

Electronic Agents and Legal Personality: Time to Treat Them as Human Beings

Waleed Al-Majid*

PhD Candidate, Law School, Lancaster University

Email: walid_978@hotmail.com

1. Introduction

Most legislations whether internationally or nationally deal with intelligent agents in a way which does not reflect the certainty of their features. In the past, no one other than human beings could do the functions that intelligent agents do at present. Intelligent agents ramble quickly into various places, search for information, and achieve several stages of a transaction from product and merchant brokering through to negotiation, sale, distribution and payment. Nonetheless, legislations chose to classify them as communication tools. The reason to choose this is perhaps there doesn't appear to be any difficulty in implementing it or¹the legislations could lack the legal tools that may well recognize the acts of intelligent agents. However, by doing so, intelligent agents become legally irrelevant to contracts formed through them, all generated legal effects are totally attributed to users regardless of whether intended, predicted, or mistaken.²It seems a crucial issue, in order to adopt different approaches of the contractual capacities of intelligent agents, to prove that these legal effects are indeed generated by the intelligent agents' own intention. The problem here, as will be shown, is that the cognitive intention or the (autonomy) of intelligent agents is still debatable and has not been evidenced yet.³

However, as the autonomy of intelligent agents increases, the idea that treats intelligent agents as no more than passive adjuncts would quickly be limited. By then, holding the users unwittingly liable would become unjust and would discourage using agent technology in conducting commerce on-line. Accordingly, this paper suggests to grant intelligent agents legal personality analogous to other legal entities. This would bring good economy and commercial interests not less than encouraging businesses to rely on this new technology in conducting business without concerns that they will be overwhelmed by liabilities get done all their properties. It will examine the possibility of the idea with no intention to provide the final answer. The idea of attributing legal personality to intelligent agents deserves indeed, further study and research.

First, the paper demonstrates the issue of intelligent agent's autonomy. Secondly, it explains legal issues associated when using intelligent agents in contracts formation. This will be

*Saudi PhD candidate, school of law, Lancaster University. Bachelor degree, college of Administrative Sciences, School of Law, King Saud University, Saudi Arabia. LL.M. degree, school of law, Aberdeen University. He has been invited to be a visitor scholar at University of Washington, school of law, Seattle, United States. Member of Society of Computers & Law (SCL).

¹Cross, S.R. *Agency, Contract and Intelligent Software Agents*, (International Review of Law Computer & Technology, Vol. 17 No. 2, 175-189: July 2003), p 180. He stated: "Treating intelligent agents as mere communication tool is not controversial or difficult to apply since it currently appears so common-sense".

²Most legal analyses for the use of intelligent agents focus on the human users or legal entities on behalf of which these agents are operated, and adopt the legal fiction that anything issuing from these agents is considered to be really issued by the natural or legal persons that use them.

³Searle, John R. *Minds, brains, and programs*, in *Behavioural and Brain Sciences*, vol. 3, Cambridge University Press. 1980, pp 417-424. He stated: "one can interpret a cognitive state of software agents as nothing more than an imaginary dream that only exists in the mind of the observer". See also, Giusella Finocchiaro, *The conclusion of the electronic contract through "software agents": A false legal problem? Brief considerations*, in Proceedings of LEA 2002. Workshop on the Law of Electronic Agents, CIRSIFID, Bologna, 2002, pp 20-21.

included that the idea of a mere communication tool does not solve those issues in question. The paper then discusses the idea of legal personality. It will be shown here whether this can be achieved by its traditional requirements, or other requirements, such insurance, are necessary for the success of this approach.

2. Autonomy: Source of Concern

The term “intelligence” used to describe intelligent agents was employed, as Jennings & Wooldridge state, in order to refer to their capability of flexible autonomous actions.⁴ Although autonomy is always used to describe the function of intelligent agents, its extent is still very ambiguous. If autonomous programs are not such a new phenomenon for example, we have EDI and cash machines, what makes intelligent agents so special? Many authors have attempted to answer this question. Intelligent agents are mostly described as they function; with no direct intervention or control from any human beings, based on their own experiences with no full forecasting of their behaviour.

A hypothesis is necessary here. Suppose Tom programmed his software agent to book the lowest flight price, with a top price of 300 Pounds, from London to New York. The program, after gathering information from the internet, decided to buy from a travel agent known as (Bot Agency) which offered to sell the flight for only 150 Pounds. The disaster happened when Tom discovered that Bot Agency was nothing more than a fake agency. Moreover, it was common knowledge among people that this sham agency was convicted for several fraud cases. For the first step, one may say that the purchasing process from the agency was entirely up to the intelligent agent and Tom could do nothing about it. A better and accurate explanation may say that Tom had already predetermined the destination and date. The price of the flight was obviously not known to him for certain, but it is clear that the price was within predefined limits, and not unenforceable. Accordingly, the contract was not actually formed through the will of the intelligent agent or, as is sometimes delegated, through its own experience. The will of the human being to conclude the contract exists and is predetermined.⁵ The only thing the intelligent agent has to do is specify the contracting party. This illustrates the limited autonomy of intelligent agents which indicates that there is direct intervention and control from human beings. Nonetheless, the limited autonomy allowed a contract with an agency which was totally unfavourable to the user which in turn proves that users do not always forecast their intelligent agents' behaviour. Moreover, intelligent agents cannot make decisions based on their self-created instructions.⁶ This is not to deny the fact that once those intelligent agents set to work, no further intervention of users is necessary, but the entire function of intelligent agents, generally speaking, totally depends on the instructions that are set by users.

The example given above is merely a hypothesis and other hypotheses can, of course, lead to different results. This is the cost when issues under examination remain at the research stage because there are no cases which could discipline the analysis in question. However, although there are various opinions regarding the degree of intelligent agents' autonomy, there is a general consensus that their involvement in generating contracts with little or no human discretion has produced legal problems. The following section will illustrate these problems.

3. Contract Legal Problems

The limited degree of intelligent agent's autonomy, as illustrated above, has not encouraged the law to decide whether intelligent agents deserve to be attributed a separate (intentional state) from its user. Thus, this limited autonomy remains unrecognised with intelligent agents

⁴Jennings, N & Wooldridge, M. *Intelligent Agents: Theory and Practice*, Knowledge Engineering Review Vol. 10 No. 2, June 1995, (Cambridge University Press: 1995) pp. 56-70.

⁵Supra 3 Giusella Finocchiaro, p 22.

⁶See the definition of intelligent agent of Russell & Norvig. It is defined as: “an agent's behaviour can be based on both its own experience and the built-in knowledge used in constructing the agent for the particular environment in which it operates. A system is autonomous to the extent that its behaviour is determined by its own experiences.” See Stuart, Russell & Peter Norvig. *Artificial Intelligence: A modern approach*, (New Jersey: 1995) p 35.

still lacking contracting capacity i.e. they are not yet considered to be legal persons in the eyes of the law. The law apparently prefers to wait, either studies or researches decide on the issue or future technology development offers new software with clear independence.

This attitude toward intelligent agents assumes that transactions can never be concluded between intelligent agents and human beings. Accordingly, this led to another legal problem which is the ambiguity in specifying contracting parties. In order to clarify the contracting parties, there must be two parties involved in contract-making. Since intelligent agents are not considered by current law to be legal persons, the buyer and seller are the only parties who can be relevant to the contract. In the example given above, where Tom's software bought a ticket from the agency, the contract is then formed between Tom and the travel agency. If we adopt this fiction, it would threaten another legal requirement. This is where Tom is not aware of the fact that his software has actually made a transaction with the agency. Here, one party has no actual knowledge of who he is dealing with. Accordingly one cannot argue that there was mutual consent between contracting parties. Therefore, on what ground is Tom bound by the transaction made with the travel agency?

Furthermore, because intelligent agents are no more than a communication tool, this has also created another dilemma which seems to be the most difficult issue associated with using intelligent agents in contracts formation so far. In the present era, it is well known that although intelligent agents are called "intelligent"⁷ they are not always perfect in their performance. People must have heard passive cases of errors and damages occurring on the internet by intelligent agents.⁸ Users, as Leon Wein has mentioned, quite often programmed or designed their intelligent agents to perform in a manner which would be non-negligent, however the intelligent agents' decision to behave in a certain way could be considered negligent.⁹ In cases where intelligent agents are not yet legal persons, it is absurd to attribute the responsibility of these damages to someone other than the users.

In fact, this new phenomenon, the involvement of intelligent agents in generating contracts, created two main dilemmas or questions. First, the law faces a question of validity of contracts concluded by such programs i.e., whether or not users can be bound to contracts where their knowledge of the existence of the communications and contracts is lacking. Secondly, law also faces a question of liability of who is going to bear those errors and losses which occur as a result of intelligent agents.

4. Legal Personality to Intelligent Agents

Law, in order to grant intelligent agents legal personality, must first recognise an intentional state to them. Those acts that are done through intelligent agents must be legally taken as potentially done by them. This will allow intelligent agents to be a part of contracting and acquiring rights and duties not merely on behalf of others but as for their own selves as well. If they are given an intentional state, contracts formed through them would be deemed formed between buyers (customers) and intelligent agents. Sellers whose intelligent agents work on their behalf will later be attributed the contracts' legal effects.

On one hand, there would not be a question of validity here since the contracts were actually formed between two legal persons, hence the acts which occurred as a result would be attributed to those who intended to form them. On the other hand however, the question of liability still seems unsettled. Since intelligent agents became a part of the contracting, they

⁷Ian has found that although intelligent agents are often described as "intelligent", means that they have some ability to carry out sophisticated and autonomous tasks, would seem to lack legal capacity. See Ian R. Kerr, *The Legality of Software-Mediated Transactions*, Proceedings of IASTED International Conference: Law and Technology, (IASTED /ACTA Press:2000) p 91.

⁸On 21 September, 1999, Argos advertised the sale of televisions on its website for only £2.99. Customers started to place orders over the internet to take advantage of the great offer. Thereafter, Argos refused to deliver the televisions to the customers on the grounds that they had been incorrectly priced by mistake. He claimed that the correct price is £299 not £2.99 and that was due to a computer error.

⁹Leon E. Wein, *the Responsibility of Intelligent Artificial: Toward an Automation Jurisprudence*, 6 HARV. J.L &TECH. 103 (1992) note 43, p 103.

would be responsible for any losses or damages during their performance. In the example given above, the intelligent agent would be held liable for the damages caused to Tom when it negligently bought from an agency with a bad reputation. A non-natural legal person surely must be object of asset in order to ensure that it could fulfill its financial obligations and liabilities. Corporate bodies, as legal persons, are legally allowed to be sued because if they are held liable, their assets would be affected directly and sometimes liquidated. Now, because intelligent agents lack assets, holding them liable for damages indeed appears to be an absurd approach as well as meaningless. Therefore, as long as intelligent agents have no assets, the idea to grant them legal personality would not solve the issue of liability and therefore is not of benefit.

In order to solve this matter, Sartor Giovanni had suggested a banking deposit to function as an asset for intelligent agents.¹⁰ This fund would represent a warranty for counterparties, which would need to be secured when finalising a contract with intelligent agents. A minimum amount of “capital” should be established by users, similar to what happens to commercial corporations. Intelligent agents then have to ensure that they will not act beyond the fund deposited in the bank. This is practically impossible because intelligent agents are given legal personality on the basis that they are cognitive tools with no human beings’ control upon them. Therefore, nobody, including users, can guarantee that intelligent agents will act within the limited amount. Accordingly, it is expected that acting beyond the fund deposited would probably happen, but then, the question is, who would be held liable for those excesses? The fund deposited in the bank does not seem as though it could compensate all those who would suffer from the intelligent agent’s errors. Particularly, damages that may occur by intelligent agents take several forms such as breaching someone’s privacy or making damages to other computers by sending viruses. Furthermore, while the bank deposit’s idea may warrant counterparties, users are left without warranty.

Therefore, the bank deposits idea does not seem a good solution to the problem in question. The following section discusses an alternative option, which is purchasing insurance in order to create assets for intelligent agents.

5. Insurance Policy

The idea of insuring intelligent agents, which is suggested by Lawrence Solum, is not sufficiently clear.¹¹ There are many questions associated with this idea that are left without answers. As consequences, the idea of insurance has been strongly criticized by Curtis Karnow on the basis that it ignores an important principle of insurance contracts known as *causation analysis*.¹² This principle, as will be seen below, is complex to implement when insuring intelligent agents. Beside that, there are other issues, although they are not doctrine, one cannot overlook their essentiality. For example, Jean-Francois Lerouge questioned this idea with several points e.g., at what extent are insurance companies ready to insure those risks associated with intelligent agents?¹³ Due to the absence of any human being’s control, insurance companies could expect huge losses and damages.

Furthermore, Anthony Bellia found purchasing insurance for intelligent agents to be of no benefit.¹⁴ He argues that if the approach that treats intelligent agents as mere tools is criticized on the basis that it lays huge liabilities on the shoulders of users, what new ideas can insurance make in this regard? If the insurance fee is paid by users, not intelligent agents, in addition to the increase of instalments when compensating damages, why then deemed

¹⁰Sartor, Giovanni. *Agents in Cyber law*, In Proceedings of the Workshop on the Law of Electronic Agents, CIRSFID (LEA02) Gevenini, 2002.

¹¹Lawrence B. Solum, *Legal Personhood for Artificial Intelligences*, 70 North Carolina Law Review, 1231 (1992).

¹²Curtis, E. A. Karnow. *Liability For Distributed Artificial Intelligences*, p.22, available at <http://www.law.berkeley.edu/journals/btlj/articles/vol11/Karnow/html/text.html>.

¹³Jean-Francois Lerouge. *The Use of Electronic Agents Questioned Under Contractual Law: Suggested Solutions on a European and American level*, The John Marshall Journal of Computer and Information Law, 18 (2):430–00, 2000, p411

¹⁴Anthony, Bellia. *Contracting with Electronic Agents*, Emory Law Journal, vol. 50, 200, p 1067

intelligent agents (persons) if the users ultimately bear all the risk of loss?¹⁵ In fact, this argument can easily be invoked. When insurance premiums increase, wherever the cost reaches, it remains limited compared to the liability when intelligent agents are deemed to be merely transmitting the will of users. However, the rest of the paper will focus on *causation analysis* that has been illustrated by Curtis Karnow.

Most insurance companies are based on traditional tort causation analysis (proximate cause analysis).¹⁶ In simple words, insurance companies must know, before compensating for damage, the proximate cause from all the causes which will be held ultimately responsible for the damage.¹⁷ In order to illustrate this, let us suppose that an intelligent agent sent an innocent message to a computer system. Suppose also that this message initiated a process leading the addressed system to crash due to a fault of that system. Assume that this message was a necessary condition for the crash to happen (without the message the crash would not have occurred).¹⁸ Before the insurance company would compensate, it is necessary to identify the real cause of the crash. Therefore, the company would have to decide, out of many possible factors which had caused the injury. For example, did the message really cause the crash? Or was some defective procedure of the addressee system the real cause, with the message only providing the occasion for the internal fault to operate?¹⁹ Furthermore, there are may be other intelligent agents involved in causing the crash. The insurance company would find it extremely hard to specify the proximate cause of the damage and cannot guarantee that the insured intelligent agent involved was potentially a cause of the crash. This is particularly the case in a complex environment where it is practically hard to identify the source of an agent or its code which caused the damage.

As a result of proximate cause being difficult to determine, insurance companies may find it the fundamental reason why they should not insure intelligent agents. Curtis Karnow accordingly, suggested an insurance company named (Turing Registry), which does not depend on the proximate cause relationship between the injury and the intelligent agent. He proposed therefore that, the only thing that would make the Turing Registry compensate is the mere presence of the intelligent agent in the disaster which occurred, with there being no need to investigate what, who, when or why.²⁰

However, the Turing Registry has been strongly criticized²¹ and even Curtis Karnow does not find his proposal the best solution. In fact, not taking into account the causation relationship may hold innocents liable and those who are irrelevant to the injury. Although this seems unfair, in a complex environment where intelligent agents work, online companies may accept it as an ideal proposal.

6. Conclusion

In conclusion, the idea of attributing legal personality to intelligent agents is optimistic and therefore needs more analysis. It is not necessary to reflect on the right solution to the intelligent agents' problems but at least it shows that the law is able to comprehend agent technology via different approaches.

If the issue of asset could be solved, intelligent agents could be granted legal personality. The issue of whether their limited autonomy deserves personality is potentially a matter of time as the autonomy, mobility, and intelligence of intelligent agents increase. Nonetheless, this does

¹⁵Ibid

¹⁶Supra 12 p.22

¹⁷ Ibid

¹⁸Sartor, Giovanni. *Intentional concepts and the legal discipline of software agents*, in: Open Agent Societies: Normative Specifications in Multi-Agent Systems, editor J.Pitt, Wiley, London 2002, p.18

¹⁹ Ibid

²⁰Supra 12 p.22

²¹For example, Allen and Widdison pointed out that the costs of Turing Registry would mean that the conferral of personality would prove too expensive to justify itself. See Tom Allen & Robin Widdison, *Can computers make contracts?* 9 Harvard Journal of Law and Technology, 25 (1996) p 42

not mean we have to sit back and wait. Finally, as result of having to use intelligent agents in digital economy, we must pay the price.