

Memo CP-B/25

27.6.1978

- Subjects:
1. Proposed EXFOR and LEXFOR entries on undefined/defined reaction channels (action of 3rd NRDC-Meeting, Paris)
 2. Proposed addition on 'comments by the compiler' under LEXFOR 'Free Text' and 'Comments' (action of 3rd NRDC-Meeting, Paris)
 3. Reply to CP-D/64 (Combination of particle and process codes in REACTION SF3).

- 1a) Proposed Manual Addition to Page VIII. REACTION.3 (to insert before the 'Examples of SF3 coding')

If SF5 contains the branch code 'UND' (undefined), the particle codes given in SF3 represent only the sum of emitted nucleons, implying that the product nucleus coded in SF4 has been formed via different reaction channels.

The code '(DEF)' in SF5 denotes that it is not evident from the publication, whether the reaction channel is undefined or defined.

For details see in LEXFOR under 'Particles'.

Note: This is used presently only for charged particle reaction data .

- 1b) Proposed LEXFOR Addition under 'Particles'

4 — 5. Undefined/Defined Reaction Channels

In some cases a given residual nucleus may be produced by more than one reaction channel, e.g. (P,A) and (P,2N+2P), but only the residual nucleus has been investigated. If it is clear that more than one channel contributes (e.g. for energies well above the threshold for (P,2N+2P), the branch code 'UND' (undefined reaction channel) should be given in REACTION SF5; then, the particles coded in SF3 denote only the sum of emitted nucleons. The reaction is coded either as given by the author or by giving only the emitted nucleons e.g. (Z-S-A(P,2N+2P)Z'-S'-A',UND,SIG).

Where it is not clear whether the reaction channel is undefined or defined, the reaction is coded as specified by the author with the code '(DEF)' in SF5, e.g. (Z-S-A(P,A)Z'-S'-A',(DEF),SIG) or
(Z-S-A(P,2N+2P)Z'-S'-A',(DEF),SIG)

In cases where the reaction channel is unambiguously defined either by measuring the outgoing particles or due to theoretical considerations, the reaction is written as specified by the author and no special code is given in SF5; the codes 'UND' and '(DEF)' are not used.

Free text comments should explain any reasons not explicitly given in the publication, by which the reaction is proved to be defined.

Note: For the present, this is used only for charged particle data.

1c) Proposed Dictionary Additions (Dict. 31)

UND Reaction channel undefined, outgoing particles represent only sum of emitted nucleons.

(DEF)Uncertain from reference whether reaction channel is defined or whether outgoing particles represent only sum of emitted nucleons.

Corresponding entries in Dict. 36, as data occur.

We would like to point out that missing codes 'UND' or '(DEF)' give a positive definition of the reaction coded, stating it to be defined with respect to the reaction channel and the outgoing particles coded in SF3. Editing programs should take into account this fact.

Furthermore, we would like to draw attention to the fact that we have introduced a slight modification into the proposal as drafted at the Paris meeting: In case of undefined reactions we would prefer not to exclude the possibility to code the reaction as given by the author.

Finally, as requested at the Paris Meeting we want to give some references which demonstrate the usual procedure of the authors of charged particle data to quote only one reaction channel, even if clearly more than one contribute to the data:

- 1) W.W. Bowman, M. Blann: Nucl. Phys. A131 (1969) 513
- 2) D.R. Sachdev, N.T. Porile, L. Yaffe: Can. Journ. Chem. 45 (1967) 1149

2a) Proposed LEXFOR Addition under "Free Text"

(to insert, e.g., before the last section: 'The language of')

"Any free text comments not originating with the author must be clearly labelled e.g. '(COMMENT BY THE COMPILER)', and unambiguously separated from authors comments, e.g., by including it between quotation marks or by inserting a blank line between authors and compilers comments."

2b) Proposed LEXFOR Addition under "Comment"

(to insert after: "....clearly labelled, e.g., "COMMENT BY THE COMPILER ...")

"and unambiguously separated from authors comments, e.g. by including it between quotation marks or by inserting a blank line between author's and compiler's comments."

3. Combination of Particle and Process Codes in REACTION SF3 as proposed in CP-D/64 (action of 3rd NRDC-Meeting)

We agree to the manual changes proposed in CP-D/64, but would suggest a slight modification. From the proposed wordings and examples one could eventually conclude that a combination of particles and processes is restricted to partial and especially sequential reactions.

However, such combinations must be possible obviously for total reactions like (P,A+X) where the α -particle is detected and several other outgoing particles are unspecified.

We would like, therefore, to propose the following (or similar) addition to the sect. "SF3.Process" under VIII. REACTION:

f) for total reactions, any sum of a) and b). This refers to cases where e.g. besides several unspecified outgoing particles one has been explicitly identified and the reaction product is defined or to cases which can be treated in the variable product nucleus formalism (see below).

Examples: (Z-S-A(P,A+X)Z'-S'-A',UND,SIG)
(Z-S-A(P,A+XN+YP)ELEM/MASS,UND,SIG)

4. Comment on Memo CP-C/20 (action of 3rd NRDC-Meeting)

On this memo we have already commented in CP-B/18. We can only repeat that we participate at the Vienna EXFOR programs and will, therefore, accept NDS's programmers decisions.

Distribution:

- | | |
|---------------------------|---------------------------|
| A. F.E. Chukreev, CAJaD | G. H. Behrens, ZAED |
| B. H. Münzel, KaChaPaG | H. A. Marcinkowski, IBJ |
| C. S. Pearlstein, NNCSN | I. H. Derrien, NDCC |
| D. J. Schmidt, NDS | K. D.C. Agrawal, Varanasi |
| E. H. Tanaka, Study Group | 4. V.N. Manokhin, CJD |
| F. G. Dearnaley, AERE | |

