“Had a Strange DATE” – problem solved.

Now as SAS gets older will ANYDT do?

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Overview

1. Closer look at reading in DATE values.

2. How to read in DATES having NO SAS® supplied INFORMAT

3. ANYDTDTE (9.2 enhancements NOT covered)

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Introduction

- Example - you can WRITE OUT “November 05, 2009” using the WORDDATE FORMAT.
- How can you do the reverse - READ it IN as a SAS date value?
- If you know – SHHHHHHHH…….

DATE Values in General

INFORMAT

FORMAT

	Yes	No
Yes	X	X
No	X	X

Topics to be Covered

- Your “Good” DATE.
- Your “Not So Good” DATE.
- Your “Strange” DATE
- Your “Any” DATE.

Topics to be Covered

- Your “Good” DATE.

INFORMAT

FORMAT

	Yes	No
Yes	X	
No		

Your “Good” DATE

- A “Good” DATE Value has a SAS Supplied FORMAT and an INFORMAT.
- Consider Today’s DATE in the FORM: “05Nov2009”.
- Let us see how we can WRITE OUT and READ IN this value (Example #1).

Your “Good” DATE

- “Good” DATES can be handled with the Supplied FORMATS and INFORMATS:
  - “05/11/2009” (DDMMYY10.)
  - “11/05/09” (MMDDYY8.)
  - “091105” (YYMMDD6.)

Topics to be Covered

- Your “Not So Good” DATE.

INFORMAT

FORMAT

	Yes	No
Yes		X
No		

Your “Not So Good” DATE

(Divide and Conquer)

- A “Not So Good” DATE May Look Like the LOG from the Previous Example.

- How can you read “November 05, 2009”?
- (we will revisit this later)

- Divide and Conquer

Your “Not So Good” DATE

(Divide and Conquer)

- Read “November 05, 2009” as a TEXT string.
- Divide into parts that could be put together with an available INFORMAT:

Your “Not So Good” DATE

(Divide and Conquer)

- Part1 = “05”.
- Part2 = “Nov”.
- Part3 = “2009”.

Your “Not So Good” DATE

(Divide and Conquer)

- Concatenate the three parts:
  - Parts = Part1 || Part2 || Part3 ;
  - (i.e. “05Nov2009”)

Your “Not So Good” DATE

(Divide and Conquer)

- Apply the DATE9 INFORMAT:

  MSUGday = input (Parts , date9.) ;

- Example #2.

Your “Not So Good” DATE

(Divide and Conquer)

- Your “Not So Good” DATE has now been Divided and Conquered.
- Is there a Gentler and Kinder Approach?

Your “Not So Good” DATE

- Create Your Own INFORMAT.
  - The General Principles Behind this Idea are:

Your “Not So Good” DATE

(Create Your Own INFORMAT)

- A Range of DATES Can be Associated with Values of the Form “November 05, 2009”.
- Facilitates a “LOOK-UP” of the Corresponding DATE for the Value that is READ IN.

Your “Not So Good” DATE

(Create Your Own INFORMAT)

- Create a Control Data Set for PROC FORMAT with Variables:

  (1) FMTNAME = <Your INFORMAT>

  (2) TYPE = “I”

  (3) LABEL = <SAS Date>

  (4) START = <Value without INFORMAT>

- Run PROC FORMAT and Output Your INFORMAT.

Your “Not So Good” DATE

(Create Your Own INFORMAT)

- READ IN Your Value by Associating it with Your INFORMAT.
- Example #3

Topics to be Covered

- Your “Strange” DATE.

INFORMAT

FORMAT

	Yes	No
Yes		
No		X

Your “Strange” DATE
(Create Your Own INFORMAT)

- Consider the Task of READING IN “2009/NOV/05” as a SAS DATE.
- How Do We Deal with This?

Your “Strange” DATE

(Create Your Own INFORMAT)

- Welcome to DIRECTIVES in the PICTURE FORMAT.
- Customize Your Own DATE FORMAT using Multiple DIRECTIVES.
- Using the Customized FORMAT You Can Create Your INFORMAT as Before.

Your “Strange” DATE
(Create Your Own INFORMAT)

- The following DIRECTIVES are Relevant:
  - %Y – Represents “2009”
  - %b – Represents the Abbreviated Month Name “NOV”
  - %d – Represents the day “05”.

Your “Strange” DATE
(Create Your Own INFORMAT)

- A Few Other DIRECTIVES:

%A Full weekday name

%B Locale's full month name

%m Month as a decimal

%w Weekday as a decimal number

Your “Strange” DATE
(Create Your Own INFORMAT)

- Example #4

Topics to be Covered

- Your "Any" DATE.

INFORMAT

	Yes	**No**
Yes	X	
No		

FORMAT

Your “Any” Date

- ANYDTDTE, ANYDTDTM, ANYDTTME
- DATE, DATETIME, DDMMYY, JULIAN, MMDDYY, MONYY, TIME, YYMMDD, or YYQ
- Is 11/05/2009 November 5 or May 11?

Your "Any" Date

- Example#5 with ANYDTDTE
- Use of DATESTYLE option

Your "Any" Date

- Powerful, BUT ……
- Rigid – works only with existing INFORMATS
- NOTE: INVALID DATA not issued – Example #6

Your "Any" Date

- Buggy – Impossible Dates - Example #7
- Inability to read certain dates – Example #8
- Accidental Feature – Example #9

Data Line	Informat Form
----+----1----+----2	
01JAN09	DATE
01JAN2009 14:30:08.5	DATETIME
01012009	DDMMYY
2009001	JULIAN
01/01/09	MMDDYY
JAN2009	MONYY
14:30	TIME
20090101	YYMMDD
09q1	YYQ
January 1, 2009	none

Divide and Conquer Versus Your INFORMAT

- Ease of Use for a Junior/Beginner.
  - Store the “Divide and Conquer” Portion in a Macro.
  - Store the INFORMAT in a Library.

Divide and Conquer Versus Your INFORMAT

- Performance Metrics (In Seconds Except Ratio)

INFORMAT APPROACH	DIVIDE APPROACH	DIFFERENCE INF - DIV	RATIO INF/DIV
38.16	82.13	-43.97	0.46
39.92	84.42	-44.50	0.47
37.91	81.75	-43.84	0.46
38.14	81.95	-43.81	0.47
37.95	81.69	-43.73	0.46

Limitations

- The INFORMAT Approach is Infeasible for DATETIME values.
  - 1 Day of DATETIME ~= 237 Years of DATE values.
  - 1 Year of DATETIME ~= 31.5 Million Observations.

Summary and Conclusion

- Started with the Basic DATE Values.
- Progressed to Read DATE Values having FORMATS but NO INFORMATS.
- Examined Version 9 – ANYDTxxx

Summary and Conclusion

- Divide and Conquer Approach.
- Create Your Own INFORMAT Approach.
- Proceeded to READING Values Having Neither FORMAT nor INFORMAT.

Summary and Conclusion

- Used the DIRECTIVES in the PICTURE FORMAT to Create a Custom DATE FORMAT.
- Used the Custom FORMAT to Create the Needed INFORMAT.
- ANYDTxxx NOT robust yet.

References

- Chakravarthy, V. (2002), “Have a Strange DATE? Create Your own INFORMAT to deal with her”. Proceedings of the Twenty Seventh Annual SAS Users Group International Conference, 101-27.

About the Speaker

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