Memo 4C-3/70

To: Distribution 5 January 1973

From: H.D. Lemmel and P. Winiwarter

Subject: Additions to LEXFOR

Please find attached two proposed additions to LEXFOR, concerning the items "Correlation" and "Polarization".

We are not in a position to supply a complete LEXFOR entry on "Correlation". But we would like to document in LEXFOR how we used the quantity INL,CØR. We imagine that the definition of this quantity may vary in different entries, and we suggest that a detailed explanation must always be given in free text when this quantity is used.

The LEXFOR entry on "Polarization" quantities is supposed to be prepared by NNCSC. Meanwhile we have used the quantity EL,ASY,DA in one of our entries, and we would like to document in LEXFOR how we have used this quantity.

Both items should be entered in LEXFOR by NNCSC, if no objection arises in due time.

When NNCSC prepares a more complete LEXFOR entry on "Polarization", our example should possibly be incorporated. But as long as this is not done, we suggest to enter, preliminarily, our example as it stands.

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Example:

In entry 3.0036. the correlation function W(ANG1,ANG2,ANG3) between the angle of the scattered-neutrons detector and the azimuthal and polar angle of the gamma detector was entered under the quantity INL,CØR. The DATA were given in units of "gammas per steradian, per inelastic scattered neutron". These units were coded in the DATA table as "SEE TEXT" and explained in free text in the BIB-section.

In other cases the definition of the DATA entered under INL,CØR may be different, so that the definition must always be given in free text.

Example:

In entry 30212 the asymmetry was entered under the quantity EL,ASY/DA. This was defined as

$$\varepsilon(\vartheta;E) = \frac{L-R}{L+R} = P_1 \cdot P_2$$

ε = Asymmetry, which is a function of the incident neutron energy E and the angle of the scattered neutron.

P_1 = Polarization of incident neutrons

P_2 = Polarization power of scatterer

R,L = Intensity of neutrons scattered right and left in the same plane under same angles.
The intensities are integrated over the spectrum of the scattered neutrons.