

## Block 3: Analysing two variables (and sometimes three)

## 3.3 Multiple response

[New page: 20 Feb 2018]

## 3.3.3.4 Analysing multiple response 4 - Dichotomous mode

Sets of questions with only two response categories (Yes, No) can be analysed as a block by treating them as multiple response questions. Indeed, any variable can be dichotomised and thus treated. The example asks whether the respondent has ever done any of a list actions involving a trade union or staff association (each item 1 = "Yes" or 2 = "No") and the exercise demonstrates how to define a dichotomous group variable and then tabulate it.

**Previous tutorial:** [3.3.3.3 Analysing multiple response exercise 3 - More replies than values](#)

**Exemplar:** British Social Attitudes survey (1986 wave)

**Raw data set:** [bsa86.txt](#) (3.4 mb)

Obtained under licence from UKDA as a \*.dat file in **Times New Roman** proportional font: reformatted to **Courier New** fixed-width font to align the columns. This version has been downloaded and saved as a \*.txt file, then copied to CD for this example and is henceforth referred to as 'e:bsa86.txt'

**SPSS saved file** [bsa86b.sav](#) (2.0 mb)

Contains data for all 3100 respondents. The original file (generated by Prof John Curtice et al, Strathclyde) used **mnemonic** variable names, but these have been changed to **positional** names to make it easier to work from the questionnaire. **VARIABLE LABELS** and **VALUE LABELS** have been left in UPPER CASE (as per originals) but the question number has been moved to the beginning of the variable label to make it easier to navigate the file.

Some, but not all, **VALUE LABELS** and **MISSING VALUES** have been declared, but you should always check your variables before launching into any analyses.

The data for a single case are spread over 23 x 80-column records, eg:

```
102050101031072187061      020512      02
1020502210322023112111121321  31225112112211113442113  05
1020503
1020504      12  012  2004  3121
1020505      030113121255111112  21221221  2113501  111111
10205060102051113111111  2111113102001  010400  1111122  411 2  5
1020507      5  11111833124225  2211121222222  23668656531112221230801030722
1020508222111 2      2      1 2      2      2      6      312
1020509
1020510
1020511
1020512
1020513
1020514      02  2      2
102051502115212501      22 011
1020516      9721      063010807327408  001010131 112112      103
1020517136010808323408  01981015102021      4      03  11 11310501870300486111
1020518
1020519
10205203332322343123443212222223323233211112212221222422244112111121222212212
1020521333333423123222224413322322121111223222222212222241422244222
1020522222224244222313222
1020523  00.6666 04 4 1 02 2 4 06 2 07 08 6 5 4 4 4 4 2 1 08 04 3 6 1 1 1 5
```

## Binary variables (dichotomous)

Sets of questions with only two response categories (Yes, No) can be analysed as a block by treating them as multiple response questions. Indeed, any variable can be dichotomised and thus treated. An example in this data set is:

### AQ112c/BQ120c Actions as Trade Union/Staff Association member (Yes, No – precoded)

[Extract from (marked up) questionnaire]

ASK ALL ✓

112 a) Are you now a member of a trade union or staff association? *one code only*  
 8=D/K Yes: trade union  
 9=N/A Yes: staff association  
 No

IF NO AT a) (If 1657(3))

b) Have you ever been a member of a trade union or staff association? *one code only*  
 8=D/K Yes: trade union  
 9=N/A Yes: staff association  
 No

IF NOW OR EVER A MEMBER (CODES 1 OR 2 AT a OR b) If 1657(1=2 or 1658(1=2))

c) Have you ever ... READ OUT ... (RING ONE CODE FOR EACH)

	YES	NO	
... attended a union or staff association meeting?	1	2	(1659)
... voted in a union or staff association election or meeting?	1	2	(1660)
... put forward a proposal or motion at a union or staff association meeting?	1	2	(1661)
... gone on strike?	1	2	(1662)
... stood in a picket line?	1	2	(1663)
... served as a lay representative such as a shop steward or branch committee member?	1	2	(1664)

8=D/K on each column  
 9=N/A " " "

The answers to the items listed in (c) are coded 1 = "Yes" or 2 = "No" in cols 59-64 of record 16.

[Extract from raw data: record 16]

1019216	1	999021117998999	99999	933	07
1020316		999021117998999	99999	933	
1020516	9721	063010807327408	001010131	112112	103

↑↑↑↑↑

[Extract from file bsa86b.sav]

	Name	Type	Width	Decimals	Label	Values	Missing
416	v1659	Numeric	1	0	A112B120C [IF EVER UNION]ATTENDED MEETNG	None	8, 9
417	v1660	Numeric	1	0	A112B120C [IF EVER UNION]VOTED AT MEETNG	None	8, 9
418	v1661	Numeric	1	0	A112B120C [IF EVER UNION] PUT A PROPOSAL	None	8, 9
419	v1662	Numeric	1	0	A112B120C [IF EVER UNION] GONE ON STRIKE	None	8, 9
420	v1663	Numeric	1	0	A112B120C [IF EVER UNION]STOOD IN PICKET	None	8, 9
421	v1664	Numeric	1	0	A112B120C [IF EVER UNION]BEEN AN OFFICIAL	None	8, 9

No value labels have been assigned, but this can be rectified with:

**value labels** v1659 to v1664 1 'Yes' 2 'No' 8 'D/K' 9 'N/A'.

**\*bsa86b.sav [DataSet1] - IBM SPSS Statistics Data Editor**

File Edit View Data Transform Analyze Direct Marketing Graphs Utilities Extensions Window Help

	Name	Type	Width	Decimals	Label	Values	Missing
416	v1659	Numeric	1	0	A112B120C [IF EVER UNION]ATTENDED MEETNG	{1, Yes}...	8, 9
417	v1660	Numeric	1	0	A112B120C [IF EVER UNION]VOTED AT MEETNG	{1, Yes}...	8, 9
418	v1661	Numeric	1	0	A112B120C [IF EVER UNION] PUT A PROPOSAL	{1, Yes}...	8, 9
419	v1662	Numeric	1	0	A112B120C [IF EVER UNION] GONE ON STRIKE	{1, Yes}...	8, 9
420	v1663	Numeric	1	0	A112B120C [IF EVER UNION]STOOD IN PICKET	{1, Yes}...	8, 9
421	v1664	Numeric	1	0	A112B120C [IF EVER UNION]BEEN AN OFFICIAL	{1, Yes}...	8, 9

Data View **Variable View**

IBM SPSS Statistics Processor is ready    Unicode:ON

**Value Labels**

Value Labels

Value:

Label:

Spelling...

Add

Change

Remove

1 = "Yes"

2 = "No"

8 = "D/K"

9 = "N/A"

OK Cancel Help

**\*bsa86b.sav [DataSet1] - IBM SPSS Statistics Data Editor**

File Edit View **Data** Transform Analyze Direct Marketing Graphs Utilities Extensions Window Help

Define Variable Properties...  
Set Measurement Level for Unknown...  
Copy Data Properties...  
New Custom Attribute...  
Define date and time...  
Define Multiple Response Sets...  
Validation  
Identify Duplicate Cases...  
Identify Unusual Cases...  
Compare Datasets...  
Sort Cases...  
Sort Variables...

	Name	Type	Width	Decimals	Label	Values	Missing
416	v1659	Numeric	1	0	A112B120C [IF EVER UNION]ATTENDED MEETNG	{1, Yes}...	8, 9
417	v1660	Numeric	1	0	A112B120C [IF EVER UNION]VOTED AT MEETNG	{1, Yes}...	8, 9
418	v1661	Numeric	1	0	A112B120C [IF EVER UNION] PUT A PROPOSAL	{1, Yes}...	8, 9
419	v1662	Numeric	1	0	A112B120C [IF EVER UNION] GONE ON STRIKE	{1, Yes}...	8, 9
420	v1663	Numeric	1	0	A112B120C [IF EVER UNION]STOOD IN PICKET	{1, Yes}...	8, 9
421	v1664	Numeric	1	0	A112B120C [IF EVER UNION]BEEN AN OFFICIAL	{1, Yes}...	8, 9

Data View **Variable View**

IBM SPSS Statistics Processor is ready    Unicode:ON

**Define Variable Properties**

Use this facility to label variable values and set other properties after scanning the data.

Select the variables to scan. They should be categorical (nominal or ordinal) for best results. You can change the measurement level setting in the next panel.

Variables: v1659, v1660, v1661, v1662, v1663, v1664, v1665, v1666, v1667, v1668, v1669

Variables to Scan:

☐ Limit number of cases scanned to:

☒ Limit number of values displayed to: 200

Continue Cancel Help

**Define Variable Properties**

Use this facility to label variable values and set other properties after scanning the data.

Select the variables to scan. They should be categorical (nominal or ordinal) for best results. You can change the measurement level setting in the next panel.

Variables: v1665, v1666, v1667, v1668, v1669, v1670, v1671, v1672, v1673, v1674, v1675

Variables to Scan: v1659, v1660, v1661, v1662, v1663, v1664

☐ Limit number of cases scanned to:

☒ Limit number of values displayed to: 200

Continue Cancel Help

**Define Variable Properties**

Scanned Variable List

Unl...	Me...	Role	Variable
<input checked="" type="checkbox"/>			v1659
<input checked="" type="checkbox"/>			v1660
<input checked="" type="checkbox"/>			v1661
<input checked="" type="checkbox"/>			v1662
<input checked="" type="checkbox"/>			v1663
<input checked="" type="checkbox"/>			v1664

Current Variable: v1659 Label: A112B120C [IF EVER UNION]ATTENDED MEETING

Measurement Level: Scale Suggest Type: Numeric Width: 1 Decimals: 0

Role: Input

Unlabeled values: 0

Value Label grid: Enter or edit labels in the grid. You can enter additional values at the bottom.

	Changed	Missing	Count	Value	Label
1	<input type="checkbox"/>	<input type="checkbox"/>	1187	1	Yes
2	<input type="checkbox"/>	<input type="checkbox"/>	585	2	No
3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0	8	D/K
4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	5	9	N/A
5	<input type="checkbox"/>	<input type="checkbox"/>			

Cases scanned: 3100 Value list limit: 200

Copy Properties: From Another Variable... To Other Variables... Unlabeled Values: Automatic Labels

OK Paste Reset Cancel Help

**Define Variable Properties**

Scanned Variable List

Unl...	Me...	Role	Variable
<input checked="" type="checkbox"/>			v1659
<input checked="" type="checkbox"/>			v1660
<input checked="" type="checkbox"/>			v1661
<input checked="" type="checkbox"/>			v1662
<input checked="" type="checkbox"/>			v1663
<input checked="" type="checkbox"/>			v1664

Current Variable: v1664 Label: A112B120C [IF EVER UNION]BEEN AN OFFICIAL

Measurement Level: Scale Suggest Type: Numeric Width: 1 Decimals: 0

Role: Input

Unlabeled values: 0

Value Label grid: Enter or edit labels in the grid. You can enter additional values at the bottom.

	Changed	Missing	Count	Value	Label
1	<input type="checkbox"/>	<input type="checkbox"/>	278	1	Yes
2	<input type="checkbox"/>	<input type="checkbox"/>	1489	2	No
3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0	8	D/K
4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	10	9	N/A
5	<input type="checkbox"/>	<input type="checkbox"/>			

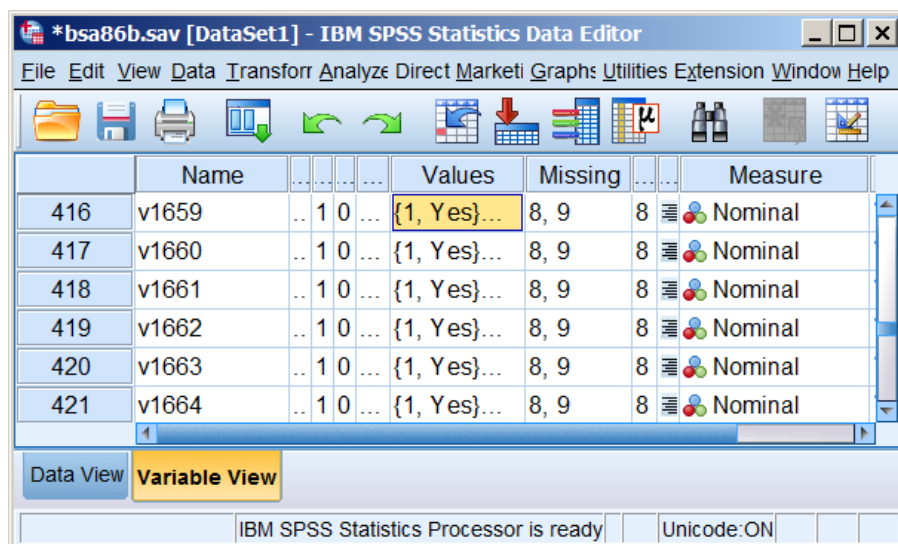
Cases scanned: 3100 Value list limit: 200

Copy Properties: From Another Variable... To Other Variables... Unlabeled Values: Automatic Labels

OK Paste Reset Cancel Help

**VARIABLE LEVEL** is defined as **Scale** for all six variables and needs to be changed to **Nominal**.

**variable level** v1659 to v1664 (**Nominal**).



You can produce 6 separate frequency counts with:

**frequencies** v1659 to v1664.

**A112B120C [IF EVER UNION]ATTENDED MEETING**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	1187	38.3	67.0	67.0
	No	585	18.9	33.0	100.0
	Total	1772	57.2	100.0	
Missing	N/A	5	0.2		
	System	1323	42.7		
	Total	1328	42.8		
Total		3100	100.0		

**A112B120C [IF EVER UNION] GONE ON STRIKE**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	591	19.1	33.3	33.3
	No	1182	38.1	66.7	100.0
	Total	1773	57.2	100.0	
Missing	N/A	4	0.1		
	System	1323	42.7		
	Total	1327	42.8		
Total		3100	100.0		

**A112B120C [IF EVER UNION]VOTED AT MEETING**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	1094	35.3	61.7	61.7
	No	678	21.9	38.3	100.0
	Total	1772	57.2	100.0	
Missing	N/A	5	0.2		
	System	1323	42.7		
	Total	1328	42.8		
Total		3100	100.0		

**A112B120C [IF EVER UNION]STOOD IN PICKET**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	241	7.8	13.6	13.6
	No	1530	49.4	86.4	100.0
	Total	1771	57.1	100.0	
Missing	N/A	6	0.2		
	System	1323	42.7		
	Total	1329	42.9		
Total		3100	100.0		

**A112B120C [IF EVER UNION] PUT A PROPOSAL**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	436	14.1	24.6	24.6
	No	1335	43.1	75.4	100.0
	Total	1771	57.1	100.0	
Missing	D/K	1	0.0		
	N/A	5	0.2		
	System	1323	42.7		
Total	Total	1329	42.9		
	Total	3100	100.0		

**A112B120C [IF EVER UNION]BEEN AN OFFICIAL**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	278	9.0	15.7	15.7
	No	1489	48.0	84.3	100.0
	Total	1767	57.0	100.0	
Missing	N/A	10	0.3		
	System	1323	42.7		
	Total	1333	43.0		
Total		3100	100.0		

You can produce a single table for all the 1 = Yes responses with;

**mult response** groups actions 'Actions ever taken as union member'  
 (v1659 to v1664 (1))  
 /frequencies actions /cells column.

actions Frequencies		Responses		Percent of Cases
		N	Percent	
Actions ever taken as union member <sup>a</sup>	A112B120C [IF EVER UNION]ATTENDED MEETNG	1187	31.0%	88.7%
	A112B120C [IF EVER UNION]VOTED AT MEETNG	1094	28.6%	81.8%
	A112B120C [IF EVER UNION] PUT A PROPOSAL	436	11.4%	32.6%
	A112B120C [IF EVER UNION] GONE ON STRIKE	591	15.4%	44.2%
	A112B120C [IF EVER UNION]STOOD IN PICKET	241	6.3%	18.0%
	A112B120C [IF EVER UNION]BEEN AN OFFICIAL	278	7.3%	20.8%
Total		3827	100.0%	286.0%

a. Dichotomy group tabulated at value 1.

**End of:** [3.3.3.4 Analysing multiple response 4 - Dichotomous mode](#)  
**Back to:** [3.3.3.3 Analysing multiple response exercise 3 - More replies than values](#)  
**Back to:** [3.3 Multiple response](#)