

DATA MANAGEMENT • BIOSTATISTICS • PROGRAMMING • MEDICAL WRITING • PHARMACOVIGILANCE



Quanticate
A PASSION FOR EXCELLENCE



Your SAS Secrets Exposed!

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Global Solutions from the World's
Largest Data-Dedicated CRO

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Tip 1: Alternative to IF THEN ELSE



Many programmers use IF THEN ELSE statements for conditional processing
But when creating a variable with two possible values, there is another method available

Use the IFC and IFN functions

- Assigns values based on whether a condition is true or false
- Uses similar code to IF THEN ELSE
- Reduces lines of code required

IFC will create a character variable



IFN will create a numeric variable



Tip 1: Alternative to IF THEN ELSE

Example: Two different ways of creating the variable sexcd

```
if sex='Male' then sexcd=1;  
else sexcd=0;
```



```
sexcd=ifn (sex='Male', 1, 0);
```



VIEWTABLE: Work.Dm			
	Unique Subject ID	Sex	sexcd
1	1560507	Female	0
2	1560601	Male	1
3	1560707	Male	1
4	1561001	Male	1
5	1561003	Female	0
6	1561102	Male	1

Result

- Either code can be used here and will produce the same result
- Little difference in average processing times
- IFN function has advantage of requiring less code

When you need to create variables with two possible values, then these functions are ideal

Tip 2: Special Characters



Sometimes may need to use symbols which cannot be seen on your keyboard

These can be coded into your programs by using a byte number

Here are a few of the available symbols...

Byte(i)	Symbol	Description
153	™	Trademark sign
169	©	Copyright sign
170	^a	Superscript a
174	®	Registered trademark sign
176	°	Degree symbol
177	±	Plus or minus sign
178	²	Superscript 2 / squared
179	³	Superscript 3 / cubed
188	¼	One quarter
189	½	Half
190	¾	Three quarters

Tip 2: Special Characters



Example: Using a superscript value in a footnote

Running this code will show a full list of characters, can then find the one you want

```
data check;  
  do i=1 to 255;  
    sq=byte(i);  
    output;  
  end;  
run;
```

Use %let to create a macro variable of it
In this example, byte(170) references superscript a

```
%let supa=%sysfunc(byte(170));
```

Can check this has worked by using %put to write the value to the log

```
%put &supa;
```

Tip 2: Special Characters



Example: Using a superscript value in a footnote

Macro variable can then be inserted into your program
Highlighted code shows the special character being placed at the start of a footnote

```
proc report data=final nowd headline headskip split='|' ps=23 formchar(2)='_';
  column ('__' pdccl coll ord1 ord2);
  define pdccl / left ' ' width=60;
  define coll / center 'DrugA|6 mg SC';
  define ord1 / order noprint;
  define ord2 / order noprint;
  title 'Table 14-1.3 Summary of Important Protocol Deviations';
  compute after _page_;
    line @13 72*"_";
    line @2 ' ';
    line @14 "&supa Other than Treatment Compliance/Test Article Administration";
    line @14 'Note: Deviation categories are not mutually exclusive.';
  endcomp;
  break after ord1 / skip;
run;
```

Tip 2: Special Characters

Example: Using a superscript value in a footnote

Output now has a superscript value in the footnote, highlighted below

Table 14-1.3 Summary of Important Protocol Deviations	
	DrugA 6 mg SC
Enrolled	58
Number of Subjects with Important Deviations	32 (55%)
Test Article Administration	6 (10%)
Treatment Compliance	12 (21%)
Off Schedule Study Procedure ^a	3 (5%)
Missing Data	25 (43%)
Exclusionary Medication	2 (3%)
^a Other than Treatment Compliance/Test Article Administration Note: Deviation categories are not mutually exclusive	

Tip 3: 'Where' Option



Often in your datasets you may find issues, outliers and unexpected values, which can cause problems in your programs/outputs ☹



There is a quick way to see all the unique values of a variable in a dataset by using the where option from the data menu

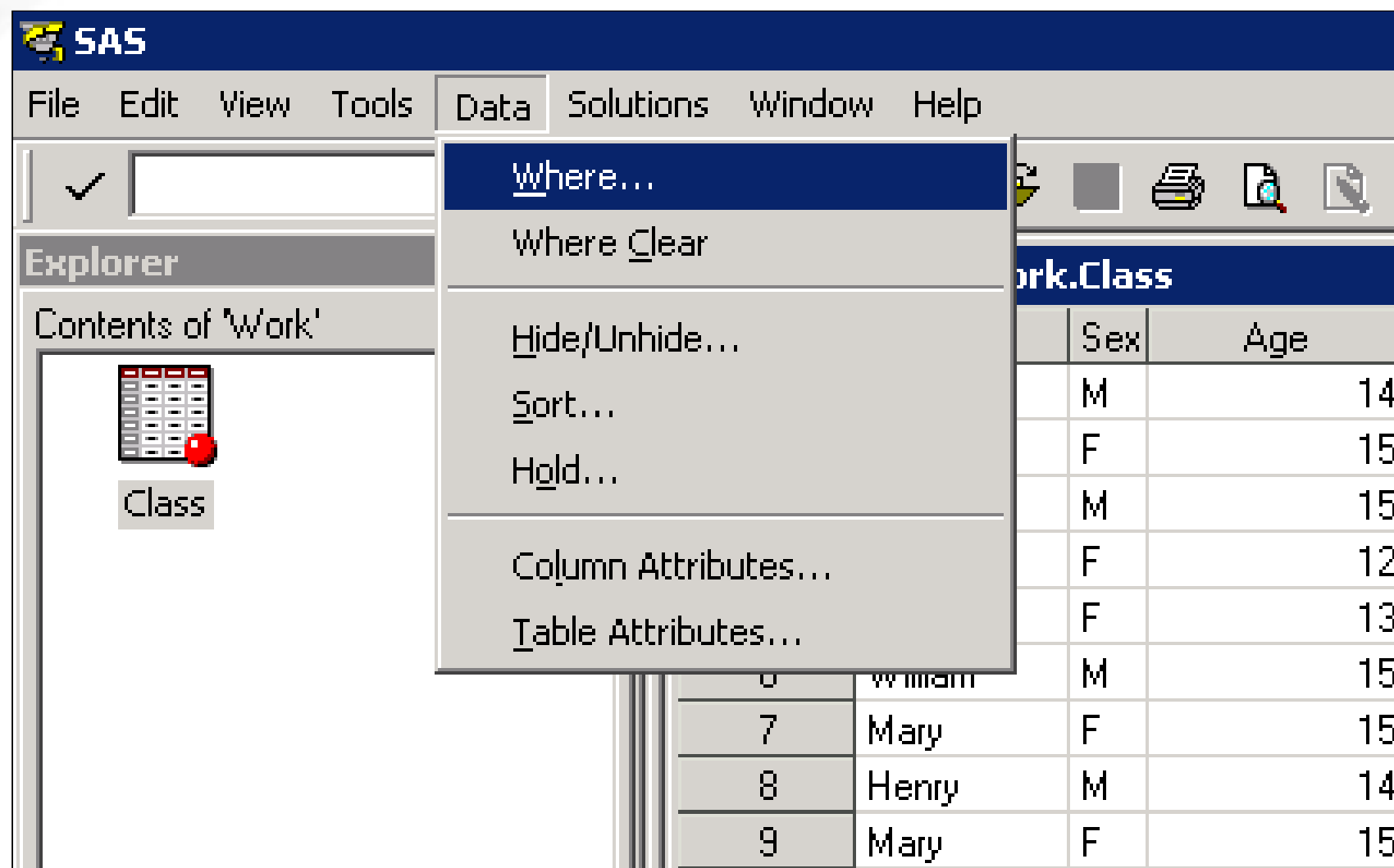
To use this option, just follow a few simple steps...

Tip 3: 'Where' Option



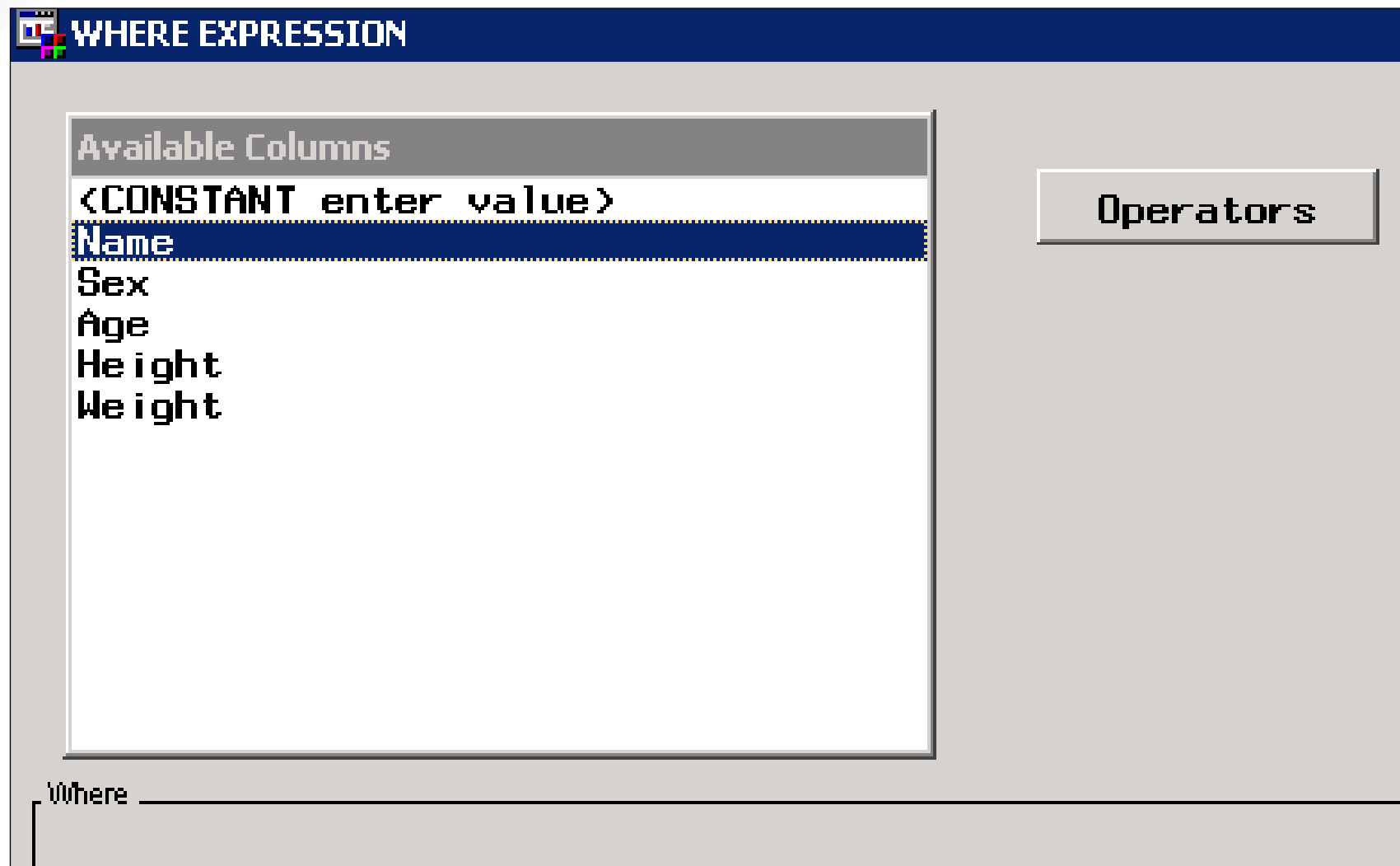
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1) Open a dataset and select Where... from the Data menu



Tip 3: 'Where' Option

2) Choose the variable you want to check



WHERE EXPRESSION

Available Columns

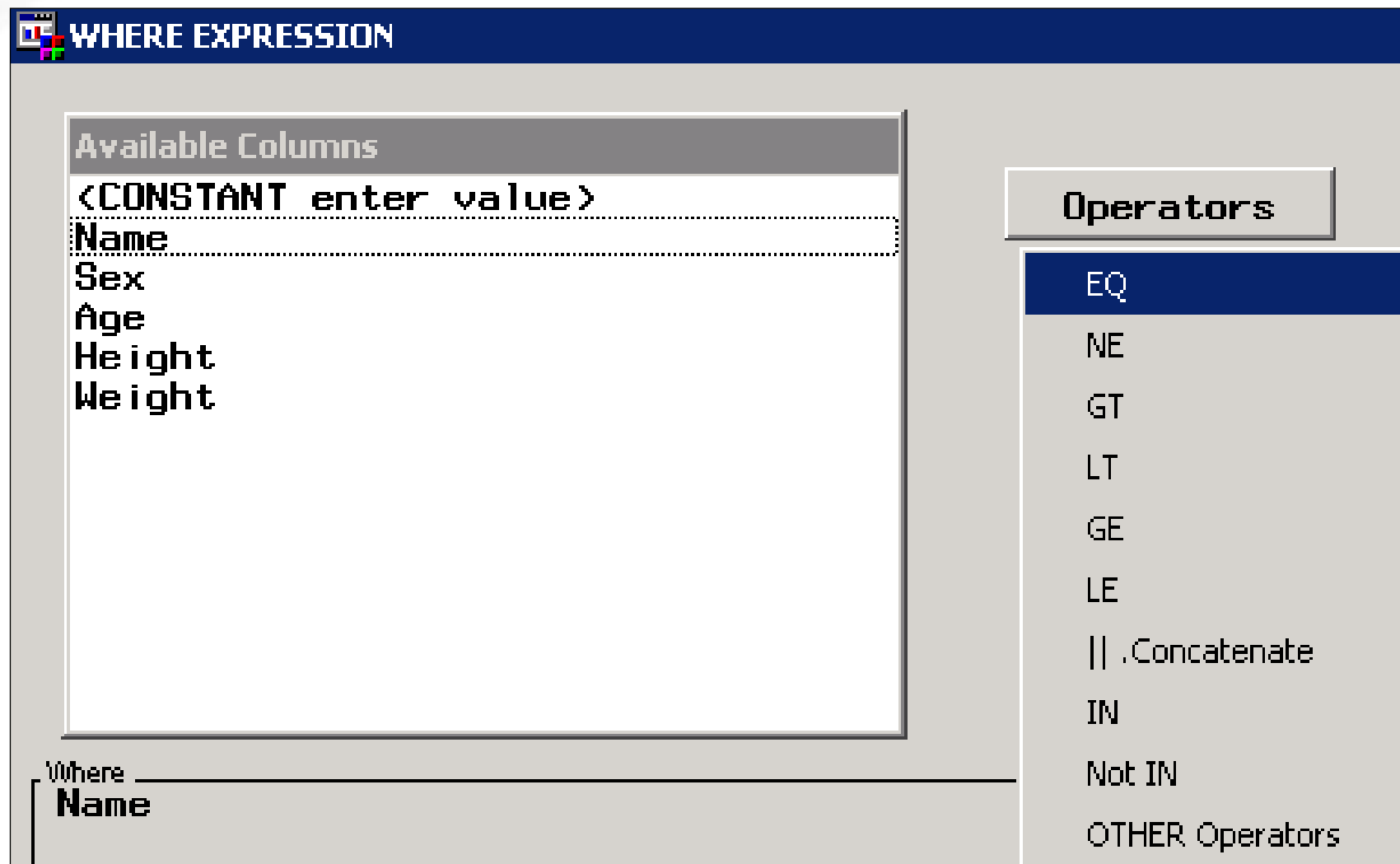
- <CONSTANT enter value>
- Name**
- Sex
- Age
- Height
- Weight

Operators

Where _____

Tip 3: 'Where' Option

3) Select the EQ operator



WHERE EXPRESSION

Available Columns

- <CONSTANT enter value>
- Name
- Sex
- Age
- Height
- Weight

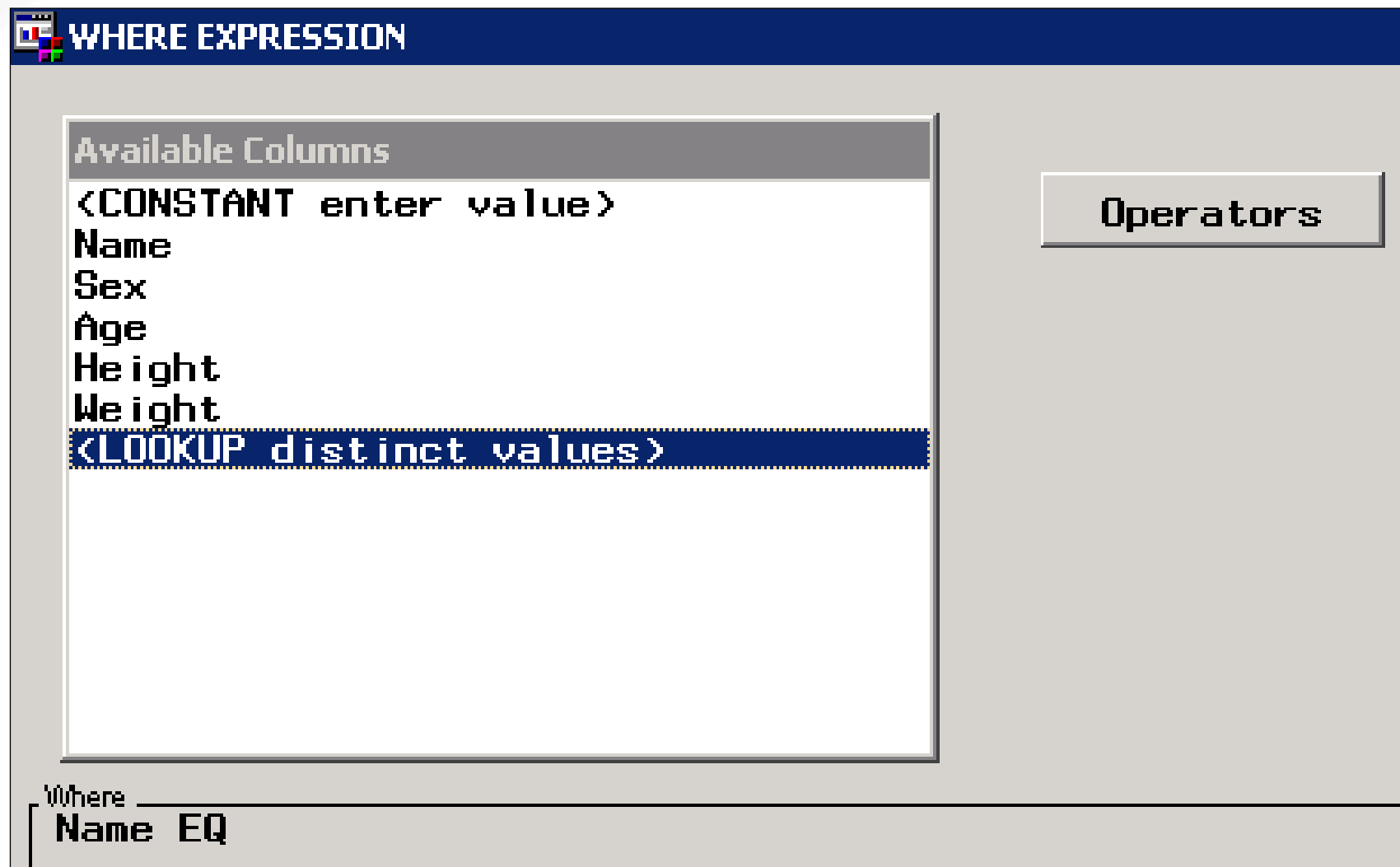
Operators

- EQ
- NE
- GT
- LT
- GE
- LE
- || .Concatenate
- IN
- Not IN
- OTHER Operators

Where: **Name**

Tip 3: 'Where' Option

4) Select <LOOKUP distinct values>



WHERE EXPRESSION

Available Columns

- <CONSTANT enter value>
- Name
- Sex
- Age
- Height
- Weight
- <LOOKUP distinct values>**

Operators

Where
Name EQ

Tip 3: 'Where' Option

5) List of values is now visible

Lookup Distinct Values	
Select a value for column Name	
Lookup Values	
Alfred	
Alice	
Barbara	
Carol	
Henry	
James	
Jane	
Janet	
Jeffrey	
John	
Joyce	
Judy	
Louise	
Mary	
Philip	
Robert	
Ronald	
Thomas	
William	

Outcome

- See all unique values
- Sorted in ascending order
- Quick overview of data

Tip 3: 'Where' Option

Example: Looking at values of age or adverse event start dates

Lookup Distinct Values
Select a value for column AGE

Lookup Values
5
18
20
22
23
25
26
27
28
29
30
31
32
34

Potential outlier

Minimum age 5

Maximum age 34

Lookup Distinct Values
Select a value for column AESTDTC

Lookup Values
02NOV2004
06JAN2003
07MAR2012
08DEC2004
10JUN2001
13JUN2000
14PEC2012
15MAR2007
18SEP2004
20DEC2005
23FEB2010
26MAY2010
29FEB2013
29SEP2001
31NOV2001

Month uses number 0 instead of letter O

DEC miss-spelt as PEC

Dates do not exist

This quick way of looking at data values is great for saving time when you want to check for issues, outliers and unexpected values

Tip 4: PC SAS Keyboard Shortcuts



Many helpful keyboard shortcuts are available at your disposal, such as...

Action	Keyboard Shortcut
Convert highlighted text to upper case	Ctrl Shift U
Convert highlighted text to lower case	Ctrl Shift L
Comment highlighted text	Ctrl /
Uncomment highlighted text	Ctrl Shift /
Collapse all sections of code	Ctrl Alt – (on number pad)
Expand all sections of code	Ctrl Alt + (on number pad)
Move cursor to matching bracket	Ctrl (
Move cursor to matching DO or END statement	Alt {

Make searching
through code faster

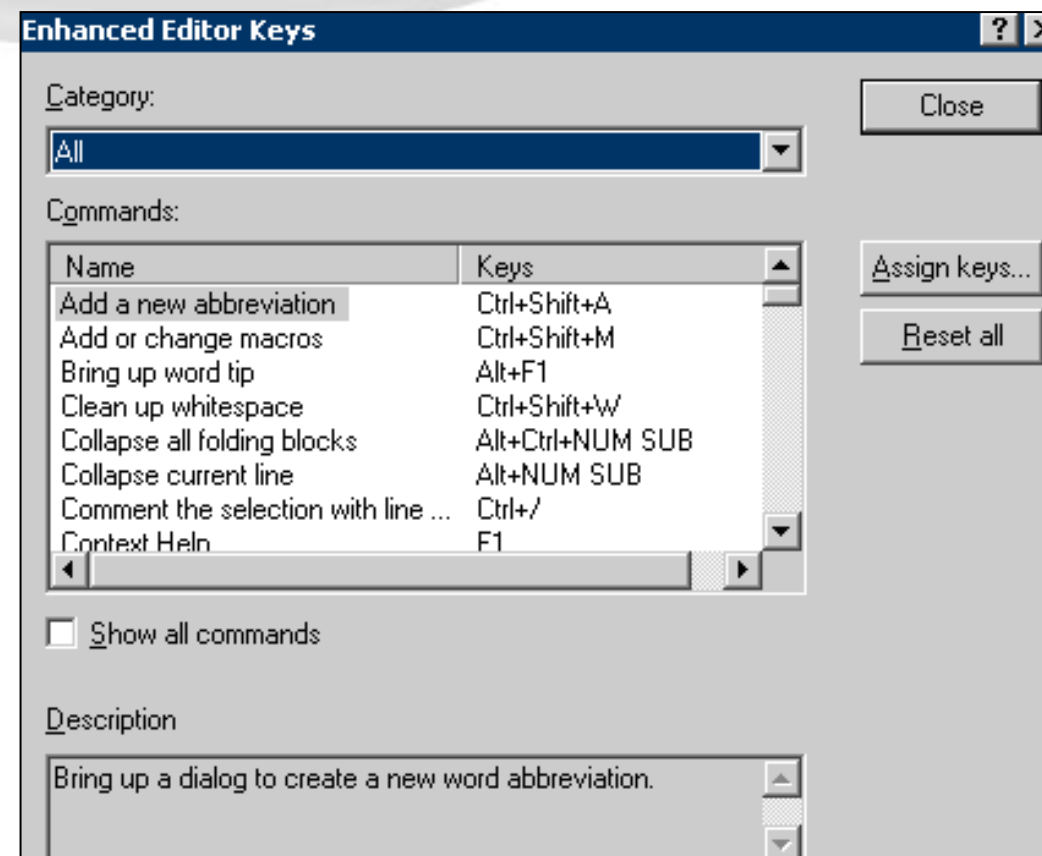
Could use when
debugging macros

Save time instead
of re-typing it all

Tip 4: PC SAS Keyboard Shortcuts



Can see the full list of shortcuts by going on the SAS menu
Tools -> Options -> Enhanced Editor Keys



Will show a list of all commands that have a keyboard shortcut assigned to them, along with a description of what they do

Tip 4: PC SAS Keyboard Shortcuts



Ticking the box to show all commands will then also show the commands that have not been assigned any shortcuts yet

These can be set yourself if you want to use any

Some of the unassigned commands

- Covert highlighted text to opposite case
- Insert current date and time
- Delete line
- Repeat the current line
- Remove trailing white space from end of lines

Using keyboard shortcuts is an ideal way to save time



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Any Questions?

