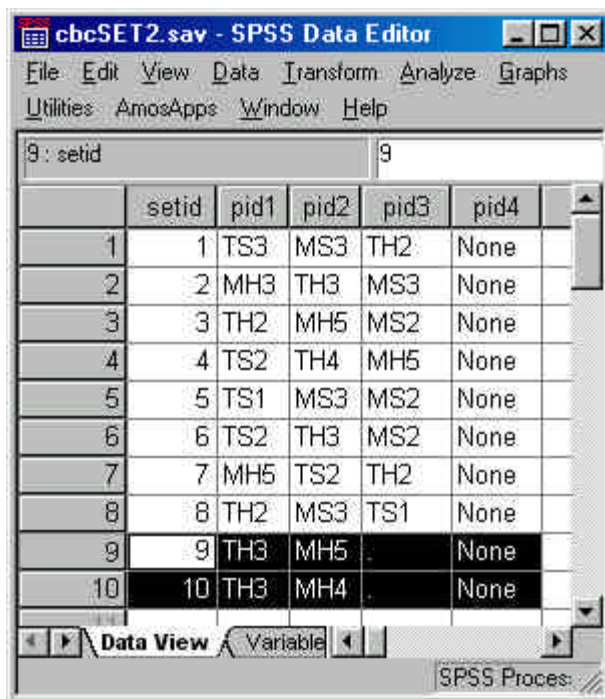


Tutorial #2: Using Latent GOLD Choice to Predict Future Choices

One of the major benefits of discrete choice modeling is the ability to use the model to predict choices for any choice set of interest including ones that were not utilized in the original choice experiment (*inactive* sets). In this tutorial, we utilize our final 3-segment model from tutorial 1 to simulate choice results for additional product alternatives of interest. You will:

- Retrieve our previous model setup
- Utilize different Alternatives and Sets Files
- Examine predicted choice shares for current and *inactive* sets
- Create your own sets and obtain choice share predictions for these
- Include your sets in the tri-plot display

In this tutorial, we will define additional choice sets and additional products not included in the choice experiment. Specifically, we will define 2 additional choice sets each consisting of only 3 alternatives. These new choice sets are setid # 9 and #10 in the file 'cbcSET2.sav'. These sets reference 2 new products – TH3 and MH4.



The screenshot shows the SPSS Data Editor window for 'cbcSET2.sav'. The data is displayed in a table with the following structure:

	setid	pid1	pid2	pid3	pid4
1	1	TS3	MS3	TH2	None
2	2	MH3	TH3	MS3	None
3	3	TH2	MH5	MS2	None
4	4	TS2	TH4	MH5	None
5	5	TS1	MS3	MS2	None
6	6	TS2	TH3	MS2	None
7	7	MH5	TS2	TH2	None
8	8	TH2	MS3	TS1	None
9	9	TH3	MH5		None
10	10	TH3	MH4		None

Notice that this file utilizes a '.' to represent missing for the 3rd alternative. The '.' character has been declared within the .sav file as a missing value. For ASCII files, the character sequence 'open quote followed by a closed quote' (""), is recognized as missing by Latent GOLD Choice.

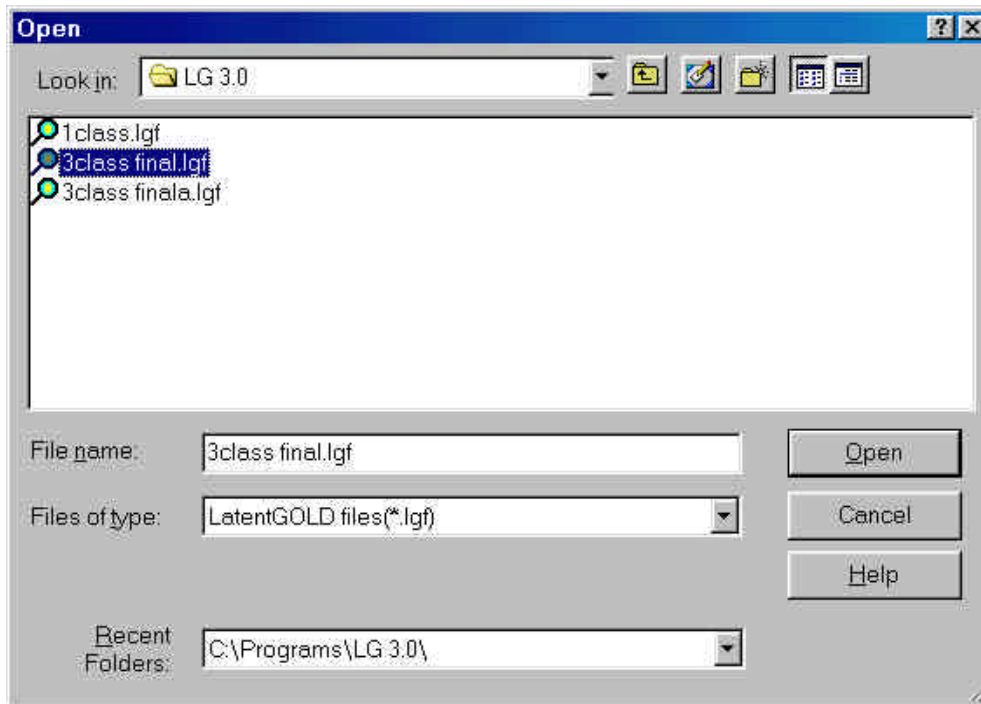
The new alternatives TH3 and MH4, together with additional alternatives are defined in the Alternatives File 'cbcALT.sav'. There are now 21 total alternatives instead of the 11 used in tutorial #1.

	prodcode	fashion	quality	price	
1	MH1	modern	higher	\$25	
2	MH2	modern	higher	\$50	
3	MH3	modern	higher	\$75	
4	MH4	modern	higher	\$100	
5	MH5	modern	higher	\$125	
6	MS1	modern	standard	\$25	
7	MS2	modern	standard	\$50	
8	MS3	modern	standard	\$75	
9	MS4	modern	standard	\$100	
10	MS5	modern	standard	\$125	
11	TH1	traditional	higher	\$25	
12	TH2	traditional	higher	\$50	
13	TH3	traditional	higher	\$75	
14	TH4	traditional	higher	\$100	
15	TH5	traditional	higher	\$125	
16	TS1	traditional	standard	\$25	
17	TS2	traditional	standard	\$50	
18	TS3	traditional	standard	\$75	
19	TS4	traditional	standard	\$100	
20	TS5	traditional	standard	\$125	
21	None				

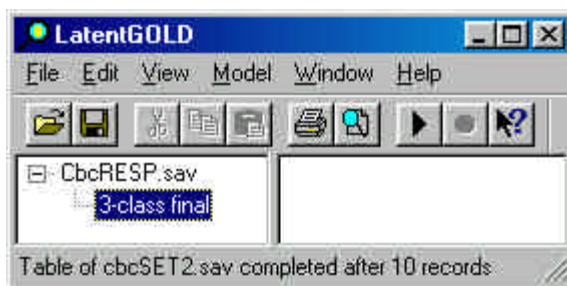
The only file that remains the same from those used in Tutorial #1 is the Response File 'cbcRESP.sav'.

To retrieve our final 3-class model (developed in tutorial 2)

- From the File Menu select Open
- Select '3class final.lgf' and click Open



Your outline pane now looks like this:

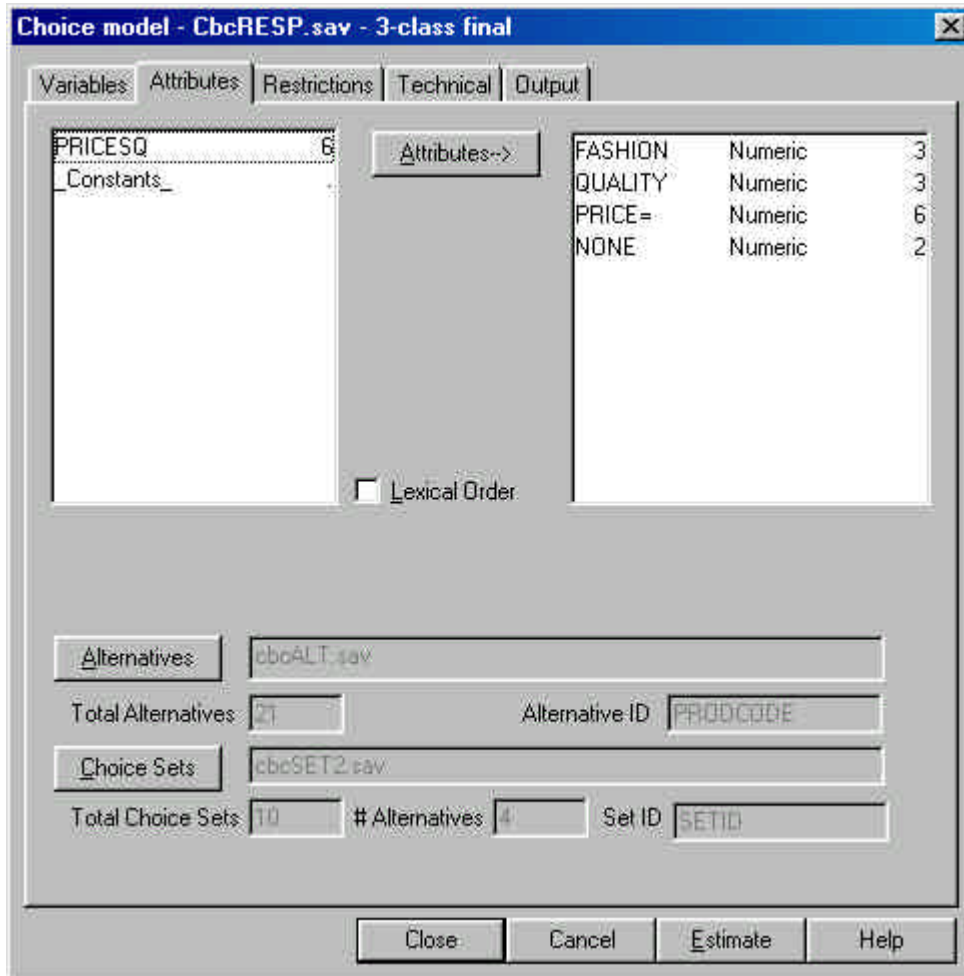


To open the model setup screen

- Double click on the model name '3-class final'

To open the Attributes tab

- Click Attributes



Notice the following:

- The Alternatives File is now cbcALT.sav (instead of cbcALT11.sav)
- The Total Alternatives on that file is now 21
- The Sets File is now cbcSET2.sav (instead of cbcSET.sav)
- The total number of choice sets is now 10

To re-estimate the model

➤ Click Estimate

The model is the same as that estimated in tutorial #1. You may wish to confirm that the parameter estimates and statistics are the same as before.

We will now explore the ‘Set Profile’ Output which shows us how the model performs in predicting the actual choices posed to the respondents, and also provides predicted choice shares for the 2 newly constructed (inactive) choice sets of interest.

To open the Set Profile Output, in the Outline Pane

- Click 'Set Profile'

The screenshot shows a software window with a menu bar (File, Edit, View, Model, Window, Help) and a toolbar. On the left, a tree view shows '3-class final - L2' expanded to 'Set Profile'. The main area displays a table with the following data:

	Class1	Class2	Class3	Overall	Observed
	0.5033	0.2645	0.2322		
Set 1 n = 400					
Choice 1	0.0266	0.0318	0.0937	0.0435	0.0475
2	0.5925	0.0318	0.2688	0.3691	0.3800
3	0.0413	0.8065	0.3713	0.3202	0.3100
4	0.3397	0.1299	0.2663	0.2672	0.2625
Set 2 n = 400					

At the top of the file, the performance is summarized for Set 1. The model predicts overall choice shares of 4.35%, 36.9%, 32.03%, and 26.71% for the 4 options posed in set 1: products 1:TS3, 2:MS3, 3:TH2 and 4:None. These shares closely match the actual observed response percentages associated with these alternatives, indicating a good model fit to the actual data.

The output also provides separate share estimates for each segment.

- Respondents in the segment that prefers shoes with the Modern style (Class1) are most likely to choose the modern style shoe alternative (59.25% choose this option)
 - Respondents in the segment that prefers Higher quality shoes (Class 2) are most likely to choose the High quality alternative (80.65% choose this option)
- Now scroll down to the bottom of the file to view the corresponding choice shares projected for the 2 *inactive* sets

The screenshot shows the same software window, scrolled down to show 'Set 9 n = 0' and 'Set 10 n = 0'. The table data is as follows:

	Class1	Class2	Class3	Overall	Observed
Set 9 n = 0					
Choice 1	0.0434	0.6006	0.3027	0.2510	0.0000
2	0.4017	0.2492	0.3604	0.3518	0.0000
4	0.5549	0.1502	0.3369	0.3972	0.0000
Set 10 n = 0					
Choice 1	0.0355	0.5279	0.2524	0.2161	0.0000
2	0.5103	0.3401	0.4666	0.4551	0.0000
4	0.4541	0.1320	0.2810	0.3287	0.0000

First, notice that the actual *observed* choice shares (right-most column) are zeroes here because these choice sets were not posed to respondents in the experiment. The nice feature of the random utility theory is that we can use the part-worth utility estimates to *simulate* choice shares for these *inactive* sets.

Recall that sets 9 and 10 consist of only 3 alternatives each:

Set	Alt1	Alt2		Alt4
9	TH3	MH5	.	None
10	TH3	MH4	.	None

Thus, we find the following results:

- Among the segment having a high preference for the Modern style (Class1), 40.17% choose the modern shoe MH5 despite the much higher price, but the high price is a deterrent -- 55.49% choose not to buy (they select the 'None' option)
- Set 10 is similar to Set 9 except the price of the Modern shoe is priced at \$100 rather than \$125 – only \$25 more than the Traditional style alternative. We see that now the share for the Modern alternative increases to 51.03% among this segment, with only 45.41% choosing the None option.

Next, you will have the opportunity to create a new Sets File containing your own (inactive) sets. (You can also modify the Alternatives File if you so desire.) One way to do this is to edit the SPSS .sav files. However, if you do not have the capability of editing .sav files, you may instead modify the corresponding text versions of these files.

Alternative Text File Formats

In addition to SPSS (.sav) file formats, Latent GOLD Choice also accepts ASCII text (.txt, .dat) files. For this tutorial, we have constructed the text file equivalents corresponding to the Alternatives File, cbcALT.sav, and the Sets File cbcSETS2.sav. These are called cbcALT.dat and cbcSETS2.dat.

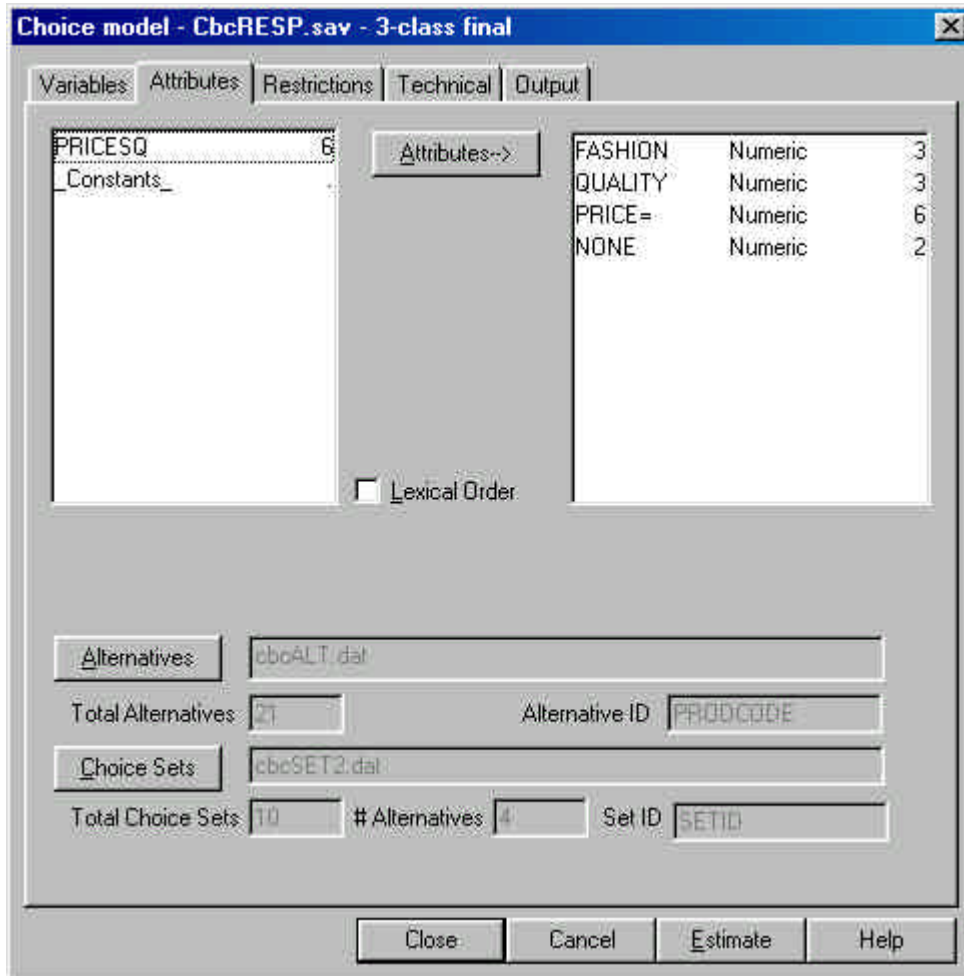
To retrieve the final 3-class model using these text files in place of the .sav files,

- from the File Menu select
- Open
- From the drop down files list box select the file '3class finala.lgf'
- Click Open

- Double click on the model name '3-class final'

To open the Attributes tab

- Click Attributes



Notice the following:

- The Alternatives File is now cbcALT.dat (instead of cbcALT.sav)
- The Sets File is now cbcSET2.dat (instead of cbcSET2.sav)
- Everything else is identical

To re-estimate the model

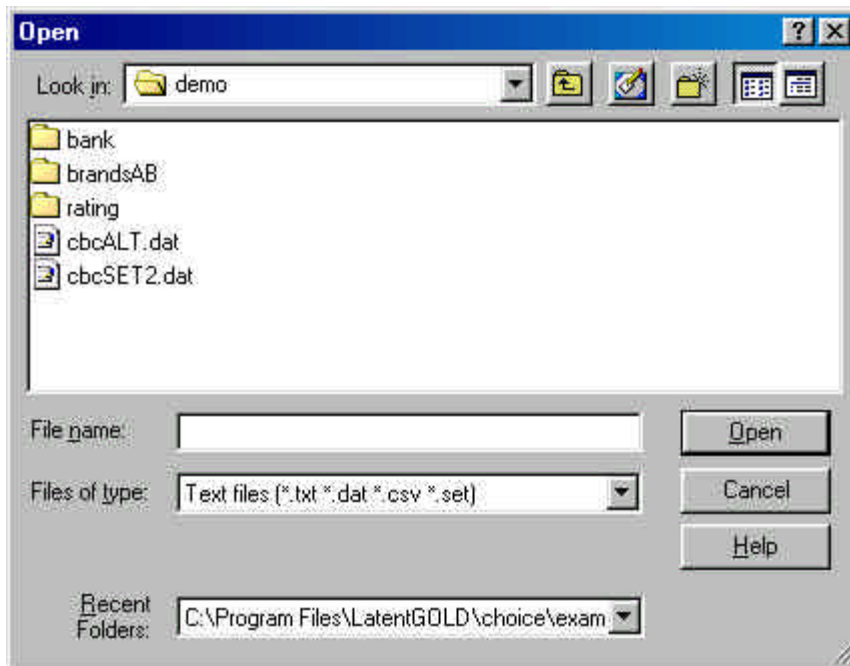
- Click Estimate

The model is the same as that estimated earlier. You may wish to confirm that the parameter estimates and statistics are the same as before.

After you construct a new Sets File, to replace the current Sets File with your new one

If you created a text file

- Click the Choice Sets button in the Attributes tab to display files names



- Click on your new Sets File
- Click Open

In response to the prompt 'Select ID variable'

- Select your ID variable
- Click OK