



Use of Neutrosophy to analyze problems related to the joint custody of children and adolescents after marriage dissolution

Alipio Absalón Cadena Posso¹, Carlos Javier Lizcano Chapeta², Miguel Leonardo Sola Iñiguez³, Alex Fernando Gómez Gordillo⁴

¹ Regional Autonomous University of the Andes, Ibarra Extension, Ecuador. E-mail: alipiocadena@gmail.com

² Regional Autonomous University of the Andes, Ibarra Extension, Ecuador. E-mail: lizcha_4@hotmail.com

³ Regional Autonomous University of the Andes, Ibarra Extension, Ecuador. Email: miguel_sola@hotmail.com

⁴ Regional Autonomous University of the Andes, Ibarra Extension, Ecuador. Email:

Abstract. The objective of this investigation is to analyze the problems caused by the joint custody of children and adolescents after marriage dissolution. In order to do so, we used neutrosophic logic because it is useful to recommend attention to the conditions that frequently occur in this group of people. To achieve this objective, we carried out an analysis that provided scientific and legal knowledge, related to the regulation of joint custody within the Ecuadorian legal system, which had the purpose of ensuring the best interests of children and adolescents when their parents get divorced. For the study, we applied descriptive research with field design and documentary analysis; we also used interview and survey techniques whose results allowed us to determine in what percentage the rights of children and adolescents have been violated. The results analyzed through the proposed model, evidenced the need for a preliminary draft of reform to article 118 of the Code of Childhood and Adolescence regarding the joint custody after marriage dissolution, to guarantee the rights of children and adolescents. As a conclusion, we consider that it is necessary to examine the social and psychological effects on children after marriage dissolution, since during the separation process, most parents only care about their own welfare without thinking about the children's, to which is added to the application of the law to determine who keeps the children.

Keywords: joint custody, marriage bond, marriage dissolution, children and adolescents.

1 Introduction

Joint custody is defined as the physical control that parents have over their children. Custody is also defined as the act of protecting and guarding something or a person, and in this case, it would be a child. The word custody has a close relationship with the term to guard, although the last one has a more relevant meaning because it means protecting with care and diligence.

Joint custody of children and adolescents after marriage dissolution is a legal fact that takes place in society when the parents and children who make a family stop living together. That's why the judgment of a legal authority within a process in support of the causes indicated by the law, affects mainly children and adolescents. It is important to consider that the contemporary society, the mother is considered directly responsible for the upbringing of her children and, in other contexts, the mother is asked whether or not she wishes to continue with the responsibility of the education and upbringing of her children.

The mother's opinion is usually not taken into account and the fact that women face alone the responsibilities of raising and educating children is considered an obstacle for the individual and professional development of both women and children. The problem about children's custody is generated by the marriage dissolution, getting to the divorce and becoming a legal problem in the dispute over whom the children should stay with. Usually corresponding directly to the mother; it is then when the children begin to feel the absence of the father, the lack of a family. Parents' anxiety during the separation process has negative effects on children in their emotional, psychological and social development; violating the constitutional principle of the Higher Interest of the Child, the same one that states that the rights of the child must prevail over others.

When granting custody, priority is given to the divorced mother, taking into account that she must fulfill the requirements indicated by the law. In most cases, they are not asked whether they wish to go on with the upbringing and education of the children or not. Although it is a very obvious decision, many of them feel frustrated due to

the great responsibility they now have to face alone. On the other hand, the father or the other parent in most cases only has a visit regime, which makes him a visitor, so the child loses several of his/her rights by not having permanent contact with his/her other parent.

In order to carry out this investigation, the following theoretical referents were taken into account: considers that: "The word custody, which according to its etymology is derived from Latin custodia may be confused with the action of a guardian in a prison; however, within the scope of the law, the custody of children is similar to the word tutelage which, according to Cabanellas, means: "Guard, protection, defense of a right". Then, the word custody should be taken as the care, guard, protection and guardianship that parents have over children and adolescents. We should not mistake the word custody with the mere guard of things.[1]

Article 118 of the Organic Code of Childhood and Adolescence declares that, for the integral development of the family's child, the Judge will evaluate the reasons why he can entrust his care and upbringing to one of the parents; so to say, the custody, without altering the exercise of parental authority. In this same Code, parental authority is defined as follows: It is not only the set of rights but also the obligations of parents over their non-emancipated children, regarding care, education, integral development, defense of rights and guarantees of children in accordance with the Constitution of the Republic and the law.[2]

On the other hand, [2] states that: "According to Universal Law and legal norms, the custody of children is similar to the word Tuition, the right granted by the legislator to the father, mother, other ascendants or collateral, and even those who are not related to them, of a child who requires the care and protection of a certain person". It is the set of obligations and rights corresponding to certain persons indicated in the law or by the judge, regarding the personal care, upbringing, and education of the children. Considering the concepts of "custody and tuition," it is worth noticing that the most appropriate term to talk about children and adolescents after divorce is "joint custody" because it makes better reference to the care and protection of children and adolescents.

Authors such as, declare that joint custody can also be defined as an important element of parental authority and that parents have the right to be in the company of their children. [3] thinks that the custody of the child is an important issue, in search of emotional stability for the child, it is recommended that it is exercised by at least one of his/her parents and is even more appropriate if exercised by both parents, this is of great help for him/her and his/her integral training.

[4] Assures that an important risk factor for the health of women is having to raise two or more children, since, while doing the hard task of taking care of and protecting them, it has been proven that women's health has gone declining in a gradual way. In the psychosocial aspects of genders, mothers' health is influenced differently than the fathers'.

Similarly, excluding one of the parents could lead to the symptoms of post-traumatic stress, the parentalization of equivocal roles among the family, inappropriate behavior changes, problems of social and emotional integration, regressive symptoms according to their age, among others. Which could be derived into serious problems in future relations of the children.[5] Manifests that one of the relevant factors is the joint custody, which is defined as a method where parents can better organize their time in aspects such as personal, family, social and other complementary activities, without leaving aside their obligations to their children, also allowing mothers not to neglect or send to background their work activities so that this doesn't affect their economic situation.

Joint custody more than a regulation is an opportunity for children to be and live with their parents and thus maintain a relationship of love and affection with both parents. In addition, by incorporating the joint custody within our legal system, we would be looking after the best interests of children. For this reason, joint custody has implied prior investigations. In [5], an analysis about joint custody was carried out, from which basic parameters are established in order to vest that legal status, such as: the aptitude of parents, the age of the children and the period of time, the cases in which the joint custody does not proceed; for example, in case of child abuse.

Those are the reasons why a Law Reform is proposed to include joint custody in the Legislation. Particularly in Ecuador, the Organic Code of Childhood and Adolescence is currently in force. Within Ecuadorian legislation, this code is the legal instrument applied in relation to the care and protection of children and adolescents who are going to live with one of his/her parents, after the divorce or separation.

There are several forms of joint custody. In the first place, we may mention exclusive custody, which according to [6]; "Implies granting custody to one of the parents and a visits schedule in favor of the other, which usually contributes to the raising of the children with a food pension". This type of custody is what is contemplated within our legal system, and applied by the judges, since it is considered the most appropriate for the integral development of children, which in our opinion is totally inadmissible, because with this type of custody we would only be setting parent and son apart.

Alternate custody is another type of custody, which allows each of the parents to have their children for a period of the year, during which they exercise full rights of custody, having a regime of visits in the remaining period.

The last typology is shared or joint custody, which is a right in which both parents have the physical and legal custody of their children, share rights and responsibilities in education, training, maintenance, and all activities related to the raising of children. That way that they take part, by judicial resolution and under equal conditions,

in all the decisions and actions related to the children. [7] Defines joint custody as if it were an intact family because both parents are always sharing their daily activities with their children.

Regarding the legal regulations, article 44 of the Constitution of the Republic [2] declares that: "The State, society and the family shall promote as a priority the integral development of girls, boys, and adolescents, and ensure the full exercise of their rights, the principle of their best interests will be met and their rights will prevail over the others". Likewise, article 45 states that: Girls, boys and adolescents shall enjoy the common rights of the human being, in addition to those specific to their age; girls, boys, and adolescents have the right to physical and mental integrity; to have a family and enjoy family and community life; to social participation; to the respect of their freedom and dignity; to be consulted in matters that may affect them; and to get information about their absent family members, unless it is harmful for their well-being.

On the other hand, the Organic Code of Childhood and Adolescence [1], with regard to joint custody, declares in article 118 that: "When the Judge deems it more convenient for the integral development of the son or daughter of a family, trust their care and upbringing to one of the parents, without altering the joint exercise of parental authority, will entrust the custody following the rules of article 106; he may also grant custody with attribution of one or more of the rights and obligations included in parental authority, always taking into account the convenience indicated in the preceding subsection."

Likewise, article 119 of the same Code, regarding to the modifications of the resolutions on custody, states that: custody does not cause enforcement; the Judge may alter it at any time if it is proven that this is appropriate for the correct exercise of the rights of the son or daughter of the family; when it comes to a change of custody; it will be done in a way that does not cause psychological harm to the son or daughter, for which the Judge must provide support measures for the son or daughter and their parents."

Based on the above mentioned, methods, approaches and aspects related to the regulation of the joint custody of children and adolescents after marriage dissolution are studied. Establishing preliminary draft reform for Article 118 of the Organic Code of Childhood and Adolescence on joint custody after marriage dissolution, to regulate the rights of children and adolescents and particularly in Ecuador.

According to the Organic Code of Childhood and Adolescence [1], custody in Ecuador is an institution for the care and upbringing of sons and daughters that is exercised by only one parent, without altering the exercise of joint parental authority developed by parents. Indeed, [8] stated that custody is the order that the judge gives to one of the parents as for the aspects related to raising and educating their sons and daughters. In addition, the exercise of joint parental authority must be respected.

As for the special legislation in Ecuador, it stipulates that the same rules are followed for granting parental authority as well as for suspending or depriving of it, the custody is exercised only by the father or mother with whom the children live. For example, once separated or divorced, the judge is obliged to decide on the situation of the children. In our country, it is usually the mother who keeps custody while the father is obliged to provide an economic pension.

According to [9], custody in the legal field refers to the power that parents or guardians have over their children or over the child or adolescent that lives with them, in addition, it is their right to keep their children with them and in some cases, this right could be granted to who has a legitimate interest.

The Supreme Norm of Ecuador in 2008 [14], referring to childhood and adolescence, proclaims that this group of people deserves priority attention. Hence the state, society and the family must guarantee the integral development of children and adolescents, in order to ensure their best interest, paying attention to their future rights, specifically, to be able to procreate a family, to be able to enjoy coexistence in family. This point is essential because when divorce or separation of parents occurs it is not guaranteed, since instead of sharing their parent roles they are assigned separated functions and not jointly, which establishes the promotion of a co-responsibility between rights and duties of parents with respect to their children and ultimately reciprocally between members of the family, which includes aspects such as care, nutrition, education and assistance that parents evidently exercise over their children, but this does not prevent the children from helping their parents in certain circumstances.

Joint custody of children and adolescents has consequences on their health as children, but the conflictive relationships between the father and the mother have negative repercussions on the emotional, social, cognitive and academic development of the children. Joint custody of ex-partners with conflictive relationships has repercussions that affect the development of children. Many of these children suffer in silence without being listened, because the mothers or fathers think that the problems affect only the couple and do not concern their sons and daughters.

However, investigations of [10] show important effects on the health of children due to the conflictive relationships of the ex-partners. These children have problems related to socialization, showing isolation, insecurity, aggressiveness, and reduction of social skills.

Likewise, the abovementioned author declares that these children may have depressive symptoms such as crying, sadness or low self-esteem. The fear in them is reflected as non-specific, as shown by the feeling that

something bad is going to happen, they have fear of death, fear of losing their mother, fear of losing their father, and so on.

The mentioned author also affirms that there are children and adolescents who frequently suffer from sleep disorders, such as nightmares, night terrors, refusing to sleep alone. Also, regressive symptoms such as enuresis, encopresis, delayed language development, behave as if they were younger than their age. On the other hand, these children usually have integration problems at school, which are reflected as they having learning problems, difficulties in concentration and attention, decrease in school performance, difficulty to share with other children.

She also mentions the fact that in this group of people we may find emotional and behavioral responses, such as anger, sudden changes in mood, anxiety, feeling of vulnerability and experiencing the world as something threatening, feelings of guilt (being the cause of the conflicts between their parents or what happened or not having done something to avoid separation). Difficulty in expression and emotions handling. Denial of the conflictive situation or downplay the problem they live. They tend to normalize suffering and aggression as natural modes of relationship. Learning of violent models and the possibility of repeating them, with the internalization of erroneous gender roles.

On the other hand, she points out that they are exposed to chronic parental conflicts, which can lead them to develop more conflictive relationships and addictions. Stress associated to parental violence can lead him or her to assume risky and evasive behaviors and begin to act violently at home or even flee from home. Parents' relationships may also have great influence on the way adolescents establish their first sentimental relationships. The higher levels of conflict and aggression between parents, the more likely it is for them to see hostile intentions in others' behavior, therefore reacting violently as a defense. They have symptoms of post-traumatic stress such as insomnia, recurrent nightmares, phobias, anxiety, trauma re-experiencing, dissociative disorders.

She also mentions the frequent occurrence of children's parentification, due to the assumption of parental and protective roles for younger brothers and sisters, as well as assuming parental roles for protecting their mother. Regarding this section, it is important to highlight that when there is a violent atmosphere and conflictive parental relationships, it affects the way the child perceives the world, his ideas about the meaning and purpose of life and his expectations of a future happiness.

2 Materials and methods

In this paper, descriptive research was carried out, since the most important characteristics and elements of children and adolescents custody were established, taking into account what is stipulated by the Constitution and the Code of Childhood and Adolescence.

Likewise, a documentary research design was applied since bibliographical and second-hand digital sources were consulted, as well as laws and legal instruments related to this topic. The doctrine regarding joint custody, the National Constitution and the Code of Childhood and Adolescence were essential for the development of this study. In addition, this research was enclosed into a field investigation, which allowed obtaining information directly from reality under study.

As for the techniques and instruments for information gathering, we used the poll as a technique and the questionnaire as an instrument. We analyzed a population of 260 people from El Sagrario parish in the city of Ibarra. By applying the formula to select the sample, we chose a total of 155 people. It is important to point out that for the study sample we worked with a direct population sample. That is, without stratification due to the similarity of criteria and positions regarding the joint custody of children and adolescents after marriage dissolution.

Finally, neutrosophy is used to obtain greater interpretability of the linguistic terms related to the issues that cause health consequences to the children, given the conflictive relationships between the father and the mother, which have a negative impact on the emotional, social, cognitive and academic development of children. This technique, as a method, helps to understand which issues should be addressed prioritarilly to reduce health consequences for children and adolescents in joint custody.

Neutrosophy is a new branch of philosophy that, according to [10], studies the origin, nature and scope of neutralities, as well as their interactions with different ideational spectra, where (A) is an idea, proposition, theory, event, concept or entity; anti (A) is the opposite of (A); and (neut-A) means neither (A) nor anti (A), that is, the neutrality between the two extremes [17]. Etymologically neutron-sofia [French neutre <Latin neuter, neutral, and Greek sophia, knowledge] means knowledge of neutral thoughts and began in 1995.

His fundamental theory states that every idea <A> tends to be neutralized, diminished, balanced by <noA>. Ideas (not only <antiA> as Hegel defined it) in a state of equilibrium. <noA> = what is not <A>, <antiA> = the opposite of <A>, and <neutA> = what is neither <A> nor <antiA>.

In their classical form <A>, <neutA>, <antiA> are disjoint in pairs. As in several cases the boundaries between concepts are vague and imprecise, it is possible that <A>, <neutA>, <antiA> (and <nonA> of course) have common parts. For example; two parts in two. This theory has settled the basis for neutrosophic logic [18], neutrosophic sets [11], neutrosophic probability, neutrosophic statistic and multiple practical applications. For this

reason, it is used in this investigation for defining the evaluation frame of the issues that children and adolescents face when their parents get divorced, for them the information to be considered is verbalized and the linguistic terms, defined by [12], are shown in table 1.

Linguistic term	SVN number
Extremely good (EG)	(1,0,0)
Very very good (VVG)	(0.9, 0.1, 0.1)
Very good (VG)	(0.8,0,15,0.20)
Good (G)	(0.70,0.25,0.30)
Moderately good (MDG)	(0.60,0.35,0.40)
Medium (M)	(0.50,0.50,0.50)
Moderately bad (MDB)	(0.40,0.65,0.60)
Bad (B)	(0.30,0.75,0.70)
Very bad (VB)	(0.20,0.85,0.80)
Very very bad (VVB)	(0.10,0.90,0.90)
Extremely bad (EB)	(0,1,1)

Table 1. Linguistic terms used. Source: [21].

Once the prioritization framework is established, information is obtained. The ideal alternative is selected, considering the preferences of the experts, which are shown in table 2.

	x ₁	x ₂	x ₃
c ₁	MDG	B	VVG
c ₂	G	VVG	G
c ₃	G	MDB	VG

Table 2. Preferences according to the experts.

Based on the information obtained and considering table 1 and 2, the ideal alternative is selected. Through the results obtained from the distances, it is possible to sort the alternatives according to the preferences obtained and the experts' criteria. Distance calculation is made according to the values shown in table 3.

Criteria	Preferences
x ₁	0.35355339
x ₂	0.59160798
x ₃	0.18484228

Table 3. Values for distance calculation between alternatives and experts' criteria.

Figure 1 shows the workflow for the establishment of the evaluation frame for issues that children and adolescents face when their parents get divorced. Considering the trends that they describe during their development, which are represented in linguistic terms, where indetermination is present.

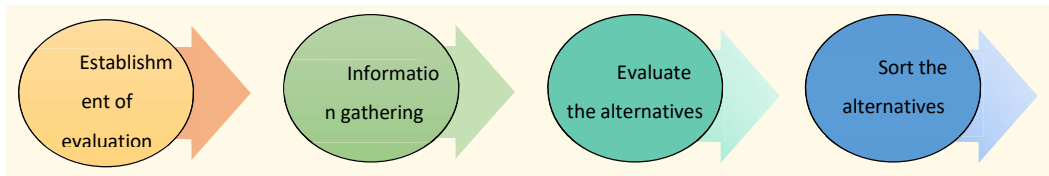


Figure 1. Proposed model.

Detailed description for each of the components of the model for the issues faced by children and adolescents after marriage dissolution are presented below.

1. Establishment of evaluation aspects

In this component, the criteria and alternatives to be evaluated are selected in order to give priority to the last ones. The framework is defined as follows:

- $C = \{c_1, c_2, \dots, c_n\}$ with $n \geq 2$, a set of criteria
- $E = \{e_1, e_2, \dots, e_k\}$ with $k \geq 1$, a set of experts
- $X = \{x_1, x_2, \dots, x_m\}$ with $m \geq 2$, a finite set of alternatives

2. Information gathering

Information about decision-makers' preferences is obtained. The utility vector is represented as follows:

- $P_j = \{p_{j1}, p_{j2}, \dots, p_{jk}\}$, where p_{jk} is the preference in relation to the criterion c_k of alternative x_j

Evaluations will be defined by single valued numbers (SVN).

3. Evaluate the alternatives

The alternatives are evaluated and the construction of the alternative that uses aggregation operators is proposed.

4. Sort the alternatives

In this phase, the alternatives are classified and the most convenient is chosen by the scoring function [12]. According to the scoring and precision functions for SVN sets, a sort order for the set of alternatives can be generated. Then select the option (s) with higher scores. To order alternatives, a scoring function [13] is used:

$$s(V_j) = 2 + T_j - F_j - I_j \quad (1)$$

Additionally, the precision function is defined as follows:

$$a(V_j) = T_j - F_j \quad (2)$$

and so:

If $s(V_j) < s(V_i)$, then V_j is less than V_i , denoted as $V_j < V_i$

In case that $s(V_j) = s(V_i)$

- If $a(V_j) < a(V_i)$, then V_j is less than V_i , denoted as $V_j < V_i$
- If $a(V_j) = a(V_i)$, then V_j and V_i are equal, denoted as $V_j = V_i$

3 Results

Applying the instrument for data and information gathering we obtained the evidence that rights are violated when the custody of the children is not shared. On the other hand, it is emphasized that the upbringing and care of the children is affected when it is granted only to one of the spouses.

In the instruments applied, it is indicated that the Constitution of the Republic of Ecuador does allow the incorporation of the legal concept of joint custody since, being a norm to guarantee rights, its essence is the care and protection of persons. Regarding the **preliminary draft reform of Article 118 of the Organic Code of Childhood and Adolescence on joint custody, it was deemed a need.**

Making use of neutrosophy to recommend the issues to treat in children and adolescents after marriage dissolution we obtained:

An evaluation framework comprising an expert who evaluated 3 alternatives:

- x1: (ED) Emotional Development
- x2: (SD) Social Development
- x3: (CD) Cognitive Development

and 3 criteria as shown below:

- c1: Depressive symptoms such as crying, sadness, low self-esteem.
- c2: Problems of socialization, showing isolation, insecurity, aggressiveness, and reduction of social skills.
- c3: Learning problems, difficulties in concentration and attention, a decrease in school performance.

We used table 1 to evaluate the relationship between linguistic terms according to the alternatives and criteria mentioned above. Once the evaluation framework is defined, we proceed to information gathering. The results for our study case are shown in table 4.

	x1	x2	x3
c1	MDG	EG	VG
c2	G	MDG	M
c3	MDG	MDG	G

Table 4. Results obtained from information gathering.

Weights vector that will be used in this investigation is: $W = (0.55, 0.26, 0.19)$. Subsequently, the opinions of decision-makers are added through the aggregation operator SVNWA. This operator is the Single Value Neutrosophy Weighted Average (SVNWA) proposed by Ye [14] and defined as follows [15]:

$$F_w(A_1, A_2, \dots, A_n) = \langle 1 - \prod_{j=1}^n (1 - T_{A_j}(x))^{w_j}, \prod_{j=1}^n (I_{A_j}(x))^{w_j}, \prod_{j=1}^n (F_{A_j}(x))^{w_j} \rangle \quad (3)$$

where $W = (w_1, w_1, \dots, w_n)$ is the weight vector of A_j ($j = 1, 2, \dots, n$) such that, $w_n \in [0, 1]$ and $\sum w_j = 1n_j$.

Results are shown in table 5.

	Aggregation	Scoring	Ranking
x1	(0.53, 0.4, 0.56)	1.73	2
x2	(0.43, 0.0, 0.0)	2.43	1
x3	(0.66, 0.52, 0.63)	1.62	3

Table 5. Evaluation results.

According to the scoring function, the alternatives are sorted like this: $x_2 > x_1 > x_3$. That is, Social

development > Emotional development > Cognitive development, which means that attention should be paid to social development of children and adolescents after marriage dissolution since this alternative leads to the emotional development and therefore to the cognitive development.

Conclusion

Parents' separation generates conflicts regarding the custody of the children. There are disputes in courts as if a kid were trophy, and this happens precisely because there is a gender inequality within our Code of Childhood and Adolescence, which contemplates unilateral custody, giving preference to the mother over the children, leaving the father in a secondary level.

When marriages and unions fail, comes the divorce, which is increasing every day according to its rate. It is then, within this separation process, where the conflict of children's custody is originated, since one of the parents doesn't agree with the separation, and becomes a visitor in accordance to our laws; being a Judge who determines the visiting schedule which usually is one day a week.

Likewise, it is demonstrated that the joint custody of children and adolescents affects the emotional, social and cognitive development of this group of people. Results obtained after applying neutrosophy prove the aforementioned, so it is worth mentioning that, with the use of neutrosophy we can obtain the alternatives that must be met according to the experts' criteria and the results of the diagnosis carried out in this investigation.

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