Using PHYLIP/Neighbor and TreeView to Calculate and Plot Phylograms

Needed Software	Operating System: Windows, Apple OS or UNIX/Linux with X-Server.						
<u>Software</u>	Spreadsneet program: Microsoft Excel, OpenOffice Workbook etc.						
	Basic text editor: Notepad, Emacs, vi etc.						
	PHYLIP/Neighbor Program						
	TreeView Program						
	Note: These instructions assume the use of Win	dows 2	XP, Mici	rosoft Exce	l, and	Notepad	l. Slight
	modifications may be necessary depending on a	user'	s individ	lual system	config	guration	
Step 1:	Use a spreadsheet program to create a		A	B	C	D	E F
<u></u>	relative-mutations matrix for the set of	1	LDR	0			
	montrease in the phylogram (See Figure 1)	2	RSR	0	0		
	markers in the phylogram (See Figure 1).	3	NJR	0	0	0	
		4	JHR	1	1	1	1
		6	CSR	1	1	1	1
		7	SGR	21	ai S	i	1
		8	RPD	1	1	1	1
		9	VAR	1	1	1	1
		10	GLR	2	2	2	2
		11	DLR	1		1	
		12	BVB	1		4	1
		14	JER	2	2	2	2
		15	PSR	1	1	1	1
		16	VKR	1	1	1	1
		17	RLR	1	1	1	1
		18	CFER	1	1	1	1
		19	UKR UVP	2	2	1	2
		21	BGB	1	1	1	1
		22	JJRi	ાં	i	i	- i
			Figur	e 1: Relativ	e-Mutat	tions Mat	rix
Sten 2.	Save the matrix as a tab delimited file [.]		8*-				
<u>btep 2.</u>	a) Click on the Filemony						
	a) Click on the <i>File</i> menu						
	b) Click Save As						
	c) Change <i>Save in</i> to C:\DATA						
	d) Change Save as Type to TEXT (TAB DELIM	ITED)	(*.TXT)				
	e) You may optionally change the File name	to INF	TIF whi	h will aut	omate	a future	sten
	f) Click Sauce	10 1141			onnate	u iutuit	step.
	I) Click Save.						
	g) Click Yes to any pop-up dialogs						
<u>Step 3:</u>	Close the spreadsheet program.						
<u>Step 4:</u>	Open < YOURFILE.TXT> from Step 2 in a basic	text ec	litor.				
Step 5:	Format the text file for use within PHYLIP/Net	eighbo	r Progra	m:			
	a) Count the number of lines within the file.	č					
	b) Enter this number on the first line of the text file						

Step 5	c) Do the following to each subsequent	25				
(cont.):	line:	LDR	0			
	a. Delete the first TAB of the line	RSR	0	0		
	b. Make sure that there are 10 spaces	NJR	0	0	0	
	before the first number occurs	GIR	0	0	0	
	i Most lines start with a 3-letter			1	1	
	abbreviation so simply type 7	SGR	1	i	1	
	spaces after each of these	RPD	i	i	i	
	spaces after each of these	WAR	i	i	ī	
	abbreviations.	GLR	2	2	2	
		DLR	1	1	1	
	Note that Figure 2 shows the final desired	RJR	1	1	1	
	format of the text file.	RWR	1	1	1	
		JER	2	2	2	
	<u>An example text file for 25 Y-chromosome</u>	PSR	1 1	1	1 I	
	markers can be found here!		1	1	1	
		CEER	1	i	1	
		Figure 2:	⊥ Text File Ne	 eded for Ne	ighhor Program	
Step 6:	Save < YOURFILE TYT> to the C·\DATA direct	orv				
<u>Step 0.</u>	Onen the PHVI IP/Neighbor program evecu	table from th	a directory	vou either	rinstalled it in o	r
<u>step 7.</u>	use the shortcut on the Deskton [The install di	rectory would	l appear he	you enner		1
C4 a m Q1	use the shortcut on the Desktop. [The histan di	lectory would	i appear ne		adabbas and	y l
<u>Step 8:</u>	The sele blue commond window in Figure 2	neighbor.exe: can't	find input file "	infile"	neignoor.exe <u>-</u> D	-
	The pale blue command window in Figure 5					
	appears on the screen.					
	Note that if you saved your text file as		₽			
	INFILE.TXT you may skip to Step 9.					
	Enter your file name and directory;					
	C:\DATA\ <yourfile.txt></yourfile.txt>					•
		Figure 3: Phy	lip/Neighboı	· Program (Command Window	V
<u>Step 9:</u>	A listing of available options will now appear					
	in the command window (See Figure 4).					
	Get the correct output file options; enter the					
	following sequence of characters:	C:\Documents and Se	ettings\Mike\Desktop\te	mp1\phylip3.65\exe\r	neighbor.exe	×
		Settings for this r	GMH method version un:	3.65		
	a) Type 'N' and press <enter></enter> to enable	N Neighbor- L Lover-t B Upper-t	joining or UPGMA t riangular data nat riangular data nat	rix? Ves rix? No		
	Unweighted Pair Group Method with	J Randomize i M Analy	Subreplica nput order of spec ze nultiple data s	ites? No ies? Yes (randor sts? No	n number seed = 27)	
	Arithmetic Mean	0 Terninal type 1 Print out th 2 Print indicati	CIBM PC, ANSI, no e data at start of ons of progress of	ne)? IBM PC run No run Yes		
	b) Type (I' and press contary to enable	3 4 Write out	Print out trees onto tree f	tree Yes ile? Yes	D€	
	Leven Triangular Data Matrix tors	Y to accept these	or type the lette	r for one to char	nge	
	Lower Iriangular Data Matrix type.					
	Otherwise Type 'R' and press					-1
	<enter> to enable Upper Triangular</enter>	Figure 4:	Command V	Vindow wit	h options Menu.	
	Data Matrix Type.				-F	
	c) Type 'J' and press <enter></enter>					
	a. Select an odd number greater than					
	or equal to 11 and press <enter>.</enter>					
	- *					

<u>Step 10:</u>	Type 'Y' and press <enter></enter> to execute the Neighbor program with the given options.					
	The command window, in Figure 4 , will output text and close automatically.					
<u>Step 11:</u>	The output file and associated tree file are located in the PHYLIP install directory. These files are named OUTPUT and OUTTREE.					
<u>Step 12:</u>	Open the default PHYLIP directory [The install directory would appear here]					
<u>Step 13:</u>	Rename the file OUTTREE to <yourfile.tre></yourfile.tre> by right clicking on the file and selecting rename					
<u>Step 14:</u>	If the TreeView program is installed correctly, the icon will appear as in Figure 5. Double click the file <yourfile.tre> and the TreeView program will now open along with the associated tree. If the TreeView document Date Modified: 4/24/2006 3:29 PM Size: 543 bytes promk.exe protpars.exe restml.exe</yourfile.tre>					
	Figure 5: The renamed TreeView file					
<u>Step 15:</u>	Change the Tree to Phylogram (Figure 6). a) Select the Tree Menu b) Select Phylogram Unrooted Slanted dadogram Rectangular dadogram • Phylogram Show internal edge labels Internal label font Choose tree Order Define outgroup Root with outgroup Print trees Ctrl+T Figure 6: The Tree Menu with Phylogram Highlighted					

<u>Step 16:</u>	Save the Tree as a Graphics File		JJRj
	a) Select the <i>File</i> Menu		JWR
	b) Select Save as graphic		RGR SGR
	c) Change <i>Save as type</i> to WINDOWS		JHR
	METAFILE (*.WMF)		DCR
			LDR
	You have now successfully created a		RSR GTR
	Phylogram picture as seen in Figure 7 !		RWR
			DLR
			PSR
			WAR
			GLR
			JER
			LWR
		0.1	JJK
		– Figure 7: Final Phylogram Image!	