

A FORMAL ANALYSIS OF *RIDERS TO THE SEA*¹

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ABSTRACT

This paper is an attempt to apply some of Salomon Marcus' ideas for the formal analysis of a theatrical play, using John M. Synge's, *Riders to the Sea*, as an example. The author follows Brainerd, Neufeldt, Gabrielescu, Mihnea, Ravzina and Ravzin in their use of mathematical measures and functions such as the character-scene frequency, the relative frequency of words the character speaks during an entire play, the weighted relative frequency of a character's appearances in scenes of a play, as well as those of mobility measure, degree of individuality, distance between characters, and affinity between characters. An analysis of *Riders to the Sea* is developed through the method proposed by Marcus.

Salomon Marcus' formal method for the analysis of drama is described and used by Brainerd and Neufeldt in "On Marcus' Methods for the Analysis of a Play" (*Poetics* 10 (1974)) and in some other articles such as those by Marcus' own students and disciples at the University of Bucharest, Daniela Gabrielescu's "Syntax, Semantics and Pragmatics in a Theatrical Play" and Tatiana Mihnea's "Combinatorics and Dynamics of Characters in Drama" (*Poetics* 6 (1977)). Another article that uses some of Marcus' ideas is O. G. Revzina and I. I. Revzin's "Toward Formal Analysis of Plot Construction" (*Semiotics and Structuralism* 1976). My intention in this paper is to use some of Marcus' ideas, as described in those articles, for a formal analysis of the strategy used by Synge in the construction of *Riders to the Sea*.²

The first thing to do, according to Marcus' method, is to segment "a play into natural units, 'scenes'. A 'scene' is . . . a durational part of a play occurring between successive changes in the space-time-character configuration of the action" (Brainerd, Neufeldt 1974). Following this definition, I segment *Riders to the Sea* in 9 scenes, the first one being that of Cathleen "kneading cake" and putting "it down in the pot-oven by the fire" (p. 83), and the last one being that which begins with men carrying "in the body of Bartley" (p. 95) and ends when Maurya says ". . . and we must be satisfied" (p. 97). Although there is no change in the space-time-character configuration of the action in what I call scene 1, it is in this scene that Cathleen bakes the cake which is

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so important in the development of the play, for the cake is one of the reasons for Maurya's absence in scene 6. That is why I consider that first instance of the play scene 1, no matter how small the scene is.

The next thing to do, according to Marcus' method, is to establish the number of characters in the play. "The character' must be performed by an actor; the actor must speak at least once from his entrance on the scene; the actor has not to personify an object" (Mihnea 1977). According to this definition I consider the existence of 6 characters in the play: Maurya, Bartley, Cathleen, Nora and, considered collectively, Women and Men. My decision to consider Women and Men two collective characters is based on the fact that they are not individualized³ in the play, even though Cathleen calls one of the men by his first name in scene 9. Even more, a director's decision while staging the play can reduce or increase the number of women and/or men, without altering the plot and structure of the play. On the other hand, Bartley is still a character, while just a corpse in scene 9. He is present, even dead, for his presence is fundamental for the conclusion of the play.

With the number of characters and the scenes of a play, Marcus proposes a table or MATRIX, which is the starting point for the formal analysis of any play. "This is a binary matrix which is formed as following: the columns - for the scenes - and the rows - for the characters. The presence of a character X_i into a scene S_j is noted with 1 . . . , and the corresponding absence is noted with 0" (Mihnea 1977). For *Riders to the Sea* this matrix is:

CHARACTERS	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	S ₈	S ₉
Maurya	0	0	1	1	1	0	1	1	1
Bartley	0	0	0	1	0	0	0	0	1
Cathleen	1	1	1	1	1	1	1	1	1
Nora	0	1	1	1	1	1	1	1	1
Women	0	0	0	0	0	0	0	1	1
Men	0	0	0	0	0	0	0	0	1

Fig. 1

To facilitate the analysis of the play, the following notations will be used: Maurya = Ma, Bartley = B, Cathleen = C, Nora = N, Women = W, Men = M.

One of the things Marcus measures through that matrix is the CHARACTER-SCENE FREQUENCY (q_i). This is done through the formula $q_i = \frac{n_i}{n}$, where n_i is the "number of scenes character x_i appears in" and n is the total number of scenes" in the play (Brainerd, Neufeldt 1974). The rank for the q_i in the play is:

$$\begin{array}{ll}
 C = 1.5 & B = 0.3 \\
 N = 1.3 & W = 0.3 \\
 Ma = 1 & M = 0.1
 \end{array}$$

This gives to Cathleen and Nora the most prominent parts in the play, as far as presences in the scenes are concerned. But, as Brainerd and Neufeldt suggest, the q_i "is at best an equivocal indicator of character importance, even in the structural sense. There are other measures which perhaps offer insight into the structure of a play."

Some of these measures, Brainerd and Neufeldt say, according to Marcus, are:

1. the relative frequency of words the character speaks during the entire play:

$$w_i = \frac{\text{number of words } i \text{ speaks}}{\text{total number of words in the play}}$$

2. a weighted relative frequency of X_i 's appearances in scenes of the play (i. e. effectively, his time onstage):

$$q_i^* = \frac{\text{number of lines in scenes in which } X_i \text{ appears}}{\text{total number of lines in the play}}$$

The following table shows the number of lines the characters speak in each scene of the play:

	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	S ₈	S ₉	Total for each X
Ma			7	25	13		47	8	31	131
B.				26						26
C		17	4	6	20	39	23	6	4	129
N		22	9	3	5	29	5	3	5	81
W								1	3	4
M									4	4
Total for each S		39	20	60	38	68	75	18	57	

Fig. 2

Instead of using the number of words spoken by the characters and the total number of words spoken in the play to calculate the w_i , I will use the number of lines each character speaks and the total number of lines spoken in the play to calculate the relative frequency of lines (l_i) the characters speak in the entire play. The rank is, compared with the q_i already found:

q_i	q_i^*	l_i
$C = 1.5$	$C = 1$	$Ma = 0.349$
$N = 1.3$	$N = 1$	$C = 0.344$
$Ma = 1$	$Ma = 0.71$	$N = 0.216$
$B = 0.3$	$B = 0.16$	$B = 0.069$
$W = 0.3$	$W = 0.2$	$W = 0.010$
$M = 0.1$	$M = 0.2$	$M = 0.010$

These numbers clearly show that, while Cathleen and Nora are present in 9 and 8 of all the scenes in the play, they are less important than Maurya as far as the frequency of lines is concerned. Maurya, speaking a total of 131 lines, has the higher l_i , being more important than Cathleen. It is easy to see, in Fig. 2, that Cathleen has more lines to say than any other character, only in scenes 5 and 6, although she speaks 45 times during the entire play, against $N = 29$, Maurya = 26, $B = 8$, W and $M = 2$. Even Nora speaks more times (29) than Maurya (26). Thus, what measures the importance of a character in *Riders to the Sea* is not the number of times the character speaks, nor his q_i or his q_i^* , but the relative frequency of lines the characters speak, and this makes Maurya the most important character in the play.

But other measures must confirm this assumption. Ravzina and Ravzin "define as a mobility measure of the dramatic character the parameter:

$$M(x) = \frac{\in(x)}{n},$$

where n is the total number of scenes of the play and $\in(x)$ is the number of changes from 0 to 1 (or from 1 to 0) on the order i row" (Mihnea 1977). Using the matrix in Fig. 1 to calculate $M(x)$ in Synge's play, these are the parameters:

$$\begin{aligned} M(Ma) &= 0.33 & M(N, W, M) &= 1 \\ M(B) &= 0.33 & M(C) &= 0 \end{aligned}$$

Also, the mobility index of a character ($\bar{\mu}(x)$) can be measured through the formula:

$$\bar{\mu}(x) = 2 \frac{a(x) - 1}{n - 1},$$

where $a(x)$ is "the whole sequence of presences of a character, framed by two absences" (Mihnea 1977) and n the number of scenes in the play. The $a(x)$ values in *Riders to the Sea* (from Fig. 1) are: $Ma = 2$, $B = 2$, $C, N, W, M = 1$. The $\bar{\mu}(x)$ indexes are:

$$\begin{aligned} \bar{\mu}(Ma) &= 0.25 \\ \bar{\mu}(B) &= 0.25 \\ \bar{\mu}(C, N, W, M) &= 0 \end{aligned}$$

So far, it is easy to see that Maurya is more important than any other character in the play, and after her, Bartley is the most important one.

Another important measure to be done is that of the degree of individuality of characters, which is given by "the index $\frac{\sum n \alpha_j}{n}$, where α_j is the number of characters in the j^{th} scene in which the particular character participates, and n is the number of scenes in which he participates" (Ravzina, Ravzin 1976). This index is taken from the premise that "a character is all the more important to the plot the smaller the number of persons, on the average, appearing with him" (Ravzina, Ravzin 1976). The values for the degree of individuality in the play is given in the following table:

	S1	S2	S3	S4	S5	S6	S7	S8	S9	Average
Ma			1.5	1.11	1.5		1.5	1.66	2	1.54
B				3					4	3.5
C	1.11	1.22	1.33	1.44	1.33	1.22	1.33	1.44	1.66	1.34
N		1.25	1.37	1.5	1.37	1.25	1.37	1.5	1.75	1.42
W								3	4	3.5
M									7	7

Fig. 3

Dividing the average degree of individuality of the characters by the total number of scenes in the play, the following rank of individuality can be established:

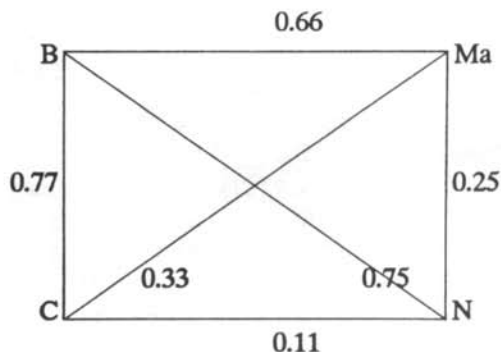
$$\begin{array}{ll}
 M = 0.777 & Ma = 0.171 \\
 W = 0.388 & N = 0.157 \\
 B = 0.388 & C = 0.148
 \end{array}$$

These values are explained by the fact that of all the characters in the play, the persons from outside the family (W and M) are the less emotionally involved, while in the family (Ma, B, C, N) Bartley is the most individualized and also the least emotionally involved. The distance between the Men and the other characters, as well as the distance between Bartley and the three other members of his family, are justified by Cathleen in scene 4, when she says that "it is the life of a young man to be going to the sea" (p. 87), which means, it is the life of men to be free from any other ties except those of their destiny. In the society portrayed in *Riders to the Sea*, men's destiny is to go to the sea.

The values also "reflect the influence of a character on the course of the intrigue" (Ravzina, Ravzin 1976). Since the conflict involving Maurya, Bartley, Cathleen and Nora constitutes the core of the plot in the play, it is no surprise that Bartley, who has the major influence on the course of the intrigue, has, among the persons of his family, the highest degree of individuality. But also, the highest degree of individuality in the

entire play is that of 0.777 for the Men because, in a broader sense, they establish the rules in the society in which Maurya's family is just a small part. That is, in that primitive society of fishermen, men have more influence, they decide the course of their lives, the "intrigue" in their lives.

The degree of individuality of the characters also explains other important characteristics of the strategy used by Synge in his play. Taking one scene as an example, scene 4, when all the persons in the family are present, one can see that Bartley has the highest degree of individuality - 3 (see Fig. 3), and the highest number of lines to speak - 26 (see Fig. 2), while Maurya, although she has more lines to speak than Cathleen and Nora, has the lowest degree of individuality. Scene 4 is exactly the scene where Maurya is confronted with the possibility of becoming a woman without husband and sons. In other words, it is the scene in which she must be the most "dependent," in order to prevent Bartley from going to the sea. But here the distance between the characters interferes in the course of the intrigue. Ravzina and Ravzin (1976) suggest the formula " $S(P_1, P_2) = \frac{A(P_1, P_2)}{B(P_1, P_2)}$ ", where $A(P_1, P_2)$ is the number of scenes in which only one of these two characters (P_1, P_2) appears, and $B(P_1, P_2)$ is the number of scenes in which at least one of them appears", to measure the distance between pairs of characters. The distance between Bartley and the other members of his family appears in the following diagram, as well as the distances between the three women:



These numbers explain the relationship among the members of the family. The two sisters are less distant from each other, for they share more in common between them than with the other two, Barthley and Maurya. This is clear in the play when they have two scenes (2 and 6) for them alone (see Fig. 1). On the other hand, Bartley also shares with the three women only one scene, for when he comes back in scene 9, not only there are other characters in

the scene, but also, he is dead. This explains the high values for the distances between Bartley and his two sisters, as it also explains why the distance between Maurya and Bartley is bigger than those between Maurya and her two daughters. The fact that the distances between Bartley and Cathleen and Maurya and Cathleen are bigger than those between Bartley and Nora and Maurya and Nora is explained through the relationship among the characters in scene 4 of the play. Cathleen is clearly on her brother's side and against her mother, which makes her closer to Bartley and more distant from Maurya. In scene 4 both Cathleen and Nora speak only 2 times. The first time Cathleen speaks, she orders Nora to give Bartley the new rope she had hung "on a nail by the white boards" (p. 85). The second time, she supports Bartley's desire to go to the sea and places herself against her mother asking "who would listen to an old woman with one thing and she saying it over" (p. 87). Nora is the less involved. She only asks Bartley if the rope she gives him is the one he wants (he does not even answer) and inform him that the boat he is waiting for is "passing the green head and letting fall her sails" (p. 87). Nora does not interfere in the course of the intrigue in scene 4, which makes her closer to Maurya than Cathleen, but more distant from Bartley.

The same thing happens in scene 9, when all four characters are together again (this time with Women and Men), and Cathleen and Nora are even more distant from Bartley. They do not say a word to help or comfort Maurya. Cathleen asks the men to make the coffin and also asks how Bartley was drowned. Nora only realizes that Maurya was fond of Michael. The distance between Maurya and Nora is smaller than that between Maurya and Cathleen because it is to Nora that Maurya turns when she needs help or comfort. For example, in scene 5, when Bartley goes out, she says: "The Son of God forgive us, Nora, we're after forgetting his bit of bread" (p. 88), even though she knows that Cathleen was baking the bread, not Nora. When she comes into the house again in scene 7 and remembers her lost husband and sons, it is to Nora she speaks, as if Cathleen were not there: "and water dripping out of it - it was a dry day, Nora - and leaving a track to the door" (p. 94). In scene 9, it is Nora she asks for the Holy Water (p. 96).

Daniela Gabrielescu (Poetics 6 (1977)) suggests "an edifying parameter namely λ which calculates the affinity between two characters (which results from their scenic presences)." The table for the scenic presences of pairs of characters in *Riders to the Sea* is:

	Ma	B	C	N	W	M
Ma		2	6	6	2	1
B	2		2	2	2	1
C	6	2		8	2	1
N	6	2	8		2	1

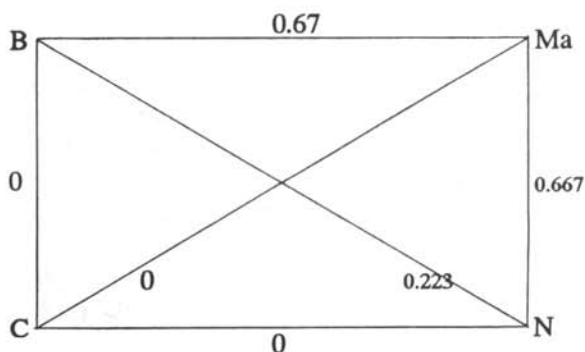
(Continuação)						
	Ma	B	C	N	W	M
W	2	1	2	2		1
M	1	1	1	1	1	

Fig. 4

The values represent the number of times each character meets another character in the scenes of the play. For example, Cathleen meets Maurya in 6 scenes, Bartley in 2, Nora in 8, the Women in 2 and the Men in 1 scene. The parameter λ is calculated through the formula

$$\lambda_{ij} = n_{ij} - \frac{n_i n_j}{N}, \text{ where } n_{ij} \text{ is the}$$

number of scenic presences of pairs of characters (Fig. 4), N is the total number of scenes in the play, and n_i and n_j are the number of scenes in which the two characters appear. The diagram for the affinities between the characters (Ma, B, C, N) is



The values corroborate what has been said about the relationships among the four characters.

What this formal analysis of *Riders to the Sea* shows is that Synge's strategy, while structuring his play, was that of using pairs of opposite forces. This is clear through the analysis of the relationships between Maurya and Bartley, Cathleen and Nora, Maurya and Cathleen, Maurya and Nora, Bartley and Cathleen, Bartley and Nora. The presences of the characters in the 9 scenes of the play, as shown in Fig. 1, also reveal that: $S_2 = S_6$, $S_3 = S_5 = S_7$, $S_4 = S_8$, and S_1 is the opposite of S_9 . The parameter of mobility $a(x)$, used to calculate the mobility index of a character ($\bar{\mu}(x)$), also support the same idea. Since the parameter of mobility shows the dynamism of the characters, it is easy to see the opposition between Maurya and Bartley and Cathleen and Nora. The $a(x)$ for the characters are:

Maurya and Bartley = 2 x Cathleen and Nora = 1

Mother and son are the most dynamic characters in the play, the two sisters (together with Women and Men), the most static, or the least dynamic.

It could not be different. While Cathleen and Nora just accept what happens, what life offers them, Maurya, like Bartley risking his life, finds strength to overcome her tragedy. She is not simply resigned, for she understands that even if "no man at all can be living for ever," one must enjoy life while living, "and we must be satisfied" (p. 97).

RESUMO

Este ensaio é uma tentativa de aplicação de algumas idéias de Salomon Marcus para a análise de uma peça teatral, usando, como exemplo, *Riders to the Sea*, de John M. Synge. O autor segue as contribuições de Brainerd, Neufeldt, Gabrielescu, Mihnea, Ravzina e Ravzin no uso que fazem das medidas e funções matemáticas de frequência cênica de personagens, frequência relativa de palavras faladas por personagens durante uma peça, assim como outras de medida de mobilidade, grau de individualidade, distância entre personagens e afinidade entre personagens. Uma análise de *Riders to the Sea* é desenvolvida através do método proposto por Marcus.

NOTES

1. This paper was already written when I finally got acquainted with Salomon Marcus' *Poetica Matematică* (Bucuresti: Editura Academiei Republicii Socialiste România, 1970, 400 pp.). It is in Chapter VIII, "Metode matematice în studiul teatrului," pp. 257-327, that Marcus develops his ideas on the formal analysis of a theatrical play.
2. In John M. Synge, *The Complete Plays* (New York: Vintage Books, n. d.), pp. 83-97). All quotations are from this edition and are followed by parenthetical page number.
3. The word individualized, as used in this section of the paper, means only "not different from one another," that is, all women and men fulfill the same function in the play.

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