Non-Informative Descriptions under ERR-ANALYS

(N. Otsuka, S. Dunaeva, 2016-03-16, Memo CP/D-894 Rev.)

Addition to CP-D/894 Rev. by N.O. (summary): This memo proposes the following change in the coding rule of ERR-ANALYS:

> However, coded information is obligatory <u>when more than one error field associated to the dependent variable is given in the data set.</u>
> →
> However, coded information is obligatory <u>for error fields associated to the dependent variable.</u>

to reminds compilers importance of the descriptions on the uncertainties in the dependent variable. I also suggest to avoid free text heading explanation which is automatically expanded from dictionary (e.g., "Angle error" for ANG-ERR).

There exist many non-informative ERR-ANALYS descriptions in EXFOR. We encourage compilers

(1) to give detailed information on the sources of the uncertainties, especially for those in the dependent variable in free text, and

(2) to omit explanations on the other error headings if the free text just gives general explanation of the error headings.

Such omission would make important ERR-ANALYS lines more visible.

Example 1

```
SUBENT   C  O0345003  20151202                        O0345 3   1
BIB             6          9                           O0345 3   2
REACTION   (79-AU-197(P,N+P)79-AU-196-G,(M),SIG)       O0345 3   3
…
ERR-ANALYS (DATA-ERR) The uncertainty is reported by authors.  O0345 3   8
           (EN-ERR-DIG) Digitizing uncertainty of energy       O0345 3   9
           (ERR-DIG) Digitizing uncertainty of data            O0345 3   10
…
ENDBIB            9          0                         O0345 3   12
COMMON            2          3                         O0345 3   13
EN-ERR-DIG ERR-DIG                                     O0345 3   14
MEV        MB                                          O0345 3   15
     0.6       2.3                                     O0345 3   16
ENDCOMMON         3          0                         O0345 3   17
DATA              3         10                         O0345 3   18
EN        DATA       DATA-ERR                          O0345 3   19
MEV        MB         MB                               O0345 3   20
    35.2       44.5                                    O0345 3   21
    42.4       61.3        3.3                          O0345 3   22
......
```

DATA-ERR "*The uncertainty is reported by authors*"

> It is not a purpose of the keyword to describe where the compiler found the uncertainty values. If the compiler cannot find any description on the sources propagated to the reported uncertainty, we encourage the compilers to describe the situation in free text (e.g., "No information on source of uncertainties.").

EN-ERR-DIG "*Digitizing uncertainty of energy*"
ERR-DIG "*Digitizing uncertainty of data*"

> These are general explanations of these headings, and similar explanations are automatically added in the X4+ output. Better to omit.

Example 2

```
SUBENT    C   O0389001   20151118                               O0389 1    1
BIB               12           45                               O0389 1    2
TITLE     90,92,94-Zr(p,p') reactions at 12.7 MeV.             O0389 1    3
AUTHOR    (J.K.Dickens,E.Eichler,G.R.Satchler)                 O0389 1    4
INSTITUTE (1USAORL)                                             O0389 1    5
…
ERR-ANALYS (ANG-ERR) Angle error                               O0389 1   25
           (ERR-1) Normalization uncertainty includes:         O0389 1   26
            * uncertainty of measured target thickness,         O0389 1   27
            * uncertainty of the detector solid-angle measurement,O0389 1 28
            * uncertainty of the beam integration measurements  O0389 1   29
           (ERR-2) Errors affecting primarily the shapes of the O0389 1   30
           angular distributions:                               O0389 1   31
…
ENDBIB            45            0                               O0389 1   48
COMMON             4            3                               O0389 1   49
EN        EN-ERR    ANG-ERR    ERR-1                            O0389 1   50
MEV       MEV       ADEG       PER-CENT                         O0389 1   51
    12.7      0.01       0.05   10.                             O0389 1   52
ENDCOMMON          3            0                               O0389 1   53
```

ANG-ERR "*Angle error*"
> This description gives a general expansion of the heading, and a similar explanation may be automatically added in end-user output formats (e.g., X4+). Better to omit.

Proposal on change in the EXFOR Formats "ERR-ANALYS"

EXFOR Formats "ERR-ANALYS" mentions that
> However, coded information is obligatory when more than one error field associated to the dependent variable is given in the data set.

Considering Conclusion 38 of NRDC 1992
> "If *one or more* column headings for DATA errors are given in COMMON/DATA section, they must be coded under ERR-ANALYS, i.e., coding under ERR-ANALYS is now obligatory also in the case of only a single DATA-ERR column. (Change of wording in EXFOR Manual under ERR-ANALYS)."

we propose to change the above mentioned sentence to
> However, coded information is obligatory <u>for error fields associated to the dependent variable.</u>

This new sentence reminds compilers both (1) importance of the descriptions on the uncertainties in the dependent variable, and also (2) redundancy of the descriptions on the uncertainties in other variables.