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Constructing Computer Assisted Dispute Resolution Systems by Developing a Generic Language to Analyse Information Exchange in Conflict Discourse

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ABSTRACT *Online dispute resolution (ODR) may be described as an attempt to use the internet to mainstream alternative dispute resolution (ADR). The question how conflict resolution and information technology interact at a fundamental level has received little attention. Improving information exchange about the substantive issues in a conflict prevents escalation of conflict and assists in resolution. Dispute resolution always involves separation of substantive and emotional issues. This is achieved by means of the process and/or by the involvement of the neutral. Creating ODR systems thus involves the question how this 'separation' may be automated. This paper reports on a project of which the ultimate goal is to create a generic Computer Assisted Dispute Resolution (CADR) system by analysing the structure of conflict and the role of information exchange in it.*

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Introduction

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Alternative dispute resolution (ADR) and the Internet are the foundations of online dispute resolution (ODR). Both develop largely outside formal regulation, but increasingly attract government interest: the internet for its contribution to the economy, its role in the dissemination of information and unfortunately also because of its potential for illegal activity. ADR holds the promise of reduction of caseloads for the courts, while delivering more satisfying results for disputants.

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This article reports on the first phase of a larger project,¹ of which the ultimate goal is an implemented *Computer Assisted Dispute Resolution* (CADR) system. The difference of its approach with other ODR research is its theoretical basis. Researchers such as Katsh and Rifkin² or Rule³ work from an ADR/legal background combined with information technology (IT) expertise, while for instance Lodder, Vreeswijk and Zeleznikow⁴ apply results from research in artificial intelligence (AI) in general and AI and Law to dispute resolution. The current project adds conflict theory to those perspectives. Instead of attempting to automate existing dispute resolution processes it seeks to first create a generic language to describe conflict, and to eventually use that language to implement a CADR system. It considers the role of information exchange in conflict and the potential to use IT to analyze dispute situations and assist in their resolution.

The Function of Conflict and the Role of Information Exchange in It

Conflict performs a social function, although its effects are often considered disadvantageous to society. That perception is arguably a matter of perspective and degree, rather than an objective assessment. Just as war can be seen as ‘the continuation of politics by other means’,⁵ conflict can be seen as a form of communication to which different rules of engagement apply. Although the word conflict has negative connotations, conflict situations can create an environment for superior achievement, with positive results. The negative aspects are associated with those conflicts where the efforts expended on sustaining the conflict itself and the associated emotional and economical costs outweigh the substantive benefits.

Information exchange, or the lack of it, plays a vital role in conflict. It is a central feature in the way a conflict originates, how it develops, how it is sustained, and how it is eventually terminated or resolved. Court procedure and the formal ADR techniques such as arbitration have some way of standardising information exchange. Less formal resolution techniques, such as mediation have no standardised or structured information exchange protocol. There is also a correlation between the degree of formality of information exchange and the adjudicative character of the dispute resolution process. Improving information exchange about substantive issues in conflict (as parties are eventually forced to do in for instance a court procedure), can prevent escalation of conflict and assist in resolution. Trials in District Courts in New Zealand found that compulsory information exchange, using strict procedures, and followed by a mediative resolution attempt prior to a hearing, led to a very high success rate for that mediation process.⁶

Looking at conflict from the perspective of information exchange soon raises the question how the use of technology can provide an ADR environment in its own right. ODR is of course a proponent of that conception. Most ODR attempts do that from the perspective of existing dispute resolution techniques, which are adapted to the Internet environment. This project takes a somewhat different approach. It starts by first looking at the structure of conflict and the role of information exchange in it, in other words, it defines conflict as a communication process and seeks to develop a generic language to describe that process.

The Use of Information Technology

The use of modern IT to avert or resolve conflict does not seem to keep pace with the speed in which IT creates or complicates conflict. Court proceedings in information-rich

procedures provide good examples where hundreds of thousands of computer generated documents are transformed into paper format in order to be used in court, causing substantial logistical problems. A related development (and complication) is found in the documentary possibilities of modern IT. Much more information is retained and retrievable than used to be the case. Another relevant development is the informality connected with the use of technology to exchange information. Recorded information, even if it is of a strictly informal nature such as a chat message or an impromptu email or even a recorded phone message, may attract an evidential value that is disproportionate to the intention with which such a communication was made. Additionally, the informal use of modern communication methods increases ambiguity and the possibility of misunderstanding. With the increasing amount of information collected and recorded, the possibility of conflicting information increases as well, a potent source of fuel for conflict situations. It is no longer science fiction to say that an individual would be able to preserve and have immediately retrievable all the documents he/she will ever use in his/her entire life, and even to carry those with him at all times, forever ready to 'prove' his/her side of any argument, of course only to be rebutted by a similarly armoured party. The potential for escalating conflict seems staggering.

On the other side of the equation, improvement in information exchange possibilities could theoretically reduce the possibility of conflict as misunderstandings can be prevented or resolved much faster than used to be the case. Additionally, the increasing technical possibilities can also be used by those involved in resolving conflict.

However, as growing court workloads and backlogs demonstrate, the increasing possibilities to use of IT to streamline and enhance the capacity of formal adjudication processes appears to be outdone by the increase in the amount of documents and data and the complexity of disputes that are generated by the disputants in an increasingly litigious society. The balance must be restored and ODR can have an important role in that process.

If it is understood what type of information escalates conflict and what type is helpful to resolve it, and if there are means to make software that can distinguish between the two, there is no reason why an automated system would not be able to provide an environment that focuses on information exchange that resolves, rather than sustains or escalates conflict. As will be seen, conflict theory provides an understanding of these different types of information. A CADR system should be capable of analysing conflict information and of determining how to classify it. What is proposed is the possibility to create an automated information collection and exchange environment, specifically aimed at dispute resolution or determination.

Any information system developer requires a thorough understanding of what the system is supposed to do (the process), and what information it must contain (including the organisation of that information, or the data-structure). System development can be approached from the perspective of the process or from that of the data-structure. As the substance of conflict and the way conflict evolves contain many variables in an endless variety of configurations, it is unlikely that data-structures will be found that are common to all conflicts and conflict resolution processes. It therefore appears sensible to start with an understanding of conflict resolution process itself.

Most ADR processes operate in a confidential environment and it is hard to obtain detailed information on what is actually going on behind the ADR doors. What can be observed is input and output, but how the 'black box' operates must be mostly gleaned from secondary sources, such as the literature produced by researchers in the field

(often practitioners), and ‘after the fact’ information from parties and practitioners. The lack in standardisation of terminology,⁷ and the tendency to ‘prophesise’, which is characteristic of developers of most new areas of professionalism,⁸ makes it difficult to really compare and synthesise from the materials that are available.⁹

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ADR and ‘Quality of Justice’; from ADR Process to Conflict Theory

ADR processes relax formality in order to achieve other outcomes than those typical of adversarial proceedings by focussing on what is substantively just, rather than procedurally appropriate. This paper argues that improved means of information exchange can reduce this apparent tension between substantive and procedural justice. Although increased procedural flexibility can make the resolution process more efficient, it will make it more difficult to automate. A CADR system would have to provide the structure and rigidity that is required to satisfy the requirements of a ‘just’ (and therefore formal) process and at the same time allow for the flexibility required to support consensual resolution methods that may use any of an unlimited number of alternative ways to use information.

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As this paper argues that information exchange is the commonality between all types of dispute resolution, it proposes that standardisation of the information exchange in the different processes can eventually lead to large scale acceptance of ADR, and to successful integration of ADR into formal adjudication processes. At the same time, the quality of information exchange in the ADR procedures can be brought up to the standard of the formal (court) processes, whereby the perception that ADR produces a lower quality of ‘justice’ may be changed. In order to develop the required standards of information exchange, it is necessary to understand the structure of the different dispute resolution processes. In the case of ADR however, the absence of uniformity prevents this understanding.¹⁰ However, when the question ‘understanding the structure of ADR processes’ is changed to ‘understanding the structure of conflict’ this problem can be resolved. Additionally, a vast resource of material becomes available. This is the study of, and research in, conflict theory.

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Conflict Theory

Conflict theory proposes that conflicting parties continuously analyse the conflict situation and the impact of their own and the other party’s behaviour on it. Each party evaluates and describes the conflict in relation to its own goals, values and beliefs. Further behaviour and communication is aimed at influencing the situation in the direction of the own goals, which may change in the process, and which are not necessarily communicated. In other words, conflict behaviour is made up of actions and communications, aimed at achieving more or less formally stated goals. The main differences with ‘ordinary’ communication are the emotions that influence conflict behaviour and the move/countermove character of conflict communication.

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Conflict may be defined as ‘an expressed struggle between two parties with perceived interdependent goals’.¹¹ The central terms in this definition are found in most conflict definitions, often accompanied by further elements describing specific types of conflict. This paper will not deal with the theoretical classification of conflict, but some attention must be given to these core elements.

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Expression

185 A dispute situation can ‘simmer’ for a long time before it is expressed to be a conflict. This explains why a conflict can escalate so fast once it is ‘triggered’. An effective and assessable CADR system may provide the infrastructure for earlier attempts to express a dispute situation, with a consequently higher chance of resolution. It is suggested that many disputes end up in Court simply because there was no communication mechanism available between the parties to ‘break the unavoidable spiral’ of an escalating conflict.

Struggle

190 The use of the word ‘struggle’ indicates that parties attempt to use (and resist the other’s) coercion (power). In a developing conflict the emphasis tends to shift quite rapidly from resolving issues to damaging the opponent. These sentiments are exactly what drives conflict, and frustrate resolution.

Perception

200 It is important to recognize that goal incongruity is mostly of a ‘perceived’ nature, as a result of parties formulating their goals in terms of desired outcomes rather than in terms of needs they seek to fulfill.¹² The most important connotation of ‘perception’ in a conflict situation however, is the escalating force that results from perceived motives behind the other party’s actions. As communication breaks down, parties use unrelated, and often unreliable, information to draw conclusions about the reasons and background of the other party’s actions. Perception extends not only to what is actually observed, but also to the underlying motives. As a result, each party creates a mental image of the characteristics, objectives and intentions of the other party, and uses this image to explain and ‘understand’ the other’s actions. Such attributions have a remarkably strong and lasting influence.¹³

Interdependent Goals

210 The word ‘interdependent’ expresses that the parties’ goals or objectives have a relationship, whereby optimal goal satisfaction for both parties from the available resources is perceived to be impossible. Essential in the understanding of ‘interdependent’ is the notion that the actions of one party have an impact on the way the other party is able to achieve its goals. Parties often operate without objective and reliable information about the other party’s goals. Any information exchange to improve that situation is likely to reduce conflict escalation.

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Communication and Conflict

225 This project is concerned with the way people operate in conflict situations and especially the role information exchange plays. People rely on information to make decisions and that information is often obtained from the negotiation or conflict opponent. Conflict resolution processes always have a more or less formal information exchange phase. Many conflicts are resolved as soon as more (or better) information becomes available to the parties.¹⁴ Apparently, the conflict situation had frustrated information exchange, or the

conflict was a result of a negotiation process where information exchange had been lacking, or was deceitful on purpose. The reason that information exchange is frustrated in conflict situations can be found in the perceived advantage in incomplete information exchange, combined with emotional, competitive factors. A party in a conflict tends to be very careful not to provide the opponent with ‘ammunition’, or ‘show his hand’. At the same time there is an urgent need to express feelings of frustration. As a result the information exchange shifts from the subject matter to (of course negative) comments about characteristics of the opponent. In addition, parties will seek to influence or redefine their relationship or the way communication takes place. The result is an increase in the number of, or the severity of, the emotional ‘links’ that are created, and which turn in themselves objective and perhaps negotiable, interests into emotional positions. This results in further frustration of the communication and the conflict escalates.

Information exchange in conflict situations is thus aimed at various objectives and contains both substantive and emotional content. The current project is based on the assumption that disputes can be best resolved when the various information exchange objectives are understood and when the emotional component is detached from the substantive issues. In order to analyse conflict communication and ultimately to construct a CADR system, a model is necessary to describe these various components of conflict communication.

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Model Requirements

The models developed in this project must be suitable to support, and be supported by, a ‘language of conflict’. Given the development of the descriptive logic of semantics, and the fact that conflict is ultimately about communication and therefore language, it appears reasonable to follow an approach that will allow us to use the concept of the ‘semantic web’. Without going into too much detail, that concept involves the notion that with the use of highly structured and logically consistent syntax patterns as building blocks, increasingly complex applications can be made. Our model must therefore be able to reduce the complexities of conflict communication to their most elementary form.

Traditional communication models act as a simplified visual means of conceptualizing a communication situation and show how the various components interact¹⁵. For the purpose of this project, such a situational model is termed a ‘static model’, and is defined as a ‘snapshot’ view of the conflict situation. Such a ‘snapshot’ would contain the components and relationships of the traditional communication models and their descriptors or values, plus those that are specific to conflict communication. The purpose of the ‘snapshot’ approach is to facilitate the combination with a dynamic model at a later stage. When the static description is defined as a ‘snapshot’, it is obvious that another ‘snapshot’ can be made at another point in time. The difference between the descriptors and values for the different snapshots then becomes a measure of the dynamics of the conflict. The description of the effect of the dynamics thus established, must coincide with, or be represented in, the dynamic model.

Conflict can be seen as a constellation of changing relationships between the parties in conflict, and between the parties and the substantive issues. Conflict is characterized by action and counteraction (the theory of ‘moves’). This creates the dynamics of cause and effect, whereby each party considers the change that has resulted from its own and the opponent’s actions, and then decides on its next move. Conflict development can therefore

be seen as a string of static situations, connected by the 'moves' that take place over time. By recording conflict information at a sufficient level of detail, and by including time related information, a narrative of developing conflict can be constructed that will eventually be helpful in analysing the impact of each individual action and the related conflict behaviour.

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A Formal Conflict Communication Language

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The many different theories about conflict and dispute resolution use their own approaches and terminology in addition to the ambiguities that already exist in language. For its conflict analysis, the current project requires a much more accurate use of words and syntax. It is therefore proposed that a formal language should be developed to capture the essential elements of conflict communication in an unambiguous way.¹⁶ Its development is approached from a communication model perspective. The following diagram (Figure 1), representing a communication and relations/influences model, introduces the basic components of this proposed formal language.

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This diagram shows two 'agents' (A and B) in communication and two other agent/objects (the circles). The small arrows in this diagram represent 'objectives', which may be conceptualized as 'a desire, action or statement with the objective to influence or change the characteristics of the object it is aimed at'. It must be noted that the 'objectives' have only been visualized for one agent in this communication model. The other agent would have the mirror image of these 'objectives' available to it. Objectives are represented by the letter 'Q'. Additional suffixes are used for further specifications that describe the purpose of the objective and its format, but these are not relevant for this article.

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Figure 1 represents the proposition that any communication is aimed at substantive issues, such as other agents or objects, but also at relationship issues and the communication setting. The communicating agents (ie the parties) are shown to have a

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Figure 1. A communication and relations/influences model (Zondag, see note 1).

relationship, which also affects the communication space between them. This relationship will be defined by means of relationship objects (O^R). All objects can be influenced by the parties in a direct or indirect manner. Indirect influence is exercised by means of another agent or object. As an example, conflicting agents in an organizational setting could seek to effect the relationship between them by involving a common superior (another agent), or by using a status symbol (an object). A direct influence to the relationship can take place overtly or concealed. Therefore there is one 'objective arrow' that travels through the communication space (overt objective), and one outside of it (covert objective). To stay with the example, one party could communicate to the other 'I will see the boss about that', or this could be done without such notification.

Similarly, the communication setting itself is determined by what are called 'formalities objects' (O^F). These can also be influenced directly or indirectly and overtly or covertly. Formality objects regulate the way the parties interact. As an example, the communication setting can be an informal conversation via telephone, or a recorded exchange through counsel in a court room. The formality objects include the communication infrastructure, protocols, etc.

It is proposed that this highly abstract approach can accurately describe each communication effort, including the impact of relationship (power) characteristics. It also includes reference to the substantive issues about which the parties are communicating, by introducing objects and agents, which in turn have an impact on the relationship between the parties, or on the communication settings between them. Some further examples may clarify this diagram.

If the two 'agents' at either side of the communication space are defined as parties to a contract about an object, the diagram can show the communications between them and the subsequent objectives aimed at the object in question. Contracting parties communicate about their relationship and adjust this relationship during the formation of their contract. For instance they could create a relationship whereby agent A repairs the car (an object) of agent B. Once A undertakes the related action (a type of objective Q), the relationship changes, A has performed and now B has to undertake an action aimed at the object 'money' to change the relationship again, hopefully to that of mutually satisfied supplier and customer.

It can be seen that the objects in question (the substantive issues of the car repair and the payment) influence the relationship, which then affects the communication space. It has been seen that not all objectives pass through the communication space itself, ie they are overt or covert. This is, by itself, not a typical characteristic of conflict communication. Any communication will have that characteristic, but the choice between overt and covert objectives and the use of relationship characteristics ('power') and formalities varies. This signifies the distinction between 'normal' communication and 'conflict' communication. As there are an infinite number of variations possible, no clear distinction between the two can be made and there exist an endless number of 'shades' of conflict. The power characteristics of communication do not necessarily follow directly from the relationship between the parties, although power is a characteristic of a relationship, and not a characteristic of individual parties. Politics would provide a good example of what is meant by a 'power-based' communication, where influences outside of the direct relations between parties (indirect objectives) and outside of the communication environment (concealed objectives), play a vital role. A good example where the power structure is directly organized in the relationship itself and is very overt would be a military environment. In that environment the relationship parameters are strictly defined,

even to the extent that they can be represented by simple coloured strips on the collar of the communicating ‘agents’.

365 The objectives themselves seek to change parameters of the objects or agents they are aimed at. These parameters (called ‘object states’) and their descriptions are defined in more detailed models, not discussed in this article.

370 Any such a change in object states will carry a certain emotional value, which will be different for each object state and magnitude of change. (Compare the emotional charges of the following stated objectives: ‘I want to pay you for fixing my car’ and ‘I want a divorce’) Each objective therefore has an emotional component, defined as an ‘emotional binding’, which itself has further sub-components related to intention, motivation and emotional value. Emotional bindings are used in the models to describe and compare the strength of objectives.

375 The various components of the models can be formally defined, which can then form the basis of an implementation of a conflict communication language, which can be structured in a computer-recognisable syntax.¹⁷ The basic syntax of this language is always ‘Agent–Objective–Object’, which can be compared with the ‘subject–verb–object’ structure of normal language. Different ontologies can be developed, which describe the relevant object parameters and typical objectives for different types of conflict. As an example, online auction disputes have a limited number of variables, as have
380 custody disputes, but they are of course very different. The underlying fundamental syntax, however, remains the same.

The CADR System Concept

385 The CADR system will require parties to analyse their dispute when entering the information relating to their issues. The system will provide tools to assist the parties, or their advisors, with this task. No clear idea exists at this time what format such tools will have, but it is not too difficult to conceptualise how the objectives description will take place. The system should ‘force’ the user to break objectives up into the smallest
390 possible units, and each resulting objective into its related object state description and emotional components. The resulting database of object states, and related objectives will be used to provide the building blocks from which an objective (in the sense of ‘neutral’) conflict narrative can be constructed. The registration of time with each element will make it possible to create chronologies that will help checking the logic of any narrative that is constructed. Because the system will be able to present the data
395 from various perspectives (eg time, objectives, agent, statement *v* goals, action *v* statements, etc) it will be possible to check for inconsistencies and to determine the relevance of documents and statements. From a user’s perspective the system will have similarities to an advanced litigation support system, but with much more detail. Events are registered, and are related to documents and conflict issues. The registration of perceived
400 objectives of the opponent and analysis of emotional bindings are a major difference with litigation support systems. The most important difference however, is that the CADR system is primarily a communication tool, not something to assist in presenting one side of a conflict in the most persuasive manner.

405 *Issue Distillation and Description*

It is not likely that an ‘issue distiller’ would operate entirely automatic, but such a tool should use semantic analysis and retrieve ‘concepts’ (eg through keyword retrieval),

which can be ‘fed back’ to the user of the system to assist in formulating and describing the individual issues and their relationships. The ‘vortex’ character of conflict has been referred to above, which results in an increase of the number, inter-connection and complexity of issues as conflict develops. It is hypothesised that the ‘concepts’ that will be retrieved by means of semantic analysis will correlate with the conflict objects. As these are the focus of the objectives and, as time is recorded, it must be possible to present the user with a chronology which will assist in describing the development of the conflict in a more analytical way. As an example, parties that have been in a conflict situation for some time tend to merge all the issues and their emotional impact. By showing that certain objectives have developed in different stages of the conflict, the issues may be prised apart and considered on their own merits, which increases the chances of resolution.

Closely related to issue distillation is issue description, which should include a reframing tool. This is the part of the system where a neutral (or possibly counsel) can potentially assist the party in describing their issues in such a manner that they become resolvable. In the mediation context this is sometimes referred to as asking ‘why’ questions until issues are described in terms that can be objectively ascertained. In this phase the links to underlying documentation and reference to evidential material will have to be completed, and the system will have to provide for a classification system of such evidence. Obviously, the system will need interfaces to document management systems to perform this task, although it is envisaged that most of that can be accomplished using standard web-technology. This sub-system will eventually be used for the purpose of discovery and other formalised information exchange functions.¹⁸ Various confidentiality levels will need to be introduced as well, providing the possibility to frame a ‘resolution process strategy’, which involves the gradual disclosure of information about emotional bindings and non-disclosed objectives.¹⁹

Emotional Binding Analysis

In this module the emotional ‘bindings’ will be extracted and recorded. By using automated questionnaires and semantic analysis, the strengths of emotions in relation to each issue are determined, while at the same time an analysis is made of the impact of stakeholders on the issues and emotional bindings. As an example, once the issues are determined a user can be asked to rank the issues in the order of importance, or value them in some other way. Lists of words can be presented from which choices are made to determine the strength of emotional relationships. By asking how a party thinks a stakeholder would rate the issues, or how the other party would rate issues, information can be gathered about the impact of perceptions, or the influence of stakeholders.²⁰ Also, the impact of cultural components can be investigated. The underlying rationale is that emotional bindings have their initial origin in factors that are not related to the dispute, such as economical importance, impact on family situations, perception of ‘self’ etc, which cannot be easily determined or evaluated. By using the intermediate step of emotional binding analysis, a communication process can be started without requiring the parties to disclose at that stage exactly why such emotional values attach to substantive issues (if they would be able to recognise that in the first place). This will become relevant later, when the basis of emotional bindings will have to be analysed. The emotional binding analysis must therefore include details that remain confidential to the parties, but which will help each party to understand how its own position is constructed. This could be referred to as assisting in the determination of one’s BATNA, the best alternative to a negotiated

agreement.²¹ An important element of BATNA establishment is reality testing, which is used to adjust emotional bindings and related object states. It is conceivable that an advanced system would be able to analyse each substantive issue automatically once it has been identified and retrieve relevant existing case law to assist in this process.²²

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Initial Information Exchange

Up to some point the system operates for the parties individually, followed by stages where information is exchanged and compared, and conclusions are drawn. The first and most important step is the exchange of the 'reduced' issues. As each party has been forced to analyse its own version of events, this exchange will probably be quite revealing. The ultimate aim of this exchange of information is to get the parties to agree on a comprehensive list of issues. During this process information on each side must be updated, eventually generating an amended set of issues with attached values and emotional bindings for each side. In this process an overlap between issues and evidence will arise. Issues are of course coloured by opinions, positions and interests, and evidential discrepancies will become apparent.

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Substantive Issue Valuation and Comparative Evaluation

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The substantive issue valuation is the first module in which parties' databases are compared. By comparing the relative values attached to the issues, a party's grading can be 'weighed' before it is compared with those of the other party. The result of this process will generate the first ideas about a direction in which a resolution may be found.

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Emotional Binding Valuation and Comparative Evaluation

The next comparison is more complicated as it involves the 'weighing' of the emotional bindings and the influence of stakeholders and conflict behaviour. At this point the emotional bindings will have to be disclosed, which is a process that will be undertaken in stages. Bindings that rely on objectively determinable issues will be easier to evaluate than legal positions, which will be easier than peer-group influences or entirely irrational motivations or those entirely based on the use of power. The purpose of a gradual process starting at objectively measurable issues and working towards entirely subjective arguments is to allow the parties to accept a satisfactory outcome as soon as it arises and before disclosure of all underlying emotions and intentions has taken place. This approach can leave the trade-off process between more or less comparable values in control of the parties for as long as possible, thereby creating an empowering environment.

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The emotional binding analysis also has a retrospective character. Previous 'moves' will be analysed, because the system will request information to populate the database underlying the objectives analysis. As a result a party will have to think about its own motivations behind these objectives when they were executed and will be confronted with any inconsistencies that arise. As an example, a party may be asked to retrospectively provide motives for past objectives, which may be compared with current motives, related to objectives that are now contemplated. Any differences, especially where these relate to the same object, will have arisen as a result of, or at least influenced by, the conflict situation. Such an analysis may help the party to think about the way the

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conflict has influenced its own objectives. A novel way of using the emotional binding analysis would be to have each party assess the way it thinks the other party perceives its objectives and the emotional binding components behind these objectives. A party would thereby be asked to effectively create the narrative for the other party. The system could provide a means for those narratives to be exchanged, whereby each party can then 'correct' the other parties' version of its own objectives. This could result in a communication between the parties about why they have certain objectives, in other words, communication about interests, and not about positions.

Information Storage

The CADR system will eventually include all the relevant data in relation to the dispute, and it will therefore be useful in case the dispute is later arbitrated or litigated. The system will be forcing the parties to contemplate their dispute and consider its origins and development. This process itself may be conducive to an early resolution. A second advantage of this compulsory entering of dispute information is that it provides the opportunity to explain the resolution process at the same time. This may prove an important educational function of the CADR system. The average disputant will not be aware that there is much information available on how conflict operates and how the behaviour of both parties is determinative of the way a conflict develops, and is eventually resolved. By providing relevant information in the course of using the CADR system, it may be possible to change behaviour towards more integrative negotiation styles, thereby increasing the chance of resolution, or at least decreasing the chance of further escalation.

The end result of both parties completing the data-entry and analysis process will be:

- An electronic repository of all relevant documents and statements made by the parties, indexed and referenced to the issues in conflict, and to each other (replacing a 'common bundle', but with much better accessibility);
- A database describing these documents including relevant meta-data, which would include the evidential status of each document, or argument about that (replacing lists of documents);
- A database containing information on agent and object states over time, and information on the different objectives over time, including perceived objectives (a chronology of events 'on steroids');
- A narrative by each party, referenced to the data bases, and made up of a sequence of events, correlating with the documents (briefs of evidence);
- A joint narrative, generated with the aid of the system, and which is based on non-disputed facts (a statement of agreed facts).

It is envisaged that the end result of the issue entering process alone is an agreed list of substantive issues, each broken down to its smallest possible component (the causes of action). For each party there will be a list of evidential material, referenced to the substantive issues, and categorised to different disclosure and confidentiality levels. A separate body of information is an argument database, containing the parties' opinions and statements in relation to the substantive issues. Separated in another collection are the information on the relative importance of the substantive issues, and the information on the emotional bindings. The emotional binding information contains overall information on relevant cultural and group influence characteristics. Some of this information is strictly restricted to the individual parties (ie 'privileged' information), while most of it

will have various ‘exchange levels’ which can be changed by the parties themselves (following suggestions from the system, advisors, or the neutral).

545 *System Output*

The system should provide functionality to produce lists of documents, issue description documents, reports on relative importance of issues, financial information, etc. It must be noted that the parties will have a much better understanding of their own dispute than they typically now have when entering into dispute resolution processes. Much communication will have taken place between the parties, but always through the system and focussed on substantive issues. Much irrelevant material will have been discarded along the way, thereby removing its potential for escalation or frustration of a resolution.

555 *Resolution Support*

It is conceptualised that the next stages of the use of the system are investigations into possible solution ‘matrices’ based on the ranking of substantive issues, using the relative importance and emotional values of those issues. These solution matrices can be generated by the system or by the neutral using it. An important role for the neutral is to analyse the data and locate ‘bottlenecks’ in the generation of alternative matrices. The system should be helpful, by indicating which issues frustrate the construction of resolution matrices. The neutral can then address such specific issues with the parties, and see if agreement can be reached on adjusting the relative importance or emotional bindings on such issues, to remove obstacles to the generation of more possible solutions.

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565 Another way of assisting resolution would be to analyse with the parties what the relative strength of arguments is by inviting them to increase disclosure of relevant background information. This approach is different from the preceding one in that it results in adjusting of values and bindings as a result of reasoning and not through a negotiation process.

570 A third way of assisting resolution is to evaluate the legal concepts behind the various issues. Obviously this would require assistance from a legal professional, but suggestions could be made to obtain an opinion on individual issues, which again would lead to adjusting values and bindings. This involves the mediation technique of ‘reality testing’, whereby the relative strength of a party’s position is evaluated.

575 This description is obviously very abstract and premature, but it describes the direction in which development of the concept has taken place.

580 **Conclusion and Current Project Status**

In conclusion, the authors believe that it must be possible to develop a generic conflict communication language that will make automated processing viable. This language can form the basis from which to develop a CADR system, as soon as ontologies can be formulated for different types of conflict. Currently the project is progressing on a very small scale, developing the formal language. Funding is being sought for the next phase, in which ontologies will be developed for custodial and traffic liability disputes, and the development of a prototype for a CADR system. This phase will also include an attempt to introduce the use of formal conflict description in mainstream ADR.

Notes and References

- 1 See also B Zondag 'The structure of civil conflict, a first step to computer assisted dispute resolution' Massey University, Palmerston North, New Zealand, 2005.
- 590 2 Eg E Katsh and J Rifkin *Online Dispute Resolution: Conflict Resolution in Cyberspace* Jossey-Bass, San Francisco, CA, 2001.
- 3 Eg C Rule *Online Dispute Resolution for Business: B2B. Ecommerce, Consumer, Employment, Insurance and other Commercial Conflict* Jossey-Bass, San Francisco, CA, 2002.
- 4 Eg A R Lodder and J Zeleznikow 'Developing an online dispute resolution environment: dialogue tools and negotiation support systems in a three step model' *Harvard Negotiation Law Journal* Vol 10, pp 287–338, 2005, A R Lodder and G A W Vreeswijk 'Online arbitration services at a turning point' (French version: 'Les services d'arbitrage en ligne') *ICC International Court of Arbitration Bulletin* pp 35–42, 2004; C Rule *Online Dispute Resolution for Businesses* Jossey-Bass, San Francisco, CA, 2002.
- 595 5 Quoting a classic text that remains of interest for those studying conflict; see K von Clausewitz *On War* Trubner, London, 1873.
- 600 6 As reported in: District Court Claims Sub-committee 'Consultation paper 23 August 2004' <http://www.justice.govt.nz/rulescommittee/discussionpapers.htm> (last accessed 16 October 2005); District Court Claims Sub-committee 'Response of District Court Claims Sub-Committee on submissions on rules committee consultation paper issued 23 August 2004' <http://www.justice.govt.nz/rulescommittee/discussionpapers.htm> (last accessed 16 October 2005).
- 605 7 For an example of a government assisted effort to come to a standardisation of ADR terminology see NADRAC 'Dispute resolution terms' <http://www.nadrac.gov.au> (last accessed August 2005).
- 8 An interesting characterisation of mediation professionals is included in the following quote: 'In the stormy ocean of conflict, mediation is proving to be a fragile vessel with a hardy crew'. See L Boule, J Jones and V Goldblatt *Mediation: Principles, Process, Practice* New Zealand edn, Butterworths, Wellington, NZ, 1998.
- 610 9 Research in New Zealand found that ADR practitioners have by far the highest confidence in the value of ADR, as compared to lawyers (who considered lawyer achieved settlements more successful), the judiciary (who considered judicial settlement conferences the preferred option) and litigants (who seem generally not impressed with any of the above). See K Saville-Smith 'Alternative dispute resolution: general civil cases/prepared for the Ministry of Justice by K. Saville-Smith and R. Fraser' Ministry of Justice, Wellington, NZ, 2004.
- 615 10 Although efforts are being made to develop a more sound academic basis for ADR. A good example in the Australian context is the work of NADRAC. NADRAC 'ADR research, a resource paper' www.nadrac.gov.au (last accessed December 2004).
- 11 Many different definitions of conflict exist. The one used here is based on the work of Wilmot and Hocker, see W W Wilmot and J L Hocker *Interpersonal Conflict* 5th edn, McGraw-Hill, Boston, 1998.
- 620 12 Or in positions, rather than in interests. See R Fisher, W L Ury and B Patton *Getting to Yes: Negotiating Agreement without Giving In* 2nd edn, Houghton Mifflin, Boston, 1991.
- 13 See for instance J P Folger, M S Poole and R K Stutman *Working Through Conflict: Strategies for Relationships, Groups and Organizations* 5th edn, Pearson, New York, 2005.
- 625 14 See *op cit*, note **Error! Bookmark not defined.** This study surveyed the impact of ADR on 'traditional' litigation, and analyzed both quantitative and qualitative data. It was observed that especially lawyers had the experience that the best point in time to attempt ADR in a procedure that has been filed is after the discovery process is completed, ie at the point in time were the parties have been informed of the factual basis of the dispute.
- 630 15 F Sligo, S C Olsson and C M Wallace *Perspectives in Business Communication: Theory and Practice* Software Technology New Zealand: Palmerston North, NZ, 1997.
- 16 If conflict resolution professionals would embrace the use of such a language to describe individual conflicts, using the methodology that is provided, a theoretical basis to exchange conflict

information may develop, which would also make it possible to apply more ‘scientific’ methods to ADR research.

- 635 17 Zondag, *op cit*, note 1.
- 18 The proposed new District Court rules for New Zealand provide a parallel in the form of ‘information capsules’, which are essentially a collection of evidential and descriptive material, which the parties are obliged to exchange in the period leading up to a compulsory ‘consensual’ settlement conference. See *op cit*, note **Error! Bookmark not defined.**.
- 19 This process may be compared with the use of privilege in formal resolution processes.
- 640 20 Interesting research in this area used a simple electronic instrument to record and compare two parties’ (bivalent) opinions about a statement. Each party was asked to give the opinion from its own, but also from the other’s perspective and the results were compared. See P A J Brabers and J Kooistra J ‘De Agograaf’ *Tijdschrift voor Agologie* 5, 1975. For an introduction to the technique of priority ranking, and the use of such rankings in negotiation, see G Kennedy (*Kennedy on Negotiation* Aldershot, Hants, Gower Publishing, 1998).
- 645 21 Fisher et al, *op cit*, note 12.
- 22 Research is currently conducted which approaches that type of functionality for liability disputes. See <http://cedire.org/>, the ‘BEST-project’, which stands for Batna Establishment using Semantic Web Technology (<http://best-project.nl>). The aim of that project is to use semantic analysis to find case law that is relevant to a specific fact situation. An advanced system as alluded to in this article would require that the structures and concepts of law are reduced to a formal language, with a hierarchical syntax, and extensive database of terms, each connected with ‘ordinary’ words for these terms, in a thesaurus-like structure. This may be less complicated as it seems, especially when it is considered that the vast majority of disputes revolve around relatively simply legal situations, made complicated by the emotional issues.
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