EXFOR Check Items

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Currently ZCHEX and JANIS Trans Checker are widely used by EXFOR compilers as checking tools. We expect these checking codes check EXFOR drafts against the **format rule** and **dictionary**. But there are additional check items such as *physics checking* (e.g., mass and charge conservation, independent variable requirement), and we know ZCHEX have some physics check items. It would be also helpful if a checking code find an opening parenthesis of coded information at column 13 (instead of column 12) though it is not easy to detect.

Below I reproduce two lists of check items made by Schwerer and Dunaeva, which are followed by my short list of possible check items. Compiles could suggest more items for future development of checking codes.

1. Schwerer's memo for creation of an entry including artificial errors for testing checking code performance.

author's initial for private communication
invalid keyword (N-SOURCE)
HISTORY dates out of order
REACTION separator / between blanks
invalid nuclide code
REACTION starts in col.13
Obsolete heading RATIO
Invalid units
Multiple reactions with different SF1
invalid entry date
invalid HISTORY date
invalid METHOD code
obsolete keyword RESID-NUC
inconsistent SF1-SF4
unkown nuclides (DECAY-DATA)
independent variable not monotonic
nuclide invalid for SF1
invalid SF3
missing decimal point in DECAY-DATA
numerical data in wrong position
invalid ISOMER extention -G+M
invalid nunits in DECAY-DATA code
numerical data exponent not right-adjusted
record number not increased by 1
keyword with no information
N1, N2 counters wrong on DATA record
N1 wrong on ENDSUBENT record
unknown isomeric state in RAD-DET
half-life in wrong field in DECAY-DATA (=too many

commas)

error heading inconsistent

EN-MIN > EN-MAX

) missing in DECAY-DATA code

invalid heading

empty DATA section column

missing units in DECAY-DATA code

inconsistent data units

unknown isomeric state in REACTION SF4

missing decimal points in DATA section

N1, N2 wrong on BIB record

REACTION keyword missing

invalid subentry date

too many commas/invalid structure of REFERENCE code

invalid REFERENCE type

error in col. 67-74

heading not consistent with REACTION

SF4 missing

EN given twice

ANG missing for DA

DATA column contains no values (but has heading/units)

invalid SF2

ANG and ADEG repeated

ANG and AMIN repeated

SF3=EL+INL

N1 wrong on ENDENTRY

illegal col. 80

free text in col.1-11

pointers inconsistent

N1 wrong on ENDBIB

EN given for Sf2=0

fission data for Gd-155

2. Dunaeva's memo for testing performance of CHEX and TEST-EXF (WP2003-23)

Record identification (col.67-79)

Alteration flag (col.80)

System identifier sequence

System identifier N1 and N2

keyword legality

code legality

opening parenthesis in col.12

data heading legality

column location legality (1, 12, …)

one-character pointer legality
multiple representation of independent variables
heading repetition
relation between quantity and unit
sequence of independent and dependent variable fields
sequence of additional information and associated
quantities
line sequence (decrease or increase)
presence of independent and dependent variables
error must be > 0

3. Otsuka's short list for additional checking

SF3=EL with SF5=PAR
SF8=RTH without SF3=EL or SCT
column position (e.g., ANG must be before ERR-*)
opening parenthesis at col.13 instead of col.12
SF3=X for production with unique process
MEV/A etc. with EN-CM