

Alternative Cross-Border Dispute Resolutions, from the Past to New Computational Methods (IT Realities)

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Abstract. At present, legal proceedings are often delayed, expensive, and characterized by unforeseeable decisions. In this context my objective would be to reduce obstacles to the good functioning of civil proceedings, especially the cross-border ones, by enforcing a method that could improve civil proceedings by means of a new procedure in certain areas of civil law, such as successions and trust, matrimonial regimes, property and lease, company law and consumer law.

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1 Introduction

Nowadays, there are too many obstacles to the good functioning of cross-border civil proceedings in the EU Member States.

First of all, these proceedings take a long time, both to establish them and to obtain a decision, also due to identify and to reach the judge having competence, to translate the summon and the other relevant acts in a language comprehensible to the addressee.

Secondly, cross-border civil proceedings are too expensive for citizens owing to high costs both for documents' translation and for consulting excellent legal experts.

In addition, another obstacle, that citizens have to face to obtain an effective access to justice in cross-border claims, consists in very divergent interpretations, deriving from each national court, even if they apply EU rules. So there is a real need to reach, to the extent possible, foreseeable decisions, especially in consumer disputes.

2 Objective of the research

The goal of my project would be, firstly, the demonstration of the efficiency of certain economic and fair algorithmic proceedings, trying to apply them to the designation of goods or to other issues in a dispute.

According to one of EU purposes – decreasing the recourse to national courts and increasing the use of ADR – my research would focus on the possibility of simplifying and solving disputes as fairly as possible. Thus, obstacles due to divergent national laws would be overcome through an agreement among parties, based on their own willingness (*voluntas*).

This would be, in addition, a step forward for EU consumers: they will be able to solve their contractual disputes online or offline, through out-of-court dispute resolution method.

To summarize, my objectives would be the followings:

1. to insert mathematical algorithmic mechanisms in the solution of certain national and cross-border civil matters, like matrimonial regimes, successions and trust, commercial law, consumer law;
2. to demonstrate the efficiency of this algorithmic proceeding, applying it into the designation of goods or issues in a dispute;
3. to analyze new areas in which this point-allocation procedure could be tried out: first of all, in negotiations involving easily specified issues or well-defined goods. Out of court issues might include a dispute within a company over the division of job responsibilities, or the division of marital property in a divorce settlement;
4. to examine if the procedure might be used in more complex legal areas and/or disputes: a point-allocation procedure could prove very useful in finding a settlement that mirrors each side's most salient concerns;
5. to create a "European common ground" of available rights, which could no longer operate with legal principles, but using these algorithms for a more accurate, faster, cheaper and "envy-free" resolution, to use Brams' words.
6. to create a harmonized procedure able to decide in all EU states, without requiring a change of national rights.

3 Background

In the field of ADR there are too many methods, which are not well used or developed as much as it could be done.

Nowadays a good amount of disputes could be solved applying several “games” for a fair solution for the parties involved.

One of them, as experienced in USA (law and economics), is the patented algorithm “Adjusted-winner” (patented by Steven J. Brams and Alan Taylor on the 9th of November 1999, Patent Number: 5983205).

Fair Division Theory originated in mathematics, and then became a proper branch in the modern social sciences in 1996 with the publication of the book “Fair Division” by S. J. Brams and A. D. Taylor. The recent years have witnessed an increasing interest by the international scientific community, testified by a large number of publications in the field.

I would review existing frameworks and definitions related to fair division and I would provide an updated review of the most important theoretical results, together with a survey of existing procedures and computer algorithms in fair division.

4 An Example

As an example to put into practice an algorithm to solve a dispute: “Suppose Francesco and Paola are dividing three goods between them: A, B, and C. They indicate how much they value obtaining the different goods, by distributing 100 points across them. Assume that Francesco assigns 6 points to good A, 67 points to good B and 27 points to C, while Paola values the goods 5, 34 and 61, respectively”.

Input Preferences

ITEMS	Francesco	Paola
Item 1	6	5
Item 2	67	34
Item 3	27	61
Total	100	100

Among the various proposals for a fair division of the goods, the Adjusted Winner (AW) procedure (a rule to which the contenders comply, possibly with the help of a referee), proposed by S. J. Brams and A. D. Taylor stands out in many ways. This procedure indicates that Francesco should receive a share of 99% of good B, while Paola should get goods A, C and 1% of good B.

This division is:

1. *envy-free* (Francesco and Paola both believe that their portion is at least tied for largest),

2. *equitable* (Francesco and Paola both believe that their portion is valued the same as the other player's) and
3. *efficient* (there is no allocation that is strictly better for Francesco – or Paola – and as good for Paola – or Francesco).

Initial Allocation

ITEMS	Francesco	Paola
Item 1	6	0
Item 2	67	0
Item 3	0	61

Francesco's initial point total: 73

Paola's initial point total: 61

Adjustments

- a. Initially Francesco's point total is greater, so we must transfer some goods to Paola.
- b. Order the goods that Francesco initially receives according to their ratios (x/y where Francesco receives x and Paola receives y) from smallest to largest:
 Item 1 with ratio 1.2
 Item 2 with ratio 1.97
- c. Transfer all of Item 1 to Paola. Francesco's new point total is 67; and Paola's new point total is 66.
- d. To achieve equitability we must transfer part of Item 2 to Paola. Let p be the portion of 2 that will be transferred to Paola. We must solve the following equation for p

$$67 - 67p = 66 + 34p$$

This yields $p = 0.01$.

Calculated point allocation

ITEMS	Francesco	Paola
Item 1	0	5
Item 2	66.34	0.34
Item 3	0	61

Total points assigned to each player: 66.34

5 Hypotheses and Predictions

How is it possible to solve a dispute in a quicker, cheaper and fairer way?

Is it possible to solve a dispute using some economic principles of Game theory?

Is it possible to have specific types of civil disputes a “win-win solution”?

In these cases is it possible to avoid the appointment of a judge or an arbiter, using just an online program, based on economic algorithms?

Is it possible to use this online program to solve cross-border disputes?

The research is aimed to propose an innovative resolution method for cross-border proceedings in Europe, facilitating an equitable dispute resolution.

The project is based on the re-use and/or the development of algorithms on equitable controversy resolution. Some of them were already patented in USA, others are in the process of research, development or patent-pending.

These algorithms will be applied taking account of the distinction between available rights (*droits disponibles*) from national mandatory rules (*loi de police*), in force in the different European Countries.

6 Project Outline

To perform the above objectives, after having experienced these algorithms on various samples, it might be advocated that the European Union should build a platform where citizens will be able to solve disputes obtaining prompt and foreseeable resolution.

Moreover, in conformity with new Directive on alternative dispute resolution and new Regulation on on-line dispute resolution (ODR), this study would provide something new and different in the European context: the adoption of this online procedure could facilitate a faster and cheaper dispute resolution based on parties' agreement and, thereby, avoid difficult problems such as competence and applicable law.

The added value of this project would consist, in addition, in avoiding the recourse to national courts by simplifying and solving disputes as fairly as possible: it will exceed the differences due to national laws on the basis of an agreement among parties, that should be favored and enforced.

Furthermore, this platform could be connected to the planned “EU-wide dispute resolution platform” and/or to the E-Justice Portal, encouraging the possibility of adopting this algorithm both in solving the disputes (ex post), and in envisaging the use of this procedure in negotiating various contracts or obligations (ex ante).

7 Methodology

First of all, the project will start with an overview on ADR nowadays utilized in Europe to solve disputes out-of-courts.

After that, the study will focus on cross-border litigations methodologies. In this field it will be important to discern available rights from mandatory rules.

Afterwards, I am confident that this point-allocation procedure, based on economic fair “game theory”, could be practised in negotiations involving easily specified issues or well-defined goods.

Examples might include a dispute within a company over the division of job responsibilities or the division of marital property in a divorce settlement.

After an experimental phase I would develop, working with a specialized team, the laboratory analysis and evidence needed to support the thesis exposed in this research project, starting from the well known and developed experimental literature on this subject.

More in detail I would run two different experimental phases.

PHASE 1 – Firstly, I would run a battery of experiments aimed at understanding the different role both in terms of efficiency (measured in this setting by the time needed to find a division agreement) and in terms of individual welfare (represented by the absence of envy after the division) of the same “fair division rule” whether proposed by a human being, like the judge, versus a computer.

This would allow me to better characterize the potential of the application of an algorithm to the resolution of this kind of problems.

Phase 1 could include different treatments:

- in treatment 1 it could be tested just a simple ultimatum game (that is a simple proposal of division that could be only accepted or refused) in the two different framings described above;
- in treatment 2 it could be allowed for bargaining;
- in treatment 3 it could be allowed for cheap talking.

Each of these treatments could be complicated by the introduction of different information framings (human being with full information or under a veil of ignorance).

PHASE 2 – Once assessed the validity of automatic procedures in this setting I would test, together with a teamwork, the characteristics again both in terms of efficiency and individual welfare of the different algorithms proposed by game theorists in order to assess if a possible ranking among them exists, also in case of trade off between the two desired characteristics. This will be possibly obtained comparing the different levels of truth-telling versus suspiciousness involved in the bargaining procedure implied by each of them.

If the envisage procedure works well, justified through the above experimentations, it might be used in more complex disputes: a point-allocation procedure could prove very useful in finding a settlement that mirrors the most salient concerns of each party.

In addition, I would suggest that the online platform mentioned above should be built in order to have an easier, fairer, more efficient and more impartial output, from which all citizens will benefit.

8 Significance and Conclusion

The project - concerning the use of electronic mathematical tools - would favour practical solutions regarding actual difficulties in cross border proceedings.

In conclusion, I would improve the use of ADR based on equity, applying game theory's algorithms.

My main target is focused on the cross-border disputes where there are too many problems to deal with, such as conflict of laws, applicable law, international private law principles. I would recommend to use an economic method to solve these disputes, avoiding competence and applicable law problems; obviously without prejudice of mandatory rules of each European country.

Hence, all EU citizens will be able to use this procedure, which will foster the access to justice.

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