

PROMETHEE 2020

Rabat, Morocco, June 2-4 *days*



**The PROMETHEE method for multi-criteria decision support :
the computerization of the principle of realism to the results
of consultations by SIKIDY KARATA typically Malagasy with
prescription of related drugs.**

Case of the Boeny region Mahajanga Madagascar



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INTRODUCTION

As a result of the various surveys we have conducted with the people in the Boeny region, we have felt particular problems in daily life, which is why we encourage research in the field of sikidy, because the latter is a traditional and customary practice in Madagascar. However, our research focuses in the Boeny region located in the northwest of Large Island. In this region the way of consulting ombiasy has become a common belief.

What is a Sikidy ?

Previously Malagasy divination, called **SIKIDY (Sikily)**, is a practice in use throughout the island, which consists of having on the ground the seeds of fano (a kind of acacia), in the form of a painting, in order to read destiny through certain configurations of seeds that appear in this table. This calculated part of the sikidy, which allows to "decode" the message contained in the random part, implements elaborate formal properties that are those of a real algebraic structure. Sikily is of Arab origin. In Arabic, **SHKILL** means the figure produced within the framework of a divinatory practice. In Madagascar there are two kinds of Sikidy: **SIKIDY GRAINE** and **SIKIDY KARATA**

KARATA : special name of the "Card" in the Boeny region in northwest Madagascar, 32-card games

➤ What is an Ombiasy ?

Soothsayers are called **Ombiasy** ("the one who practices Sikidy"), that is, healers, and they are specialists recognized by society, their skills being the result of an assimilation of complex techniques.

➤ Why Sikidy Karata typically Malagasy?

The Malagasy karata sikidy had a peculiarity in other countries of the world. It is used to help and solve particular problems in daily life for example palpable and actually proven results, to cure the disease of angorongosy (jaundice), satisfactory care of a bone fracture following an accident without having a medical intervention. There are various human diseases cured by ombiasy through our wealth of species endemic only to the world.

This peculiarity of **SIKIDY KARATA** typically Malagasy prompted us to make a new invention in order to adapt to the development of new information and communication technology.

➤ Objective

Our objective is to decrypt the past in the face of the eternal question: "the why of things" through the 32 cards, in order to allow the ease of use so that everyone can understand and know the different realisms facing the reading of the map in relation to the storage of the 28 different cases that are often associated with daily life in the suburbs of Madagascar , and even on a global scale, so that users can know how to take ownership of the principle of realism through the event and the situation associated with it.

➤ Choosing a Home Problem Treatment

In our example, we took the event to consult who has criteria "**Home**" there are different problems in the Foyer, but we take the case as "**marital problem**". That is why we are asking ombiasy for advice on the criteria to be consulted and on the basis of its recommendation in relation to the degree of criterion to which we have given the code value for each color of 32 cards. The consultation result is obtained by reading the card with the prescription of medication related to this result.

➤ **Choosing the PROMETHEE method**

We choose the PROMETHEE I method to facilitate our partial ranking of 32 cards with the following preference conditions:

Max: According to our meeting with Ombiasy, patients always want reliable and accurate results according to their wishes in relation to the event consulted. To fulfill their wishes we have to choose the maximum weight for each color of the card. The ombiasy verbally gave us the priority colors of patient demand cards in relation to any issues that describe the information corresponding to the situation being consulted.

Poids = 1

Fonction de préférence = Usuel

Seuils de préférence = Absolu

In our example: the husband is symbolized by King of Heart, his soul is Valet of heart, color of white skin.

Reading the card storage on the table describes the results and drugs for the consultation.

➤ Choosing criteria and actions

According to the surveys carried out, we have grouped in Table 1 the various problems often existing in the daily lives of peoples.

This table represents the 28 criteria divided into 4 groups ([Event consulted](#), [wish event](#), [event retaliated](#) [event protection](#))

and the actions are the 32 cards coded by its color according to the cases of criteria studied. These 32 cards are composed of : [Ace](#), [King](#), [Jack](#), [Queen](#), [10](#), [9](#), [8](#), and [7](#) of 4 colors each ([Spades](#), [Heart](#), [Clubs](#), [Diamonds](#)).

Table 1: Summary of Criteria and Action

28 CRITERIA			
Event consulted	Wish event	Event retaliated	Event protection
1. Home	1. Attracting the customer	1. Exile	1. Property protection
2. Unexplained diseases	2. Pass the exam	2. Doing harm	2. Body protection
3. Disputations	3. Getting married	3. Murder	3. Service protection
4. Separations	4. Having a baby	4. Destruction	4. Harm protection
5. Judicial case	5. Healing	5. Abnormal blockage	5. Family protection
6. Woe	6. Having property	6. Disagreements	6. Farming protection
7. Demonic Possession	7. Power, politics	7. Psycho disease	7. Breeding protection
ALTERNATIVES OR ACTIONS			
– Ace, 4 colors	– Ace, 4 colors	– Ace, 4 colors	– Ace, 4 colors
– King, 4 colors	– King, 4 colors	– King, 4 colors	– King, 4 colors
– Jack, 4 colors	– Jack, 4 colors	– Jack, 4 colors	– Jack, 4 colors
– Queen, 4 colors	– Queen, 4 colors	– Queen, 4 colors	– Queen, 4 colors
– (10), 4 colors	– (10), 4 colors	– (10), 4 colors	– (10), 4 colors
– (9), 4 colors	– (9), 4 colors	– (9), 4 colors	– (9), 4 colors
– (8), 4 colors	– (8), 4 colors	– (8), 4 colors	– (8), 4 colors
– (7), 4 colors	– (7), 4 colors	– (7), 4 colors	– (7), 4 colors
= 32 actions	= 32 actions	= 32 actions	= 32 actions

➤ **Treatment principles and consultation**

Here before the consultation, the **ombiasy** asked the patient questions in order to find out what is connected to the problem to be consulted, such as contact information, character color, and other relevant information.

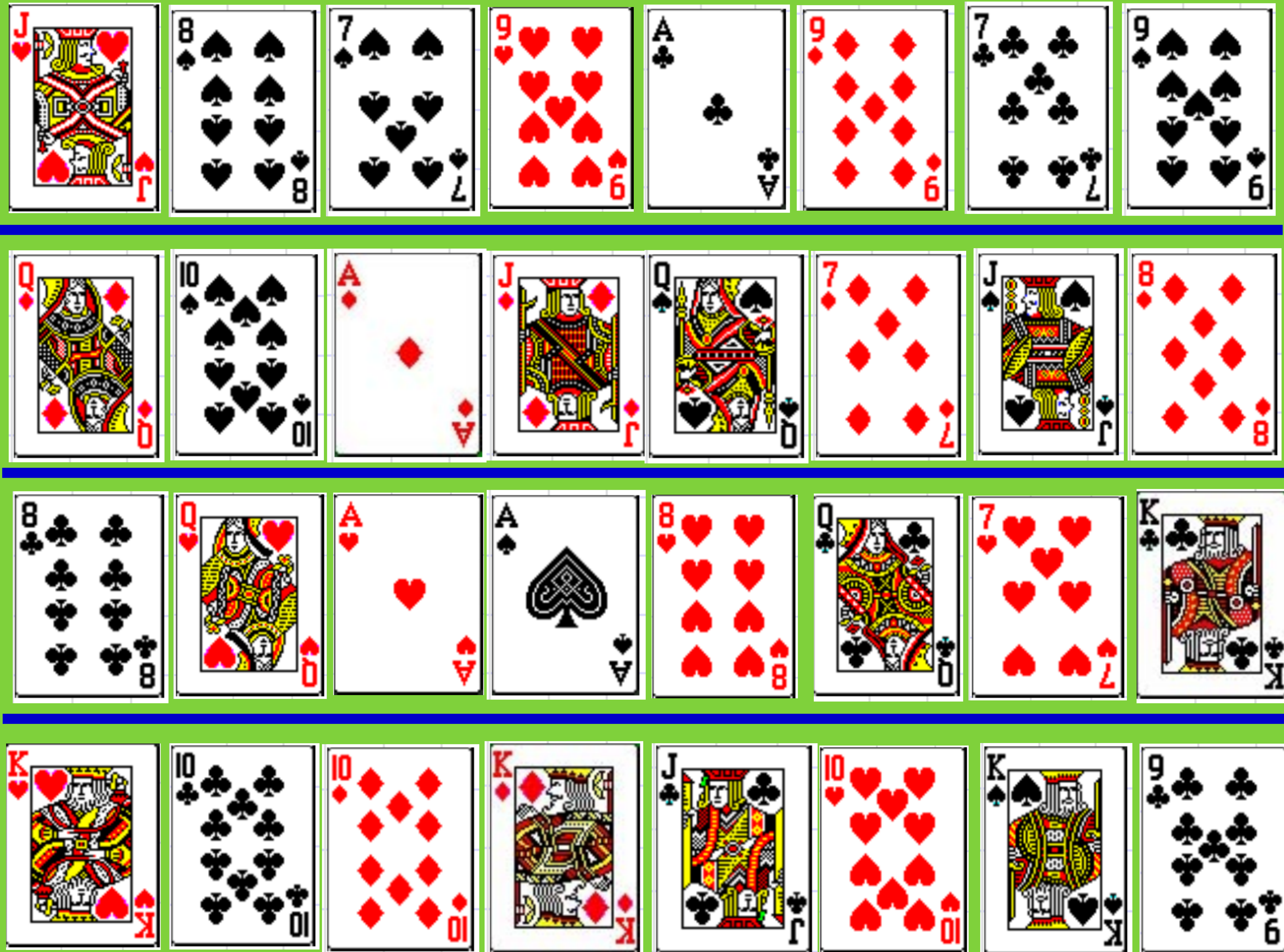
Here is the example of consultation of "Home" having a "marital problem" this is the first case of criteria established in Table 1 before. Each alternative has a different value compared to the others and these values also depend on the nature of the criteria requested by the patient.

The shares of 32 cards are coded by the numbers in Table 2 below.

Table 2: Assigned coding values for each color of the card

5	10	15	20	25	30	35	40
45	50	55	60	65	70	75	80
85	90	95	100	105	110	115	120
125	130	135	140	145	150	155	160

The **Ombiasy** takes both top and bottom cards, then stowed from left to right. Each card has its own characteristic, reading the card is the end point of consultation result with the corresponding drug prescription



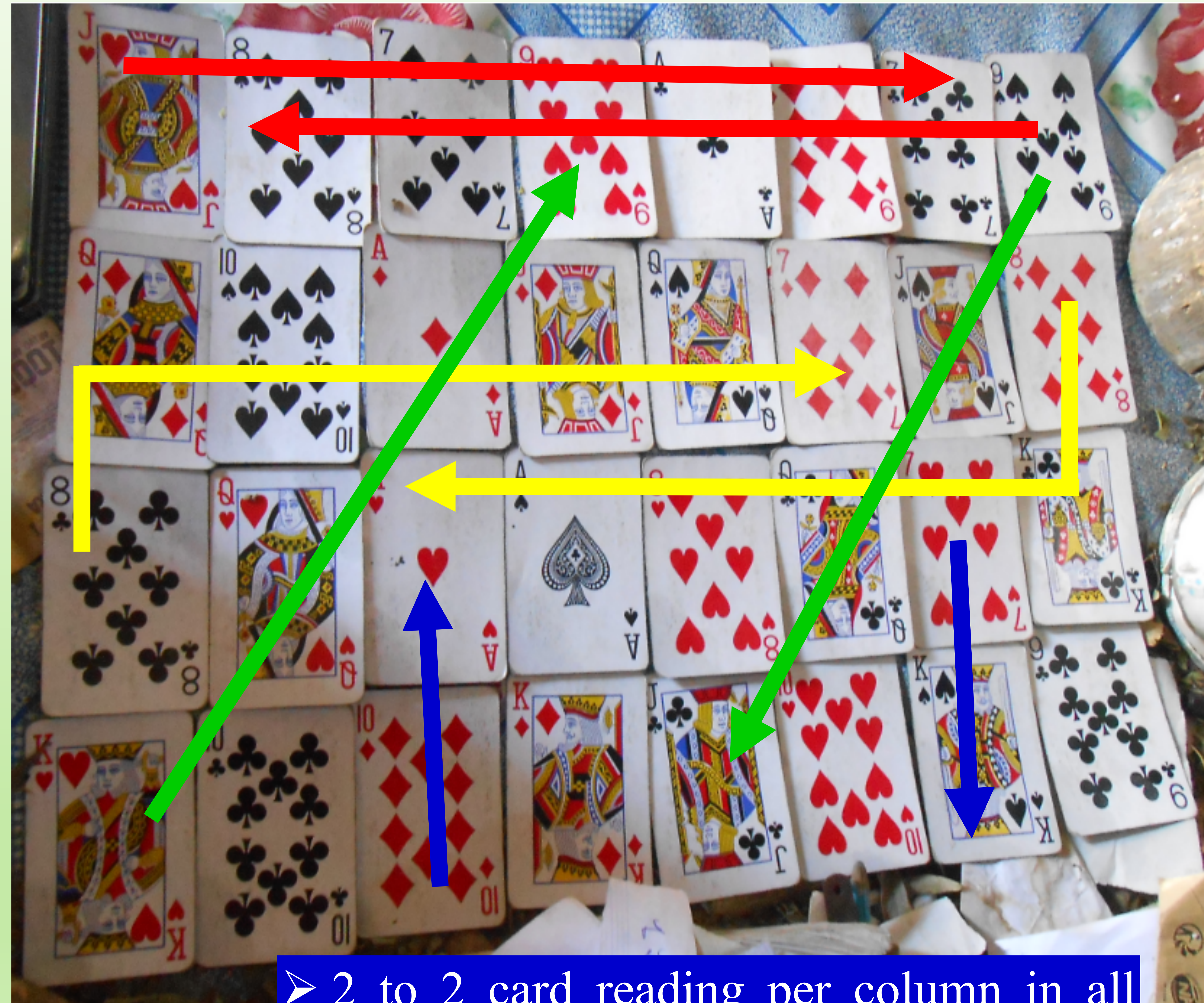
➤ Reading the card

These 32 cards are arranged with 4 lines and 8 columns, there are different ways of reading cards on the table namely:

➤ line reading from left to right and vice versa of cards stored on the table counting from 1 to 7

➤ the upward and downward reading of the cards on the table that respects the counting order of 1 to 7

➤ diagonal reading according to the direction of the reading from top to bottom and vice versa, cards on the table, this case the counting order is from 1 to 4



➤ 2 to 2 card reading per column in all directions of cards arranged on the table.

The meaning of the cards

	Doors open Closed door		Glass or container Sex		New		Honor Little money
	White man		Black man		Haughty Incarnation		Man with skin Clear
	White boy soul		Boy soul Black		Spirit incarnate		Boy soul Light-skinned
	White woman		Black woman		White woman Incarnation		Woman at light skin
	Joy		Location away At night		Way		Be talkative, gueulard Problem
	Open / closed conversation		Morning Midday		Late		Grey-grey Trouble, emotion
	Love		Grey-grey		Annihilate, lose Challenge		En colère
	Young girl's heart		Ghost		Young man's heart		Grief, sad Disease

➤ Storage and result consistency

Figure 1 illustrates how the actions : (1) of the card are stored by PROMETHEE, and (2) the way the card was stored in his table, (3) PROMETHEE flow with rank of actions co-operating to the way of storage of the Ombiasy (2).

Figure 1: General Presentation of Consultation Treatment "Home Problem"

1

Evaluations		
<input checked="" type="checkbox"/>	Ace of Hear...	70,00
<input checked="" type="checkbox"/>	Ace of clubs	140,00
<input checked="" type="checkbox"/>	Ace of diam...	110,00
<input checked="" type="checkbox"/>	Ace of spades	65,00
<input checked="" type="checkbox"/>	King of hearts	40,00
<input checked="" type="checkbox"/>	King of clubs	45,00
<input checked="" type="checkbox"/>	King of dia...	25,00
<input checked="" type="checkbox"/>	King of spa...	10,00
<input checked="" type="checkbox"/>	Queen of h...	75,00
<input checked="" type="checkbox"/>	Queen of d...	55,00
<input checked="" type="checkbox"/>	Queen of di...	120,00
<input checked="" type="checkbox"/>	Queen of s...	100,00
<input checked="" type="checkbox"/>	Jack of heart	160,00
<input checked="" type="checkbox"/>	Jack of clubs	20,00
<input checked="" type="checkbox"/>	Jack of dia...	105,00
<input checked="" type="checkbox"/>	Jack of spa...	90,00
<input checked="" type="checkbox"/>	10 hearts	15,00
<input checked="" type="checkbox"/>	10 of clubs	35,00
<input checked="" type="checkbox"/>	10 of diamo...	30,00
<input checked="" type="checkbox"/>	10 of spades	115,00
<input checked="" type="checkbox"/>	9 of heart	145,00
<input checked="" type="checkbox"/>	9 of clubs	5,00
<input checked="" type="checkbox"/>	9 of diamo...	135,00
<input checked="" type="checkbox"/>	9 of spades	125,00
<input checked="" type="checkbox"/>	8 of heart	60,00
<input checked="" type="checkbox"/>	8 of clubs	80,00
<input checked="" type="checkbox"/>	8 of diamonds	85,00
<input checked="" type="checkbox"/>	8 of spades	155,00
<input checked="" type="checkbox"/>	7 of heart	50,00
<input checked="" type="checkbox"/>	7 of clubs	130,00
<input checked="" type="checkbox"/>	7 of diamo...	95,00
<input checked="" type="checkbox"/>	7 of spades	150,00



3

Ran	action	
1	Jack of heart	■
2	8 of spades	■
3	7 of spades	◆
4	9 of heart	□
5	Ace of clubs	●
6	9 of diamonds	□
7	7 of clubs	◆
8	9 of spades	□
9	Queen of	◆
10	10 of spades	●
11	Ace of diamonds	●
12	Jack of diamonds	■
13	Queen of spades	◆
14	7 of diamonds	◆
15	Jack of spades	■
16	8 of diamonds	■
17	8 of clubs	■
18	Queen of heart	◆
19	Ace of Hearts	●
20	Ace of spades	●
21	8 of heart	■
22	Queen of clubs	◆
23	7 of heart	◆
24	King of clubs	■
25	King of hearts	■
26	10 of clubs	●
27	10 of diamonds	●
28	King of diamonds	■
29	Jack of clubs	■
30	10 of hearts	●
31	King of spades	■
32	9 of clubs	□

In this case, there are several ways to store these 32 cards. But according to the code given for each color, the basic idea will always remain the same if the cards change layout on the table.

2

1

3

Evaluations			Cards								Ran action		
<input checked="" type="checkbox"/>	Ace of Hear...	70,00									1	Jack of heart	
<input checked="" type="checkbox"/>	Ace of clubs	140,00									2	8 of spades	
<input checked="" type="checkbox"/>	Ace of diam...	110,00									3	7 of spades	
<input checked="" type="checkbox"/>	Ace of spades	65,00									4	9 of heart	
<input checked="" type="checkbox"/>	King of hearts	40,00									5	Ace of clubs	
<input checked="" type="checkbox"/>	King of clubs	45,00									6	9 of diamonds	
<input checked="" type="checkbox"/>	King of dia...	25,00									7	7 of clubs	
<input checked="" type="checkbox"/>	King of spa...	10,00									8	9 of spades	
<input checked="" type="checkbox"/>	Queen of h...	75,00									9	Queen of	
<input checked="" type="checkbox"/>	Queen of d...	55,00									10	10 of spades	
<input checked="" type="checkbox"/>	Queen of di...	120,00									11	Ace of diamonds	
<input checked="" type="checkbox"/>	Queen of s...	100,00									12	Jack of diamonds	
<input checked="" type="checkbox"/>	Jack of heart	160,00									13	Queen of spades	
<input checked="" type="checkbox"/>	Jack of clubs	20,00									14	7 of diamonds	
<input checked="" type="checkbox"/>	Jack of dia...	105,00									15	Jack of spades	
<input checked="" type="checkbox"/>	Jack of spa...	90,00									16	8 of diamonds	
<input checked="" type="checkbox"/>	10 hearts	15,00									17	8 of clubs	
<input checked="" type="checkbox"/>	10 of clubs	35,00									18	Queen of heart	
<input checked="" type="checkbox"/>	10 of diamo...	30,00									19	Ace of Hearts	
<input checked="" type="checkbox"/>	10 of spades	115,00									20	Ace of spades	
<input checked="" type="checkbox"/>	9 of heart	145,00									21	8 of heart	
<input checked="" type="checkbox"/>	9 of clubs	5,00									22	Queen of clubs	
<input checked="" type="checkbox"/>	9 of diamo...	135,00									23	7 of heart	
<input checked="" type="checkbox"/>	9 of spades	125,00									24	King of clubs	
<input checked="" type="checkbox"/>	8 of heart	60,00									25	King of hearts	
<input checked="" type="checkbox"/>	8 of clubs	80,00									26	10 of clubs	
<input checked="" type="checkbox"/>	8 of diamonds	85,00									27	10 of diamonds	
<input checked="" type="checkbox"/>	8 of spades	155,00									28	King of diamonds	
<input checked="" type="checkbox"/>	7 of heart	50,00									29	Jack of clubs	
<input checked="" type="checkbox"/>	7 of clubs	130,00									30	10 of hearts	
<input checked="" type="checkbox"/>	7 of diamo...	95,00									31	King of spades	
<input checked="" type="checkbox"/>	7 of spades	150,00									32	9 of clubs	

➤ Reading results

based on the reading compositions in relation to the different meanings of the cards in the table, we summarized in our example to the "Home Problem" the soul of the husband is symbolized by the jack of heart, there is an unfaithful air, he often abandons his home, at the same time he is an alcoholic. But the separation between husband and wife is impossible

The drug for this problem is: ***hazo mivady***¹, ***hazo mananjara***², ***vakana malay misaraka***³, ***vavan'ny vorona vintsy***⁴, ***hazo mamy***⁵, ***apombo melemy amin'ny sahafa***⁶, these are endemic plants of Madagascar. Let's mix together and wither all the products, and then let's take the powders so obtained, and make the composition with the husband's meal.

Hazo mivady = Tree : Inseparable tree in twisted form,

Hazo mananjara = Tree that is lucky

Vakana malay misaraka = Inseparable chain like two loops attach to each other

Vintsy = Vintsy is a kind of birds (Vintsy - Corythornis vintsioides), **Vava** = beak, : one takes the beak of vintsy

Hazo = Tree, **Mamy** = Sweet : Sweet-tasting tree

Apombo melemy amin'ny sahafa = Sound in the valve (when you pounded the rice, you get very soft sound in the valve)

CONCLUSION

This research is part of the idea of valuing the world of anthropology combined with our work in Madagascar, even on a global scale, so that users can know how to appropriate the principle of realism through the event and the situation associated with it.

Our research is based on the facts observed, collected and verified, actually by the results of the consultation and the practice of drug use. Thanks to this multi-criteria method of helping the decision, we are convinced that the PROMETHEE method meets our need for data processing and storage, result ranking of 32 cards.

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**Thank you for your
kind attention**