

FreeDoko

Concept

Borg Enders

Diether Knof

September 2001

Contents

1	Game Idea	3
2	Planed Features	4
2.1	Supported Rules	4
2.2	Game Extent	6
2.3	Technischer Umfang	7
2.4	Players Profile	7
2.5	Difficulty levels	8
2.5.1	Novice	8
2.5.2	Novice pro	8
2.5.3	Normal	8
2.6	Normal pro	9
2.7	Profi	9
2.8	Profi pro	9
3	GUI	10
3.1	Draft	10
3.2	The Graphic	10
4	Running of the Programm	11
4.1	Server-Client-Concept	11
4.1.1	Server	11
4.1.2	Client	12
4.2	peer-to-peer	12
5	Ai	13
5.1	Functions	13

1 Game Idea

The game Doppelkopf is a card game for four or more players. One game is played by four players. the game Doppelkopf has its origin in game Schafkopf, which is mostly played in south germany. The name of this game seems to depend on the double(german:doppel) occuring of all cards (Doppel-Schafkopf). Doppelkopf is played in opposite to Schafkopf in the whole of germany, but mainly in northh germany and the region of Rhein and Main.

Doppelkopf is a card game with 48 cards and a minimum of 4 players, that is not so different from Skat. It is played with two normal sets of Skat cards without the cards seven and eight. Most of the time the owners of the club queens are playing together. By this you get while playing often new pairs of players. In the beginning of each game it is unknown which players are in the same team. To find this out or to hide it, is one of main attractions of the game Doppelkopf.

For Doppelkopf the skills of each players are one great factor for the course of the game. This guarantees an exciting and varied game event.

2 Planed Features

2.1 Supported Rules

- playing with or without nines
- poverty with more then four nines
- poverty of trump with lesser then four trumps
- a said reservation is obligatory
- marriage (both club queens on one hand); choosing of teammate:
 - first foreign trick decides
 - first foreign heart trick decides
 - first foreign spade trick decides
 - first foreign club trick decides
 - first foreign color trick decides
 - first foreign trump trick decides
 - setting of the last trick for this decision
- swines (both diamond aces on one hand) are the highest trumps. Time of Announcement:
 - before the game
 - when first swine is played
 - when first diamond ace is won by the own team, the second is a swine and is announced (no hyperswines)
 - hyperswines, both diamond Nines on one hand, when swines were announced:
 - * announcement before the game
 - * announcement, when first nine is played
- one special point for Charly: club jack wins last trick
 - two special points for double Charly: both club jacks of one team are winning the last trick
 - one special point for caught Charly: when a club jack is jabbed by the other team in the last trick and the other team wins that trick

- two special points for caught double Charly: when both club jacks are in the last trick and the other teams wins this trick
- one special point for fox in last trick: last trick is won with diamond ace (no swine)
 - two special points for double fox in last trick: last trick is won with two diamond aces of one team
- one special point for caught fox, if the diamond ace ends in a trick won by the opposite team
- heart tens trumps (or normal color cards). For being trump:
 - second heart tens in one trick jabs first
 - but not in the last trick
 - first heart ten jabs second
 - but not in the last trick
 - one special point for dullenbeat, when one heart ten jabs the other one
- Genscher: both diamond kings on one hand. In this case the player with the Genscher may decide with which player he wants to play together. This may happen in the moment he is playing the first king. All denials are obsolete if he uses his Genscher. This rule is only valid for normal games or a marriage with already determined teammates.
- solos: one player plays versus the other three:
 - Jack-Solo: only jacks are trump
 - Queen-Solo: only queens are trump
 - Queen-Jack-Solo: only queens and jacks are trump
 - K"ohler: all picture cards are trump
 - Colorsolo: (swines of color (optional),) (heart tens,) queens, jacks and the cards of the chosen color are trump
 - Meatless: there are no trumps
- announcements and denials (with the times till to which trick they are allowed and how many are allowed)
 - Re: I own a club queen (or I'm a Soloplayer)

- Contra: I own no club queen (or I am not the Soloplayer)
- No 90: the opposing team gets not 90 points, announcement of own team must be said before this
- No 60: the opposing team gets not 60 points, No 90 of own team must be said before this
- No 30: the opposing team gets not 30 points, No 60 of own team must be said before this
- Black: the opposing team gets no trick, No 30 of own team must be said before this
- denials may be left out, when the needed denials are still allowed. This missing denials are counting then as said.
- on each denial you may say re or contra (but only once in a game)
- You may look at a given number of tricks (depending on the difficulty level)
- free chooseable number and type of duty solos
- free chooseable counting type: plus-minus, plus or minus.

2.2 Game Extent

- one player can play versus ais with different difficulty levels
- Multiplayer game
- different game variants
 - given number of rounds
 - playing till reaching of a given number of points
 - playing till a given amount of points is used
 - playing without end
 - playing for a given amount of time
 - rules are mostly configurable by user
- saving and loading of games
- sorting of cards.
 - descending/ascending
 - trump right/left
 - free choosable color order

2.3 Technischer Umfang

- systemrequirements ca. 300MHz and 64MB.
- supported resolutions 640×480 , 800×600 , 1024×768 , 1280×1024
- one version for linux and one for Windows 95 and higher
- graphical Interface uses GTK+
- every function should be usable with mouse and keyboard
- configuration file
- command line arguments
- programming language: C++ (Compiler: Linux: g++; Windows: g++)
- one additional textbased version for Linux and Windows
- Multiplayer via TCP/IP
 - peer-to-peer-net: Host jobs can be given to other computers if a the host is leaving the game
- Sound output (linux: sox (Systemaufruf); Windows: PlaySound from winmm.lib)
- multi lingual (german, englisch, ...)
- published under the GPL

2.4 Players Profile

The player gives a starting level and can free up/downgrade his actual level. After x won games (Points of own team >120 and own points >60), after y kepted denials and after z won solos the player will be upgraded one level. If he chooses to up/downgrade his level, the computed complete values will not be changed. After a downgrade a player will be at the middle of the last lower level, an upgrade will bring the player to the beginning of the next level.

The ai will choosen in regret of the players level and other player can see how good their opponent is. Also each player may choose an ai, which play for him, when he leaves the game.

2.5 Difficulty levels

2.5.1 Novice

- all cards open
- you can look at all tricks
- Re/Contra is shown
- swines are shown
- points are automatically counted
- the computer advises cards for playing on demand
- ai counts heart tens and swines
- ai forgets all other played cards

2.5.2 Novice pro

- cards covered
- you can look at all tricks
- Re/contra is shown
- swines are shown
- points are counted automatically
- the computer advises cards for playing on demand
- ai counts heart tens and swines
- ai counts jabbed colors

2.5.3 Normal

- you can only look at the last played trick
- Re/Contra is shown
- swines are shown
- points are counted automatically

- the computer advises cards for playing on demand
- Ai counts jabbed colors
- Ai remembers last played trick
- Ai counts heart tens and swines

2.6 Normal pro

- points are not counted automatically
- you can only look at the last played trick
- Re/Contra is shown
- swines are shown
- the computer advises cards for playing on demand
- ai counts jabbed colors
- ai rememebrs last 3 played tricks
- ai counts swines and heart tens

2.7 Profi

- points are not counted automatically
- you can only look at the last trick
- swines are shown
- ai counts jabbed colors
- ai remembers last 6 played tricks
- ai counts swines and heart tens

2.8 Profi pro

- points are not counted automatically
- you can only look at the last trick
- ai counts jabbed colors
- ai remembers all played cards

3 GUI

3.1 Draft

Skills of the GUI:

- looking at tricks
- counting of points
- settings
 - sorting of cards
 - choosing of card type
- Choosing of announcements and denials

3.2 The Graphic

- you are looking on a table with writing block (here you can zoom in), cards on the four sides of the table and the actual played trick in the middle.
- Animations:
 - cards are moved in the middle
 - trick is turned
 - trick moved to the player who has won it
 - for this player a stack of cards is growing

4 Running of the Programm

4.1 Server-Client-Concept

It is better when the server need not to be started as a seperate program, but can be chosen by the player.

- Preparations:
 - Settings of the Server (for example: rules, number of players, ...)
 - Settings of the clients (z.Bsp.: names, profiles, ...)
 - waiting for the clients
- start of the session:
 - start of the games
 - * mixing of cards
 - * dealing of cards
 - waiting for annnouncement
 - playing tricks
 - * for each trick
 - determine who plays next
 - waiting for next card
 - showing the played card to everybody else
 - * collecting trick
 - * determination of winner
 - end of game
 - * counting of points
 - * counting of special points
 - * writing of points in gamepoints tabele
 - * calculating of points for each player for party
- determination of points and final winner

4.1.1 Server

- mixing of cards
- dealing of cards

- management of rules
- management of players points
- communication with clients
- choosing type of client (human, ai)

4.1.2 Client

- Setting of players name
- looking at the last trick
- gets rules from server
- checking for rule violations
- gets played cards from server
- plays cards

4.2 peer-to-peer

Each computer knows all other computers which are part of this game. Each computer knows the actual server.

loss of server: If one client doesn't get a message for more than 0.3 sec from the server, he ask the server if he is still alive. If he gets no answer from the server, sends a loss of server to all other computers. At the start each computer gets an identifier (number) and now the computer with lowest identifier is the new server.

5 Ai

5.1 Functions

- chooseable difficult level
 - memory
 - foresight
 - counting of cards
- chooseable behaviour
 - greedy
 - trustfull