

# The Schizophrenic at the Luncheon Table

## A Study in Environmental Selection

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### Abstract

*This paper compares the spatial selection process utilized in the lunchroom by two groups of long-institutionalized patients—schizophrenics and non-schizophrenics. Spatial selection was examined in terms of three modes—position constancy, social choice and convenience. Seating position at lunch, time eating and order of entry were observed for five consecutive days. From these data, three indices of spatial constancy, four indices of social choice and one index of convenience were developed. Friendship patterns and degree of territoriality were also obtained by interviews with nurses.*

*The schizophrenics were less consistent in their choice of position, sat less with others, joined fewer others and chose the convenient seats less often than did the non-schizophrenic patients. In addition, there was a large significant difference in the length of time spent eating, with the schizophrenic group spending half the time. A predicted relationship between territoriality on the ward and seat constancy in the lunchroom did not appear, suggesting that patients may be territorial in some situations but not in others. The findings suggested that the spatial selections of the schizophrenics reflected primarily considerations of social avoidance.*

In the course of his everyday activities, an individual moves through a series of environmental settings, selecting his spatial positions within these settings in various ways. For example, habit may determine a person's seat at the breakfast table, but necessity governs the location of his desk and chair at the office. Desire for social interchange may induce him to sit with a friend in the office cafeteria, but convenience leads him to the closest seat on the bus—tired at the end of the day.

Such determinants of the individual's spatial selection process have recently become a focal point for investigators in the area of environmental psychology. For instance, Boudourline and Weiss<sup>1</sup> studied movement patterns of visitors through fairgrounds. They concluded that each person, through his selection process, can continuously control his environment, even if the settings are not *in themselves* changed by him.

Of particular interest in relation to environmental control are the spatial selections of long-institutionalized mental patients. For these persons, much of life on the wards is dominated by staff or structure. Choice of activity is rare. In fact, the passivity and lack of initiative of chronic patients has often been cited to be largely an artifact of hospitalization per se (Sommer

and Osmond<sup>2</sup> and Stanton and Schwartz<sup>3</sup>). It may be, however, that the patients still can act with some control and real choice in a world which is largely structured for them. At eating periods in particular, choices are open. Where to sit, with whom to sit, how long to eat and so on are determined (within limits) by the patients themselves. An investigation of behavioral uses of space during such a period of free choice might therefore be particularly useful in revealing dynamics of the selection processes for different kinds of patients. In this paper the spatial selection behaviors of two kinds of long-institutionalized patients, chronic schizophrenics and non-schizophrenics (to be more closely defined—includes mental defectives, chronic brain syndrome and others), are compared within the context of their daily lunch in a hospital cafeteria.

Three major methods of selection considered to be directly related to the behavioral use of space were examined:

- (1) choice for position constancy.
- (2) choice for social reasons.
- (3) choice for convenience.

It should be noted that there are undoubtedly other reasons for choice, such as aesthetic considerations, surveillance or protection. However, such modes may be more secondary and may not be inferred as directly from the behaviors observed; hence they were not examined in the present observational study.

The first choice mechanism examined was position constancy; that is, choice might be made because of position itself. An individual may prefer to face in a particular direction, or he may have a long-established habit of sitting in the same chair regardless of who or what is around him. Research has shown that institutionalized schizophrenics tend to be more protective than others of the space around them (Horowitz, et

al.<sup>4</sup>) and some even claim definite territories as their own (Es-ser, et al.<sup>5</sup>). On the other hand, it has also been found that mentally defective persons are particularly rigid in shifts of behavior and in learning habits, as measured for instance in sorting tests (Phelan and Gus-tafson<sup>6</sup>). Thus, one would predict that choice for position constancy (same seat, table or direction) would be an important mode of environmental selection for at least some schizophrenics and probably most defectives.

A second determinant of selection may be social reasons. Use of space has often been shown to be a means of facilitating or discouraging social interaction. Patterson<sup>7</sup> and Sommer<sup>8</sup> provide reviews of studies describing ways in which people unconsciously orient themselves towards one another. For example, in situations where social interaction is wanted, Rosenfeld<sup>9</sup> found that people tend to sit closer together, and Sommer<sup>10</sup> observed that they sit across from one another in the lunchroom. On the other hand, when interaction is not wanted, as in the library, individuals choose a more distant seating pattern from one another (Rosenfeld<sup>9</sup>). Such norms for seating patterns have been found to be highly regular, although they were mainly unverballed or unconscious.

Little is known, however, how different types of institutionalized mental patients use space to structure their social lives. We know that mealtime is traditionally an opportunity for social behavior in institutions (Proshansky, et al.<sup>11</sup>). But we also know that the schizophrenic patient is aberrant socially, lacking social skills (White<sup>12</sup>) and developing few reciprocated friendships (Sommer and Osmond<sup>2</sup>). We might therefore hypothesize that even in the lunchroom the schizophrenic patient would be less likely to choose his seat to facilitate sociability than would the non-schizophrenic patient. He would tend to join or sit with fewer people, or to sit less consistently

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with the same group of people.

A third reason for which choice may be made by the patients is convenience. A particular position itself, or the social encounters associated with a position, may not be high on the hierarchy of selection processes for the patients. Rather, convenience of seat in terms of nearness to the luncheon counter may be a compelling mode of choice. Mabry<sup>13</sup> suggests that the schizophrenics tend to operate at a low level of physical energy, seemingly unable to exert the effort necessary for selectivity and preciseness in communication. Hence, in choosing a seat, schizophrenics again may have little energy and use convenience more readily than other types of selection.

To investigate the above hypotheses, the seating positions during the luncheon period for a ward of chronic schizophrenics and a ward of chronic non-schizophrenic patients were recorded over a five day period. Behavioral indices were developed from which the methods of seat selection being utilized, in terms of position constancy, social choice and convenience, might be inferred. The spatial selection processes of the two groups were then compared in terms of the three types of indices.

**METHOD OF PROCEDURE**

**Subjects**

Two groups of male patients, 46 from the north wing and 56 from the south wing of a ward, were observed in the present study. In the northern wing, a special ward for early clinical drug trials, 45 of the 46 patients were classified as schizophrenic and one patient as mentally deficient with psychotic reaction. In the southern wing, 51 of the 56 patients were diagnosed as mentally deficient with organic brain complications or chronic brain syndrome with convulsions and/or mental deficiency, and of the other five, four were schizophrenic with possible brain disorders while one was diagnosed as an unstable personality. For the study then, the two groups were labeled the schizophrenic and the

non-schizophrenic groups respectively.

The mean age, time in the ward and total chronicity of the two groups are given in Table I. Although there was a 10-year difference in age between the two groups, the range was such that the difference was not significant. T-tests did show significant differences between the two groups in terms of length of time on the ward ( $t_{100} = 2.8$ ,  $p < .01$ ) and chronicity ( $t_{100} = 4.98$ ,  $p < .001$ ). However both groups were long-institutionalized patients who had resided on their particular ward for many years. Thus, it was possible to separate out the effects of long-term institutionalization and diagnostic category—schizophrenic vs. non-schizophrenic.

TABLE I  
Mean and Range of Age, Time on the Ward, and Total Chronicity for the Schizophrenic and Non-Schizophrenic Groups

	<i>Schizo- phrenic Group</i>	<i>Non-Schizo- phrenic Group</i>	<i>Signifi- cance Tests</i>
Age			
Mean	39 years	49.3 years	$t_{100} = n.s.$
Range	23-71 years	23-76 years	
Time on the Ward			
Mean	5.9 years	7.8 years	$t_{100} = 2.8^*$
Range	1 month- 10.6 years	1 month- 15.5 years	
Chronicity			
Mean	17 years	27 years	$t_{100} = 4.98^†$
Range	4-47 years	1-52 years	
Definite Friendships	6%	15%	
Definite Territoriality	41%	21%	
* $p < .01$		† $p < .001$	

Information regarding the patients' extent of friendship patterns and degree of territoriality was also felt to be pertinent to the spatial selection processes. These data were collected by means of structured interviews using a four-point ranking system with a nurse (and verification by another nurse) from each of the two wards.

For friendship patterns, the scale was:

- (1) has definite friends;
- (2) has few friends.
- (3) has no friends, but friendly.
- (4) is a loner. Territoriality ranges were:

- (1) has no territories.
- (2) regularly stays in one place.
- (3) verbally and/or physically claims a place as his.
- (4) keeps others from entering a territory and defends it aggressively.

Again, differences between the two groups of patients were found. Six percent of the schizophrenics and a larger 15% of the non-schizophrenic patients were reported to have definite friendships on the ward, but the magnitude of the difference between the groups was not significant. For the territoriality measure, 41% of the schizophrenics but only 25% of the non-schizophrenic patients displayed at least some degree of possessiveness of space on the wards. A chi-square test revealed a difference approaching significance between the groups ( $\chi^2 = 3.1$ ,  $p < .08$ ). The relationship between these measures and the observed seating choices was then examined.

### **Luncheon Procedure**

The dining room where the patients were observed was situated between the north and south wards, and was used separately by both groups of patients. Hence, physical environment was controlled in the study. The room, a 40 by 55 foot

area, was equipped with 30 three-foot-square tables, arranged in four rows of seven or eight tables, each of which could seat four persons (120 seating places in all). Along the east wall of the dining room a service counter was located. On the opposite wall were several windows and a few windows were on each of the walls adjacent to the counter. Entrances to the north and south wings of the ward were on the north and south walls respectively.

The two groups of patients ate at different times, roughly 30 minutes apart. The schizophrenic ward was first to be served. For them, order of entry to the luncheon area was semi-controlled by the staff. The special diet patients ( $n = 6$ ) first entered as a group and were given prepared trays at the counter. Next, patients participating in a clinical drug study ( $n = 22$ ) entered the room, serving themselves cafeteria style. Finally, the remainder ( $n = 18$ ) entered at their own pace, also serving themselves. All patients were free to sit where they wished, although, as we shall discuss, the above order of entry did limit the choice of seats for the later patients.

The non-schizophrenic patients, eating after the others had finished, entered the dining area in self-composed groups of 5 or 6. Each group served and seated itself before subsequent groups entered. This restriction on the number of people entering the dining area at any one time was not the usual procedure of mass entrance but was temporarily adopted by the staff in order to ease the data collection for the researchers. Order of entry and choice of seat, the two major aspects of the study, were determined by each patient, as usual, however. The practice of the staff was to limit each group to roughly 30 minutes to finish eating and stragglers from both groups were urged to finish at the end of this time.

### **Data Collection Procedure**

Three experiments, with the aid of two

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staff attendants, observed the patients and recorded the data. During the entire procedure, the experimenters tried to be unobtrusive, standing at the sidelines of the lunchroom and avoiding conversing with the patients. One attendant, standing at the end of the serving counter, named the patient as he left the service area and was about to choose a seat, and the two experimenters with him recorded the patient's order of entry and the seat chosen on a seating chart. At the entrance door another attendant and the third experimenter noted the "time in" to the lunchroom room as the patient left the serving counter and the "time out" as he left the dining room after eating. Thus, four measures were taken for each patient—order of entry, choice of seat, time in and time out.

To standardize the above procedure, a week of training and trial observation for the schizophrenic group (the first group studied) and a day of training for the non-schizophrenic group preceded actual data collection. Data was then collected for each group for five consecutive weekdays. In addition, reliability checks were made to determine agreement on the observations made by the different experimenters.

### Dependent Variables

#### 1. *Environmental selection indices*

It will be recalled that three major methods for selection of a particular seat in the lunchroom were investigated. That is, choice could be made for the position itself, for social reasons or for convenience. In designing the selection indices, further subdivision were made: four seat constancy indices, one convenience index and three social choice indices were made. This breakdown was felt to represent a more detailed and objective analysis of choice and interaction than has been presented with previous observational methods

(e.g., Stanton and Schwartz<sup>3</sup> and Almond and Esser<sup>14</sup>).

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The four seat constancy variables consisted of:

- (1) seat direction constancy (position at the table: north, south, east or west).
- (2) same seat constancy (same seat at the same table).
- (3) table constancy.
- (4) quadrant constancy (the dining hall was divided on paper into four quadrants in order to record a general area for sitting).

The social choice variables emphasized joining or sitting with others. It should be noted that although sitting together does not guarantee interaction, it does increase the probability of it. Further, sitting apart definitely inhibits interaction; hence proximity in terms of sharing the same table was taken as an indication of social choice.

The three indices examined were:

- (1) joining (average number of persons each patient joined for the day; this does not include the number of patients who joined him).
- (2) sitting with others (the average number with whom each patient sat—those he joined plus those who joined him).
- (3) sitting with specific persons (the number of different persons with whom each person sat).

For the convenience index, the tables were rated from one to four, representing distance from the serving counter and each person was given an average ranking of how convenient was his choice of seat.

It will be noted that methods of selection were inferred from the behavioral data. A further step of checking the selection method by direct questioning of the patients was planned but not taken. Preliminary attempts made it clear that the extremely regressed condition of most of the patients, particularly the schizophrenics, would have made such a check unfeasible.

The four pieces of recorded data—time in, order of entry, seating choice and time out—were the bases of calculation for the selection indices. The four seat constancy indices were computed by averaging rankings of the changes in choice of position for each subject.\* Similarly, the social index of "sitting with specific others" was a mean of rankings for the number of different persons with whom each patient sat. The other two social indices of "joining" and "sitting with others" were a mean of

\* Calculations were made as follows: The position that was chosen by the patient the most number of times had the lowest rating of one. Rating of two was then given to the position chosen the second highest number of times, and so on, until the highest rating was given to the position chosen the least number of times. The ratings were then added for each day and averaged over the total number of days observed (which was five days in most cases. However, complete data was collected for only four days for 29 non-schizophrenic patients because of a physical altercation between a patient and a staff member, preventing the recording of "time out" for them.) In addition, corrections were made if the patient's accustomed seat was already taken and he was forced to sit elsewhere.

An example of calculating the index might be as follows:  
 lows :      4 E      4E      3E      4W      3W

The figures refer to the table numbers and "E" or "W" to the direction of that particular table position.

Calculating the directional constancy index, east was the position chosen the highest number of times and west the second highest. Thus, all east directions are given the rating of one and west is assigned the rating of two, yielding (1) + (1) + (1) + (2) + (2). The ratings are then totaled and divided by the number of days observed. Thus, 7 divided by 5 = 1.4 is the index of direction constancy.

For seat constancy the same method is used with the same seat of the same table being the crucial variable. Thus, 4 E was chosen most,

receiving a rating of one; all other positions were different so a higher rating was given for each additional position. Thus, the ratings are (1) + (1) + (2) + (3) + (4) and the index is 11 divided by 5 or 2.2.

the total number of persons involved. Time in and time out were also considered, since more than one person could sit at the same position but at different times. For this reason, the stipulation was made in the calculations that patients sitting at the same table must share at least three minutes together before they were judged to be sitting together.

For the convenience index, the tables were rated from one to four, representing distance from the serving counter, and each person was given an average ranking of how convenient was his choice of seat.

## 2. Time of eating and order of entry

Two additional indices were recorded and analyzed, time of eating and order of entry. Time of eating was felt to be directly related to the social choice indices—i.e., a sociable person may take more time to eat because of the interaction aspects than would a person eating alone. This index was calculated simply by subtracting the recorded time out from time in and averaging by the number of days observed for each patient. An average of each person's order of entry was included as an index because of the possibility that it confounded with the patient's choice of environment or time eating. For example, the last person entering would not have as much time to eat or may be limited in his choice of seat because of the number of patients already in the room.

## Analysis of the Data

Although care was exercised in the calculation of the environmental selection indices, the ordinal value of the indices, reflecting general trends in behavioral choices, was felt to be more accurate for analysis than the actual magnitude of the scores. Thus, chi-square tests comparing the frequency of the distribution of persons at various levels of the selection indices for both the schizophrenic and non-schizo-

phrenic groups were made. Also a correlational analysis of all variables—selection indices as well as individual difference measures—was performed.

Two special factors were considered when analyzing the correlation matrix. First, although the seat constancy, social choice and convenience indices were analyzed separately, they were not created from independent data sources and would be expected to overlap to a certain extent. For example, if an individual was consistent in his choice of seat, then table and quadrant consistency would be high also. Secondly, it will be recalled that the two groups of institutionalized patients differed in more ways than the diagnostic classification of schizophrenics and non-schizophrenics. Mean age, time on the ward, degree of chronicity, number of friendships, degree of territoriality all differed between the groups and some differed substantially. These measures of individual differences also may have been related to spatial selections at the lunch table.

## RESULTS

### Time to Eat

A clear difference in the eating behavior of the two groups of patients appeared for the length of time spent eating. Schizophrenics ate and left the dining room in a very fast 9.8 minutes on the average, while the non-schizophrenic patients spent a longer 18.6 minutes eating. Time distortions are a known consequence of schizophrenic disorders (Hoffer and Osmond<sup>15</sup>) so that the shortened time eating may be a reflection of altered perception of the schizophrenics. This difference was highly significant ( $t_{100} = 6.8$ ,  $p < .001$ ) and will be interpreted later in terms of the other variables studied.\*

\* The fact that the schizophrenics ate first and had to empty the dining room for the second group could not of itself led to the difference, for, as we have noted, no one was urged to move until one-half hour had passed.

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### Environmental Indices

Table II shows the distribution of the numbers of persons at the various levels of seat consistency, social choice and convenience variables and the resulting chi-squares.

#### 1. Seat constancy

For the direction constancy index, the two levels shown in Table II represent total consistency or one change of choice of direction over the five days ("more constant"). For the other seating indices, the three levels range from no change at all in position choice ("highly constant") to a change in choice for at least four of the five days ("not constant"), and the remaining middle degrees of choice labeled "somewhat constant."

The chi-square analysis revealed that the schizophrenic patients in general were less constant than non-schizophrenic patients in their choice of same seat, seat direction, table and quadrant of the dining room. The seat directional index was the only highly significant difference between the two groups ( $p < .01$ ), although the trend was suggested for seat constancy ( $p < .1$ ) and the other two indices as well. Thus, the hypothesis that schizophrenic patients would be less consistent in their choice of seat was supported.

#### 2. Social Choice

In Table II the three levels for the social

choice indices ranged from total isolation, or only one contact with a person in five days ("very little"), to choice of sitting with more than one person every day ("frequent"), with the other degrees of social choice represented in the middle level.

Two of the three social choice variables revealed large differences between schizophrenic and non-schizophrenic groups in the chi-square analysis. Specifically, a lower proportion of schizophrenic patients chose a seat where others were present, upholding our second hypothesis. Significantly fewer schizophrenics joined others to eat ( $p < .02$ ) or sat with more than one other patient, which included others joining him ( $p < .01$ ). However, there was no difference at all between the two groups in terms of sitting with specific persons. Thus we see that the schizophrenic was more likely to choose a seat where fewer people sat or where fewer people would join him, but he was equally likely to have a specific person with whom he consistently sat.

**3. Convenience**

The convenience index was divided into two levels—less than the pre-determined rank of 2.5 ("convenient") and greater than 2.5 ("not convenient"). Table II shows that the schizophrenics tended to choose seats that were less convenient ( $p < .1$ ). That is, more schizophrenic patients sat in the out-of-the-way tables, even though there were fewer people occupying the dining room for them than for the non-schizophrenic group. Thus, the prediction that choice for convenience would be more frequent for the schizophrenics was not upheld.

In general then, the behavior of the schizophrenic shows less consistency in choice of seating position, less sitting with other persons and choice of the less convenient tables than for the non-schizophrenic patient. Indeed, an inspection of the number and kind of patients who seemed to use all three of the choice mechanisms—

**TABLE II**

Number of Patients and Resulting Chi-Square for Each Division of the Seat Constancy, Social and Convenience Indices

Non-Schizo-Index	Schizo-phrenic	Patient Type		X*
		phrenic	X*	
Seat Constancy				
Direction Constancy				
More constant		49	30	710 +
Less constant		7	16	
Same Seat Constancy				
Highly constant		5	4	
Somewhat constant		28	13	5.36*
Not constant		23	29	
Table Constancy				
Highly constant	7	7		
Somewhat constant		36	21	3.81
Not constant		13	18	
Quadrant Constancy				
Highly constant		35	20	
Somewhat constant		19	24	3.92
Not constant		2	2	
Social Choice				
Joining Others				
Very little joining		32	36	
Some joining		17	10	8.15+
Frequent joining		7	0	
- Sitting with Others				
Very little		15	16	
Some		11	10	12.461
Frequent		18	2	
Sitting with Specific Others				
Very little		26	24	
Some		11	10	.73
Frequent		19	12	
Convenience				
Convenient		45	30	2.97+
Not convenient		11	16	
*p<c.1		tp<=-.02		*p<c.01

seat constancy, social choice and convenience—points out the differences in behavior very clearly (see Table III).

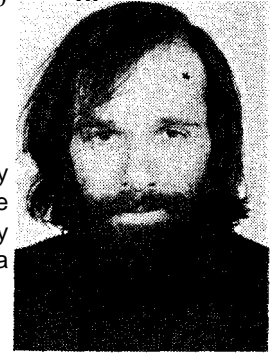


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For the non-schizophrenic patients, 15 out of 56 were high in all three of the choice indices, in comparison to only three of the 46 schizophrenics. At the other extreme, however, 10 schizophrenics were low in all of these criteria and 10 more were low in both constancy and social choice in comparison to only five and seven non-schizophrenic patients respectively. These patients may have been using none of the examined methods of choice and were simply wandering around from place to place. Or, it may be that low behavioral use of the three choice methods, rather than being completely random, indicated a search for empty tables where sociability could be avoided.

Esser<sup>16</sup> found a random type of environmental use in mentally ill patients who were low on both sociability and territoriality on the ward. He noted that one behavior of these patients was to wander about trying to take someone else's seat or else take an out-of-the-way place others would not choose. Further studies also suggested (Almond and Esser<sup>14</sup>) that repeated failure on the part of the patient to form either pairing relationships or an avoidance

phrenic 9 0 10 10



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of any relationships to be an indication of gross mental illness, such as with the schizophrenics in this study.

The Correlational Analysis

Table IV presents a correlation matrix of 10 observational variables and five individual difference variables. The observational indices include: four seat constancy, three social choice and one convenience selection plus time eating and order of entry. Individual difference variables are age, time on the ward, chronicity, friendship patterns and territoriality. All variables range from a very rough label of "good" (low) to "bad" (high) except for the social choice indices and time eating which are in the opposite direction. This is indicated on the matrix also.

Three populations of patients are shown in Table IV—the non-schizophrenics (n = 56), the schizophrenics (n = 46), and both groups combined (n = 102). For simplicity, only the significant correlations are reported in the matrix.

1. The environmental selection indices

Table IV shows high intercorrelations among the indices "direction, seat, table and quadrant constancy" for all three groups of patients. This is as expected because of the degree of overlap in the measures. Likewise, the indices "joining others, sitting with others and sitting with specific others" were overlapping when created and

TABLE III

Number of Schizophrenic and Non-Schizophrenic Patients in Each Cell for A High-Low Division of the Indices Seat Constancy, Sitting with Others and Convenience

	High Sitting With Others		Low Sitting With Others	
	High	Low	High	Low
Convenience				
Seat Constancy High				
Non-Schizophrenic	15	1	6	11
Schizophrenic	3	0	4	10
Low				
Non-Schizophrenic	10	1	7	5
Schizophrenic				

TABLE IV  
Correlation Matrix

	1. Direction Constancy			2. Seat Constancy			3. Table Constancy		
	Schizo- phrenic	Non- Schizo- phrenic	Total	Schizo- phrenic	Non- Schizo- phrenic	Total	Schizo- phrenic	Non- Schizo- phrenic	Total
Direction Constancy	X	X	X	.58†	.62†	.61†	.34*	.43†	.40†
Seat Constancy	.58†	.62†	.61†	X	X	X	.81†	.83†	.82†
Table Constancy	.34*	.43†	.40†	.81†	.83†	.82†	X	X	X
Quadrant Constancy				.34*	.45†	.41†	.48†	.57†	.53†
Joining Others	.18	.41*	.28*						
Sitting with Others									
Sitting with Specific Others									
Convenience	-.34*	-.39*	-.36†	-.30*	-.34*	-.31†	-.25	-.27*	-.25*
Time Eating									
Order of Entry	.25	.43†	.31†	.40†	.50†	.42†	.39†	.40†	.36†
Age	-.06	-.27*	-.21*	-.30*	-.31*	-.31†	-.30*	-.12	-.22*
Time in Ward									
Chronicity				-.32*	-.14	-.23*	-.39†	-.08	-.24*
Friendship Patterns									
Territoriality	-.29*		-.16			-.11			
	7. Sitting with Specific Others‡			8. Convenience			9. Time Eating		
	Schizo- phrenic	Non- Schizo- phrenic	Total	Schizo- phrenic	Non- Schizo- phrenic	Total	Schizo- phrenic	Non- Schizo- phrenic	Total
Direction Constancy				-.34*	-.39†	-.36†			
Seat Constancy				-.30*	-.34*	-.31†			
Table Constancy				-.25*	-.27*	-.25*			
Quadrant Constancy			-.24*						
Joining Others	.30*	.36†	.35†	-.19	-.36†	-.30†	-.31*		
Sitting with Others	.51†	.48†	.49†	-.37*	-.55†	-.48†			
Sitting with Specific Others	X	X	X						
Convenience	-.37*	-.55†	-.48†	X	X	X			
Time Eating							X	X	X
Order of Entry						.07			
Age								.26*	.33†
Time in Ward									.27†
Chronicity									.32†
Friendship Patterns	-.22		-.11	.33*		.16		.54†	.31†
Territoriality									

\* p < .05

† p < .01

‡ Direction of index oppsite to other indices

TABLE IV – (continued)

Correlation Matrix

4. Quadrant Constancy			5. Joining Others‡			6. Sitting with Others‡			
Schizo- phrenic	Non- Schizo- phrenic	Total	Schizo- phrenic	Non- Schizo- phrenic	Total	Schizo- phrenic	Non- Schizo- phrenic	Total	
				.41†	.28†				Direction Constancy
.34*	.45†	.41†							Seat Constancy
.48†	.57†	.53†							Table Constancy
X	X	X				-.39†		-.28†	Quadrant Constancy
			X	X	X	.63†	.66†	.67†	Joining Others
-.39†		-.28†	.63†	.66†	.67†	X	X	X	Sitting with Others
		-.24*	.30*	.36†	.35†	.51†	.48†	.49†	Sitting with Specific Others
				-.36†	-.30†	-.37*	-.55†	-.48†	Convenience
			-.31*						Time Eating
.40†	.25	.29†	.32*		.27†				Order of Entry
-.28			-.26	-.33*	-.17				Age
									Time in Ward
-.32*						.29*		.23*	Chronicity
			-.26		-.11	-.29*		-.14	Friendship Patterns
	.21								Territoriality
10. Order of Entry			11. Age			12. Time in Ward			
Schizo- phrenic	Non- Schizo- phrenic	Total	Schizo- phrenic	Non- Schizo- phrenic	Total	Schizo- phrenic	Non- Schizo- phrenic	Total	
.25	.43†	.31†		-.27*	-.21†				Direction Constancy
.40†	.50†	.42†	-.30*	-.31*	-.31†				Seat Constancy
.39†	.40†	.36†	-.30*		-.22*				Table Constancy
.40†	.25	.29†	-.28*						Quadrant Constancy
.32*		.27*	-.26*	-.33*					Joining Others
									Sitting with Others
									Sitting with Specific Others
			.07						Convenience
				.26*	.33†			.27†	Time Eating
X	X	X	-.36*	-.25			-.35†	-.21*	Order of Entry
-.36*	-.25		X	X	X	.50†	.35†	.45†	Age
	-.35†	-.21*	.50†	.35†	.45†	X	X	X	Time in Ward
-.35*			.76†	.51†	.72†	.42†	.56†	.58†	Chronicity
			.35*	.37†	.30†	.36*			Friendship Patterns
			.30*						Territoriality

Table continued on following page

TABLE IV — (continued)

Correlation Matrix

	13. Chronicity			14. Friendship Patterns			15. Territoriality		
	Schizo- phrenic	Non- Schizo- phrenic	Total	Schizo- phrenic	Non- Schizo- phrenic	Total	Schizo- phrenic	Non- Schizo- phrenic	Total
Direction Constancy							-.29*		-.16
Seat Constancy	-.32*		-.23*						
Table Constancy	-.39†		-.24*						
Quadrant Constancy	-.32*								
Joining Others				-.26		-.11			
Sitting with Others	.29*			-.29*		-.14			
Sitting with Specific Others				-.22		-.11			
Convenience				.33*		.16			
Time Eating			.32†	.17	.54†	.31†			
Order of Entry	-.35*								
Age	.76†	.57†	.72†	.35†	.37†	.30†	.30*		
Time in Ward	.42†	.56†	.58†	.36*					
Chronicity	X	X	X						
Friendship Patterns				X	X	X			
Territoriality							X	X	X

\*  $p < .05$

†  $p < .01$

‡ Direction of index opposite to other indices

are shown to be highly correlated with one another. It is interesting to note, however, that the two groups of measures, seat constancy and social choice, are virtually uncorrected. They seem to be measuring two different aspects of structuring the environment during the luncheon period.

The third choice mode, convenience, does not appear to be used independently of either seat constancy or social choice, however. Table IV reveals a negative correlation of convenience with the seating constancy variables. The more convenient tables were chosen less consistently for both schizophrenic ( $r = -.30$ ) and non-schizophrenic ( $r = -.34$ ) patients, perhaps because the convenient tables, which were used by more persons, offered less possibility for taking the same seat every time. For the social choice variables and convenience, an opposite pattern of correlation appears. The more convenient the table

was, the more joining ( $r = .30$ ) and the more sitting with others ( $r = .48$ ) for both groups.

These correlations are even higher for the non-schizophrenic group alone ( $r = .36$ , and  $r = .55$ , respectively). This suggests again, as did Table III, that convenience may have been used in conjunction with choice for social reasons. On the other hand, it may be that convenient tables were not chosen to provide sociability but merely to facilitate getting lunch over with as quickly as possible. Such possibilities will be re-examined more fully below.

## 2. Time of eating and order of entry

It will be recalled that a positive relationship of time of eating with the social choice indices was hypothesized. However, no clear positive correlations were found.

In fact, a significant negative correlation of  $-.31$  between time eating and joining others for schizophrenics was revealed. Those schizophrenics who ate alone took a more leisurely pace, whereas those who sat with other patients ate in a shorter time, as if close proximity to others was something to avoid.

As predicted, order of entry correlated positively and very significantly with all the seat constancy indices and slightly with joining others ( $r = .27$ ) for both groups of patients. Two factors could have been at work here:

- (1) The patients who wanted the same seat daily made sure of satisfying this need by being the first ones into the dining room.
- (2) The later patients could not be constant in their choice of seat even if desiring to do so because of earlier arrivals filling up the spaces.

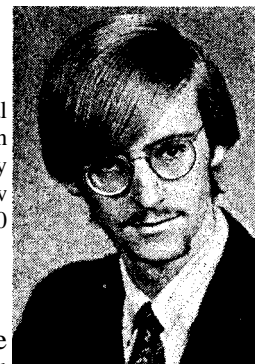
Attempts were made to correct for the latter in the calculations of constancy indices but possibly only the most evident cases were actually corrected. Further clarification of the role of order of entry upon the selection processes is clearly needed.

3. *Individual difference variables*-Table IV shows that age, time on the ward and chronicity are all intercorrelated and have the same kind of relationship to the environmental choice indices, with age correlating most highly and chronicity second high. For both groups, the older and more chronic patients were significantly more consistent in their choice of seat, in the direction of sitting and in their choice of table. In addition, the older and more chronic patients took more time eating while the younger patients seemed to hurry their way through the lunchroom.

These findings are consistent with statements in the literature such as Killian's<sup>17</sup> that the older person becomes increasingly

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more dependent on his immediate environment and that he will attempt to avoid situations which have a certain amount of risk (Knapp<sup>18</sup>). In these observations, a different seat or new eating companion was definitely a change of environment and carried some risk.

Correlations also appeared among age, friendship and time eating. For both groups, the older patients were less likely to have many friendships ( $r = .30$ ) and more likely to spend a longer time eating ( $r = .31$ ). It seemed that the older patient, who may have had difficulty physically in the very act of eating, was the person who ate alone and was also judged independently by the nurses to have fewer friends.

Finally, some relationship between the friendship patterns and the social choice indices for schizophrenics in particular were revealed. For instance, those judged to have definite friends did join others more ( $r = -.29$ ). Correlations between the friendship and social indices were very low for the non-schizophrenic persons, however. Apparently, even those non-schizophrenics judged to have no friends could sit with others at the luncheon table. They were not isolating themselves from others to the degree that was evident with the schizophrenics.

**4. Territoriality**

It was expected that those patients judged to have definite territories on the

ward would also have definite seats, tables or directions of sitting which they regularly chose. However, the correlational analysis shows that for the schizophrenic patients the only significant relationship with territoriality appeared in terms of the direction which they faced in the dining room ( $r = .29$ ). This may, however, have been an attempt to maintain a constant visual environment. The non-schizophrenic patients who were territorial on the ward were not the same persons who seemed to prefer a particular position or direction in the dining room. No correlation between territoriality and position constancy was revealed at all for them.

### DISCUSSION

Observations of the daily spatial selections in the lunchroom of two groups of long-institutionalized patients revealed interesting differences between the groups. Support was found for two predictions of seating choice. That is, schizophrenic patients proved to be less consistent in maintaining position constancy and in choosing for social reasons than the non-schizophrenic patients. The third hypothesis, that schizophrenics would choose more for convenience reasons, was not upheld.

In fact, the opposite result, choice of the less convenient positions, was observed for these patients. In addition, those judged to have definite territories on the wards did not seem to extend their preference for a regular position to the lunchroom—only one correlation between territoriality and the seat constancy indices was revealed.

Thus, it would appear that different mechanisms for spatial selections were used by the schizophrenic and non-schizophrenic patients. The schizophrenics were less consistent in their choice of seat, sat with fewer others and less frequently chose the convenient tables. The possibility that at

least two selection criteria were used for the more sociable patients was also revealed from the positive correlation of the social choice and convenience indices and from the number of non-schizophrenic persons who seemed to use all three choice mechanisms (Table III).

Those patients who were judged to be more sociable may have been purposefully choosing the more convenient table because of the high probability that other patients would sit at the convenient tables too. In the same vein, the less sociable persons, especially the schizophrenics, may have been purposefully and consistently choosing the less convenient positions to discourage others from joining. Underscoring the suggestions of the schizophrenics' avoiding contacts with others was the fact that they ate and left the lunchroom in a very fast average of 9.8 minutes.

An alternative explanation of the correlation of convenience with the social choice indices is that the patients choose their environment primarily for the convenience factor, and the fact that the other persons would do the same and join them was merely incidental. If this were true, the patients entering the lunchroom early would sit at the first tables and the later entering patients would then be forced to choose the less and less convenient tables. Hence, a positive correlation of order of entry and convenience should have been evident.

But the correlational analysis showed they were not related at all ( $r = .07$ ), weakening the above argument. The patients seemed not to choose a convenient seat independently of who was sitting there. Again this suggests that convenience coupled with the knowledge of where others will most likely sit may very likely be the basis of choice for the more sociable patients.

The lack of correlation between the territorial and the seat constancy indices was very suggestive. One possible explanation of the finding is that the patients may be

territorial in one aspect of living but not so in other aspects. Such a point has been raised in animal research, indicating that there are variations of animal spacing in relation to time or activity. For gregarious animals in particular, different activities are associated with different structures in space (McBride<sup>19</sup>) and intruding is permitted at certain times while not at others (Leyhau-sen<sup>20</sup>). Extending this concept to humans, it could well be that the patients who are clearly territorial in the day room do not continue their claim of space while engaged in another activity and/or in a different area of the hospital ward.

Because the present study focused upon daily behavior in a natural setting, limitations were evident. First was the problem of controlling the environment. The objects of the room were constant but the size of the two groups differed, so that choices were more limited for the larger non-schizophrenic group. Hence the increased sociability found for this group may have been due in part to necessity and not to choice.

Secondly, age may have been confounded with diagnostic type, since more non-schizophrenic patients were older and the findings for older patients paralleled those found for the non-schizophrenics. Age differences between the two groups were not statistically significant, however.

Finally, limitations in the indices and the fact that inferences about selection processes were made from behavioral observations should be re-emphasized. The results should be considered as tentative indicators of choice mechanisms—the complicated patterns of choice for position constancy, social reasons and convenience are only beginning to be understood.

In general, our findings give support to

the original hypothesis that the schizophrenic uses space idiosyncratically in potentially social situations. Through his choice of seat, the schizophrenic decreases opportunities for social exchange. By this he may either not know how to use space effectively to enhance social exchange, or he does know the importance of space and is communicating to others his wish to avoid social contacts. The fact that the schizophrenic chooses the less convenient seats and changes his choice of seat more often implies that he is avoiding others by hiding or failing to establish a spot where others could recognize and join him.

At the same time he is consistent in the direction in which he faces, as if he is attempting to limit his perceptions of what is around him in the dining room. Hoffer and Osmond<sup>15</sup> note that continual environmental changes have a deleterious effect on schizophrenics, perhaps because of their own frequent perceptual distortions. Deliberate construction of the environment, especially the more complex social environment, may be the schizophrenic's method of control to reduce the pathological consequences of disorientation.

Our comparison of the behaviors of the schizophrenics with those of the also long-institutionalized non-schizophrenic mental deficient suggests that their use of space is a result of the schizophrenic process itself rather than of institutionalization per se. This is important as it has been suggested that many of the regressed behaviors of the chronic schizophrenic may result from their institutionalization. Our findings suggest that in regard to their spatial behaviors this is not the case or at least that these behaviors may be a combined effect of institutionalization *plus* the schizophrenic illness.

See REFERENCES on following page

References pertaining to Article on pages 197 to 211 entitled "The Schizophrenic at the Luncheon Table"

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