Detailed Structure of EXFOR

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BIB Section

BIB section contains:

- bibliographic information

  (*e.g.*, `REFERENCE`, `AUTHOR`),
- descriptive information

  (*e.g.*, `SOURCE`, `METHOD`, `FACILITY`),
- administrative information

  (*e.g.*, `HISTORY`)

BIB Section

BIB record (cols. 1-66)

consists of two parts:

- cols 1-11: information-identifier keyword field,
- cols 12-66: information field,
  - may contain coded information and/or free text.

BIB Section

BIB information for a data set consists of :

- BIB section of its subentry,
- BIB information in subentry 001.

An information-identifier keyword may be included in either subentry or both.

BIB Section

Information-Identifier Keyword

- used to define information given in cols. 12-66;
- left adjusted to col. 1;
- length of <11 characters;
- column. 11 contains either blank, or pointer;
- not repeated within any one BIB section;
- may appear in any order within a BIB section.

BIB Section

Pointers:

- appear on 1st record of the information to which they are apply;
- are not repeated on continuation records;
- are assumed to refer to all BIB information until either another pointer or a new keyword is encountered;

BIB Section

Pointers (cont'd)

`ERR-ANALYS` **Comment about uncertainty for all data.**

`1(DATA-ERR)` **Comment about uncertainty for for `DATA-ERR` field with pointer 1.**

`2(DATA-ERR)` **Comment about uncertainty for for `DATA-ERR` field with pointer 2.**

BIB Section

Coded information is used:

- to define the actual BIB information,
- as a link to the COMMON and DATA section,
- to enter associated numerical data.
- enclosed in parentheses
- opening parenthesis left adjusted to col. 12;
- several codes may be associated with a keyword

BIB Section

Keywords may have:

- short codes taken from dictionaries,
- or strings of coded information continued onto successive records,
- or no coded information associated with them.

BIB Section

Codes from dictionaries are used:

- singly,
- with other codes from the same dictionary,
- with additional information.

BIB Section

Two options exist if more than one code is used:

- codes within the same set of parenthesis, separated by a comma;

```
INC-SOURCE (POLIS,ATOMI) + free text
```

- each code on separate record;

```
METHOD      (MOMIX) + free text ...
            (ACTIV) + free text
```

BIB Section

Embedded blanks

- For many keywords, embedded blanks are explicitly forbidden in the codes.
- Otherwise, embedded blanks are allowed if they follow a dictionary code; not permitted preceding any code.

Examples:
```
STATUS     (DEP  )
STATUS     (DEP ,COREL)
```
Forbidden:
```
STATUS     (COREL, DEP)
STATUS     (DEP, 10048007)
```

BIB Section

Free text

- may be entered under any keywords;
- may be continued onto any number of records;
- may include parentheses; left parenthesis not in column 12 for keywords with codes.

Language of free text is English.

BIB Section

Examples

```
AUTHOR      (J.W.Dow,M.P.Jones)
ERR-ANALYS Total uncertainties are not given.
           (DATA-ERR) Statistical uncertainty.
REACTION  1(92-U-235(N,EL),,WID)
          2(92-U-235(N,F),,WID)
```

No dictionary

BIB Section

Bibliography	**Physics**	**Related data**	**Other**
INSTITUTE REFERENCE AUTHOR TITLE EXP-YEAR	INC-SOURCE INC-SPECT SAMPLE METHOD FACILITY ANALYSIS DETECTOR .CORRECTION COVARIANCE ERR-ANALYSIS	MONITOR MONIT-REF ASSUMED DECAY-DATA DECAY-MON PART-DET RAD-DET HALF-LIFE EN-SEC EMS-SEC LEVEL-PROP MOM-SEC MISC-COL	ADD-RES COMMENT CRITIQUE FLAG REL-REF
Data specification REACTION RESULT			**Bookkeeping** STATUS HISTORY

COMMON and DATA

- Formats of COMMON and DATA identical.
- COMMON data
  - constant parameters
  - pertain to all points in DATA table
- DATA table
  - contains values as a function of one or more independent variables

COMMON and DATA

- Up to 18 fields.
- 6 fields per physical record,
  - each 11 columns wide
- Data headings
  - left adjusted in field
  - may contain a pointer in 11th column
- Data units
  - left adjusted in field

Data records are FORTRAN-readable using a floating-point format.

- Decimal point always present, even for integers.
- Decimal number without an exponent can have any position within 11-character field.
- No blank is allowed following sign (+ or -).
- Plus sign may be omitted, except that of exponent when there is no E.
- In exponential notation: exponent right adjusted within 11-character field; mantissa may have any position.

COMMON and DATA

Example of a COMMON section

```
COMMON
EN              EN-ERR    E               E-ERR
MEV             MEV       MEV             MEV
2.73            0.16      1.38            0.21
ENDCOMMON
```

COMMON and DATA

Example of a COMMON section with more than one record per line

```
COMMON
EN          EN-ERR    EN-RSL      E-LVL-MIN   E-LVL-MAX   MONIT
MONIT-ERR
MEV         MEV       MEV         MEV         MEV         MB
MB
2.73        0.16      1.38        2.7         2.9         3.456
0.123
ENDCOMMON
```

COMMON and DATA

- A data set consists of the three sections:
  - COMMON section of subentry 001,
  - COMMON section of subentry *nnn* ≠ 001,
  - DATA section of subentry *nnn* ≠ 001.

COMMON and DATA

DATA Table fields

- four categories of data
  - independent variables (`EN`, `EN-RES`, `E`, `ANG`, *etc.*);
  - dependent variables (`DATA`);
  - associated quantities (`EN-ERR`, `ANG-RSL`, `DATA-ERR`, *etc.*);
  - additional information (`MONIT`, `MISC`, `FLAG`, `HL`, *etc.*).

COMMON and DATA

Field Sequence in a DATA Table

DATA

independent variable(s)	dependent variable(s)	additional information
+ associated quantities	+ associated quantities	

ENDDATA

COMMON and DATA

Line Sequence in a DATA Table

- Independent variables increase or decrease monotonically.
- Values in a given independent-variable field increase or decrease monotonically until value in preceding independent-variable field changes.

COMMON and DATA

Example of a DATA section

```
DATA
EN          ANG         DATA        DATA-ERR   DATA-MAX
MEV         ADEG        MB/S        MB/SR      MB/SR
 1.          10.7       138.          2.1
 1.          22.9       127.          2.0
 1.          39.1                               83.2
 2.          10.7       148.          2.3
 2.          22.9       139.          2.1
 …
ENDDATA
```

COMMON and DATA

<u>Independent variables</u>.

- Only one representation of an independent variable may be given for each data set (*e.g.*, either angle or cosine, not both).
- No field heading (data heading plus pointer) may be repeated except for cases specified in EXFOR Manual.
- Fields with identical data headings will be adjacent and will appear within only one of the three sections of a data set.

COMMON and DATA

Field heading repetition

- Two or more unresolved secondary energies

```
E-LVL     E-LVL
MEV       MEV
```

- Angle in degrees and minutes and/or seconds

```
ANG       ANG       ANG
ADEG      AMIN      ASEC
```

- Half-life values in different units

```
HL        HL
HR        MIN
```

COMMON and DATA

Field heading repetition (cont'd)

- Errors or resolutions given in different units

```
DATA-ERR    DATA-ERR
B           PER-CENT
```

- Two or more unresolved masses

```
MASSMASS
NO-DIM      NO-DIM
```

- Two or more flags

```
FLAGFLAG
NO-DIM      NO-DIM
```

Lion
by Skyler

horse