INTERPRETATION OF PROBLEMATIQUE FOR POLICY RESEARCH

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Refer to the Problematique, attached at the end of this document.

1. Directional Aspects. Any problem A whose box lies to the left of another problem B, and for which there is a path following arrows from A to B, carries this signification:

Problem A aggravates Problem B.

2. Numerical Values. You will recall that a Situational Complexity Index was defined, as

$$SCI = (1/350)\ NVK.$$

In your workshop, these numbers were: N = 59, V = 33, and K = 77.

This gives the value of

$$SCI = 428$$

which is **well above the value of 100 set forth as sufficient to ensure that the situation is complex.** You can see also that if more of the selected elements were included, K would doubtless become significantly larger, as would SCI.

3. Organization by Stages. Your problematique is organized by stages. Table 1 lists the elements in each stage.

TABLE 1.

Stage Identification	Problems Lying in the Stage
Stage 1 . . . . . (L, Left)	7, 18, 25, 26
Stage 2 . . . . . (L, Left)	19
Stage 3 . . . . . (C, Center)	11, 48
Stage 4 . . . . . (C, Center)	5, 10, 52
Stage 5 . . . . . (C, Center)	12
Stage 6 . . . . . (R, Right)	9, 21, 28
Stage 7 . . . . . (R, Right)	4, 43

This interpretation does not attach significance to the stages, per se, but rather uses the stages to help point you to where the problems lie in the structure, in interpreting the problematique.

Table 2 identifies problems as lying in certain categories (see page 22 of the white paper).

TABLE 2. INTERPRETATION OF PROBLEMATIQUE VIA PROBLEM TYPES		
TYPE	**GENERAL INTERPRETATION**	**SPECIFIC INTERPRETATION**
1 **CRITICAL** L(eft)	This problem type has high influence, aggravates many other problems, and is rated as among the most important by the group. **Conclusion:** Consequently it deserves immediate, high-priority attention.	The cycle consisting of **P7** and **P25** in **Stage 1** fits this description.
2 **UNDER-RATED** L	This problem type has high influence, aggravates many other problems, and was not recognized as among the most important by the group. **Hypothesis:** This problem deserves immediate, high-priority attention. The group should reevaluate the importance in the light of interactions.	Problem **P26** seems to be **underrated**, and deserves immediate, high-priority attention. Its importance should be reevaluated.
3 **OVERRATED** C(entral), R(ight)	This problem type received a high NGT weighting score and a high activity score, but it received a low or negative influence score. Because it does not aggravate many other problems it is probably not as important for the moment at least, as several group members imagined. **Hypothesis:** Action on this problem should very likely be deferred until some later time.	Problems **P12** and **P28** seem to be **overrated.** Action on these problems should probably be deferred in favor of other problems that are more pressing.
4 **CYCLIC** L,C,R	Problems in cycles aggravate each other. **Hypothesis:** Problems in cycles should be acted on collectively, and this should be recognized in team assignments.	The Hypothesis should be tested for this two-problem cycle: **{P 7, P 25}**. However this cycle has already been flagged in Type 1 above.
5 **HIGH ACTIVITY** C	Problems of this type are both aggravated by other problems and aggravative to other problems, even though their influence may not be high. **Hypothesis:** The interactions involving these problems should be studied in detail, and recognized in choosing personnel for task forces	Problems **P5, P11, P12,and P19** appear to fit this category. From this subset, Problems P12 has already been flagged as Type 3.
6 **HIGH-WEIGHTED PROBLEMS** L, C, R	This type of problem was thought to be quite important in the NGT voting, but this voting has been shown to be unreliable. (This category overlaps with, but is not the same as category 3.) **Hypothesis:** Interactions involving these problems should be studied carefully and their importance should be reevaluated in the light of the interactions.	The Hypothesis should be tested for these problems: Problems **P5, P7, P11, P12, and P25.** However all five of these have already been flagged.

Table 3 shows the individual participant NGT voting records, indicating how each participant ranked the five most important problems. These data are used to arrive at the values shown on the Problematique, and elsewhere in this document.

TABLE 3. INDIVIDUAL VOTING RECORDS--TIPP CLASS					
VOTER	RANK 1	RANK 2	RANK 3	RANK 4	RANK 5
A	7	19	39	10	43
B	5	11	26	28	36
C	12	43	16	46	36
D	11	51	54	25	52
E	25	19	48	47	18
F	7	37	18	4	41
G	12	10	21	41	22
H	7	25	10	1	13
I	48	12	28	35	42
J	18	3	52	5	12
K	9	11	26	21	24
L	5	4	21	50	24
M	7	19	39	10	43

Table 4 shows the ranking and status of the problems appearing on the Problematique, based on several scores, including those derived from the rankings in Table 3.

TABLE 4. RANKINGS AND STATUS OF PROBLEMS BASED ON SCORING				
PROBLEM NO.	**RANKING OF PROBLEM BASED ON TYPE OF SCORE**			**STATUS OF PROBLEM**
	INFLUENCE	***ACTIVITY***	***WEIGHTED VOTING***	
7 (L)	**1** (19)	**1** (14)	**1** (15)	**Immediate, high-priority attention is warranted**
25 (L)	**1** (19)	**1** (14)	**5** (11)	**Immediate, high-priority attention is warranted.**
18 (L)	**3** (15)	**12** (8)	**7** (9)	
19 (L)	**3** (15)	**3** (13)	**9** (8)	
11 (C)	**5** (10)	**5** (11)	**3** (13)	
26 (C)	**6** (9)	**16** (2)	**12** (6)	**This problem may be underrated.**
10 (C)	**7** (6)	**7** (10)	**7** (9)	
48 (C)	**8** (5)	**13**(6)	**9** (8)	
5 (C)	**8** (5)	**5** (11)	**4** (12)	
12 (C)	**10** (1)	**4** (12)	**1** (15)	**This problem seems to be overrated.**
52 (C)	**11** (-2)	**13** (6)	**15** (4)	
9 (R)	**12** (-5)	**9** (9)	**14** (5)	
21 (R)	**12** (-5)	**9** (9)	**9** (8)	
4 (R)	**14** (-8)	**9** (9)	**12** (6)	
28 (R)	**14** (-8)	**15** (5)	**6** (10)	**This problem seems to be overrated.**
43 (R)	**16** (-9)	**7** (10)	**14** (5)	

NOTE: L = left, C = Center, R = Right (on the Problematique)

Problem Ranks are shown in bold, scores in parentheses.

4. Conclusions and Hypotheses from Tables 2-4.

Table 4 has summarized for you the principal conclusions and hypotheses stemming from the analysis of the voting data and the Problematique.

Figure 1 shows the Problematique with the various scores appearing with their problems. Figure 2 repeats the Problematique, but this time it shades those problems for which special attention is indicated, to facilitate carrying out of the conclusions and hypotheses coming from the analysis.

5. Summary.

In summary, the interpretations given above seem to boil down to the following:

■ The group has recognized that the cycle comprised of "inability of a single mind to deal with complexity" and "inadequate mental models" is the most pressing single origin of difficulties in carrying out high-quality policy research. [This conclusion is one that was implicit in the short course. Whether the participants already held that view, or whether their anonymous voting reflected the impact of the course content is not known.]

This cycle of two problems (**P7 and P25**) is seen to aggravate significantly the inherent limitations of traditional academic disciplines, and could account for the current status of virtually all of the disciplines. [If this speculation is true, then one might hypothesize that a policy research institute ought to at least consider taking on the responsibility to eliminate the limitations of the traditional academic disciplines. This might be done over a period of several years either by policy researchers alone, or in conjunction with selected volunteer representatives from the various disciplines, who could apply the content of the short course to structure those disciplines, especially along the lines of the Domain of Science Model given in Chapter 1 of Prolog to a Science of Complexity.]

■ The group further recognized to a certain extent that the problem "constantly changing components in complex issues (**P26**) may be **underrated**. [If so, perhaps policy researchers should put more emphasis on longitudinal studies of social change as response to policy change, along the lines indicated by Professor Henry Alberts, who has used some statistics that indicate there is an average time lag of about 18 months between adoption of an economic policy and its ensconcement in society as indicated by responsive outcomes in the society]

■ The group seemed to **overrate** problems **P12 and P28**. As interpreted here, this does not mean that these problems are not severe, but it does mean that immediate attention to these problems quite possibly could prove to be a poor strategy. The reason for this is that both of these problems (especially P12) are aggravated significantly by more fundamental problems. To the extent that P12 and P28 are seen as important problems (P12 was in a tie with P7 as most important in the NGT weighted voting), their importance would appear to be a result of their pressing impact on students, rather than on their vulnerability to immediate and direct action.

The Problematique suggests **strategies** for attacking problems P12 and P28 by attacking their aggravators. It is quite possible that years would have to pass before these strategies could become effective in the sense that they make P12 and P28 much less troublesome.

■ Problems **P5, P11**, and **P19** have either high activity or high NGT weights, or both, and have not been flagged as Types 1, 2, 3, or 4. Interactions involving these Types should be studied carefully, and re-evaluated.

■ The group exhibited the traditional signs of Spreadthink in NGT Voting, as Figure 3 indicates.

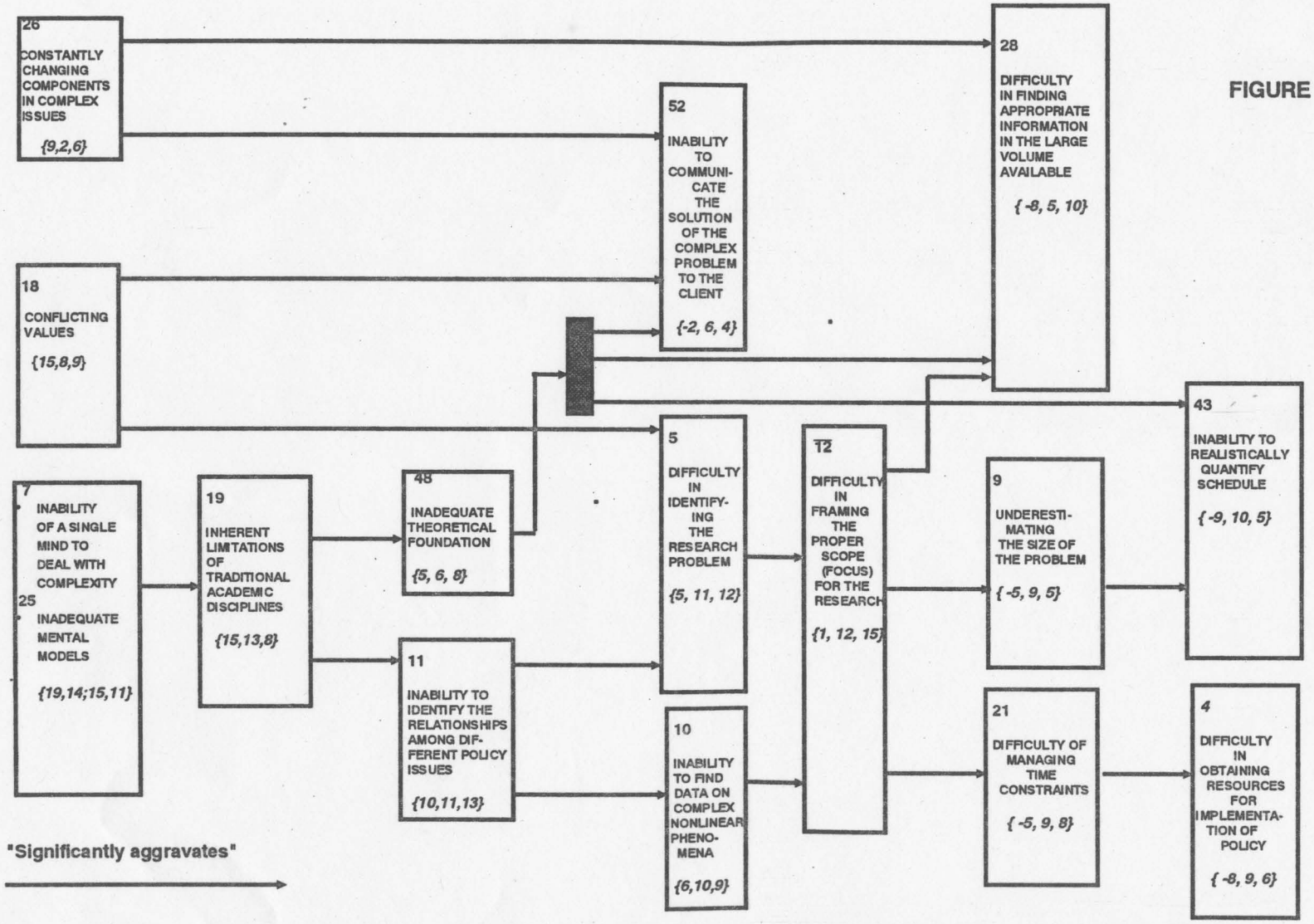

FIGURE 1

PROBLEMATIQUE FOR POLICY RESEARCH--DEVELOPED IN JANUARY TIPP SHORT COURSE, 1995

(Scores are in curly brackets in the order: Influence, Activity, Weighted Voting.)

(Prepared by J. N. Warfield, January 14, 1995)

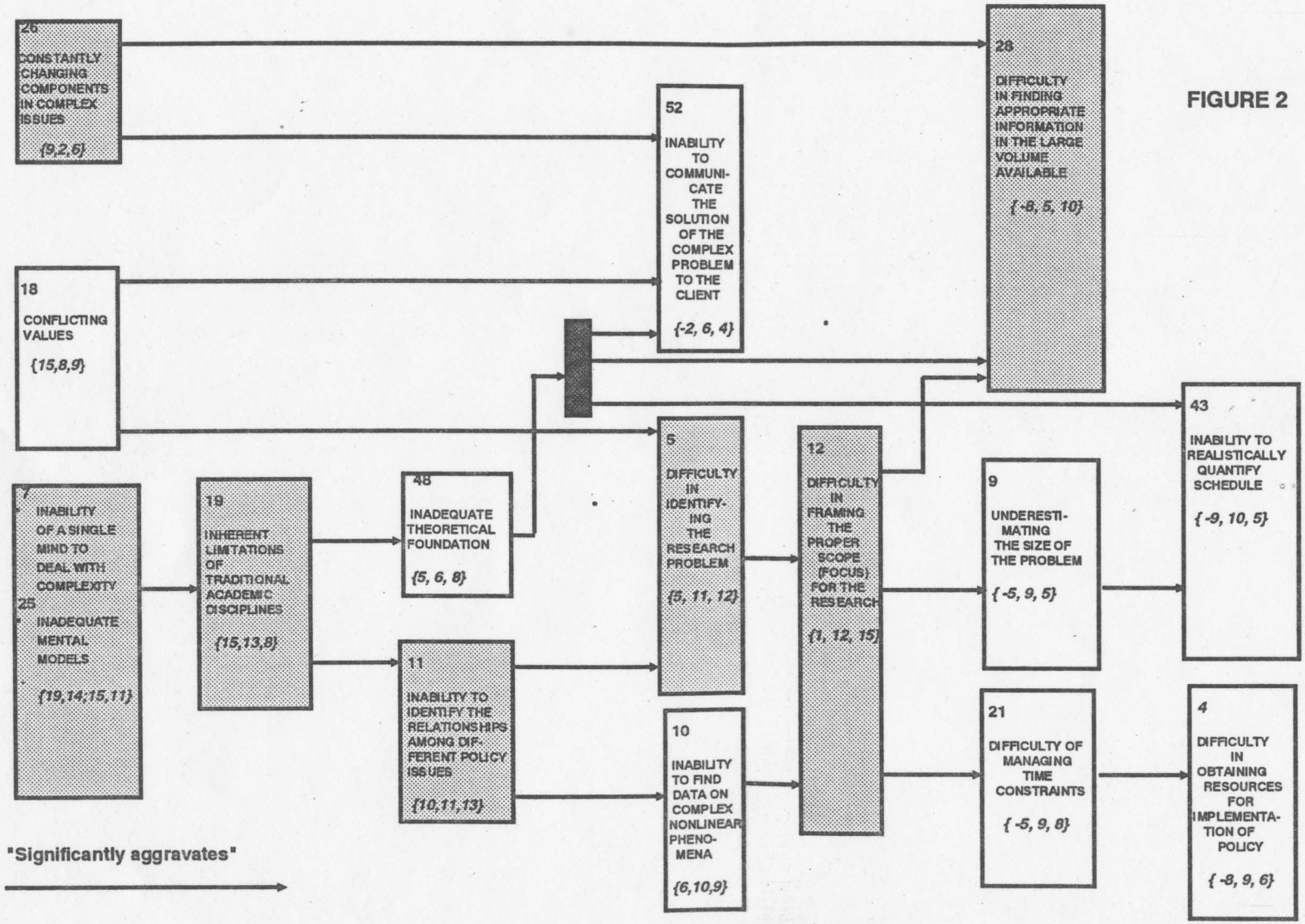

FIGURE 2

PROBLEMATIQUE FOR POLICY RESEARCH--DEVELOPED IN JANUARY TIPP SHORT COURSE, 1995

(Scores are in curly brackets in the order: Influence, Activity, Weighted Voting.)

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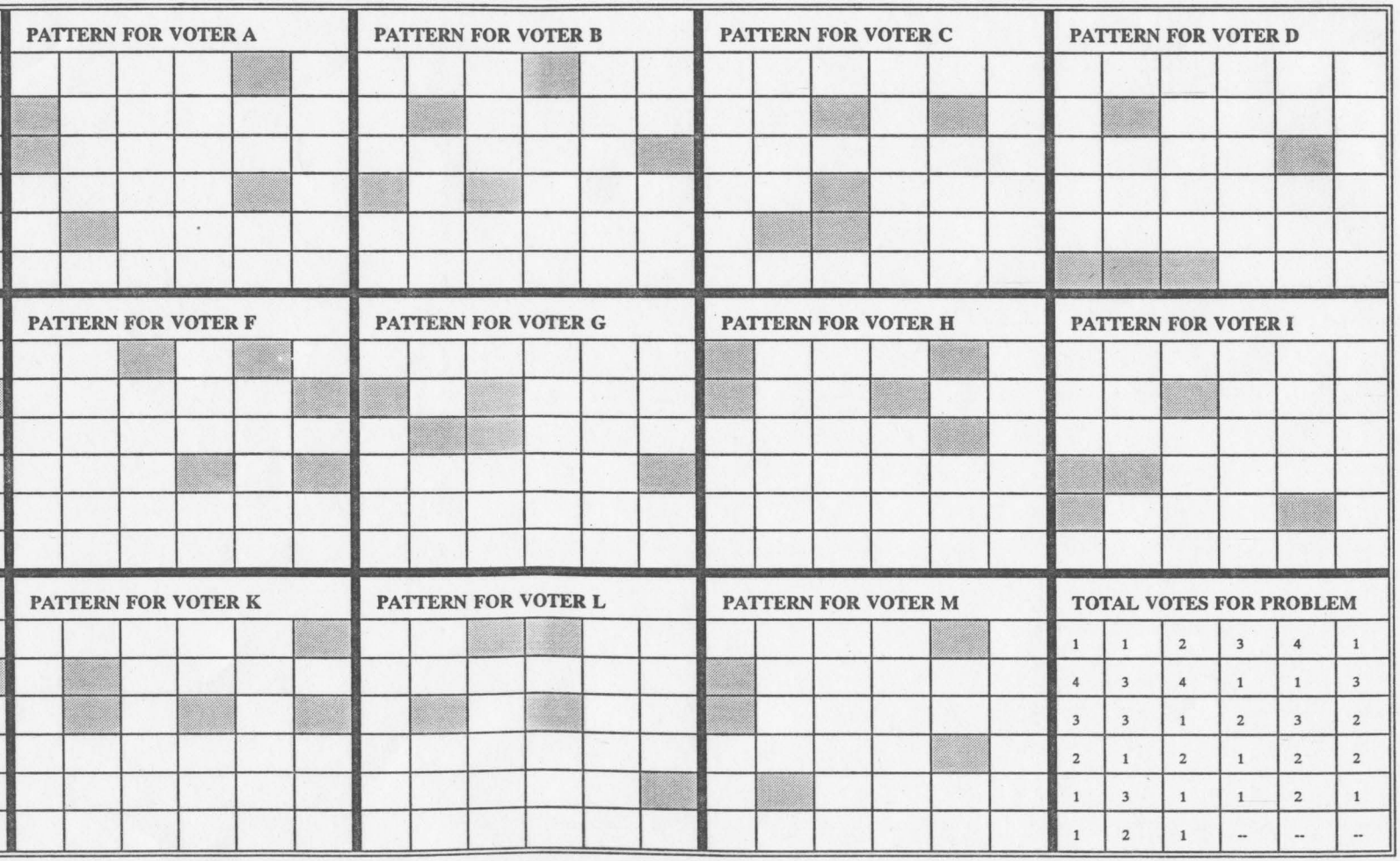
Shaded problems require special attention, as indicated in the accompanying text.

FIGURE 3. PARTICIPANT VOTING PATTERNS

PROBLEMS RECEIVING VOTES					
1	3	4	5	7	9
10	11	12	13	16	18
19	21	22	24	25	26
28	35	36	37	39	41
42	43	46	47	48	50
51	52	54			



TOTAL VOTES FOR PROBLEM					
1	1	2	3	4	1
4	3	4	1	1	3
3	3	1	2	3	2
2	1	2	1	2	2
1	3	1	1	2	1
1	2	1	--	--	--

NOTE: As the total votes indicate (match the upper left and lower right portions) no problem received a majority vote, the highest number received by any problem being 4, received by Problems 7, 10, and 12. (There were 13 people voting.)