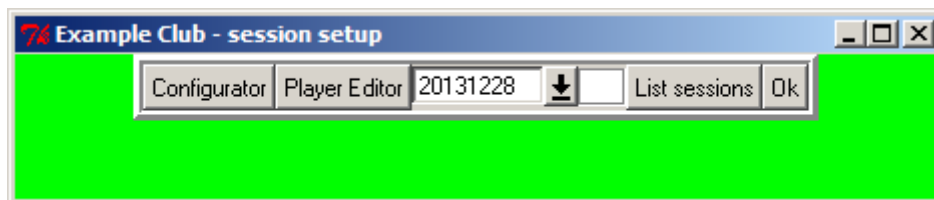
The scoring system uses the date to distinguish between the different sessions. A session is specified by the date it was played on, followed by an optional digit, to separate sessions that are played on the same day. Today's date is already selected, you can change it by clicking on the down arrow and clicking on one of the days in the calendar. The "List sessions" button allows you to select a previous session by listing all the known sessions in the results folder like so:

Event	Tables	Remove
Cancel		
2012-02-18	N/A	X
2012-02-12	4	X
2012-01-29	4.5	X
2012-01-22	3.5	X
2012-01-15	4.5	X
2012-01-08	4	X
2012-01-01	2	X
2011-12-18	4	X
2011-12-11	3	X
2011-12-04	3.5	X
2011-11-27	2.5	X
2011-11-13	4	X
2011-11-06	3	X
2011-10-30	2	X

Click on the "date" button to select that previous session. If the session has not yet been scored, the "X" button will be active. Clicking on this will delete the "setup.txt" file from that result folder, allowing you to reenter the movement selection.

When happy with the date and optional digit, click "Ok". Note the scoring program treats sessions without an optional digit as special, only those sessions are used when calculating the various club competitions. The ones with an optional digit are ignored.

A set of table number selector buttons will appear on the left hand side of the screen:

Round up the number of tables in the session to a whole number, and click that button. I'm going to use 12 tables as an example. A further set of buttons will appear listing all the known movements for that number of whole tables. Click the movement that was used in your session. (If there is no movement that matches you can create a new one of your own. How to do this is described in a later section). A description of the movement will appear, a list of all the pairs numbers used in the movement and the layout of the first traveller. In the example below I've used T12R12:

You can click on a pair number to indicate a half-movement with the pair selected as the missing pair (12 in the example above). Note all of the movements use unique pair numbers, even for Mitchell movements as in this example here. For Mitchell movements of 10 tables or less, 10 is added to every E/W pair number. For Mitchell movements of more than 10 tables, 20 is added to every E/W pair number. You should now check that the paper traveller for board 1 matches the traveller output displayed by the program. You can walk through all the traveller sets by clicking the "Forward" and "Back" buttons. You can also change the number of rounds played and boards per round by clicking on the up and down arrows. The "Skip first round?" checkbox is useful if you are trying to score an Ecats's or simultaneous session and the players have made up the proscribed boards themselves. Ticking this box will remove all the pairs in the first round from the travellers.

Once you are happy that you have the correct movement specified, click "Done".

You should now see this screen:
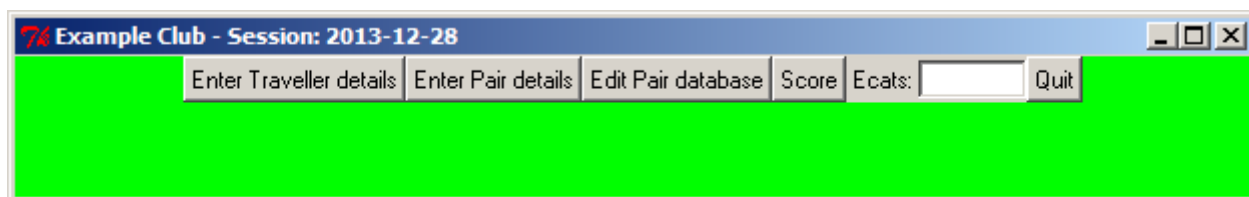
Each button selects a sub-task, and it is expected that you will first enter the traveller details. Click on the "Enter Traveller details" button. You should seen this screen:
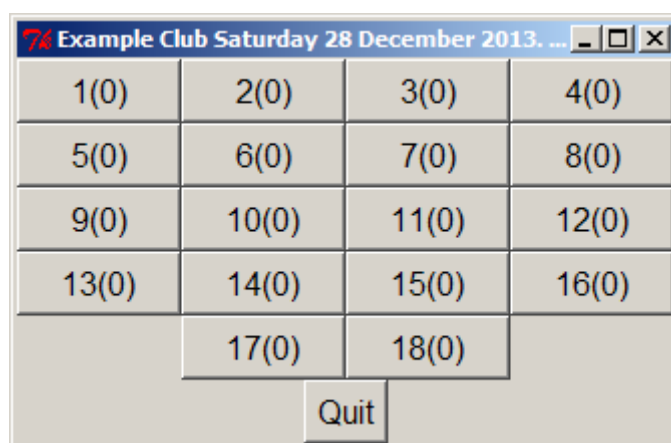
Each box contains the board/traveller number and the digit in parentheses is the number of scored entries for that board/traveller. Clicking on a box will display the score entry window for that board. Here is an example for board 1:
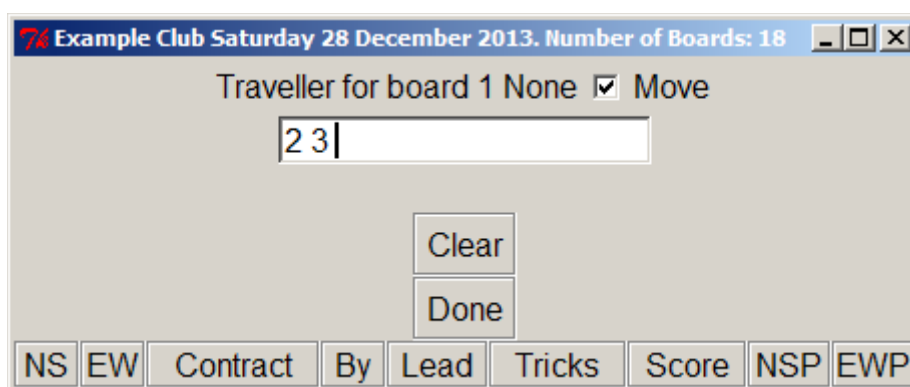
Note that the pair numbers are generated for you. Now the scores from the paper travellers can be typed into the main text box. The format of the input is North/South pair number, East/West pair number, contract, who played the contract and the card led. Each field is separated by one or more spaces. When the entry is complete, press the "Enter" or "Return" key to enter the data.

The contract field consists:

- of a digit (1-7)
- the suit (c,d,h,s,n)
- whether the contract is doubled or redoubled (*, **)
- the outcome of the contract (+1,+2, -1, -2, etc. The + character is optional).
- the declarer or "by" field is the player location (n,s,e,w)
- optional lead, a card rank (x,2-9,t,j,q,k,a) and a suit (c,d,h,s).

Here are some examples:

- **1 2 3s-1 s ac** — pair 1 played pair 2, 3 spades going one off by South, Ace of Clubs led.
- **3 12 4n*+1 n th** — pair 3 played pair 12, 4 notrumps doubled plus 1 by North, ten of Hearts led.
- **3 12 4n*1 n th** — as above

You can also just enter the points awarded, using a negative value for E/W scores. e.g.

- **2 4 -100**
- **5 6 450**

There are also a few special results that can be entered for the contract:

- **p** — pass out
- **a** — director awarded average score. A single "a" gives a 50% average for both pairs. The "a" can be followed by two characters, either a "+", "-" or "=" to specify an average plus, an average minus, or a 50% average. The first of the two additional characters specifies the average for the North/South pair and the second for the East/West pair.
- **#** – A session average should be awarded, i.e. the selected pairs did not play this board, there is no score. The scoring program will automatically adjust the missing pairs' scores as if they scored their session average on this board.

Here are some examples:

- **3 6 p** — pair 3 played pair 6 and the board was passed out.
- **4 7 a** — pair 4 played pair 7 both have an average score awarded.
- **2 4 a+=** — pair 2 played pair 4, pair 2 has been awarded an average plus, and pair 4 has been awarded an average.
- **5 2 a--** — pair 5 played pair 2, both have been awarded an average

minus.

After some scores have been added, the board window will look like this:

NS	EW	Contract	By	Lead	Tricks	Score	NSP	EWP
2	3	2S-1	W	AC	7	50	2	0
4	1	P				0	0	2

You can edit an already entered entry by clicking on the NS pair number, or by typing just the N/S pair number in the entry box. Sometimes the automatic pair number generator can get in the way, you can disable it by unticking the little box near the "Move" label. Click "Done" when you have finished with this board's entries and click "Quit" when you have finished all the boards.

If this is the first session you have scored, then there will not be any players in the database, so click on the "Edit Pair database" button. You should see the following screen:
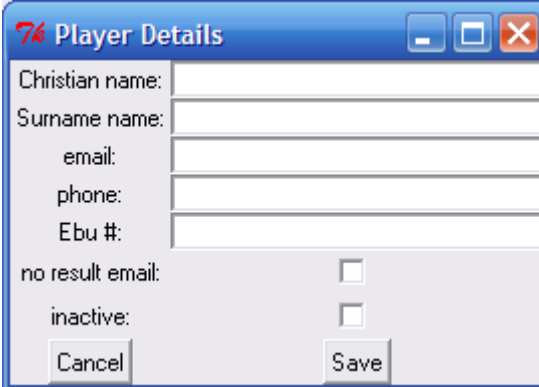
Click on "Add a new player" and an entry box will appear to let you add the

details of a player:

The text entries are self explanatory. If the "no result email" is ticked, then the result email is not sent to this person. (Of course you could leave the "email" field blank to achieve this). If the "inactive" flag is set then this person will not appear on the pair mapping screen that we will discuss next. Fill in all the details of the players for this first session. The only mandatory fields are the "Christian" and "Surname". After adding several names you should end up with something like this. You can re-edit any player's details by clicking on their name. Note that the entries are sorted by Surname:

When you have typed all the names in, click on the "Done" button, that writes and quits the screen. Now we need to match the session pair numbers to the players. Click on "Enter Pair details". You should see a screen like this (I've selected a 3 table movement for this example):

1	**select**	Empty
2	Empty	Empty
3	Empty	Empty
4	Empty	Empty
5	Empty	Empty
6	Empty	Empty

Anne Mary

Bennett Liz

Capel Barry

Clark Michael

Coleman David

Kent Clark

Laing Larna

Lane Lois

Parker Peter

Porch Colin

Prudence Dear

Sharp Becky

In the left hand table is a list of session pair numbers, with a box for each player in the pair. The "**select**" entry indicates which entry will be filled next. The right hand table shows all the currently active players. (Remember when adding the player details we can mark them as inactive, if they are inactive they won't show up here. Marking players as inactive helps to keep this table from getting too big, but it does mean that you have to use the "Player Edit details" button to reactivate players, if they return to your club. There is a program that automatically marks players that have not player for 6 months, more on this program later). Now to select a member of pair one you can do one of two things.

1. Click on one of the names in the right hand table.

2. Type in the first character of the Christian name and as many characters of the Surname to uniquely identify a player, and then press "Enter" on the keyboard. So for example if I type "ll" (two lower case L characters), the matching names will be highlighted in red like so:

An extra "an" will uniquely select "Lois Lane", followed by "Enter" will move her over to the left hand table, like so:

The "BackSpace" character will cancel all matched names and discard all matching characters. Clicking on an entry in the left hand table will remove them from the left hand table and put it back in the right hand table. When the first player of a pair has been entered, if a previous session has been played, then their last partner will be automatically selected on the right hand table and the "Enter" key will automatically move them to the left hand table. If that is not their partner, then either type in the required number of characters to match the currently partner, or click on their name. Once all the pairs have been completed, click on the "Done" button to write and quit this screen.

Once all the traveller details and pair mappings have been input, click on the "Score" button to see the result. Here's my example:

```
                              Results
                        Tuesday 26 April 2011


                              Results
---------------------------------------------------------------
|Pos|  Name                                |Pair| Score|  %  | KP  |
---------------------------------------------------------------
|1  |  Barry Capel & Colin Porch           | 6  | 39.00| 60.94| 12  |
|2  |  Liz Bennett & Lois Lane             | 1  | 33.00| 51.56| 6   |
|3  |  David Coleman & Dear Prudence       | 3  | 32.00| 50.00|     |
|4  |  Mary Anne & Becky Sharp             | 2  | 31.00| 48.44|     |
|5  |  Clark Kent & Peter Parker           | 5  | 29.00| 45.31|     |
|6  |  Michael Clark & Larna Laing         | 4  | 28.00| 43.75|     |
---------------------------------------------------------------
```

If you use Bridgewebs and have set the required configuration variables, you can click on "Update Bridgewebs" and the program will calculate all the competitions (see later section) and upload the results and competition files. The "Send email" will send the results as an email to each player that played in the session (and has an email address). This also requires that the email configuration variables have been setup correctly. Once the email completes, click "Quit" and you are done.

You may notice a "Bridgemate" button on the main menu (Windows users), please ignore it. It is a work in progress.

Running from the Command Line

In the next sections there is often a reference to running a command directly from the command line. All the files that end in a *.pl* suffix can be run in this way.

1. Open a command window (Accessories/Command Prompt)
2. cd \KBS\club (or where you installed the package if you changed the default)
3. Determine the name of the command you wish to run. They are:
   - inactive.pl – mark player as inactive
   - movegen.pl – run the movement generator to check a new movement file

- bsetup.pl – setup the parameters of a new sessions
- score.pl – score a session
- comp.pl – generate the competition files
- mailer.pl – send the results to the competing players
- uploadbw.pl – upload the competion files to BrideWebs
- sb2kbs.pl – convert a ScoreBridge result file to KBS format
- pairmap.pl – edit the pairmapping for a session
- playeredit.pl – edit the player database
- trav.pl – edit the travellers for a session

4. Run the command by prefixing it with "perl ..\ ", passing any required arguments e.g.
   perl ..\sb2kbs.pl sb\2014Jan27!!.dat

A tour of the folders and files of KBS

When you install KBS, the installation folder will contain the following files:

- README - asks you read the license. States me as the author.
- artistic_license.txt – the software license.
- bsetup.pl – The setup program. Creates the result folder for the session and writes a "setup.txt" file in it that describe the movement, the pair numbers, boards and boards per round.
- checkcpan.pl – The program to install the additional Perl modules. You only need to run it once during installation.
- comp.pl – The program that calculates all the club competitions.
- config.pl – The configuration editor.
- desktop.pl – The program to create the desktop shortcuts for you.
- ecats.pl – Program to create Ecats format result files from a session.
- inactive.pl – The programs looks though all the result folders and works out which players have not played for 6 months and marks them as inactive.
- kbs.ico – The icon file for the desktop shortcut.
- kbs.pl – The main program. The script executed from the desktop shortcut.
- mailer.pl – The program that sends the email to the session players.

- movedb.pl – A program to package up all the known movements into a Palm resource file so that they can be synchronized with a Palm for use with the Biff table top Bridge scoring application.
- movegen.pl – Process a movement file, generate a printable version of the movement.
- pairmap.pl – The program that maps a session pair number to the players.
- playerdb.pl – A program to generate a Palm resource file from the player database.
- playeredit.pl – A program to add and edit the player details.
- sb2kbs.pl – A program to convert Scorebridge result files to KBS format.
- score.pl – A program that does the scoring of a duplicate session.
- trav.pl – A program to edit the traveller details for a session.

In addition there are some folders:

- club – This is where all the configuration data for your club is stored.
- cpan – Contains the CPAN Perl modules.
- strawberryperl – contains the Strawberry Perl installer.
- docs – The documentation for KBS.
- lib – The library/module code. This is where all the Perl code for the programs lives.
- moves – a collection of movement files.
- pbn – collection of programs to edit and manipulate PBN format files. These are:
    - pbn.pl – A program to take a PBN format file and allow you to print a set of curtain cards from it, and a sheet of hand descriptions. You need to install Ghostview/Ghostscript for this to work.
    - pbncard.pl – A program to print curtain cards from a PBN file.
    - pbned.pl – A program to enter and edit PBN format files.
    - pbnprint.pl – A program to print hand descriptions from a PBN format file.

Scoring Ecats events

The main program will run the Ecats scoring script if a value is placed in the

"Ecats" entry box. The value is used as the "Ecats session number". The Ecats files will be created in a folder called **ecats** in the club folder.

The Club folder

In the club folder you will find the following files:

- Conf.pm – a special Perl module to load in the program configuration variables. You should generally not edit this file.

- Conf.txt – the file that contains your configuration settings. This file is in JSON format so it is easy to edit with a normal text editor (notepad perhaps?). There are some additional options in this file that cannot be set by the configuration editor. They are all commented so if you are curious fire up a text editor and take a look.

- contact.csv – this file contains all the player details. It contains one line per player with each field being separated by a comma. Again it can be edited with a text editor.

- results – this is a folder. Within this folder will be a set of folders, one per session, named from the date using when setting up the session. If an optional digit was specified, then a underscore character will appear between the date and the optional digit. E.g. with a date of 20110429 and an option digit of 1 then folder would be named "20110429_1". Each result folder will contain the following four files:

  - pairmap.db – a JSON format file that provides the mapping between the session pair number and the players. Produced by the pairmap.pl program.

  - score.txt – a JSON format file that stores a summary of the result. Produced by the score.pl program. Mostly used by the competition generating program, comp.pl, to calculate the winners.

  - setup.txt – A JSON format file that stores the setup details of the session, like the number of boards, the boards per round and the movement details. Produced by the bsetup.pl program.

  - tr.db – A JSON format file that contains the traveller details. Produced by the trav.pl program.

- After a session has been scored there will be a collection of output files:

  - bw_YYYYMMDD.csv – result file in Bridgewebs format

  - trYYYYMMDD.html – an html format file of the results

  - tr.txt – a text file containing just the result table

  - tr.html – an html file of the result table

- lastpair.txt – records the player partnerships, so that the pairmap.pl program can suggest the matching player when inputting the session pairs.

- email.txt – a list of the email addresses of the player in the last scored session. Used by the mailer.pl program to send the result email.

Competitions

The comp.pl program, which is run when the "Upload to Bridgewebs" button on the main menu is pressed, searches through the various score.txt files located in the club's results folder and outputs several html files of current leading members. These files are then uploaded automatically to the Bridgewebs site with the session result file. See the St Julian's bridge club (KENT) web site "Result Statistics" menu for an example of the produced output. Note you'll have to setup the competitions menu by hand using the Bridgewebs administrator tools to allow your members to view them. You can, of course, run the compl.pl program by hand, and it takes several other options to control which time period you want used for the output file generation. Run the program without any arguments to see the summary of options. The produced competition files are placed in the "comps" folder of the club folder. The comp.pl script ignores all session result files that contain an underscore "_", those that were specified with an optional digit.

Printing the Results

There is no dedicated result printing script. As the result summary files are produced in HTML format, a browser can be used to produce hard copies.

You can use the "KBSClub" shortcut to locate the club folder and then double click on the tr.htm file to load it. I then use the "Print Preview" option from the File menu to resize the output so it fits nicely onto a single page and then print.

Inactive players

The contact.csv file will continue to grow for ever as new people play at your club. The system requires that none of the numbers are ever reused or deleted, as contact.csv is the one and only place that stores your members' names. After a while you may like to mark inactive players in this file. Inactive players are not displayed by the pairmap.pl program, and so means that you may be able to display all the active players without having to scroll the screen. The main script (**kbs.pl**) runs the inactive program for you every time

you use the score button.

You can also use the inactive.pl program from the command line to mark inactive players like so: perl ..\inactive.pl YYYYMMDD

Movement files

I have supplied all the movements we have ever used at various bridge clubs in my local area. This section documents the format of the movement files located in the "moves" folder in the installation folder. Basically you specify the starting location of every North/South, East/West pair number and the board set at each table. Further entries then described where these pairs and sets move to for the next round. If this movement is identical for each round then the entry only has to specify this one move.

The name of each file is named after the number of tables in use, the number of relays, the number of rounds and the number of arrow switched rounds. So the general format for a file name, using x for the number of tables, y for the number of rounds, z for the number of relays and a for the number of arrow switched rounds is:

TxRyrzAa

The only mandatory part of the file name is the Tx, which is needed so that the setup program can group the movement by table number. Existing example file names are:

T10R9

T11A2

T8DWR8

The "DW" stands for "Double Weave"

A movement file is divided into two sections. The first part is a textual description which begins at the first line of the file and continues until a line that contains just DESCEND. The second section of the file starts on the first line following the DESCEND label. The second section contains blank lines, comment lines and key lines. Blank lines only contain white space and they are ignored. Comment lines start with the '#' character and are ignored. Key lines are made up of a 'key', a '=' character and a 'value'. So for an example a line like

Table=1

specifies a 'key' of "Table" and a 'value' of "1". If more that one '=' character is specified on a key line, then the 'key' stops at the first '='. So the line:

nscode=N=

has a 'key' of "nscode" and a 'value' of "N=".

The keys come in one of four types:

1. Table key
2. Relay key
3. Global key
4. Substitute key

Table Keys

A table key line is one with a key of either "Table", "ns", "ew", "board", "nscode", ewcode" , "boardcode", "share" or "sharecode". These table keys are always grouped together starting with the "Table" key and must be followed by exactly one of the other table keys except "share" and "sharecode" which are optional. Like this:

```
Table=1
ns=1
ew=21
board=1
boardcode=T-
nscode=N=
ewcode=E+
```

The "Table" key value specifies the number of the Table that the following table key lines are applied to. So in our example above we can see that we are defining the pairs, boards and their movement for table 1. The other table keys have the following meaning:

- ns – the pair number starting as North/South as this table.

- ew – the pair number starting as East/West at this table.

- board – the board set starting at this table. The board sets are numbered from one up to the maximum required for the movement. The maximum board set number times the number of boards per round will give us the total number of boards used in the movement. A value of 0 indicates there are no boards on this table, which is used when tables are sharing boards.

- boardcode – where this board set will move to after the first round. This can either be an absolute table number, such as "T2" or an absolute relay number, such as "R1", or a relative move, such as "T-", which means move the set down one table. This value will automatically wrap, so if we have 10 tables a "T-" issued from table 1 will move the set to board 10. If we had 11 tables it would move to table 11. You can skip several tables by specifying the number to move like so: "T+2", move the

set up 2 tables. You can only use relative moves to another table, not to relays. If the set always moves the same each round than only a single entry is required. If the move differs for some rounds, then all the moves for the set must be specified for each round. An entry is separated by one or more spaces. Take this example from the T12DW12 file:

boardcode=T+ T- T+ T- T+ T+6 T+ T- T+ T- T+

The movement has a maximum of 12 rounds, so we have 11 entries specified here. We can see on the 6th round that the boards jump 6 tables.

- nscode – where the pair sitting North/South will move to. Each entry consists of a "Direction" indicator N for North/South, E for East/West and a relative move, + for up, - for down and an optional number to specify the number of tables to move. The '=' character indicates no change in table number. Examples "nscode=N=" - North/South stay where they are; "nscode=E=" - North/South move to the East/West position at this table.

- ewcode - the same as nscode, but for the East/West pair. Example of a skip:"ewcode=E+ E+ E+ E+ E+ E+ E+2 E+ E+ E+ E+ E+"

- share – a digit indicating which table number has the set of boards we should share. A value of 0 indicates no sharing. This key is optional and only needed if this table shares a board on the first round.

- sharecode – a digit indicating which table number has the set of boards we should share for the 2nd and subsequent rounds. A value of 0 indicates no sharing this round. A single entry can be specified if the table shares with the same table for every round, otherwise an entry for each round must be specified. Entries are separated by one or more spaces. Here is an example of a 12 table movement, T12R12 that has table 12 sharing with table 1 for the whole session:

Table=12
ns=12
ew=32
board=0
share=1
boardcode=T=
nscode=N=
ewcode=$L1
sharecode=1

The boardcode is ignored if there are no boards on the table, board=0. This key is optional, it only has to be specified for tables that share boards.

Relay Keys

A relay key line is one with a key of either "Relay", "board" or "boardcode". These relay keys are always grouped together starting with the "Relay" key and must be followed by exactly one of the other relay keys. Like this:

```
Relay=1
board=7
boardcode=T6
```

Both "board" and "boardcode" have the same meaning as described in the Table keys section. Relays should be numbered from 1 upwards.

Global Keys

The following global keys are recognized::

- id – a number that uniquely identifies this movement. This number is used by the Palm tabletop scoring software to manually select a movement. The id is made up of two parts, the number of tables in the movement multiplied by 100 plus a unique digit of between 0 and 99. So for example the four 12 table movements have ids of 1200, 1201, 1202 and 1203.

- rounds – the default number of rounds in the movement.

- maxrounds – the maximum number of rounds in the movement. You must specify either this key or the "rounds" key. If this key is not present, then it takes the value of "rounds".

- bpr – the default number of boards in a set. The boards played per round.

- rnddesc – a digit followed by a space followed by a string, e.g: "rnddesc=5 Skip". This will place the string into the html output file after the round specified. It adds a break in the movement table to make it easier to see the skip round. It is purely cosmetic. See T10 for a full example.

Global keys can appear anywhere after the DESCEND line.

Substitute Keys

Substitute keys should be placed after the DESCEND line but before the first

Table or Relay definitions. Substitute keys provide a useful shortcut for providing long repeated key values in a following Table or Relay section. The key can be any value that does not clash with any of the Table, Relay or Global keys. The value can be anything. You refer to an earlier substitute key by prefacing it with the $ character. Here is an example from T18:

```
# The EW move for all tables
L1=E+ E+ E+ E+ E+ E+ E+ E+ E+2 E+ E+ E+ E+ E+ E+ E+
```

and is used later like so:

```
Table=1
ns=1
ew=21
board=1
boardcode=T-
nscode=N=
ewcode=$L1
```

The ewcode for all the tables in the file are all set to $L1,. You can have as many substitute keys as you wish.

Writing your own movement files

The easiest way to write your own movement file is to copy an existing one. Copy one that uses the same number of tables. Determine and change the value of the global id key, then use the table below to determine which movement file to look at to give you an example of how to do a specific movement type:

Simple Mitchell	T11
Skip Mitchell	T14
Bowman	T10Bow
Board sharing	T12R12
Substitute keys	T18
Arrow switching	T7A2
Relays	T5

Testing a new movement file

You should test a new movement file before attempting to score a session using it. There is a program called movegen.pl that will test out a movement file and optionally generate an html file of the movement that can be printed out to provide a reference. The program can also provide html files of table slips that can be printed out and placed on each table to avoid confusion for a more complicated movement. You run the program from the club folder like this:

```
perl ..\movegen.pl -f ..\moves\T10new
```

It will ensure that the movement is valid and list out the pairs and boards for each table followed by a listing of the pairs on each traveller set. You can generated a html output file by giving the -h option like so:

```
perl ..\movegen.pl -h -f ..\moves\T10new
```

This will create a file of html called T10new.html in the current folder. Open this with your browser, select "Print Preview" and change the page layout and scale so that the output fits nicely on a single sheet and then print it. If the -c option is specified, then the commentary/description from the movement file will be included in the html output. The -t option followed by a number will cause the program to produce multiple html files of table slips for the movement. The number following the -t option determines how many tables slips are produced in each output file. The output files are named from the input file name, followed by an underscore, followed by the number of the starting table in the file. So for example:

```
perl ..\movegen.pl -h -t 4 -f ..\moves\T10new
```

Will produce three files T10new_1.html, T10new_5.html and T10new_9.html. Again use the "Print Preview" option to size the output for your printer. There is one last option, -b number, that allows you to change the boards per round from the default specified in the movement file.

Converting Scorebridge result files

Many clubs use Scorebridge and I have written a small script that converts a Scorebridge result file into a "score.txt" file that can then be processed by the competition generating script, comp.pl. The script is called sb2kbs.pl and takes the path of the scorebridge file. Note that this script does not extract the traveller and pair information, you can't use this script to convert and then change the result. (It is possible, I've just not done it). The script takes the scorebridge file and using its name generates the KBS result directory, so for example with a Scorebridge file of 2012May01!!.dat the result directory would be 20120501.

One quirk of this program is that it identifies players only by name, and not by number and so if a player's name has changed through a collection of Scorebridge files a player may end up with multiple entries in the contact.csv player database file. To help avoid this the script looks at a file called 'aliases' that provides a mapping from multiple names to one. It is a sequence of lines,

each line with a list of the players' alternate name spellings separated by commas. Eg:

```
Kathy ColeMan, Katharine Coleman, Katherine Coleman
```