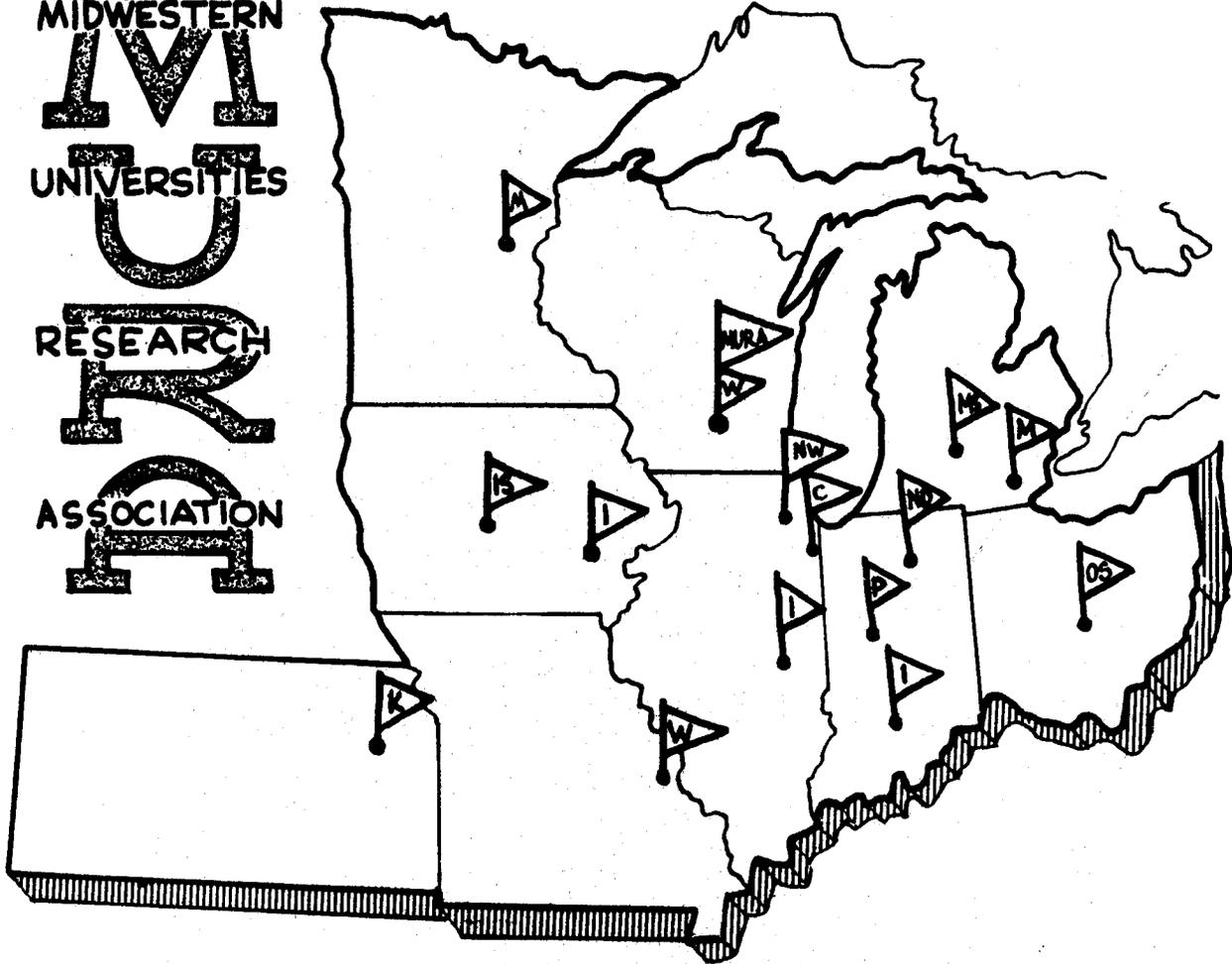




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REPORT FORMERGE
(Program 50)
February-March, 1957

NUMBER 227
Internal
(IBM Program)

FORMERGE (Program 50)

J. N. Snyder

This program originated from verbal suggestions of L. Jackson Laslett and Keith Symon and a memorandum from F. T. Cole to J. N. Snyder of 18 December 1956.

The program will ingest two potential decks produced by FOROCYL (Program 13) called "Deck A" containing potentials ϕ_A and "Deck B" containing potentials ϕ_B . A deck will be produced containing potentials ϕ where

$$\phi = a \phi_A + b \phi_B \quad |a|, |b| < 1$$

It follows that Deck A and Deck B should have resulted from FOROCYL runs having the same set of parameters (but not necessarily the same set of boundary or current values). Current values, if present in Deck A and Deck B, will be combined according to the same rule of linear combination. The current pattern should be the same in each case. The two decks should be in the same phase of convergence although it is not necessary that the same number of iterations have been done.

The resultant potential deck has all the properties of any other FOROCYL produced potential deck. It can be used as a starting deck to print or punch fields, continue FOROCYL iterations, carry out the "change $1/w$, k^1 , N " procedure, or make an initial mesh load for some new FOROCYL program. In all cases the new potential deck will have the same parameters as Deck A. This will show on the potential print-out which can be taken out via FOROCYL itself (this request should be held to a minimum). This print-out is standard except that the FOROCYL program number (13) is replaced by the FORMERGE program number (50).

By combining FOROCYL and/or FORMERGE potential decks two at a time any linear combination of potentials can be obtained.

$$\phi = a_A \phi_A + a_B \phi_B + a_C \phi_C + a_D \phi_D + \dots$$

A sample self explanatory FORMERGE Agendum Sheet is attached. It is suggested that FORMERGE ID Numbers be sequenced into the series of FOROCYL ID Numbers since the resultant decks are indistinguishable.

FORMERGE (PROGRAM 50)
Agendum Sheet

Merge the potential decks:

FOROCYL A POTENTIAL DECK	
FOROCYL B POTENTIAL DECK	

(Both decks should have been formed from FOROCYL runs having identical parameters.)

Parameter	Address	Value	
ID Number	8189		ID NUMBER
a	8190		
b	8191		PARTITIONS

Subsequent use of potential deck. Please check.

Print new potential deck	
Iterate further on FOROCYL	
Obtain Fields	Punch (SS4 down)
	Print (SS5 down)
Change $\frac{1}{w}$, k^1 , N	(Submit new FOROCYL Agendum)
Use as initial mesh load	(Submit new FOROCYL Agendum)

January 29, 1957

MEMORANDUM

To: All

From: Jim

To be appended to the previously distributed FORMERGE description.

FORMERGE may also be used to merge two field decks produced by FOROCYL. Of course each deck must have the same number of field points. The same linear combination rule discussed before will be applied to each field component.

To use this facility, submit the usual FORMERGE AGENDUM SHEET but mark it plainly and conspicuously "MAKE FIELD MERGE" several times.

No field print can be provided.

MEMORANDUM

No. 1 of June 25, 1957

This memorandum should be attached to and become a permanent encumbrance of FORMERGE (Program 50).

The program has been perturbed in such a way that after the operations in the original write-up or the memorandum of June 29, 1957, have been carried out, the resultant potential ϕ or the resultant field is multiplied by 2^n where n is a non-negative integer. n is to be entered on the data sheet in a vivid fashion before the ID Number. The address of n must be 7840. If no n be specified, $n = 0$ will be used.

It should be noted that this rescaling of ϕ may perturb the subsequent computation of fields. If this option is exercised on a FIELD MERGE, the subsequent operation of FORMESH and all members of the FORMESH family may be perturbed. The Computer Division accepts no responsibility for such perturbations of either the programs or the tempers that have been, and will be, exacerbated by these procedures.