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What is zTree for?

Zurich Toolbox for Readymade Economic Experiments



Designed for simple experimenter that does not have:

- o competent programmers that can write ad hock programs
- o time to design ad hock programs
- o ability to specify full experiment without pilots, modifications, ...



Designed for simple games, that do not require:

- o detailed timing (time is measured in seconds)
- o major graphical input/output
- o unexpected changes in design once the experiment is in progress

Print Slides: 1,3,4,6,16,29,36,39-42,44-47,49-60,62-66,68,70,72,74,76-83,85-87,89-94,101-103,107,109,113,115,117,119-124,126,130-134,136,138,140,142,144,146-148,150,152,154-156,158,160-163,165,167,169-171,174-178,180-181,183-187,190-193,199,200,202,203,206-221,223-311

How to get zTree?

Licence

The program can be licensed free of charge. When you report results of experiments conducted with z-Tree, the licence requires that you mention it's use in the publication and cite the <u>article</u> forthcoming in Experimental Economics.

The correct citation is:

About z-Tree How to get z-Tree ? Compatibility

> z-Tree Wiki Tips & Tricks

Treatments

Known Buas

Papers News & Versions

Links

Docu and Support

The experiment was programmed and conducted with the software z-Tree (Fischbacher 2007). Reference:

Urs Fischbacher (2007): z-Tree: Zurich Toolbox for Ready-made Economic Experiments, Experimental Economics 10(2), 171-178.

How to order z-Tree?

To get a licence, download the English license contract or the German license contract, print two copies, sign them, fill in postal and email address , and send them to Sally Gschwend, Institute for Empirical Research in Economics, University of Zurich, Bluemlisalpstrasse 10, CH-8006 Zurich. (I need the postal address to send you back one copy of the contract and I **need an e-mail address**, to send you login and password for downloading z-Tree.) You will then receive login and password for <u>downloading</u> z-Tree. If you do not receive the information by email within reasonable time, please send an email to ztreeadm [at] iew.uzh.ch.

Last modified: September 11, 2007Urs Fischbacher (fiba@iew.unizh.ch)

Institute for Empirical Research in Economics: http://www.iew.uzh.ch/ztree/howtoget.php

How does it work?

Manuals:

- o 2.1 Tutorial Manual (2001): http://www.iew.uzh.ch/ztree/ztree21tutorial.pdf
- o 2.1 References (2006):
 - http://www.iew.uzh.ch/ztree/ztree21ref.pdf
- o 3.x Wiki:
- https://www.uzh.ch/iew/ztree/ssl-dir/wiki/

Two programs:

zTree

- o programming editor
- o experiment server

zLeaf

- o client program for subjects' computers
- o client program for the experimenter's input during the game



zTree step-by-step:

Step 7: Subjects make decisions

decisions travel to server program records decisions in tables some information is being passed to subjects

You can observe the tables You can use your zLeaf to change parameters

Computer records the tables in *.xls file every period *.gsf file continuously name is given time (Trust.ztt) program started.



Step 8: Experiment ends. (Most tables in zTree disappear.) You can run another experiment or questionnaire.

Step 1: Install "toolbox" programs. zTree and zLeaf (for testing) for you. zLeafs for subjets.

http://www.go.to/econ/zTree

- Since there will be many files added each time you open zTree. create a new directory for it.
- Copy zTree and zLeaf there.
- Create a shortcut for both.
- Go to properties to change language to english =en (chinese = cn)

by adding "/language en"



zTree step-by-step:

Step 9: If you run another experiment, data continue are being collected into same files

> (=>You cannot change # of participants unless all programs restart)

- Step 10: If you run a guestionnaire a file with answers and a file with names & payments are created.
- Step 11: use *.xls, *.pay or "session table" to pay subjects so they leave

Step 12: Close zLeafs (ALT+F4) Close zTree (!!!Make sure all zLeafs



- Go to properties to change language to english =en (chinese = cn) by adding "/language en"
- if you use multiple zLeaf for testing, create multiple shortcuts with "/name A", "/name B" and so on

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Target:	"F:\zTree 3-3-6\zleaf.exe" /language en		Target:	"F:\zTree 3-3-6\ztree.exe" /language er	l
Start in:	"F:\zTree 3-3-6"		Start in:	"F:\zTree 3-3-6"	
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Step 1

Step 1

 If you run more than one zTree, you can use different chanels (/chanel CH) to indicate what zTree connects to which zLeafs (CH is a number)

You can also direct different files into different directories:

/datadir DIR	for xls (data) file
/adradir DIR	for adr (address)
/gsfdir DIR	for gsf (gamesafe)

) file fe) fille

• if you have older programs (from version 2.x) do not mix them with the new ones as they will not work.

· Go to properties to change language to english =en (chinese = cn) by adding "/language en"

Step 1

Step 3

• if you use multiple zLeaf for testing, create multiple shortcuts with "/name A", "/name B" and so on

 In a big network or if you ran multiple zTrees on same network simultaneously add a server's IP address to zLeaf as well:

/language en /name A /server 144.214.99.243

Alternatively, replace "server.eec" with the IP address in it.

• if you want to open zTree and multiple zLeafs with one click you can create a *.bat file (= a text file ending with ".bat") like this:

start ztree /language en PING 1.1.1.1 -n 1 -w 2000 >NUL start zleaf /size 640x480 /position 0,0 /language en/name A PING 1.1.1.1 -n 1 -w 500 >NUL start zleaf /size 640x480 /position 640,0 /language en/name B PING 1.1.1.1 -n 1 -w 500 >NUL start zleaf /size 640x480 /position 0,480 /language en/name C PING 1.1.1.1 -n 1 -w 500 >NUL start zleaf /size 640x480 /position 640,480 /language en/name D

Step 2: Open zTree (through the shortcut)

Step 3: download, create, save your program (e.g. PD.ztt)

We will write a program for PD experime	ent	С	D
subjects earn \$10 + half of the these:	С	5,5	0,8
	D	8,0	2,2

- (1) two groups of two players playing once
- (2) two groups of two players playing once or more...
- (3) rematch agents based on last period earnings (highest with 2^{nd} highest and so on....)

program	0	PD game is defined	Background
program 🗕 🛶	0	Subjects are separated into pairs (+3)	
active screen	_0	Subjects make a choice	Stage 1 active
passive screen \rightarrow	0	Subjects wait for each other	Stage 1 waiting
program → active screen → active screen →	0 0 0	Calculate the payoffs Subjects observe earnings You Decide if you want another period	(+2) Stage 2 active

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er summary	Number of groups Cancel	"yes" Yes Show up fee is invested and experiment goes on	
🖅 session	# practice periods 0	"no" No. Message "RanguntShowunNo" appers in client's table"	
Active screen	# paying periods		
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+		if(COOP == 1) {Profit=if(PCOOP==1,CC,CD);}		±		if(COOP == 1) {Profit=if(PCOOP==1,CC,CD);}
		else {Profit=if(PCOOP==1,DC,DD);}				else {Profit=if(PC00P==1,DC,DD);}
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Marriage Game Design

- o Two types of subjects (A & B) are are randomly paired with each other.
- o Task:
 - Their task in period 1 (also every time when they are matched with new counterparts in later periods) is to decide if they want to <u>enter</u> a partnership starting from next period.
 - Once a partnership is formed, the task in each period is to decide if they want to <u>stay together</u> with the same partner for at least one more period.
- Entering, continuing and terminating a partnership can be facilitated by negotiable transfer payments.
 - Either party can offer/request some payment to/from his/her counterpart



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Marriage Game Design

• The "unattached" (singles)

Agreement => form a marriage No agreement => matched with new counterparts next period.

• The "attached" (married)

Agreement => continue together (possibly under different payoffs) Agreement => to divorce (=new counterparts) No agreement=> Unilateral Divorce Law: matched with new counterparts next period. Consensus Divorce Law: stay together

• 10% discounting of future utilities

Your ID# : 1	Your Tibe : A	Curent Period	2	Remaining Time [se	nc): 27
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Marriage Game Design

o Partnership deteriorates (with exogenous probability 2/9) Stage 1 is better than Stage 2 Stage 2 is better than Stage 3

o Tensions increases...



Marriage Game Design

- Partnership deteriorates (with exogenous probability 2/9) Stage 1 is better than Stage 2 Stage 2 is better than Stage 3
- Tensions increases...
- o 10% Discounting (die and reborn as a single in a new life [same game])
- o ... 10% =>

with 11 or more pairs we could guarantee that (divorced) agents would be matched to different people.

Balanced (Unbalanced) Payoff Structure									
A B									
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Stage 2	3(15)	15(3)							
Stage 3	4	4							

Marriage Game Design

o 10% =>

with 11 or more pairs we could guarantee that (single) agents would be matched to different counterparts.

TWO SINGLE PEOPLE =>

This pair dies with 10% prob. 1⁺ out of remaining 10⁺ pairs dies as well

ZERO OR MORE THAN

TWO SINGLE PEOPLE => Two pairs die with 50%+ probability

Marriage Game Design

_...

0	10% =>	PHASE ONE (35 periods) (NEW PEOPLE BORN)
	with 11 or more pairs guarantee that (single) age would be matched to differ counterparts.	S we could nts ent
	TWO SINGLE PEOPLE =>	This pair dies with 10% prob. 1⁺ out of remaining 10⁺ pairs dies as well
	ZERO OR MORE THAN TWO SINGLE PEOPLE =>	Two pairs die with 50%+ probability
		PHASE TWO (GAME ENDS)
	TWO SINGLE PEOPLE =>	This pair dies with 10% prob.
		1⁺ out of remaining 10⁺ pairs dies as well
	ZERO OR MORE THAN TWO SINGLE PEOPLE =>	All pairs die with 10%+ probability, GAME ENDS



Marriage G ame esig

zTree - [Untitled Questionnaire 1] Questionnaires File Edit Questionnaire Run Tools View **Outline** New Treatment Ctrl+N New Questionnaire o You can run a Ctrl+O Open... questionnaire Close Save Ctrl+S 1. Introduction at the end of Save As.. an experiment Export o Questionnaire Import.. 2. Simple Program (PD) s can be Page Setup... simple, just 1 ChatBox.ztt names and 2 F:\ChatBox.ztt emails, or 3. Simple Questionnaire 3 G:\My-RD\...\chatdemo_3.ztt 4 F:\zTree Presentation\tag.ztt involve more 5 F:\zTree Presentation\PD.ztt complicated 6 G:\My-RD\...\z-drawdemo_3.ztt surveys 7 movepointdemo+3.ztt 4. Design 8 F:\zTree 3-3-6\PD2.ztt 9 F:\zTree 3-3-6\PD.ztt 0 animatetreedemo_3.ztt (From Standard Box to Contracts, Chat and Graphics) Quit 5. More Tips and Tricks and Examples 6. VRPD Game



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Questionnaires	Tree - [Untitled Questionnaire 1] File Edit Questionnaire Run Tools View ?	Questionnaires
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3 8.5 10 0 0 18.5 18.5 1 4 10 10 0 0 20 20 0	2	2	10	0	0	18.5	10.5	0					
4 10 10 0 0 20 20 0 Tour show up reers.	3	8.5	10	Û	û	18.5	18.5	1		Your show on the is		10	
	4	10	10	0	0	20	20	0		Your smoken free is.			

Outline

1. Introduction

- 2. Creating a Simple Program (PD)
- 3. Creating a Simple Questionnaire

4. More on Design

(From Standard Box to Contracts, Chat and Graphics)

- 5. More Tips and Tricks and Examples
- 6. VRPD Game

DESIGN	Standard Box
DESIGN	1 ame Standard 2 🗸 with Frame
Standard Box	Width [p/%] Distance to the margin [p/%] Adjustment of the remaining box He 3a b bottom ight
	Display 5 ndition
	Buttons Position Arrangement 6 C C C C C C C In columns 7
	 Label of the box (not shown to subjects) Frame (with it, a box overlaps older graphics) Size of the box, in points or percent of the remaining screen Distance away from the (remaining) screen edge in points or percent Adjustment of the remaining box (whether to "cut off" the screen above, below, to the left, or to the right of the current box Display Condition (if present, Boolean expression that must be true in order for box to be shown) Button Position (where to place buttons in this box) Arrangement (how to arrange buttons)

DESIGN	Item	
Standard Box Item	Label This text will be displayed to the subjects	OK Cancel
	Variable This variable will be displayed as output	
	Layout Here you indicate how many decimal places	
	 ⊡ Input	

abel Your endowment is: DK Cancel
able Endowment
edded Variables:

DESIGN	Item	
Standard Box Item	Label <-> Your endowment is <endowment francs, you <endowment 0="
lot of money" 100="did great" ;="" !text:=""></endowment></endowment 	nt 1> OK 'lost a Cancel
	Layout	output variable
	2	6
	!radio: 1 = "86.8"; 24 = "102.8";	年 96.8 〇 102.8
	<pre>!radioline: 0="zero";5="five"; 6;</pre>	200 00000 fre
	!slider: 0 ="A"; 100= "B"; 101;	А. <u>, </u>
	!scrollbar: 0="L";100= "R";101;	LIIR
	<pre>!checkbox:1="check me";</pre>	F check me
	<pre>!text: 2 = "two"; 3 = "three"; 5 = "five"; 7 = "seven"; 11 = "eleven";</pre>	seven
	<pre>!button: 1 = "accept"; 0 = "reject";</pre>	accept

DESIGN	Item 🛛
Standard Box Item	Label <pre></pre>
	Variable
	Layout
	WARNING the sentence is placed in and if later the number changes and does not fit then only some digits are shown
	☐ Input

DESIGN	Item						
Standard Box Item	Label	<> You francs of mon	r endowm <endowm ey″; 100=*</endowm 	ent is <e ent !text: 'did {rtf \I</e 	ndowment 1 0="lost a lo o great }">	l> 🔺 ot	OK Cancel
	Variable						
	Layout						
	WARNI the num some d	NG: The ber char	sentence nges and shown	e is place does no	ed in and i ot fit then c	f later only	
						×	_
	(++(-) -+)		\fe \/	1-511		Super	1
	{rtt_} all	ows for:	15/1	\CT/V	\sub	super	
	\b	\b0	V	\i0	<u>\u</u>	\u0	
	\tab	\par	\bullet	\line	-\strike-		
	\ql		\dc			\qr	

PESIGN	Item			<u> </u>
andard Day	Label	Choose an amount to contribute:	~	OK
Item				Cancel
			~	
	Variable	Contribution		
	Layout	1	~	
			~	
		✓ Input		
	Minimum	0		
	Maximum	20		
		Show value (value of variable or default)		
		Empty allowed		
	Default	0		

DESIGN	Item	×
Standard Box Item	Label WARNING: Variable is recorded table only after a regular button	l in a OK is hit Cancel
	Layout	input variable
	2	8
	!radio: 1 = "86.8"; 24 = "102.8";	6 86.8 C 102.8
	<pre>!radioline: 0="zero";5="five"; 6;</pre>	and CCFCCC the
	!slider: 0 ="A"; 100= "B"; 101;	А.,В
	!scrollbar: 0="L";100= "R";101;	LIIR
	!checkbox:1="check me";	🖗 checkme
	!text: 2 = "two"; 3 = "three"; 5 = "five"; 7 = "seven"; 11 = "eleven";	seven
	!button: 1 = "accept"; 0 = "reject";	accept rejsct

DESIGN Standard Box Item Button	Buttons cannot go before items. You have to use buttons to record data in tables You can use buttons to exit stages or execute programs	Button Name OK No record created or selected Clear entry after OK Leave Stage (Yes) (No (Nomal (i.e. stage is not left after click if stage is left after timeout and button is contrained in contract creation or selection box) Color (Automatic (Gray (Red	DK Cancel
Text without van s text in tabei column please er	ables are displayed centered hows variable a 17 nows variable b 9 without variable ter a value for c	Standard Test without variables are displayed of shows variable & OUT(a) shows variable b: OUT(b) test in label column without variable: please enter a value for c: IN(c) OK	centered

Ľ	DESIGN				
S	tandard Box Item				
	Checker				
	Button	ziree - [Untitled ireatment 2]			
	Checker	Background Scape = -(1)A active screen active screen for active screen for active screen cock cock cock wakingscreen	Checker Condition Message (This message appear if this message appear if this message condition is not satisfied.)		DK Cancel
			"yes"-Button "no"-Button	OK If there is only a "yes" button, then the message appears and after pressing this button the input is accepted. If there is only a "no"-button, then the message appears and after pressing this button the input is rejected. If there is a "yes" AND a "no" button, then the message should contain a question. Pressing the YES button accepts the input pressing NO rejects it.	

D	ESI	GN	
_			

Standard Box Item Checker Button Checker Box Container Box

(Standard Box for Boxes only)

Container Box History Box

Standard Box

Grid Box)

Help Box

Contract Creation Box Contract List Box Contract Grid Box Message Box Calculator Box Multimedia Box

Header Box

Chat Box Plot Box

DESIGN

Standard Box Item Checker Button Checker Box

Container Box

History Box

🗄 🎹 History Period: OUT(Period)

Period	А	В	
3	36	12	
4	45	24	
5	51	21	
6	37	11	
7	63	28	

DESIGN		Period	A	В
Standard Box Item Checker	i - ∰ History → ⊕ Period: OUT(Period) → ⊕ A: OUT(a) → ⊕ B: OUT(b)	3 4 5 6 7	36 45 51 37 63	12 24 21 11 28
Button Checker <i>Box</i>	⊡-⊞ Grid ⊟ label ⊟ input var: IN(b)	label 17	lab	1
Container Box	····⊡ input var: IN[d] ····⊡ shows a: OUT(a) ····⊡ second label	x c c c y	x c c c	TY 17
History Box	⊡ input var: IN(c) ⊡ OK	OX	j	ОК
Grid Box (table)		column by column		row by row



DESIGN Message Box	You can place at most one message box per screen. If zTree sends a message (say you entered a wrong value to Item), it will appear in the box and subject must click OK to continue. This way, only one OK is needed for multiple meassages.	DESIGN Message Box	You can place at most one message box per screen. If zTree sends a message (say you entered a wrong value to Item), it will appear in the box and subject must click OK to continue. This way, only one OK is needed for multiple meassages.
Multimedia Box	Image: jpg, gif, png, bmp.Movie: mpg, avi.Do not play movie orSound: wav, mp3.sound in waiting screen	Multimedia Box	Image: jpg, gif, png, bmp. Movie: mpg, avi. Sound: wav, mp3.
	Multimedia Box X Name Vidth frame DK Width [p/3] Distance to the margin [p/2] Adjustment of the remaining box Cancel Width [p/3] Image: Concel Image: Concel Image: Concel Cancel Display Image: Concel Image: Concel Image: Concel Cancel Display Image: Concel Image: Concel Image: Concel Cancel File name INAME OF FILE Image: Concel Image: Concel Image: Concel Cancel Picture options Volume (0.100) Image: Concel	Chat Box	Allows subjects to send text messages to each other. The following example program will illustrate its use: We will create a new program such that: // Subjects only send messages to their own group // Subjects only send messages to subjects with higher ID // Subjects cannot send messages twice in a row // Subject 3 is a listener only
DESIGN	Image: state of the state o	DESIGN	

DESIGN	The Ear Heathert Ran Tools New !		
	Globals	General Parameters	
	subjects	Number of subjects	ОК
Chat Box	session	Number of groups	
	🖻 💐 globals.do { }	# practice periods 0	Lancel
	//NOTE ONLY // Subjects only send messages to their own group	# paying periods 1	
	// Subjects only send messages to subjects with higher ID // Subjects cannot send messages twice in a row	Exch. rate (Fr./ECU)	
	// Subject 3 is a listener only	Lump sum payment (ECU)	
	Active screen	Show up fee [Fr.]	
	Waitingscreen Stage = = (30)A	Bankrupt	cy rules
	Contracts.do { }	Compatibility	
	Owner = -1;	First boxes on top	
	Group = -1;		
	Waltingscreen	Options	
		1 Without Autoscope	
	(1) Add the first stage		
		atua ata tabla tha	
	(2) Add a program with col Number = 0; Owner = -1; Group = -1;	itracts table ther	e:

DESIGN	ZTree (ChatBox.ztt) Chat Box
DESIGN	Background Name CHATTER Vith frame OK Subjects wreth lo //1 Cancel
Chat Box	Contracts Height [p/2] Intro [p/1] Intro [p/1
	// Subjects only Condition // Subjects cann // Subjects as a
	Active screen Yable contracts Watingscreen Injuit var. Text Number of characters Stage == (30)A Injuit var. Text Number of characters Owner(=:Subject Condition Owner(=:Subject
	Numer ≠ 0; Owner ≠ 1; Group* − 1
	Wachpiscreen Output text Oc (#Owner=Subject,1,0)Itext: 1 ="Myself"; 0 ="Subject <owner(1>">: <text(1>)</text(1></owner(1>
	C Wrap text Duput text centered
	(3) In Stage's Active Screen Create New Chat Box: CHATTER
	(4) Subject!=3 (3 is only a listener, this is not his window)
	(5) Name Input Variable (=Text), limit characters to 256 (so excel can remember) and allow for 5 lines of text input.

DESIGN	zTree - [ChatBox.ztt] ChatBox
DESIGN Chat Box	Charles Charles Cancel Field Ends Freedment R Good State G
	(3) In Stage's Active Screen Create New Chat Box: CHATTER (4) Subject!=3 (3 is only a listener, this is not his window)
	(5)Input Var (e.g. Text), limit characters to 256 (excel can remember) and allow for 5 lines of text input and wrap.















seff bia bia bia 1	(Bublict') this bits bits 1 Myself' bits bits bits 3
Dialog S	
aTree - (ChaiBba.ztii)	Dobject 1 : Ma Na Ma 1 Society 7 : Ma Na Ma 3
The Cold Instance and Topo Year 1 (2000) Stadgood Stadgood State Sta	
If Subards only error increasings to there only group If Subards only error increasions to index such table to the to the top of top	MySeler Dia bia 2010 Tabiyet 2: bia kia bia 3
Bage = = (30)A	
- N contracts.do { }	
Owner = -1; Group = -1;	Subject 4: Dia bia bia 2 Subject 2: bia bia bia 3
	X
Editors essen OHTER: 31V, Text.), contracts(Owner<:Subject, ○ < #(Owner:Subject, 1,0) text: 1 = "Mysel"; 0 = ":5 Subject! = contracts.ind=D(Numbercontracts.maximumD=(and/Owner<+-:Subject, 0 coup:Group;)	



en aungscreen	Plot Box 🗙
Bitte warten Sie bis d Stage = = (-1)	Name PlotBox K With Frame
Active screen Standard G(2,10)(10,0) Tot 8 points(-1,1) 0 1,1 0 2,1	Width [p/2] Distance to the margin [p/2] Adjustment of the remaining box Cancel Height [p/2] Image: Cancel Image: Cancel Image: Cancel Image: Cancel Image: Cancel Image: Cancel
• 4,1 • 5,1 • 6,1	Uisplay condition
- 0 7,1 0 8,1	Horizontal margin Vertical margin
-TEXT 4 lines(-1,2) - 1,2>>2,2 - 3,2>4,2 - 5,2>6,2 - 7,2>8,2 - TEXT 3 rectS(-1,3,5) - [1,2]x[4,3] - [3, [x]4,3]	Fill color Image: Color description *-axis Costegorical for linear for logarithmic left for description left for description Costegorical for linear for logarithmic logarithmic left for description right for description 0 bottom 10
$ \begin{array}{c} [, j, [4], 3] \\ \hline \\ [] [[] [] [] [] [] [] [] []$	Move pointer to

PLOT Box 우 zTree - [plotitems.ztt] Plot Text × File Edit Treatment Run Tools View 🗄 🔲 Waitingscreen Name PlotText OK E Text Text 8 points Bitte warten Sie bis das Experiment wei ^ Cancel - 📇 Stage =|= (-1) Active screen 🔳 Standard × -1 OK OK PlotBox [-2,10]x[10,0] у TEXT PlotText: 8 points(-1,1) Width - 0 1,1 0 2,1 horizontal alignment vertical alignment • 3,1 🔘 left - • 4,1 G first line C center - 5,1 center right - 6,1 C bottom . 0 7,1 0 8,1 Orientation (-90..+90) TEXT 4 lines(-1,2) 1,2->2,2 3,2->4,2 text color rgb(0,0,0) 5,2->6,2 Size 16 Font bold - [1, 2]×[4, 3] - 🗖 [3,]x[4, 3] italic 🗖 [6, 8]x[4, 3] -TEXT 4 pies(-1,6) underline ▲ (2,6) 1, 1 [0+360] 🛆 (4,6) 1, 1 [0+60] Display ▲ (4,6) 1, 1 [60+150] condition ▲ (7,6) 1, 1 [210+120] Waitingscreen 📷 untitled2.bmp - Wi... 🗣 zTree - [plotitems.... « Btart 🔯 zTree Screens 🗐 zTree.ppt

File Edit Treatment Run Tools View ?			
Waitingscreen			
Bitte warten Sie bis das Experiment w Stage = = (-1)	eiter geht.		X
Active screen Active screen Standard OK PlotBox [-2,10]×[10,0] TeXT PlotText: 8 points(-1,1)	Name	PlotPoint 8	OK Cancel
- • 1,1 - • 2,1 - • 3,1 - • 4,1	y Size	I is a star (not polygon) 15	
- • 5,1 - • 6,1 - • 7,1 - • PlotPoint: 8,1	Num vertices Start at (angle from x)	5	
-TEXT 4 lines(-1,2) 	Line color Line width	rgb(0.00,0.50,0.00) 3 rgb(0.50,0.50,1.00)	
7,2->8,2 ∞T 3;rects(-1,3.5) □ [1,2]x[4,3] □ [3,]x[4,3]	Display condition		
$ \begin{array}{c} \hline [6, 8]\times[4, 3] \\ -\pi \times 1 \ 4 \ pies(-1, 6) \\ \hline \Delta \ (2, 6) \ 1, 1 \ [0+360] \\ \hline \Delta \ (4, 6) \ 1, 1 \ [0+60] \end{array} $		1	
	pints 🛛 🗖		



PLOT Box 우 zTree - [plotitems.ztt] 👘 File Edit Treatment Run Tools View 🚊 🔲 Waitingscreen E-E Text Bitte warten Sie bis das Experiment weiter geht. × Plot Rect Active screen 🗄 🔳 Standard Name PlotRectangle OK OK 🔲 PlotBox [-2,10]x[10,0] width TEXT PlotText: 8 points(-1,1) х Cancel height . 0 1,1 У Position 3 . 0 3,1 . 0 4.1 8 6 - 5,1 - 6,1 4 • 7,1 PlotPoint: 8,1 line color rgb(0.00,0.00,0.00) TEXT 4 lines(-1,2) 1,2->2,2 10 line width 3,2->4,2 ₹ 5,2->6,2 fill color PlotLine: 7,2->8,2 TEXT 3 rects(-1,3.5) Display condition □ [1, 2]×[4, 3] - 🗖 [3,]x[4, 3] PlotRectangle: [6, 8]x[4, 3] TEXT 4 pies(-1,6) ▲ (2,6) 1, 1 [0+360] ▲ (4,6) 1, 1 [0+60] ▲ (4,6) 1, 1 [60+150] (7,6) 1, 1 [210+120] 3 rects Waitingscreen 🛃 Start 🔯 zTree Screens



Image: Seal in the seal in the seal is bis das Experiment in the second is seal in the second is seal in the seal is the second is seal in the second is search in the sea	File Edit Treatment Run Tools View ?	Plot Axis		×
Image: a construction of the screen of t	waiingscreen Text	Name	PlotAxis	ОК
$ \begin{array}{ c c c c c c } \hline \blacksquare \ \blacksquare$	Active screen	position		Cancel
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	PlotBox [-2,10]x[10,0] TEXT PlotText: 8 points(-1,1)	to tick distance		
$ \begin{array}{c} 0 \\ \mathbf$	• 2,1 • 3,1 • 4,1	grid from		
$ \begin{array}{c} \bullet & PlotPoint: 8,1 \\ \bullet & PlotPoint: 8,1 \\ \bullet & times(1,2) \\ \bullet & imes(1,2) \\ \bullet & imes(1,3,5) \\ \bullet & imes$	• 5,1 • 6,1 • 7,1	to increment		
$\begin{array}{c} 1, 2, 2-34, 2 \\ -3, 2-36, 2 \\ -7, 5, 2-36, 2 \\ -7, 101 3 \ rects(-1, 3.5) \\ -1, 1, 2 x 4, 3] \\ -1, 2 x 4, 3 \\ -1, 3 x 4, 3 \\ -1, 3 x 4, 3 \\ -1, 3 x 4, 3 \\ -1, 4 x 4, 4 $	PlotPoint: 8,1 TEXT 4 lines(-1,2) 1 2 -> 2	data label distance		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $				
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	- Totalis, 7,2-20,2 - Totalis	caption		
$ \begin{array}{c} & (2,6) 1, 1 [0+360] \\ & -\Delta (4,6) 1, 1 [0+160] \\ & -\Delta (4,6) 1, 4 [06+150] \\ & -\Delta \operatorname{PlotPie} / (7,6) 1, 1 [210+120] \end{array} $	□ [3,]x[4, 3] □ PlotRectangle/ [6, 8]x[4, 3] □ TEXT 4 pies(-1,6)	line width Display condition		
www.x0 /	$-\Delta (2,6) 1, 1 [0+360] -\Delta (4,6) 1, 1 [0+60] -\Delta (4,6) 1, / [60+150] -\Delta PlotPle/ (7,6) 1, 1 [210+120]$	e topicy contaiton		



PLOT Box

		FLU		
📿 zTree - [plotitems.ztt]				
🖀 File Edit Treatment Run Too	ols View ?			
🖃 🔲 Waitingscreen	Plot input			×
🖃 🖅 Text				
Bitte warten Sie b	Name Plothout	-		OK
🖻 📇 Stage = = (-1)	Hano prioripa			
Active screen	Event	Modifiers		1
🖻 🥅 Standard	I eft click			Cancel
ок 🗆 С	C Di Lu FL	E 017		
🖻 🐼 PlotBox [-2,10]x[10,0	 Hight click 	Shift		
TEXT PlotText: 8 points	C Key	∏ Alt	I Leave Stage when done	
- • 1,1	C Mouse enters	Ctrl	11 2	-
··· • 2,1	C Mouse leaves		Useir	
• 3,1				
• 4,1	Action			
• 5,1	Action C. a. L.	<u> </u>		
• 6,1	New Select	💌 Drag		
0 7,1			J	
 PlotPoint: 8,1 	Drag			
TEXT 4 lines(-1,2)	×	у	Program to calculate p'	
1,2->2,2	p0			A
3,2->4,2				
5,2->6,2	P			
PlotLine: 7,2->8,2	P'			
TEXT 3 rects(-1,3.5)				
[1, 2]x[4, 3]				
[3,]×[4, 3]				
PlotRectangle: [6,				-1
(2, 6) 1, 1 (2, 6)				
(2,6) 1, 1 [0+360				
(4,6) I, I [0+60]				
□ (4,6) I, I [60+15 □ DistDist (7,6) 1, 1 [7	210 - 120]			
PlotPie: (7,6) 1, 1 [2	210+120]			
Waitinggroop				
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DI OT INDUIT

PLOT Box

PLOT INPUT

Plot inputs can be placed into plot boxes and plot items. They can contain checkers² and programs².

In principle, plot input works in the following way.

- Click at a new position;
 - o The subject clicks at a screen position.
 - The coordinates of the position are stored in the subjects table or in a new contract of the contracts table or another user defined table.
 - o The programs in the plot input item are executed in the record where the data is stored.
- · Select an object
 - o The subjects click at an objects that contains a plot input item that treats the selection.
 - The consequence of the selection is determined by the program contained in the plot input. The program ins executed in the subjects table if it is an plot item in a plot box. If the plot input is in a plot item contained in a plot graph then the program is executed in the record representing this object in the plot graph. If plot graphs nested, the <u>scope environment</u>?
- Drag an object
 - o The subject clicks at an objects that contains a plot input item that treats the dragging.
 - o z-Leaf makes an movable object, which can be dragged.
 - When the object is released, the horizontal and vertical distance are stored in variables. The programmer of the treatment has to provide a program that updated the variables is a way that the data represents the new position.
 - o The updated data is transmitted to z-Leaf and draws the object at the new position.

- - - - -

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PLOT Box



Outline 1. Introduction 2. Creating a Simple Program (PD) 3. Creating a Simple Questionnaire 4. More on Design (From Standard Box to Contracts, Chat and Graphics) 5. More Tips and Tricks and Examples 6. VRPD Game

Storing Information From Previous Periods

• zTree remembers the value of globals and subjects variables from one prior period prior only:

These previous values are stored in a table called OLD*table*; so, the previous variables in the subjects table can be called from the table called OLDsubjects

o Longer histories?

Use summary or session's table Record a sequence of pat periods

Storing Information From Previous Periods

• Put the following at the beginning of the treatment: i=1;

while (i <maxi) do {History1[i]=OLDsubjects.find(same(Subject),Current[i]); History2[i]=OLDsubjects.find(same(Subject),History1[i]); History3[i]=OLDsubjects.find(same(Subject),History2[i]); History4[i]=OLDsubjects.find(same(Subject),History3[i]); i=i+1}

// Current[i] = CurrentValues;



Storing Information From Previous Treatments

All variables must be defined (given values) in programs before they can be read. The exceptions are session variables that are mentioned in Background.
 Click on Session table, insert sessions variable name (that was use in previous treatment) in the bottom box. Variable will be remember the value from the previous treatment.

Pauses and Popup Windows Between Periods

Go to Treatments
 Parameters
 Table and click on a chosen period.
 Then you can pause the session by sending a prompt (you can also change parameters for the chosen period)



Pauses and Popup Windows Between Periods

Prompt		OK Cancel
	I If there is a non empty prompt, the experiment stops at the beginning of the period and the prompt is displayed at the experimenter's screen.	
Program		J
	~	