DLM File Format

An explanation of the DLM bridge file encoding

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Introduction

Since the PC computer became both reasonably cheap and widespread, it has been practical to use them to create bridge hands. They have many advantages, chiefly that they were extremely fast and by using some form of randomisation they didn't suffer from 'under-shuffled' hands that occurs when humans are involved.

Many years ago a Swedish company, Jannersten Förlag, manufactured the Duplimate[1] dealing machine. This takes a pack of bar-coded playing cards and deals them into the four spaces of a plastic holder or board. To make the system function a PC must be connected to the machine and sends it the required commands to run the machine mechanism. Each particular deal needs to be saved for reference and to allow other processes, for example printing the hand record to be carried out. Jannersten developed a format to store these individual deals on the disc of the PC and the format they created is the DLM format.

The names derives from the early days of the PC when files had a name of up to eight characters followed by a '.' followed by three characters which told the PC operating system what the file contained. So a deal might be called 20190402.DLM. These files are reasonably short and quite terse and only contain sufficient information to control the dealing machine. Many later formats have been created, most notable Portable Bridge Notation or .PBN and they contain a lot more information about the hands. In many respects the PBN can be used instead of a DLM as it contains all the data and usually much more. From a club perspective, the inclusion of a results table showing the number of possible tricks that could be made makes the PBN far more informative. For example, if a PBN is posted to the bridge club management website BridgeWebs (www.bridgewebs.com) and attached to a particular event, when the result becomes available it will display the hands and results table alongside the result. However in most cases without a DLM, the PBN has to be imported into the dealing program and a DLM file created from its data to drive the dealing machine.

The PBN format is an open standard and a comprehensive manual "Portable Bridge Notation Version 2.1" edited by Kaj G. Backas is freely available to download from the PBN web site www.tistis.nl/pbn. As far as I'm aware there are no documents explaining the DLM format. I have seen some discussion on web forums concerning the format, much of it largely correct but no complete documentation. Understanding the format is useful in several contexts: it allows bridge teachers with access to a dealing machine to create and store a set of hands; and it also allows competition organisers to move, swap or edit hands to suit a particular requirement.

It is not my intention to provide a mechanism for anyone to be able to inspect a set of hands with nefarious motives, but since that is easily achieved by inspecting the PBN file, I don't think I'm giving much away.

I have tested most of the logic of the format by trial and error, by changing it and then seeing if a) it still worked, b) what error it produced and c) what further changes made it work again, albeit in a changed layout. That said, some of my assertions may be not be correct, so c*aveat emptor* as the lawyers would say.

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[1] Duplimate is a registered trademark of Jannersten Förlag AB

1. File format

The contents of a DLM file are encoded as simple visible text characters. They are arranged as variable length lines with each line terminated by carriage-return [CR decimal 13] and line-feed [LF decimal 10] bytes. Consequentially they can be opened, viewed, created and edited using any flat-file editors. The editors supplied by Microsoft with Windows are Notepad or WordPad.

For no very obvious reason the DLM file contains various checksums which cross-check the contents of some lines and the structure of the file. It is therefore critical that these checksums are both present and match the data, otherwise the Jannersten Förlag dealing program DupSoft[2] will not deal the hands. It is not necessary to understand the nature of the checksums to read and recreate the hands, but it is vital if the file is changed and needs to be valid to the dealing program.

A complete DLM file is shown in Appendix A, produced by DupSoft. The line numbers on the left are not part of the file and have been added for clarity and easy of referencing.

I only have a Jannersten Duplimate machine and the associated hand creation and dealing software at my disposal, so all the testing has been done on that system. Other dealing program may have different requirements for a DLM file but having dissected both the files produced by DupSoft and those imported from ECats and the EBU, it is clear they are very similar.

The basic layout of the file is that each line begins with a keyword, followed by data pertaining to that key-word. Not all keywords are required (by DupSoft) but it is likely that if present, they must appear in the right order and in the right place. The file is in 2 parts, the top section after the keyword '[DOCUMENT]' contains the data for the deal. The second part after the keyword '[STARTUP]' provides the settings used by DupSoft when the program loads the file. In the listing in Appendix A, I have indicated in red on the right hand side whether the keyword is mandatory. Many keywords and data values are case-sensitive and need to be as shown. However the first line can be '[DOCUMENT]' which is how DupSoft creates it or '[Document]' which is how it is in the DLM files published by both ECats and the EBU for the SIM competitions.

The checksums used throughout the DLM file are calculated from the values of the data on the line and relevant preceding lines. This calculation is performed using a bitwise computation. Bitwise computation is carried out at binary level so it is unfortunate but necessary to understand binary notation of integer numbers. If you are already familiar with binary notation please skip the following section.

1.1. Binary notation

Our decimal numbering system uses ten distinct digits – hence decimal. The number are arranged so the 'units' are on the right-hand side, the '10s' to the left on the units, the '100s' to the left of the '10s', etc. Binary notation works in a similar way except that as the name implies there are only two values - 0 or 1. This is an inherent requirement of digital computers because the internal elements carrying out the computations will either be on or off. In binary notation the right-hand column has a value, if set, of 1. The column to the left will be a 2, the next column a 4, then 8, 16, 32, 64, 128, 256… i.e. each is double the previous one, or powers of 2 to be pedantic. So for example the binary number 1001101 means 64 + 8 + 4 + 1 = 77 and 10100 means 16 + 4 = 20. Just like with decimal numbers, however many digits are shown, they are assumed to start from the right hand side.

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[2] DupSoft is a registered trademarks of Jannersten Förlag AB

1.2. Bitwise OR computation

Although of dubious value within a DLM file, a checksum provides a cross-check of the data. If a run-time calculation of a checksum based on the data doesn't match the checksum in the file, then there is clearly an error. Whether the checksum in the file or the data has been corrupted is not known and consequentially it can't be used to correct the data.

One way of creating a checksum is to compare the binary bits of two numbers and if either have a '1' in a particular column, then the same bit is set in the resultant checksum. This is known as a bitwise OR operation. For example, taking the two numbers 10 and 20, transposing them to binary and ORing them would give:

10 in binary	01010
20 in binary	10100
OR checksum:	11110 (decimal 30)

There is one issue, carefully avoided in the example above, what should be the result if both numbers have a 1 in a particular column? Setting the resultant bit when both numbers have a 1 in a particular column in known as an Inclusive OR and not setting it when both numbers have a 1 in a particular column is an Exclusive OR (XOR). Both types of OR are equally valid but may produce very different results. When using an inclusive OR the checksum can only increase in size as extra values are combined, whereas with an exclusive OR the checksum can get smaller and even reduce to 0. So while the example above produces a checksum of 30 (decimal) for either type of OR, combining two identical numbers, for example 20 and 20 would result in an inclusive OR checksum of 20, but 0 for the exclusive OR. This makes the exclusive OR more useful in the context of checksums and is used exclusively in the DLM file format. At the risk of stating the obvious, a value of 0 does not influence the outcome of any logical test.

1.3. DLM File Mandatory keywords

1.3.1. Status= (Line 3)

This must have the value Status=Show or Status=Edit. Normally this will be Status=Show (which has a numeric value of 0) as Edit means that DupSoft was in editing mode when the deal was saved. Any deviation from the format will result in a "Cannot find status field in file" followed by the general error "Error opening document" when DupSoft attempts to open the file. Setting this to Edit also contributes a value of 3 into the file checksum at line 11, whereas Show has a value of 0 and therefore does not affect the checksum.

1.3.2. Duplicates= (Line 4)

This indicates to DupSoft how many complete sets of hands should be deal in Auto Duplication mode. In most cases it is left set to 0 as shown. There are three reasons: firstly, if set to anything other than 0 its value must be included in the file checksum at line 11. Secondly, it is not often more than one set of identical hands are required and if multiple copies are required, then it is not arduous to select the first hand and then click the "Auto Duplication button". Finally, a board can be dealt any number of times, irrespective of the setting in Duplicates= and the number of times is held in board checksum in Line 14 (see 1.3.7 below).

1.3.3. From board= and To board= (Lines 5 & 6)

These values, as might be imagined, are the lowest and highest hand numbers in the deal. They can appear in either order although typically "From" appears before the "To". Note that with the "Duplicates=" value at line 3 (see 1.3.2 above) they contributes to the file checksum at line 11.

1.3.4. Dealing method= (Line 7)

This value is virtually always set to 1. It only gets set to 2, 3 or 4 if DupSoft is in edit mode and as with the previous values it contribute to the file checksum at line 11.

1.3.5. Next board to duplimate= (Line 8)

This value is virtually always set to 0. If the number of sets to be duplicated at line 4 (see 1.3.2 above) is set to a value higher than 0 and the number of duplicates dealt for a particular board has been reached, it gets set to number of the lowest board that still requires dealing. If it set to anything higher than 0, it contributes to the file checksum at line 11.

1.3.6. Checksum= (Line 11)

As previously mentioned this keyword is the checksum for most of the lines mentioned above. So in the example in Appendix A:
1. The Status is set to Show so doesn't contribute;
2. The number of duplicates is set to 0 so doesn't contribute;
3. The From board is set to 1;
4. The To board is set to 32;
5. The dealing method is set to 1;
6. The Next board to duplimate is set to 0 so doesn't contribute.

The creation of the checksum becomes:

From (1):	000001	
To (32):	100000	
XOR:	100001 (33 decimal)	
Method(1):	000001	
XOR:	100000 (32 decimal)	

As a second example, consider a deal as follows:

1. The Status is set to Show so doesn't contribute;
2. The number of duplicates is set to 0 so doesn't contribute;
3. The From board is set to 10;
4. The To board is set to 24;
5. The dealing method is set to 1;
6. The Next board to duplimate is set to 1.

The creation of the checksum becomes:

From (10):	001010	
To (24):	011000	
XOR:	010010 (18 decimal)	
Method (1):	000001	
XOR:	010011 (19 decimal)	
Next board(1):	000001	
XOR:	010010 (18 decimal)	

If the checksum in line 11 doesn't match with the checksum calculated from the data in the file, DupSoft will stop with the error "Invalid checksum!" followed by the general error "Error opening document".

1.3.7. Duplicates, Properties and Board (Lines 12, 13 and 14)

From lines 12 to 99 the individual hands are defined. These lines repeat in sets of 3 from board 1 to board 99. It is worth noting that whatever the lowest and highest board number, all hands from numbers 1 to 99 are always included. Line 13, (the line: Property 01=1) is not mandatory and is usually omitted in deal files published by both ECats and the EBU, possibly files not created by DupSoft. The line does not contribute to the checksum in line 14. The Duplicates= line (Line 12) keeps track of how many times (if any) the board has been dealt. When the board is initially created it will have a value of 0 i.e. Duplicates 01=0 (for board 1), which will increment each time the board is dealt. This value (if not 0) contributes to the checksum at the end of line 14. Line 14 provides the disposition of the card within the 4 hands as follows:

Following the board number are 26 letters that define the disposition of the 52 cards. For example:
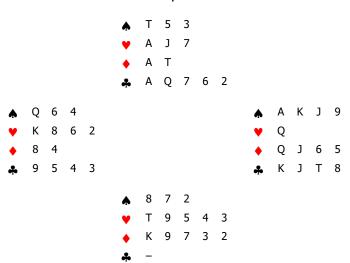
```
Board 01=fnbkmmincldklcfcofoiefnapm018
```

The position of each letter refers to two cards as though the pack was sorted into suits and ranks as shown below:

Posn.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
First	A♠	Q♠	T♠	8♠	6♠	4♠	2♠	K♥	J♥	9♥	7♥	5♥	3♥	A♦	Q♦	T♦	8♦	6♦	4♦	2♦	K♣	J♣	9♣	7♣	5♣	3♣
Second	K♠	J♠	9♠	7♠	5♠	3♠	A♥	Q♥	T♥	8♥	6♥	4♥	2♥	K♦	J♦	9♦	7♦	5♦	3♦	A♣	Q♣	T♣	8♣	6♣	4♣	2♣

The letter value defines the disposition of the two cards, using clockwise 'compass' notation for the hands i.e. (N)orth, (E)ast, (S)outh and (W)est as follows:

Letter	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p
First	N	N	N	N	E	E	E	E	S	S	S	S	W	W	W	W
Second	N	E	S	W	N	E	S	W	N	E	S	W	N	E	S	W

Numeric values used for checksum:															
No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

The first letter in the example 'f' defines that the A♠ is in the East hand and that the K♠ is also in the East hand. The thirteenth letter (l) defines that 3♥ is in the South hand and the 2♥ is in the West hand. The final letter (m) defines that 3♣ is in the West hand and the 2♣ is in the North hand. The letters are always lower-case and using upper-case will cause a checksum error. The complete set of four hands is:

```
                ♠  T 5 3
                ♥  A J 7
                ♦  A T
                ♣  A Q 7 6 2

  ♠ Q 6 4                        ♠  A K J 9
  ♥ K 8 6 2                      ♥  Q
  ♦ 8 4                          ♦  Q J 6 5
  ♣ 9 5 4 3                      ♣  K J T 8

                ♠  8 7 2
                ♥  T 9 5 4 3
                ♦  K 9 7 3 2
                ♣  –
```

The final part of the line is the checksum:

```
Board 01=fnbkmmincldklcfcofoiefnapm018
```

As with the previous checksum, it is a progressive XOR based on the letters of the card disposition string, the board number and number of Duplicates. Since the checksum has to be numeric, each letter is assigned a numeric value with a as 1, b as 2 and working through to p as 16, as shown in the No. row of the table above.

For the example above, taking each letter in turn:

The creation of the checksum becomes:

f (6):		000110
n (14):		001110
	XOR:	001000 (8 decimal)
b (2):		000010
	XOR:	001010 (10 decimal)
k (11):		001011
	XOR:	000001 (1 decimal)
m (13):		001101
	XOR:	001100 (12 decimal)
m (13):		001101
	XOR:	000001 (1 decimal)
i (9):		001001
	XOR:	001000 (8 decimal)
n (14):		001110
	XOR:	000110 (6 decimal)
c (3):		000011
	XOR:	000101 (5 decimal)
l (12):		001100
	XOR:	001001 (9 decimal)
d (4):		000100
	XOR:	001101 (13 decimal)
k (11):		001011
	XOR:	000110 (6 decimal)
l (12):		001100
	XOR:	001010 (10 decimal)
c (3):		000011
	XOR:	001001 (9 decimal)
f (6):		000110
	XOR:	001111 (15 decimal)
c (3):		000011
	XOR:	001100 (12 decimal)
o (15):		001111
	XOR:	000011 (3 decimal)
f (6):		000110
	XOR:	000101 (5 decimal)
o (15):		001111
	XOR:	001010 (10 decimal)
i (9):		001001
	XOR:	000011 (3 decimal)
e (5):		000101
	XOR:	000110 (6 decimal)
f (6):		000110
	XOR:	000000 (0 decimal)

n (14):		<u>001110</u>
	XOR:	001110 (14 decimal)
a (1):		<u>000001</u>
	XOR:	001111 (15 decimal)
p (16):		<u>010000</u>
	XOR:	011111 (31 decimal)
m (13):		<u>001101</u>
	XOR:	010010 (18 decimal)

And then combining this with the board number and duplicates:

Board (1):		<u>000001</u>
	XOR:	010011 (19 decimal)
Duplicates(1):		<u>000001</u>
	XOR:	010010 (18 decimal)

This decimal value is padded with leading zeros to 3 figures so becomes 018.

Some dealing programs set unused hand strings to:

<u>Board xx= aaaaaabffffffkkkkkklpppppp[*]</u>

[*]   Note: the checksum has been removed for clarity

This means the hand has not been dealt, since north holds all thirteen spades, East holds all thirteen heart, South holds thirteen diamonds and West therefore all thirteen clubs. This may be an issue if the highest board number in a set is reset to a value in the sorted hand range.

Hands beyond the To value in line 6 do appear to be sorted with files from ECats and the EBU, as can be seen in the Children In Need simultaneous pairs hands in Appendix B, but not by DupSoft as in Appendix A.

If the checksum shown for the board doesn't match with the checksum calculated from the data, DupSoft will stop with the error "Checksum error on board x" followed by the general error "Error opening document".

1.4.   Startup parameters

The startup parameters from line 310 onward in Appendix A are those set in the dealing software. They appear to be optional as the [STARTUP] line (line 309). Deals imported from ECats and the EBU usually one have one parameter specified:

```
SuppressDeals=Yes
```

This prevents the hand from being displayed on the screen.

2. PBN Equivalent format

As previously mentioned, all the data held in a DLM files can be held in a deal file in PBN format. In fact, the PBN format can contain a great deal more information including the auction, play, result and even a commentary. It can also hold a table giving the number of tricks that each of the hands could make in every denomination and the optimum score. This is in addition to the 'mechanical' details of the vulnerability and which hand is dealer. Since the data in a DLM format is very sparse, it is very easy to create a basic PBN file that contains only the same data. It must contain 15 mandatory lines for each deal.

As with the DLM format, the contents of a PBN file are encoded as simple visible text characters. They are arranged as variable length lines and consequentially they can be manipulated using any flat-file editor.

It is not my intention to explain the PBN format – the document mentioned in the Introduction does that extremely well and is from the 'horse's mouth'.

A complete listing for a PBN file is shown in Appendix C. This is same set of hands as for the DLM format in Appendix A. There are some differences worth noting:

- The file only contains the hands within the 'dealt' range i.e. the inclusive range as specified in the DLM file lines 'From Board' and 'To board';

- The dealer and vulnerability must be shown. The PBN standard allows these to be set to "?" if they are unknown, but since the dealer and vulnerability follow predetermined patterns it is quite easy to provide a value;

- The order in which the cards are distributed is given at the beginning of each Deal line. Typically the first hand is the dealer, and the hands are specified in a clockwise direction;

- Each deal must be separated by a blank line.

Appendix A - DupSoft Example File

		Mandatory Line
1	[DOCUMENT]	No
2	Headline=	No
3	Status=Show	Yes
4	Duplicates=0	Yes
5	From board=1	Yes
6	To board=32	Yes
7	Dealing method=1	No
8	Next board to duplimate=0	Yes
9	PrintOuts=0	No
10	Crypto key=0	No
11	Checksum=32	Yes
12	Duplicates 01=1	Yes
13	Property 01=1	No
14	Board 01=fnbkmmincldklcfcofoiefnapm018	Yes
15	Duplicates 02=1	Yes
16	Property 02=1	No
17	Board 02=mnmcjohnmfhekkmdakkjnmbhie012	Yes
18	Duplicates 03=1	Yes
19	Property 03=1	No
20	Board 03=illdhoinjbmadhojajgcnndgjb006	Yes
21	Duplicates 04=1	Yes
22	Property 04=1	No
23	Board 04=hdojdjmkbeeeodfpjcdhnbkimk019	Yes
24	Duplicates 05=1	Yes
25	Property 05=1	No
26	Board 05=djbifojmdhbackbpkngemlfpli015	Yes
27	Duplicates 06=1	Yes
28	Property 06=1	No
29	Board 06=chbakngjoppjcncgbaaodjnnbo005	Yes
30	Duplicates 07=1	Yes
31	Property 07=1	No
32	Board 07=cifiblfngecndbpekpllhhcalc015	Yes
33	Duplicates 08=1	Yes
34	Property 08=1	No
35	Board 08=gfbkadamefpkdpkhkeahjpjlhc023	Yes
36	Duplicates 09=1	Yes
37	Property 09=1	No
38	Board 09=pfhipdjgkibmplbaebgeeloilg021	Yes
39	Duplicates 10=1	Yes
40	Property 10=1	No
41	Board 10=allncniepaiflfclkpnangnebk001	Yes
42	Duplicates 11=1	Yes
43	Property 11=1	No
44	Board 11=ifakpkefncfmnlfoeodgmiimod024	Yes
45	Duplicates 12=1	Yes
46	Property 12=1	No
47	Board 12=bbacolffgiomogcobmhdpgbogm023	Yes
48	Duplicates 13=1	Yes
49	Property 13=1	No
50	Board 13=hiepjmpgalnnnlifojakejabmk013	Yes
51	Duplicates 14=1	Yes
52	Property 14=1	No
53	Board 14=mmmknlkjbjhbjckfbmebinlddp031	Yes
54	Duplicates 15=1	Yes
55	Property 15=1	No
56	Board 15=lfknddkcahodbjjgoajmhdpfga027	Yes
57	Duplicates 16=1	Yes
58	Property 16=1	No
59	Board 16=klflbcpfjgaegcghiaalpfppdc029	Yes
60	Duplicates 17=1	Yes
61	Property 17=1	No
62	Board 17=cpnfknanjeiokccbcbpnhdpieg009	Yes

63	Duplicates 18=1	Yes
64	Property 18=1	No
65	Board 18=digfhladjdclckgjekmdphfepe019	Yes
66	Duplicates 19=1	Yes
67	Property 19=1	No
68	Board 19=hkaaonfjhdnblealbonccnbkpk007	Yes
69	Duplicates 20=1	Yes
70	Property 20=1	No
71	Board 20=ckbiclfmenpleicepngfkdmhin029	Yes
72	Duplicates 21=1	Yes
73	Property 21=1	No
74	Board 21=oddkdgfclhefaamkkodhkfnemh028	Yes
75	Duplicates 22=1	Yes
76	Property 22=1	No
77	Board 22=bfpcjdggbofbojicelamlcpdlh018	Yes
78	Duplicates 23=1	Yes
79	Property 23=1	No
80	Board 23=bkgncdgepahnlcpfahcelednkk017	Yes
81	Duplicates 24=1	Yes
82	Property 24=1	No
83	Board 24=ifkehmjpchjocejeeiljdddnld008	Yes
84	Duplicates 25=1	Yes
85	Property 25=1	No
86	Board 25=ionpdfcobidmiokflfablmfncj014	Yes
87	Duplicates 26=1	Yes
88	Property 26=1	No
89	Board 26=egkblicpmcafmmnndjnijpcjnj017	Yes
90	Duplicates 27=1	Yes
91	Property 27=1	No
92	Board 27=bnieiejfmeopoekcgmpihlaojn018	Yes
93	Duplicates 28=1	Yes
94	Property 28=1	No
95	Board 28=paijcbffljekdcjpdnoocfipbd011	Yes
96	Duplicates 29=1	Yes
97	Property 29=1	No
98	Board 29=eifmfjeamlfpogialkoedhdllj011	Yes
99	Duplicates 30=1	Yes
100	Property 30=1	No
101	Board 30=bhlnmojadbcpejnkbmgkolbjbm006	Yes
102	Duplicates 31=1	Yes
103	Property 31=1	No
104	Board 31=epdoegindljlnkmoafbjhiieih015	Yes
105	Duplicates 32=1	Yes
106	Property 32=1	No
107	Board 32=abhaincphbbjodnninkljijhdk056	Yes
108	Duplicates 33=0	Yes
109	Property 33=1	No
110	Board 33=hbohankkokfoahamaghpamkffo061	Yes
111	Duplicates 34=0	Yes
112	Property 34=1	No
113	Board 34=cekkjnbhkceeeppgegbmcpcpmn046	Yes
114	Duplicates 35=0	Yes
115	Property 35=1	No
116	Board 35=jcoogoeohpmdekifefgcapidne040	Yes
117	Duplicates 36=0	Yes
118	Property 36=1	No
119	Board 36=oakbfggpaohcijdnncefgdmlip044	Yes
120	Duplicates 37=0	Yes
121	Property 37=1	No
122	Board 37=olnojakbcapbgbgniphcjdenni041	Yes
123	Duplicates 38=0	Yes
124	Property 38=1	No
125	Board 38=ahmkmfcmpiefoojgihigmmhihj055	Yes
126	Duplicates 39=0	Yes
127	Property 39=1	No

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128     Board 39=najfjmelbhcpcdlflajpdlegik033              Yes
129     Duplicates 40=0                                     Yes
130     Property 40=1                                       No
131     Board 40=dbknnnhnnkcllpoeoeeajigabi049              Yes
132     Duplicates 41=0                                     Yes
133     Property 41=1                                       No
134     Board 41=alaokkbjbhdmgkmjndhjecpbhh054              Yes
135     Duplicates 42=0                                     Yes
136     Property 42=1                                       No
137     Board 42=miinlkoanbkgneniplnmbgibeh048              Yes
138     Duplicates 43=0                                     Yes
139     Property 43=1                                       No
140     Board 43=hnhjoflnceigdccecmcadhpljj049              Yes
141     Duplicates 44=0                                     Yes
142     Property 44=1                                       No
143     Board 44=aoeceobhohkcoggbnldiphbfal056              Yes
144     Duplicates 45=0                                     Yes
145     Property 45=1                                       No
146     Board 45=pobagdjnbplfgimimdmfijgdkj039              Yes
147     Duplicates 46=0                                     Yes
148     Property 46=1                                       No
149     Board 46=igcoiigdlihgabehfhflapbppk055              Yes
150     Duplicates 47=0                                     Yes
151     Property 47=1                                       No
152     Board 47=lmgicnmegihohhbopcflebniak050              Yes
153     Duplicates 48=0                                     Yes
154     Property 48=1                                       No
155     Board 48=nligddmbifdoogiafgjndfapkl038              Yes
156     Duplicates 49=0                                     Yes
157     Property 49=1                                       No
158     Board 49=dinnaadhjajlhmbokkhlhecfnk060              Yes
159     Duplicates 50=0                                     Yes
160     Property 50=1                                       No
161     Board 50=abpdpikkhehfnkleahkbjhoeao053              Yes
162     Duplicates 51=0                                     Yes
163     Property 51=1                                       No
164     Board 51=ofnkoonakdndkfamgplagnbfai043              Yes
165     Duplicates 52=0                                     Yes
166     Property 52=1                                       No
167     Board 52=hnpinehcepclgckoibadcfoofe057              Yes
168     Duplicates 53=0                                     Yes
169     Property 53=1                                       No
170     Board 53=kkmammhkghfeamjpfpdgocbgih061              Yes
171     Duplicates 54=0                                     Yes
172     Property 54=1                                       No
173     Board 54=habcphpcjfkebpjoakhcmahgkh033              Yes
174     Duplicates 55=0                                     Yes
175     Property 55=1                                       No
176     Board 55=hbkidmhflaoniggjhpakdlenbc039              Yes
177     Duplicates 56=0                                     Yes
178     Property 56=1                                       No
179     Board 56=nceejkplhghbooecekdhmaehli045              Yes
180     Duplicates 57=0                                     Yes
181     Property 57=1                                       No
182     Board 57=hglmlkpcibmnemkeindgmffkah038              Yes
183     Duplicates 58=0                                     Yes
184     Property 58=1                                       No
185     Board 58=knkamlaffjicflepbpcfekdpod044              Yes
186     Duplicates 59=0                                     Yes
187     Property 59=1                                       No
188     Board 59=fklndnmhciaeohflgalemgdojc063              Yes
189     Duplicates 60=0                                     Yes
190     Property 60=1                                       No
191     Board 60=meplnchioncehinbimilijobjf045              Yes
192     Duplicates 61=0                                     Yes
```

193	Property 61=1	No
194	Board 61=ekfajiilhjllcmflmhhpeeemkm039	Yes
195	Duplicates 62=0	Yes
196	Property 62=1	No
197	Board 62=aipflpklcealaebcjfchjpfhll038	Yes
198	Duplicates 63=0	Yes
199	Property 63=1	No
200	Board 63=gnocmoikelcnnemmilfhjhbmbi056	Yes
201	Duplicates 64=0	Yes
202	Property 64=1	No
203	Board 64=ikilpijfaddkhgnodcbalephff067	Yes
204	Duplicates 65=0	Yes
205	Property 65=1	No
206	Board 65=fghpgjboonbcedanmcmnkcdihk093	Yes
207	Duplicates 66=0	Yes
208	Property 66=1	No
209	Board 66=ifjknilmmofemmlhcaefphiojc089	Yes
210	Duplicates 67=0	Yes
211	Property 67=1	No
212	Board 67=icdkfglakhcgfplnghdaealhmh086	Yes
213	Duplicates 68=0	Yes
214	Property 68=1	No
215	Board 68=ghjikcbiahcdonpgaecphgnnjm076	Yes
216	Duplicates 69=0	Yes
217	Property 69=1	No
218	Board 69=pfmflmammoohigkojabbkflhec094	Yes
219	Duplicates 70=0	Yes
220	Property 70=1	No
221	Board 70=mdilbofcfaaenjjlchaghpjlkp075	Yes
222	Duplicates 71=0	Yes
223	Property 71=1	No
224	Board 71=bhdancijkhnepkpjmgofmfaioi073	Yes
225	Duplicates 72=0	Yes
226	Property 72=1	No
227	Board 72=ccdgnmehlilhpdiknbcdbjdkff094	Yes
228	Duplicates 73=0	Yes
229	Property 73=1	No
230	Board 73=dglbnbmmnkmbegiocngkpeiflm092	Yes
231	Duplicates 74=0	Yes
232	Property 74=1	No
233	Board 74=lkgcchogipfhmfgddhpbcabchi073	Yes
234	Duplicates 75=0	Yes
235	Property 75=1	No
236	Board 75=admbchgdapfipgngcngkjmggip086	Yes
237	Duplicates 76=0	Yes
238	Property 76=1	No
239	Board 76=ljfnjamcohjamoggbldgjedpmc081	Yes
240	Duplicates 77=0	Yes
241	Property 77=1	No
242	Board 77=gfdkeldgnccedlnmimdohfigih071	Yes
243	Duplicates 78=0	Yes
244	Property 78=1	No
245	Board 78=hgodgblpeceoodbbalnmejkkbh095	Yes
246	Duplicates 79=0	Yes
247	Property 79=1	No
248	Board 79=megfmgckebhonpjmpledekieoi068	Yes
249	Duplicates 80=0	Yes
250	Property 80=1	No
251	Board 80=malifhpibaepjanlcfjoogikhh091	Yes
252	Duplicates 81=0	Yes
253	Property 81=1	No
254	Board 81=jjgljmjmoaohhdjbohdgaegoam083	Yes
255	Duplicates 82=0	Yes
256	Property 82=1	No
257	Board 82=opihngnajnanmogonkajebieio072	Yes

```
258    Duplicates 83=0                                      Yes
259    Property 83=1                                        No
260    Board 83=kgkbmjhpmpnmlkgbcbagnjmebm081               Yes
261    Duplicates 84=0                                      Yes
262    Property 84=1                                        No
263    Board 84=kkcdbmnjdgdneplgbglioehbna064               Yes
264    Duplicates 85=0                                      Yes
265    Property 85=1                                        No
266    Board 85=ljdjfglogibapohadagkiefpnm084               Yes
267    Duplicates 86=0                                      Yes
268    Property 86=1                                        No
269    Board 86=cegclofbdhpibmfhmmhkinokga065               Yes
270    Duplicates 87=0                                      Yes
271    Property 87=1                                        No
272    Board 87=ccdfpegeaoonikpleogedmbljf080               Yes
273    Duplicates 88=0                                      Yes
274    Property 88=1                                        No
275    Board 88=odiegapflcjolldgabghmnbjgd066               Yes
276    Duplicates 89=0                                      Yes
277    Property 89=1                                        No
278    Board 89=gpkfpccekmapgldegeneibpgjm089               Yes
279    Duplicates 90=0                                      Yes
280    Property 90=1                                        No
281    Board 90=ofjklemeecafakjpmkljpbhahp065               Yes
282    Duplicates 91=0                                      Yes
283    Property 91=1                                        No
284    Board 91=ilokmohdfgjjcfhpieddigdnab067               Yes
285    Duplicates 92=0                                      Yes
286    Property 92=1                                        No
287    Board 92=ffpcmmlhnkoibboibmjbolelcb066               Yes
288    Duplicates 93=0                                      Yes
289    Property 93=1                                        No
290    Board 93=gcbeocjanfndllekholepodfia078               Yes
291    Duplicates 94=0                                      Yes
292    Property 94=1                                        No
293    Board 94=ddohehlbplaoakibgkmffgndjc076               Yes
294    Duplicates 95=0                                      Yes
295    Property 95=1                                        No
296    Board 95=ibgpjjommemjkdgfplajjdmagn092               Yes
297    Duplicates 96=0                                      Yes
298    Property 96=1                                        No
299    Board 96=jmnelfencbhpfghkiaodlkoiad113               Yes
300    Duplicates 97=0                                      Yes
301    Property 97=1                                        No
302    Board 97=djefpcmkfckhlnpbicbbinodcn100               Yes
303    Duplicates 98=0                                      Yes
304    Property 98=1                                        No
305    Board 98=gnjeahaooakdfgjnkcdnoegddp120               Yes
306    Duplicates 99=0                                      Yes
307    Property 99=1                                        No
308    Board 99=becjkodgmgfdbhiljhlmiimmpf120               Yes
309    [STARTUP]                                            No
310    Statistics=Yes                                       No
311    SuppressDeals=No                                     No
312    Add filename=Yes                                     No
313    Makeable=1                                           No
314    Reversed=0                                           No
315    All copies=1                                         No
```

Appendix B - C.I.N. Example File

Note that only the boards in play (1 – 32) have been dealt, 33 onwards are sorted. Opening the hands in DupSoft does not change the file, so dealing any number above 32 would deal sorted hands. The odds against each player having a complete suit are immense, the chances of it happening on a number of consecutives hands is miniscule, so the players will be rightfully suspicious.

```
 1   [Document]
 2   Headline=Children In Need
 3   Status=Show
 4   Duplicates=1
 5   From board=1
 6   To board=32
 7   Next board to duplimate=0
 8   PrintOuts=0
 9   Crypto key=0
10   Checksum=33
11   Duplicates 01=0
12   Board 01=kigmklemgefppblonmfdgiimeb015
13   Duplicates 02=0
14   Board 02=caplefipgaahbpopjgkegfpgka027
15   Duplicates 03=0
16   Board 03=ijljlmafppnecnmfakmbiklejn007
17   Duplicates 04=0
18   Board 04=mcifkkbaonplfmfmgldpajibhg011
19   Duplicates 05=0
20   Board 05=eadlhakfkhejimneakjnlpkhnm028
21   Duplicates 06=0
22   Board 06=eeamebglokbncklodhpmjofncb024
23   Duplicates 07=0
24   Board 07=paldadhcdgjkjbeppfofjekgdi030
25   Duplicates 08=0
26   Board 08=cabdhhpdgbhbhldighkkkhjgda026
27   Duplicates 09=0
28   Board 09=eghccpgoohohifaehgnidcjmdi021
29   Duplicates 10=0
30   Board 10=mbgleogmlhbpkemhmikgbihbeo016
31   Duplicates 11=0
32   Board 11=ecdckbelknnbalggcnpbnpgode006
33   Duplicates 12=0
34   Board 12=gjmobjpehijdpleioiijaaflhn008
35   Duplicates 13=0
36   Board 13=gcoinohdnffoacfdmighldioib013
37   Duplicates 14=0
38   Board 14=cojbdbcjbflkahpaclfoplhjan009
39   Duplicates 15=0
40   Board 15=mohafgglgcgfpbkhdpbdaglccd006
41   Duplicates 16=0
42   Board 16=bmmmfgehpmollbknnfifdckcka004
43   Duplicates 17=0
44   Board 17=liniflfdckioankefnbomaifpp018
45   Duplicates 18=0
46   Board 18=fkmmecllecloedbfknhhlanakh029
47   Duplicates 19=0
48   Board 19=ggmimpgnaalmebhcifgkdnknno003
49   Duplicates 20=0
50   Board 20=ldecgeofoaombconomhefgjdoc017
51   Duplicates 21=0
52   Board 21=floobnadgndebfldllogbdkacj031
53   Duplicates 22=0
54   Board 22=lpfdjcbknecfkghpdgcmaipeob015
55   Duplicates 23=0
```

```
 56    Board 23=cfmhegdkhngaoejilnipfloaal001
 57    Duplicates 24=0
 58    Board 24=ljpkijbpajfipbgggpcpadnbbc014
 59    Duplicates 25=0
 60    Board 25=mlmlaghmochkoedengdngjafgi025
 61    Duplicates 26=0
 62    Board 26=noamajaonblnfbnenoonmckikj030
 63    Duplicates 27=0
 64    Board 27=jdcpiendkhnmbjlhbbccjohcjm005
 65    Duplicates 28=0
 66    Board 28=fkenlngablbkoobcaofipnabpo027
 67    Duplicates 29=0
 68    Board 29=loocjmdampfehhbcgcpgofgagi029
 69    Duplicates 30=0
 70    Board 30=klmhkehinalnpfekhobcfbiidm013
 71    Duplicates 31=0
 72    Board 31=mcaaipgmckhegjgdknfdnmjnnl011
 73    Duplicates 32=0
 74    Board 32=hjedammejidlokdhggjbfomhco044
 75    Duplicates 33=0
 76    Board 33=aaaaaabffffffkkkkkklpppppp047
 77    Duplicates 34=0
 78    Board 34=aaaaaabffffffkkkkkklpppppp044
 79    Duplicates 35=0
 80    Board 35=aaaaaabffffffkkkkkklpppppp045
 81    Duplicates 36=0
 82    Board 36=aaaaaabffffffkkkkkklpppppp042
 83    Duplicates 37=0
 84    Board 37=aaaaaabffffffkkkkkklpppppp043
 85    Duplicates 38=0
 86    Board 38=aaaaaabffffffkkkkkklpppppp040
 87    Duplicates 39=0
 88    Board 39=aaaaaabffffffkkkkkklpppppp041
 89    Duplicates 40=0
 90    Board 40=aaaaaabffffffkkkkkklpppppp038
 91    Duplicates 41=0
 92    Board 41=aaaaaabffffffkkkkkklpppppp039
 93    Duplicates 42=0
 94    Board 42=aaaaaabffffffkkkkkklpppppp036
 95    Duplicates 43=0
 96    Board 43=aaaaaabffffffkkkkkklpppppp037
 97    Duplicates 44=0
 98    Board 44=aaaaaabffffffkkkkkklpppppp034
 99    Duplicates 45=0
100    Board 45=aaaaaabffffffkkkkkklpppppp035
101    Duplicates 46=0
102    Board 46=aaaaaabffffffkkkkkklpppppp032
103    Duplicates 47=0
104    Board 47=aaaaaabffffffkkkkkklpppppp033
105    Duplicates 48=0
106    Board 48=aaaaaabffffffkkkkkklpppppp062
107    Duplicates 49=0
108    Board 49=aaaaaabffffffkkkkkklpppppp063
109    Duplicates 50=0
110    Board 50=aaaaaabffffffkkkkkklpppppp060
111    Duplicates 51=0
112    Board 51=aaaaaabffffffkkkkkklpppppp061
113    Duplicates 52=0
114    Board 52=aaaaaabffffffkkkkkklpppppp058
115    Duplicates 53=0
116    Board 53=aaaaaabffffffkkkkkklpppppp059
117    Duplicates 54=0
118    Board 54=aaaaaabffffffkkkkkklpppppp056
119    Duplicates 55=0
120    Board 55=aaaaaabffffffkkkkkklpppppp057
```

```
121    Duplicates 56=0
122    Board 56=aaaaaabffffffkkkkkklpppppp054
123    Duplicates 57=0
124    Board 57=aaaaaabffffffkkkkkklpppppp055
125    Duplicates 58=0
126    Board 58=aaaaaabffffffkkkkkklpppppp052
127    Duplicates 59=0
128    Board 59=aaaaaabffffffkkkkkklpppppp053
129    Duplicates 60=0
130    Board 60=aaaaaabffffffkkkkkklpppppp050
131    Duplicates 61=0
132    Board 61=aaaaaabffffffkkkkkklpppppp051
133    Duplicates 62=0
134    Board 62=aaaaaabffffffkkkkkklpppppp048
135    Duplicates 63=0
136    Board 63=aaaaaabffffffkkkkkklpppppp049
137    Duplicates 64=0
138    Board 64=aaaaaabffffffkkkkkklpppppp078
139    Duplicates 65=0
140    Board 65=aaaaaabffffffkkkkkklpppppp079
141    Duplicates 66=0
142    Board 66=aaaaaabffffffkkkkkklpppppp076
143    Duplicates 67=0
144    Board 67=aaaaaabffffffkkkkkklpppppp077
145    Duplicates 68=0
146    Board 68=aaaaaabffffffkkkkkklpppppp074
147    Duplicates 69=0
148    Board 69=aaaaaabffffffkkkkkklpppppp075
149    Duplicates 70=0
150    Board 70=aaaaaabffffffkkkkkklpppppp072
151    Duplicates 71=0
152    Board 71=aaaaaabffffffkkkkkklpppppp073
153    Duplicates 72=0
154    Board 72=aaaaaabffffffkkkkkklpppppp070
155    Duplicates 73=0
156    Board 73=aaaaaabffffffkkkkkklpppppp071
157    Duplicates 74=0
158    Board 74=aaaaaabffffffkkkkkklpppppp068
159    Duplicates 75=0
160    Board 75=aaaaaabffffffkkkkkklpppppp069
161    Duplicates 76=0
162    Board 76=aaaaaabffffffkkkkkklpppppp066
163    Duplicates 77=0
164    Board 77=aaaaaabffffffkkkkkklpppppp067
165    Duplicates 78=0
166    Board 78=aaaaaabffffffkkkkkklpppppp064
167    Duplicates 79=0
168    Board 79=aaaaaabffffffkkkkkklpppppp065
169    Duplicates 80=0
170    Board 80=aaaaaabffffffkkkkkklpppppp094
171    Duplicates 81=0
172    Board 81=aaaaaabffffffkkkkkklpppppp095
173    Duplicates 82=0
174    Board 82=aaaaaabffffffkkkkkklpppppp092
175    Duplicates 83=0
176    Board 83=aaaaaabffffffkkkkkklpppppp093
177    Duplicates 84=0
178    Board 84=aaaaaabffffffkkkkkklpppppp090
179    Duplicates 85=0
180    Board 85=aaaaaabffffffkkkkkklpppppp091
181    Duplicates 86=0
182    Board 86=aaaaaabffffffkkkkkklpppppp088
183    Duplicates 87=0
184    Board 87=aaaaaabffffffkkkkkklpppppp089
185    Duplicates 88=0
```

```
186    Board 88=aaaaaabffffffkkkkkklpppppp086
187    Duplicates 89=0
188    Board 89=aaaaaabffffffkkkkkklpppppp087
189    Duplicates 90=0
190    Board 90=aaaaaabffffffkkkkkklpppppp084
191    Duplicates 91=0
192    Board 91=aaaaaabffffffkkkkkklpppppp085
193    Duplicates 92=0
194    Board 92=aaaaaabffffffkkkkkklpppppp082
195    Duplicates 93=0
196    Board 93=aaaaaabffffffkkkkkklpppppp083
197    Duplicates 94=0
198    Board 94=aaaaaabffffffkkkkkklpppppp080
199    Duplicates 95=0
200    Board 95=aaaaaabffffffkkkkkklpppppp081
201    Duplicates 96=0
202    Board 96=aaaaaabffffffkkkkkklpppppp110
203    Duplicates 97=0
204    Board 97=aaaaaabffffffkkkkkklpppppp111
205    Duplicates 98=0
206    Board 98=aaaaaabffffffkkkkkklpppppp108
207    Duplicates 99=0
208    Board 99=aaaaaabffffffkkkkkklpppppp109
209    [STARTUP]
210    SuppressDeals=Yes
```

Appendix C - PBN Example File

Note that file is 510 lines long compared to 315 for the DLM!

```
 1   [Event ""]
 2   [Site "?"]
 3   [Date "?"]
 4   [Board "1"]
 5   [West "?"]
 6   [North "?"]
 7   [East "?"]
 8   [South "?"]
 9   [Dealer "N"]
10   [Vulnerable "None"]
11   [Deal "N:T53.AJ7.AT.AQ762 AKJ9.Q.QJ65.KJT8 872.T9543.K9732. Q64.K862.84.9543"]
12   [Scoring "?"]
13   [Declarer "?"]
14   [Contract "?"]
15   [Result "?"]
16
17   [Event ""]
18   [Site "?"]
19   [Date "?"]
20   [Board "2"]
21   [West "?"]
22   [North "?"]
23   [East "?"]
24   [South "?"]
25   [Dealer "E"]
26   [Vulnerable "NS"]
27   [Deal "E:J52.Q9875..AQ873 763.32.AK65432.5 AQT4.AKJ6.Q9.KJ6 K98.T4.JT87.T942"]
28   [Scoring "?"]
29   [Declarer "?"]
30   [Contract "?"]
31   [Result "?"]
32
33   [Event ""]
34   [Site "?"]
35   [Date "?"]
36   [Board "3"]
37   [West "?"]
38   [North "?"]
39   [East "?"]
40   [South "?"]
41   [Dealer "S"]
42   [Vulnerable "EW"]
43   [Deal "S:AQT32.J.JT63.A65 J9754.K72.KQ.KJ8 K8.A96543.872.93 6.QT8.A954.QT742"]
44   [Scoring "?"]
45   [Declarer "?"]
46   [Contract "?"]
47   [Result "?"]
48
49   [Event ""]
50   [Site "?"]
51   [Date "?"]
52   [Board "4"]
53   [West "?"]
54   [North "?"]
55   [East "?"]
56   [South "?"]
57   [Dealer "W"]
58   [Vulnerable "All"]
59   [Deal "W:KJT52.3.KT93.AK5 Q6.AJ864.A64.J64 A73.T975.QJ72.QT 984.KQ2.85.98732"]
60   [Scoring "?"]
61   [Declarer "?"]
62   [Contract "?"]
```

```
 63    [Result "?"]
 64    [Event ""]
 65    [Site "?"]
 66    [Date "?"]
 67    [Board "5"]
 68    [West "?"]
 69    [North "?"]
 70    [East "?"]
 71    [South "?"]
 72    [Dealer "N"]
 73    [Vulnerable "NS"]
 74    [Deal "N:AT7.QJ7543.Q.AQ2 J965.A96.J542.98 Q832.2.AK873.J53 K4.KT8.T96.KT764"]
 75    [Scoring "?"]
 76    [Declarer "?"]
 77    [Contract "?"]
 78    [Result "?"]
 79
 80    [Event ""]
 81    [Site "?"]
 82    [Date "?"]
 83    [Board "6"]
 84    [West "?"]
 85    [North "?"]
 86    [East "?"]
 87    [South "?"]
 88    [Dealer "E"]
 89    [Vulnerable "EW"]
 90    [Deal "E:Q932.Q4.KT7.T864 K65.AKT52.J9.AJ2 J4.J9876.A2.Q973 AT87.3.Q86543.K5"]
 91    [Scoring "?"]
 92    [Declarer "?"]
 93    [Contract "?"]
 94    [Result "?"]
 95
 96    [Event ""]
 97    [Site "?"]
 98    [Date "?"]
 99    [Board "7"]
100    [West "?"]
101    [North "?"]
102    [East "?"]
103    [South "?"]
104    [Dealer "S"]
105    [Vulnerable "All"]
106    [Deal "S:KQ84.T6.8742.852 3.K52.QJ653.AQT4 AJ76.873.A9.9763 T952.AQJ94.KT.KJ"]
107    [Scoring "?"]
108    [Declarer "?"]
109    [Contract "?"]
110    [Result "?"]
111
112    [Event ""]
113    [Site "?"]
114    [Date "?"]
115    [Board "8"]
116    [West "?"]
117    [North "?"]
118    [East "?"]
119    [South "?"]
120    [Dealer "W"]
121    [Vulnerable "None"]
122    [Deal "W:3.K762.AK9.AJT64 T6542.AQT3.543.3 AQJ9.J98.T62.Q85 K87.54.QJ87.K972"]
123    [Scoring "?"]
124    [Declarer "?"]
125    [Contract "?"]
126    [Result "?"]
127
128    [Event ""]
129    [Site "?"]
```

```
130    [Date "?"]
131    [Board "9"]
132    [West "?"]
133    [North "?"]
134    [East "?"]
135    [South "?"]
136    [Dealer "N"]
137    [Vulnerable "EW"]
138    [Deal "N:74.874.QT976.AQ6 QJT.AK6.J8542.K3 82.QJT9.A3.J8752 AK9653.532.K.T94"]
139    [Scoring "?"]
140    [Declarer "?"]
141    [Contract "?"]
142    [Result "?"]
143
144    [Event ""]
145    [Site "?"]
146    [Date "?"]
147    [Board "10"]
148    [West "?"]
149    [North "?"]
150    [East "?"]
151    [South "?"]
152    [Dealer "E"]
153    [Vulnerable "All"]
154    [Deal "E:73.K54.AK3.QJ874 QT52.73.JT87.T32 J984.JT2.9654.K9 AK6.AQ986.Q2.A65"]
155    [Scoring "?"]
156    [Declarer "?"]
157    [Contract "?"]
158    [Result "?"]
159
160    [Event ""]
161    [Site "?"]
162    [Date "?"]
163    [Board "11"]
164    [West "?"]
165    [North "?"]
166    [East "?"]
167    [South "?"]
168    [Dealer "S"]
169    [Vulnerable "None"]
170    [Deal "S:A8743.8.A95.AJ94 65.J53.KT63.K752 KT9.A94.74.QT863 QJ2.KQT762.QJ82."]
171    [Scoring "?"]
172    [Declarer "?"]
173    [Contract "?"]
174    [Result "?"]
175
176    [Event ""]
177    [Site "?"]
178    [Date "?"]
179    [Board "12"]
180    [West "?"]
181    [North "?"]
182    [East "?"]
183    [South "?"]
184    [Dealer "W"]
185    [Vulnerable "NS"]
186    [Deal "W:63.753.T63.AKQ73 AQT98.84.Q852.92 KJ2.AKQJ.A74.J85 754.T962.KJ9.T64"]
187    [Scoring "?"]
188    [Declarer "?"]
189    [Contract "?"]
190    [Result "?"]
191
192    [Event ""]
193    [Site "?"]
194    [Date "?"]
195    [Board "13"]
196    [West "?"]
```

```
197    [North "?"]
198    [East "?"]
199    [South "?"]
200    [Dealer "N"]
201    [Vulnerable "All"]
202    [Deal "N:J93.JT.J43.Q9874 AT5.K642.T95.KT6 Q6.Q9.AQ762.AJ32 K8742.A8753.K8.5"]
203    [Scoring "?"]
204    [Declarer "?"]
205    [Contract "?"]
206    [Result "?"]
207
208    [Event ""]
209    [Site "?"]
210    [Date "?"]
211    [Board "14"]
212    [West "?"]
213    [North "?"]
214    [East "?"]
215    [South "?"]
216    [Dealer "E"]
217    [Vulnerable "None"]
218    [Deal "E:5.QT8742.T974.AT 8742.AK93.KQJ.K9 AQT63.6.6.J86432 KJ9.J5.A8532.Q75"]
219    [Scoring "?"]
220    [Declarer "?"]
221    [Contract "?"]
222    [Result "?"]
223
224    [Event ""]
225    [Site "?"]
226    [Date "?"]
227    [Board "15"]
228    [West "?"]
229    [North "?"]
230    [East "?"]
231    [South "?"]
232    [Dealer "S"]
233    [Vulnerable "NS"]
234    [Deal "S:AT92.AQ6.AQ974.4 K853.874.82.QT98 64.KJT53.65.AJ32 QJ7.92.KJT3.K765"]
235    [Scoring "?"]
236    [Declarer "?"]
237    [Contract "?"]
238    [Result "?"]
239
240    [Event ""]
241    [Site "?"]
242    [Date "?"]
243    [Board "16"]
244    [West "?"]
245    [North "?"]
246    [East "?"]
247    [South "?"]
248    [Dealer "W"]
249    [Vulnerable "EW"]
250    [Deal "W:J72.A.9.AKQ98764 64.764.A76543.53 T95.KQT953.QT.JT AKQ83.J82.KJ82.2"]
251    [Scoring "?"]
252    [Declarer "?"]
253    [Contract "?"]
254    [Result "?"]
255
256    [Event ""]
257    [Site "?"]
258    [Date "?"]
259    [Board "17"]
260    [West "?"]
261    [North "?"]
262    [East "?"]
263    [South "?"]
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264    [Dealer "N"]
265    [Vulnerable "None"]
266    [Deal "N:A2.A86.AQT86.J64 9873.QT9.95.AK53 K65.J7432.KJ7.72 QJT4.K5.432.QT98"]
267    [Scoring "?"]
268    [Declarer "?"]
269    [Contract "?"]
270    [Result "?"]
271
272    [Event ""]
273    [Site "?"]
274    [Date "?"]
275    [Board "18"]
276    [West "?"]
277    [North "?"]
278    [East "?"]
279    [South "?"]
280    [Dealer "E"]
281    [Vulnerable "NS"]
282    [Deal "E:T876.T.Q98.J9873 Q94.J652.AKJT65. K53.Q84.4.AKQT54 AJ2.AK973.732.62"]
283    [Scoring "?"]
284    [Declarer "?"]
285    [Contract "?"]
286    [Result "?"]
287
288    [Event ""]
289    [Site "?"]
290    [Date "?"]
291    [Board "19"]
292    [West "?"]
293    [North "?"]
294    [East "?"]
295    [South "?"]
296    [Dealer "S"]
297    [Vulnerable "EW"]
298    [Deal "S:QJ5.K3.T5.AQ7632 K64.T872.964.J54 T987.95.KQJ82.K9 A32.AQJ64.A73.T8"]
299    [Scoring "?"]
300    [Declarer "?"]
301    [Contract "?"]
302    [Result "?"]
303
304    [Event ""]
305    [Site "?"]
306    [Date "?"]
307    [Board "20"]
308    [West "?"]
309    [North "?"]
310    [East "?"]
311    [South "?"]
312    [Dealer "W"]
313    [Vulnerable "All"]
314    [Deal "W:3.K9764.876.T963 AT76.QT2.KQ9.J84 92.AJ83.T542.A72 KQJ854.5.AJ3.KQ5"]
315    [Scoring "?"]
316    [Declarer "?"]
317    [Contract "?"]
318    [Result "?"]
319
320    [Event ""]
321    [Site "?"]
322    [Date "?"]
323    [Board "21"]
324    [West "?"]
325    [North "?"]
326    [East "?"]
327    [South "?"]
328    [Dealer "N"]
329    [Vulnerable "NS"]
330    [Deal "N:QT6.K632.AKJ4.64 42.A9754.2.JT873 K873.QJ.T9875.KQ AJ95.T8.Q63.A952"]
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331    [Scoring "?"]
332    [Declarer "?"]
333    [Contract "?"]
334    [Result "?"]
335
336    [Event ""]
337    [Site "?"]
338    [Date "?"]
339    [Board "22"]
340    [West "?"]
341    [North "?"]
342    [East "?"]
343    [South "?"]
344    [Dealer "E"]
345    [Vulnerable "EW"]
346    [Deal "E:KQJ52.KT764.K8.3 76.AQ82.AQ96.KT5 T93.93.52.Q98642 A84.J5.JT743.AJ7"]
347    [Scoring "?"]
348    [Declarer "?"]
349    [Contract "?"]
350    [Result "?"]
351
352    [Event ""]
353    [Site "?"]
354    [Date "?"]
355    [Board "23"]
356    [West "?"]
357    [North "?"]
358    [East "?"]
359    [South "?"]
360    [Dealer "S"]
361    [Vulnerable "All"]
362    [Deal "S:QJ95.A3.K3.K5432 83.JT652.QJ5.Q87 A64.Q98.A874.AT9 KT72.K74.T962.J6"]
363    [Scoring "?"]
364    [Declarer "?"]
365    [Contract "?"]
366    [Result "?"]
367
368    [Event ""]
369    [Site "?"]
370    [Date "?"]
371    [Board "24"]
372    [West "?"]
373    [North "?"]
374    [East "?"]
375    [South "?"]
376    [Dealer "W"]
377    [Vulnerable "None"]
378    [Deal "W:54.KQ85.3.QT8742 K73.J3.K975.KJ93 QJ86.A96.AJT8.A6 AT92.T742.Q642.5"]
379    [Scoring "?"]
380    [Declarer "?"]
381    [Contract "?"]
382    [Result "?"]
383
384    [Event ""]
385    [Site "?"]
386    [Date "?"]
387    [Board "25"]
388    [West "?"]
389    [North "?"]
390    [East "?"]
391    [South "?"]
392    [Dealer "N"]
393    [Vulnerable "EW"]
394    [Deal "N:K62.J8742.432.T5 943.T.T965.A9862 AJ.AQ93.KQJ8.K43 QT875.K65.A7.QJ7"]
395    [Scoring "?"]
396    [Declarer "?"]
397    [Contract "?"]
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398    [Result "?"]
399
400    [Event ""]
401    [Site "?"]
402    [Date "?"]
403    [Board "26"]
404    [West "?"]
405    [North "?"]
406    [East "?"]
407    [South "?"]
408    [Dealer "E"]
409    [Vulnerable "All"]
410    [Deal "E:AQ7.54.J953.Q642 JT964.A8.62.K873 5.KQJ3.AQT74.JT5 K832.T9762.K8.A9"]
411    [Scoring "?"]
412    [Declarer "?"]
413    [Contract "?"]
414    [Result "?"]
415
416    [Event ""]
417    [Site "?"]
418    [Date "?"]
419    [Board "27"]
420    [West "?"]
421    [North "?"]
422    [East "?"]
423    [South "?"]
424    [Dealer "S"]
425    [Vulnerable "None"]
426    [Deal "S:T62.62.QJ972.J65 Q.J7543.643.QT73 A9753.T8.KT5.A98 KJ84.AKQ9.A8.K42"]
427    [Scoring "?"]
428    [Declarer "?"]
429    [Contract "?"]
430    [Result "?"]
431
432    [Event ""]
433    [Site "?"]
434    [Date "?"]
435    [Board "28"]
436    [West "?"]
437    [North "?"]
438    [East "?"]
439    [South "?"]
440    [Dealer "W"]
441    [Vulnerable "NS"]
442    [Deal "W:AK.T2.T97642.762 QJ964.63.A8.K853 732.AKQ87.J5.JT4 T85.J954.KQ3.AQ9"]
443    [Scoring "?"]
444    [Declarer "?"]
445    [Contract "?"]
446    [Result "?"]
447
448    [Event ""]
449    [Site "?"]
450    [Date "?"]
451    [Board "29"]
452    [West "?"]
453    [North "?"]
454    [East "?"]
455    [South "?"]
456    [Dealer "N"]
457    [Vulnerable "All"]
458    [Deal "N:KJ7.AKQT.JT9.AK9 AT96532.76.A2.J2 Q4.92.KQ8653.753 8.J8543.74.QT864"]
459    [Scoring "?"]
460    [Declarer "?"]
461    [Contract "?"]
462    [Result "?"]
463
464    [Event ""]
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465    [Site "?"]
466    [Date "?"]
467    [Board "30"]
468    [West "?"]
469    [North "?"]
470    [East "?"]
471    [South "?"]
472    [Dealer "E"]
473    [Vulnerable "None"]
474    [Deal "E:KQ7.A83.KJ74.864 T32.6.AT932.AQJ7 J9864.T54.Q6.KT3 A5.KQJ972.85.952"]
475    [Scoring "?"]
476    [Declarer "?"]
477    [Contract "?"]
478    [Result "?"]
479
480    [Event ""]
481    [Site "?"]
482    [Date "?"]
483    [Board "31"]
484    [West "?"]
485    [North "?"]
486    [East "?"]
487    [South "?"]
488    [Dealer "S"]
489    [Vulnerable "NS"]
490    [Deal "S:732.975.AK92.J95 QJ98.KT843.QT.Q2 KT5.AJ.J874.T864 A64.Q62.653.AK73"]
491    [Scoring "?"]
492    [Declarer "?"]
493    [Contract "?"]
494    [Result "?"]
495
496    [Event ""]
497    [Site "?"]
498    [Date "?"]
499    [Board "32"]
500    [West "?"]
501    [North "?"]
502    [East "?"]
503    [South "?"]
504    [Dealer "W"]
505    [Vulnerable "EW"]
506    [Deal "W:94.KQT3.KQT6.A64 AKQ8752.97.A7.T5 JT3.J864.J95.Q87 6.A52.8432.KJ932"]
507    [Scoring "?"]
508    [Declarer "?"]
509    [Contract "?"]
510    [Result "?"]
```