eADR
A Simple Tool to Structure the Information Exchange between Parties in Online Alternative Dispute Resolution

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Abstract. This paper deals with a simple tool that we have developed to support the parties in online dispute resolution (ODR). The tool helps the participants to bring forward the statements of the dispute in a structured and concise way. After each added statement the online tool shows the structured layout of the statements. As an example, the tool has been applied on a domain name dispute.

For AI & Law, the development of applications like these is important for at least two reasons. First, a large group of AI & Law people realize that practical application of theoretical AI & Law research is a necessity for our field to survive. In the described tool insights obtained from theoretical argumentation research are applied. Second, ODR is a quite successful and essential part of e-commerce. By exploring the field of ODR, which - from an AI & Law perspective - undeniably has a lot of interesting elements, AI & Law might contribute to the success of ODR.

1 Introduction

Judges and/or juries decide cases in lawsuits. An alternative to litigation is alternative dispute resolution (ADR). ADR is meant to save money and time, and to resolve conflicts without too much technical legal discussion being necessary. Normally, three types of ADR are distinguished (see, e.g. [12]): negotiation, mediation, and arbitration. In case of negotiation parties negotiate in order to resolve a conflict or to work out a compromise, without a third party being involved. In case of mediation an independent third party, the mediator, moderates the discussion between the parties. However, the mediator does not have the power to impose a solution upon the parties. The influence of the third person is most prominent in case of arbitration. Like in litigation, the arbiter decides the case. Although a decision by an arbiter can be binding, it can also be non-binding, depending on the arbitration rules agreed upon.

With the rise of e-commerce, a new phenomenon has originated: e-disputes. In order to solve these online disputes, companies started to offer online dispute resolution services,

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like negotiation, mediation and arbitration, commonly known under the general term Online Dispute Resolution (ODR) or eADR. The number of ODR-sites grows each month, in September 2001 already 50 sites were online. Among the most popular ODR-sites at the moment are those that solve domain name disputes. Assume that we register the domain name jurix.org or jurix.net (both domain names were still free September 2001). It is well imaginable that after this registration a dispute starts between us and the Dutch/Belgian association for knowledge-based systems. These type of disputes are currently solved online in a special arbitration procedure.

In this paper a tool has been developed, that facilitates parties in online ODR, by structuring the information they put forward during the procedure. The tool does not replace ODR, but it is meant to be incorporated into existing ODR-procedures. Although the tool is generic, the focus in this paper is on domain name disputes. For reasons of clarity, we like to express that the tool is not an automated reasoning tool. Although even legal knowledge-based systems can best be used as decision support systems and not as systems executing decisions automatically, the present tool is by definition only supporting: it helps to structure the argumentation.

The remainder of the paper is structured as follows. First, section 2 provides a short introduction into the field of ODR including examples of online initiatives of all three types of ODR (negotiation, mediation, and arbitration). In section 3 the characteristics of domain name disputes are described, including a short sample case. In section 4 a simple model has been defined, that helps to structure the information that is exchanged by parties in ODR in general, and domain name disputes in particular. Section 5 describes the main features of the implementation of the model.

2 The Target Domain: Online ADR or ODR

Over the last few years, a lot of ADR-sites appeared on the Internet. Although governments can be quite slow in picking up new developments, the significance to solve e-disputes in an appropriate way is also recognized by them. For instance, in the recent Directive on Electronic Commerce (2000/31/EC, *PbEG L* 178/1) the European Union has stressed that online ADR should be stimulated [8].

At the beginning of 2000 there were only a few ODR-sites, at this moment there are over 50 of them. There is a wide variety in the services offered. Some sites are dedicated to a particular type of conflict (financial, insurance, family matters), to specific parties (businesses, consumers) or to a specific ADR-type (negotiation, mediation or arbitration). Other sites accept all disputes from no matter what party, and offer the whole range of ADR-procedures. For the three types of ADR, online initiatives are briefly discussed.[1]

First, online negotiation is prominently present on the internet. With negotiation software parties can present their interests, proposals and desired outcomes. The tools vary from very simple, blind-bidding systems[2] to more advanced support.[3] Argumentation does not always

[1] A service that is not discussed is online expert evaluation. In that case an expert tests the strength of your case (the opposing party is not involved here).

[2] <http://www.cybersettle.com/>.

[3] <http://www.onlineresolution.com/index-on.cfm>, <http://www.smartsettle.com/>.

play a role in negotiation. Parties make proposals and compare them with those of the other party. Proposals are not necessarily backed by arguments. Nevertheless, sometimes agreement may be reached sooner if supporting statements can be adduced for proposals.

Blind-bidding is a special branch of online negotiation that is also referred to as settlement. Blind-bidding sites are amongst the most successful ODR-sites. Cybersettle,[4] the first site that offered blind-bidding, claims that 475 insurance companies use their system, and that they are responsible for over $30 million of settlements. Several other sites offer this type of automated negotiation.[5] All sites have slightly different algorithms to settle the case, but the basic principle is the same. The demanding party enters the sum he wants, and the opponent indicates how much he is willing to offer. No party sees what the opponent enters. If the amounts are within a certain range, the dispute is settled. If not, the parties can start mediation, arbitration or litigation (or give negotiation another try). At most sites, the number of bidding rounds is restricted, but some sites offer an 'infinite' number of bidding rounds.

Second, a branch still in its infancy but developing fast, is online mediation. A successful mediation project was carried out in 1999 on the eBay site [4]. eBay is an online auction site, where consumers can offer products. In two weeks time 225 complaints were filed. In 108 cases mediation was actually started, 50 cases were mediated successfully. Just like in the eBay project, some online mediation consists of exchanging e-mails via a mediator.[6] Other sites use web-based environments in which parties can negotiate with the help of the mediator, sometimes called e-rooms.[7] An e-room contains various folders. Because each issue is dealt with in a different folder, it helps the parties to focus. The e-room also has a folder containing a blind-bidding tool. Several other sites offering online mediation.[8]

Third, in 1996 the Virtual Magistrate Project was one of the first online arbiters. The researchers aimed at online business-consumer (B2C) disputes. At the end of the project in 1998, only one case had been brought in.[9] One of the first commercial online ADR-initiatives started in 1999. The iCourthouse[10] is a special type of non-binding arbitration, where juries decide cases. While normally all members of the jury are present in the courtroom, in the iCourthouse a jury, that may consist of over 50 people look at a case online and give their opinion. The decision of the jury is non-binding.

The world-wide web not only makes it possible to solve disputes, but it also induces new conflicts. For instance, parties involved in e-commerce transactions may start disputes about payment, delivery, etc. Disputes that have a genuine international character benefit especially from online ADR. Since the physical location of parties does not matter online, parties might be located in different countries or even continents. An example is online arbitration on domain name disputes.

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[4] Rumors says they are (almost) bankrupt.

[5] See for example <http://www.123settle.com>, <http://www.allsettle.com>, <http://www.clicknsettle.com>, <http://www.settleonline.com>, and <http://www.ussettle.com>.

[6] <http://www.consensus.uk.com/e-mediator.html>.

[7] Cf. Colin Rule's company: <http://www.onlineresolution.com/index-om.cfm>.

[8] See, <http://www.internetneutral.com/>, <http://www.mediate-net.org/>, <http://www.webassured.com/>, <http://www.webmediate.com>.

[9] <http://www.thestandard.com/article/display/0,1151,1443,00.html>. The failure to obtain cases was one of the reasons mediation was used in the eBay-project.

[10] <http://www.i-courthouse.com/>.

3 Domain Name Disputes

The Internet Corporation for Assigned Names and Numbers (ICANN)[11] coordinates the registration of top-level domain names (e.g, .com, .net, .biz, and .names). Whoever is registering a domain name has to agree that in case of complaints he submits to a mandatory administrative proceeding before one of the providers approved by the ICANN. For instance, our registration of jurix.org. and jurix.net as mentioned in the introduction is only possible if we agree that in case of complaints (e.g., by Jurix) we submit to arbitration. In November 1999 the first provider was approved: the World Intellectual Property Organization (WIPO).[12] There are three other providers: the National Arbitration Forum (NAF), eResolution and CPR.[13]

The parties in the dispute about registered domain names are referred to as the complainant and the respondent. The arbiter deciding the issue is called the panel (3 persons) or panelist (1 person). The complainant has to assert and prove three issues:

a *Identity* - the registered domain name is identical or confusingly similar to a trademark or service mark in which the complainant has rights; and
b *Illegitimacy* - the owner of the domain name has no rights or legitimate interests in respect of the domain name; and
c *Bad faith* - the domain name has been registered and is being used in bad faith.

The procedure is special, because even prior to the proceeding it is clear what the issues are. How is information during the proceedings exchanged? At the beginning of 2001 on the sites of NAF and CPR both the complainant and the respondent could download MS-Word documents that after being completed could be either e-mailed or faxed. In addition to that, WIPO and eResolution also had web-based forms for both the complainant and the respondent.

Both the parties and the panel would benefit if the information entered by the parties is structured. In the WIPO forms for example, just one single field is used for all three above issues, whereas eResolution structures the information by using one field for each issue. The approach of eResolution is preferable to that of WIPO. With the models of the next section, the information can be further structured.

As an example of a domain name case we discuss the DavidGilmour.com case of December 15, 2000. The complainant in the dispute is David Gilmour, (former) member of Pink Floyd, and the respondent is Mr. Cenicolla of Logic Minds, who owns the domain name davidgilmour.com.[14]

The complainant adduced basically the following information to support the ‘Identity’ issue: The name David Gilmour represents the goodwill in the musical works and other projects with which he has been involved since the 1970s. Although the name is not registered as trademark, two companies bear his name. Moreover, the registered domain name is identical to the artist’s name. In support of the ‘Illegitimacy’ issue, it was adduced that the respondent has

[11] <http://www.icann.org/>.

[12] <http://www.arbiter.wipo.int/domains/>.

[13] See <http://www.arbforum.com/domains/>, <http://www.eresolution.ca/services/dnd/arb.htm>, and <http://www.cpradr.org/ICANN_Menu.htm>. For an overview of these and maybe additional providers, see <http://www.icann.org/udrp/approved-providers.htm>.

[14] <http://www.arbiter.wipo.int/domains/decisions/html/d2000-1459.html>.

no involvement with Gilmour or his company and that there is no evidence that respondent is known under the domain name. Finally, the 'Bad faith' issue was supported by the following: The domain name has been registered by an organization that has a number of other domain names of celebrities registered. The domain name davidgilmour.com is only used as link to the Logicminds home page, which is a site that offers domain names for sale. On this Logicminds site there is advertisement for the sale of the domain name davidgilmour.com.

The respondent, Mr. Cenicolla, claims to have registered the domain davidgilmour.com to communicate with fans of David Gilmour (but he has not used it for that purpose yet). He also claims to have the intention to obtain a license for Gilmour merchandise (but he actually has not asked one yet) and he states that including any Gilmour merchandise on davidgilmour.com would promote Gilmour's work. Finally, he asserts that the domain name davidgilmour.com was only offered for sale by mistake and has been removed from the 'for sale'-list.

Mr. Cenicolla has a weak case, if any. It probably comes as no surprise that the panelist decided in favor of David Gilmour. For the details of the case, check the URL of footnote 14. In section 5.1 it is shown how the information in this case can be structured using the model that is described next.

4 A Simple Model for Structuring the Information Exchange

One of the purposes of dialog systems is, to structure the argumentation of the players [7]. In most systems, logical concepts characterize the moves of the players. Formal notions of arguments, defeat, rules, preferences, etc., are not necessary for the tasks of information ordering and displaying the basic structure of the argumentation. Moreover, for the sake of easy usability, these concepts can better be left out. Previous models that aimed at presenting argumentation in a simple way, like DiaLaw [6], Zeno [3] and Room 5 [9], are still too complex to be really useful for online application. The purpose of the present model is to structure the information of the parties in online ADR. Although structuring the statements in an argument is a simple task, it is very helpful to provide insight into the structure of the argument. Our model is not meant to replace existing ADR procedures, but to be incorporated into them.

The dialog system can be used by a single player, to test the acceptability of his statements critically, and to adduce as many supporting statements as he believes necessary to convince an imaginary opponent. However, the idea underlying the model is, that a party hands over the result of a single player game to the opponent. In case of online arbitration, the arbiter can use the model to gather the information necessary for deciding the case. But, the model can also be used by the parties in case of online negotiation. A human mediator can use the model to structure the online mediation process. At this moment the model is not aimed at representing n-party (n>2) discussions,[15] but because most (online) disputes are between two parties the model represents mere 2 party disputes.

[15]On this topic see for example JIME's document discussion interface, which is an example of the Digital Document Discourse Environment (D^3E), at <http://d3e.open.ac.uk/>.

4.1 Defining The Model

The central elements are the parties, the statements and the games' board. They are defined as follows.

THE PARTIES
There are two parties, the Complainant and the Respondent.

STATEMENTS
A statement is an expression in natural language.
Each statement deals with only one topic.
An issue is a statement.
Supporting statements support an issue.
Attacking statements attack a statement.

THE GAMES' BOARD
The games' board is empty at the first turn. The games' board consists of all statements added by the parties according to the rules. The parties move alternately, exchanging after each turn the games' board.

The Complainant and Respondent can introduce statements according to the rules that are discussed below. Statements are not required to be cast in a prescribed format, but they can be put forward in natural language. The only requirement is that a statement addresses a single topic. There are three types of statements. Besides statements that formulate issues, there are statements that support issues and statements that attack other statements. The games' board is a metaphor, used to describe the collection of statements added by the parties.

In most existing dialog systems, parties can perform four types of moves: claim, accept, question and withdraw. However, by only allowing parties to claim statements, the information of the parties in online arbitration can be structured sufficiently with two simple rules.

RULE 1 - ISSUES AND SUPPORTING STATEMENTS
First step: Introduce an issue
Second step: Adduce one or more statements supporting the issue (supporting statements).

RULE 2 - ATTACKING STATEMENTS
In reaction to any statement of the opponent, one or more statements can be put forward (attacking statements).

The first rule is about the introduction of issues and supporting statements, the second rule about the reaction to statements. Using these rules three models have been defined, the basic model, the 2-turn-issue model, and the n-turn model. Only the n-turn model is discussed here.

THE N-TURN MODEL
First turn: Complainant executes rule 1 as often as necessary.
Consecutive turns: The parties execute rule 2, and execute rule 1 as often as necessary.

In the first turn, the Complainant executes rule 1. He starts with identifying issues (first step). Subsequently he adduces statements supporting the issues (second step). Note that a statement deals with only one topic, reason why he can enter one or more supporting statements. Finally, the Complainant applies the two steps of rule 1 again if there are more issues to be identified. If the Complainant is finished, he hands over the games' board.

In consecutive turns the parties can react to all statements they do not agree with. Note that an issue is a statement, so the parties can also react to issues. At each turn the parties can introduce new issues. It might be that providers of ODR want to restrict the introduction of issues. Therefore, and in line with civil proceedings, the not discussed 2-turn issue model restricts the introduction of issues to the first two turns.

The following picture (figure 1) shows the games' board. In the picture, IC/IR denotes *Issue of the Complainant/Respondent*, SupSC/SupSR denotes *Supporting Statements of the Complainant/Respondent*, and AtSC/AtSR denotes *Attacking Statements of the Complainant/-Respondent*. The symbols i, j, k, l, m, n, o, and p are natural numbers, where i, j $>$ 0 and k, l, m, n, o, p $\geq$ 0.

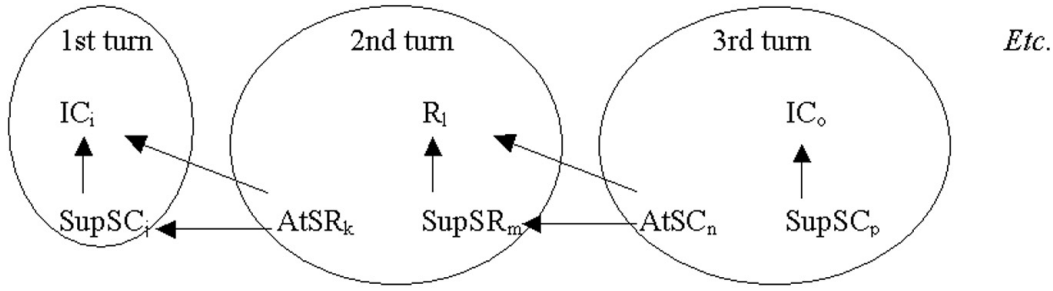

Figure 1: Games' board of the n-turn model

The Complainant has introduced at least one Issue and one Supporting Statement (i, j $>$ 0) in the first turn. In the second turn, the Respondent did not react (k=0), or has entered one or more statements (k$>$0) attacking either the issue or the supporting statement. He can also introduce new issues (l$>$0), and introduce statements supporting them (m$>$0). The third turn and consecutive turns are the same as the second turn.

4.2 Comments and Possible Extensions

The computer does not check the content of the statements, so parties may enter irrelevant statements. This cannot be avoided in an open environment. Note, however, that it is in the best interest of the parties to at least not enter irrelevant or obstructive statements intentionally. In case of negotiation and mediation this could hinder that consensus will be reached, and in case of mediation and arbitration it could annoy the mediator or arbiter, respectively.

Since the models should become part of an existing ODR-procedure, it is not defined at what moment the dispute ends. This is to be decided by the rules of the proceedings, e.g., the domain dispute resolution rules. Possible stop criteria are time constraints or a maximum number of turns. Another stop criterion could be that the dispute ends if a party has not added any statements, so if the games' board is handed over without any additional statements.

Based on desires of ODR-sites, the model can be adapted. For instance, on request of an arbiter (or sites offering mediation or negotiation) the following rule about the status of the statements could be implemented.

> **SILENCE IMPLIES CONSENT**
> An issue is agreed upon if neither one of its supporting statements has been attacked, nor the issue itself has been attacked. A statement is agreed upon if it has not been not attacked.

Another additional rule might extend the type of moves. As already indicated, for structuring the information of the parties in online arbitration the move of type *claim* seems to suffice. In case of mediation, the mediator may want to use moves to withdraw and to accept in the following way.

> **WITHDRAW AND ACCEPT**
> A party who introduced an issue may at any time withdraw the issue.
> His opponent may at any time accept the issue.

In particular for negotiation it might be necessary to also include the move *question*.

> **QUESTION**
> A party can question a statement of his opponent, if the statement is not an issue.
> If a statement has been questioned, it becomes an issue.

These are just a few examples of additional rules. Other changes could be made of course. However, the present model already helps to structure the information of the parties in ODR.

5 Towards an Implementation

Currently the model of the previous section is being implemented with the following design considerations:

- Platform independence. The program ought to be used without the need to install special tools except a state-of-the-art Internet browser;
- Graphical user interface for easy use;
- Benefits of Internet. More specific, allow remote players (and possibly a remote arbiter) to settle their dispute over the Internet;
- Open source software, that is easy to comprehend and is not bound to a single supplier.

The Java programming language meets most of the above mentioned requirements. Java ‘applets’ can be downloaded and run automatically by Internet browsers, independent of the operating system of the user’s computer. Apart from the browser, the user does not need to install anything on her computer to run the program. Obviously, Java has been designed to take full advantage of the facilities of Internet. For example, it enables interaction between programs that run on separate locations, all over the world. A graphical user interface can be

easily developed with Java. The only drawback of using Java may be, that the standards are not defined and maintained by an independent committee, but by the company who developed Java, i.e. Sun Microsystems, Inc. However, in our view and for our purposes, Java can be considered as equivalent to open source, given the free accessibility of the Java tools, the wide acceptance of Java and the platform independent implementation via Internet browsers.

In order to facilitate comprehensibility and accessibility of the program code (by other people than the author), the program has been made using the 'Literate Programming' concept. Literate programming is a programming method, developed by Knuth [5]. The idea is, to approach computer programs from the perspective of a report or prose. The focus is on description (and documentation) of the approach in human-readable form. This is in contrast to the normal approach of focusing on the code. As a result, program code and documentation are intimately intertwined in a single document.

There exist several tools for literate programming.[16] We have chosen the tool Nuweb [1]. Nuweb has the advantages over similar packages that it is extremely simple to use. To run the program, to examine the program code (as a HTML document) or to download the code of the program (Java sources as well as Nuweb document), the reader is invited to visit the following URL: <www.rechten.vu.nl/∼CLI/odr>.

The central data structure used for the implementation is a *Statement*, which is defined as the following tuple:

S = {i, p, t, o, s, c}, where

- i is the identifier,
- p is the parent, that is the identifier of the statement to which this statement (S) responds,
- t is the type of the statement (i.e. issue, support or attack),
- o is the owner of the statement (i.e. the complainant or the respondent),
- s is a short phrase of the statement,
- c is the content, the full text of the statement.

The identifiers of the statements are integer numbers for bookkeeping purposes. With the i and p identifiers, the statements can be structured as a tree or a relational database. However, in the current implementation the statement set has been structured as a linked list. The advantages of the combination of a short phrase and a full text statement are, that the short statements can be used to present the argument in a comprehensive form in the graphical user interface, whereas the user retains the ability to underpin the statement with a full text, in which she can refer to other sources of information. Because the user is forced to condense the statement text into a short phrase, she is encouraged to address only one issue per statement.

In the current application, the complainant and the respondent both run their own component (Java applet). The person whose turn it is, adds statements to the set of statements. When she is finished, the complete set of statements is sent to the component of the other party over the Internet.

[16] See the Literate programming web site: <www.literateprogramming.com>.

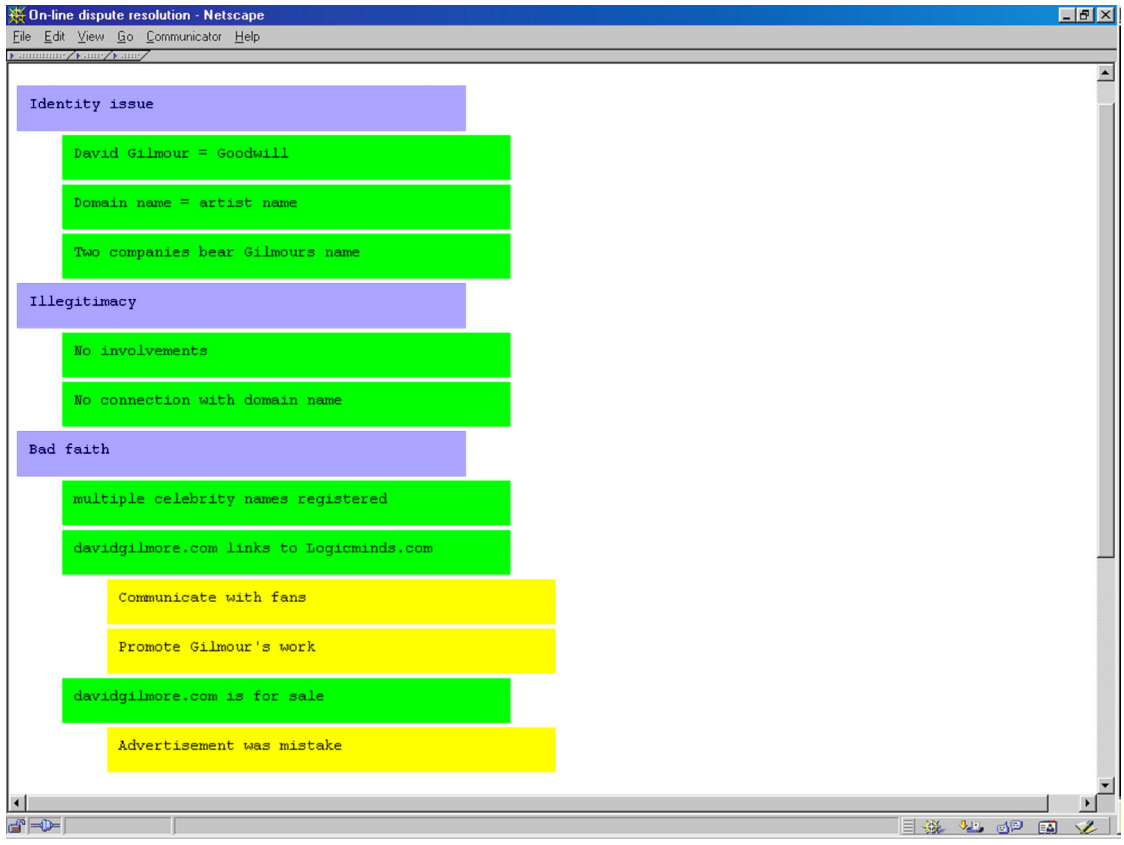

Figure 2: The ODR Applet

5.1 The User Interface

Figure 2 is a screen-shot of the *odr* applet, running in a Netscape browser. It represents the case discussed in section 3. Each statement occupies a line and the indentation indicates the structure of the statements in the argument. The color indicates whether a statement is an issue, a supporting or an attacking statement. When the user clicks on a statement with the mouse, she can read the full text of the statement, and she can attach another statement to it, if she is entitled to do so.

Note that the above screen-shot is a reconstruction to show the working of the model. Because the program has not been applied by the parties during the process, the following analysis of the Gilmour case may be inaccurate on points. The first step of David Gilmour, the complainant, is to identify an issue (rule 1). Normally, a complainant is free to assert any issue. Since in a domain case three particular issues have to be asserted (see section 3), Gilmour starts with identifying the Identity issue. Subsequently, Gilmour has to adduce one or more statements supporting the issue (second step). In this case he asserts three supporting statements, shown in the indented fields under the Identity issue. Since there are two issues left, rule 1 is executed two times more. The second time the Illegitimacy issue is identified and two supporting statements are adduced. The third and last time, the Bad faith issue is identified and three supporting statements are adduced. There are no additional issues left, so by handing over the games' board in which the information is structured as in the first

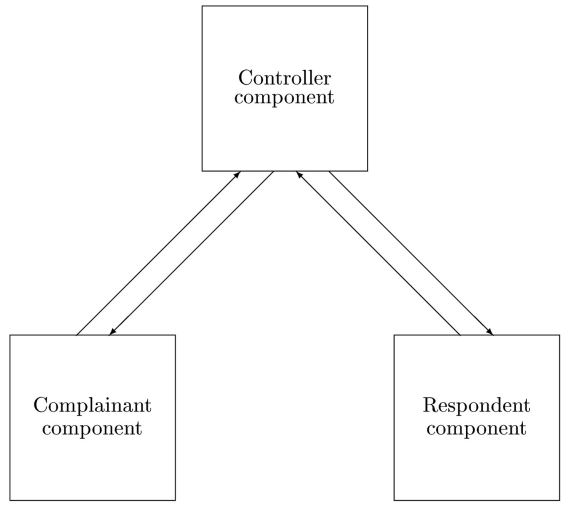

Figure 3: ODR tool modeled as a set of communicating components

column, the complainant's turn ends.

The respondent, Mr. Cenicolla, can attack all statements of his opponent he does not agree with (rule 2). However, in the current case, he does not attack the Identity and the Illegitimacy issue, nor does he attack the statements supporting these issues. The respondent only attacks the second supporting statement of the Bad faith issue with two statements, and the third supporting statement of the Bad faith issue with one statement.

In the current case, the games' board has not been handed over after the second turn, so the program stops here. Obviously, the ODR-providers can indicate how many times the games' board may be handed over and within what time constraints it must be handed over.

By structuring the Gilmour case, several things are clear at a glance. First, the respondent did not attack any of the statements with respect to the first two issues. So, for the first two issues the arbiter solely has to concentrate on the statements adduced by the complainant. Regarding the third issue the arbiter also has to take into account the statements of the respondent. Even in a relatively simple case like this one, the arbiter would benefit from the structured presentation of the arguments in the dispute, that our tool provides. In more complex cases, the structured presentation would turn out to be even more profitable.

5.2 Network-based Interactions

In order to make optimal use of the advantages that Internet can offer, the system has been set up as a set of three components (figure 3), the controlling component, running at a central site and components for the complainant and the respondent.

The latter components are in fact Java applets. The communication between the components proceeds as follows:

1 The complainant component starts up, registers with the controller and obtains a unique case number.
2 The complainant sends the case number to the respondent.

3 The complainant enters her issues and supporting statements on the graphical user interface of the complainant component.
4 When the complainant is finished, the complainant component sends the set of statements to the controller component.
5 The respondent component starts up, registers with the controller component and passes the unique case number.
6 The controller component sends the statements from the complainant to the respondent component. The respondent component displays the statement on its graphical user interface.
7 The respondent enters her attacking statements. Depending on the model used, the respondent may add issues and statements supporting her issues.
8 When the respondent is finished, the respondent component sends the set of statements to the controlling component.
9 In the simplest single-turn model, the controller component processes the statements and generates a report in PDF-format that can be downloaded by the parties. In the other models, the statements will be repeatedly sent to the parties, and the report is generated when both parties are finished.

The implementation as a set of components has the following advantages:

- Users can run the components as applet on their computers without need to download or install anything. Since Java applets are 'untrusted code', they are generally not allowed to use resources like disk space or printers on the computer on which they run. The component concept precludes the need to use such resources on the computers of the complainant or the respondent.
- Applications can be developed, in which the controller component resides on a computer owned by an organization that can play an arbiter role. In this case, the controller component stores the statements, and makes them available for the arbiter.

6 Concluding Remarks and Future Research

ODR is a new phenomenon that is likely to become a popular way to resolve disputes. From an AI & Law (in particular an argumentation) perspective, we aimed to improve the structure of the information exchanged between parties in ODR. For that purpose a model has been defined, and an implementation of the model described. To illustrate how the information is structured, we analyzed an ODR arbitration case on a domain name dispute.

The model consists of a simple set of rules, and the parties are allowed only to assert one of three types of statements: issues, supporting statements, and attacking statements. The model is not meant to replace existing ODR-procedures, but to be included in the forms used by the ODR providers. Although the model is generic, the focus in this paper was primarily on online arbitration. Suggestions have been made on how the models could become more valuable for mediation (by allowing the parties also to accept and withdraw statements) and negotiation (by adding questioning of statements).

A first and modest step has been taken towards a fully fledged ODR tool. The tool proposed should be improved and supplemented. For a proper evaluation of the present tool a

comparison with other tools is indispensable. An example of a tool that helps in building so-called reasoning maps that are comparable to this paper's playing board is Reason!Able.[17] Regrettably, due to time and space limits comparison with Reason!Able and other tools is not possible, but should be left for future research.

The evaluation of the present tool should concentrate on possible extensions of the model (e.g. by adding positions), and in particular design issues. Another interesting extension of the current model, though really complicating the matter, is adapting the tool for an n-party dispute.

Clearly, a lot of really interesting research still has to be done in the field of support tools for ODR.

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