

**EMERGING ISSUES IN ELECTRONIC CONTRACTING IN THE LAWS OF SOUTH AFRICA
AND NAMIBIA WHERE ONE PARTY IS A “ROBOT”.**

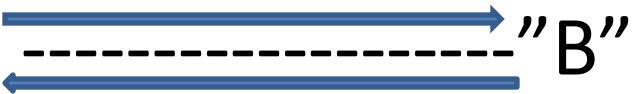

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OVERVIEW

- Introduction (overview of general principles on formation of contracts)
- Conceptualizing the theme:
 - = What is an electronic agent?
 - = Concept of multi-agents
- Agents typologies
 - = Motivation of Collaborative agents
 - = Interface between electronic agents
 - =Agents in a heterogeneous system
- Legal analysis (1) Automated transactions –ZA
- Legal Analysis (2) Automated Transactions-NA
- Conclusion

1=Concept of Traditional contract

- Concept of traditional contract
- OFFER / ACCEPTANCE
- "A"  "B"
- == MEETING OF minds
- A  (direct communication)-----to --B

Normal theories (Traditional contracting)

- Information theory in the meeting of minds:
- (“A” knows what exactly “B” has accepted)
- Mailbox Rule (Expedition Theory)
- (contract comes into existence at time expedition is made/ Time of posting)
- = Reception theory (Contract exists from the time of receipt)
- = Declaration Theory (Contract exists from the time the parties manifest their assent (usually after “B” assents to the terms sent to him/her)).

Common features of main Theories

Information theory

Mailbox Rule

(Expedition Theory)

Reception theory (

Declaration Theory

- All parties are aware of what is happening (Interacting with real person that gives an assent)

Modern way of Contracting

- . In recent times, however, the evolution and combined use of computers and telecommunications, and the latest evolution in the field of Artificial Intelligence (AI) have brought new dimension to the process of contracting. These developments have also brought new dimensions to the process of expressing a person's will and the declaration of intentions. The new modern process of contracting increasingly uses what is called "intelligent Electronic Agents". In the field of contracting through Intelligent Electronic agents, there is an imperious need to analyzing the question of expression of consent.

Modern way of Contracting (question on contracts)

- In the field of contracting through Intelligent Electronic agents, there is an imperious need to analyzing the question of expression of consent.
- One of the main questions that arises in this area is “how far we can go in considering computer intelligence and autonomy. Said differently, how can we legally deal with a new form of electronic behavior of autonomous actions?”
- In the process of analyzing the expression of consent, two possibilities may arise:
- One is that electronic devices that mediate human consent should be considered as mere machines or tools in the process of consenting;
- The second possibility is that such electronic devices should be considered “by analogy” as legal.

What is an electronic agent?

- **2.1-What s an electronic Intelligent Agent?**
- **The concept of agent can be divided into “single agent” and “multiple-agents”.**
- *2.1.1.-The concept “agent” per se.*
- The concept agent per se traditionally means “one who agrees and authorized to act on behalf of another, a principal, to legally bind an individual in particular business transactions with third parties pursuant to an agency relationship.

What is an electronic agent?

“single agent” & “Multiple agents”

- It is in the field of computer language studies and electronic telecommunications that mostly the concept of ‘agent’ (and ‘intelligent agent’) is often used nowadays. In this field of studies the concept ‘agent’ does have a dual meaning: “single agent” and “multiple agents”. In this area of studies, these agents are commonly known as ‘software agents’ and lately also as “intelligent electronic agents”. The basic attributes of a software agent are that these agents:
 - are not strictly invoked for a task, but activate themselves,
 - may reside in wait status on a host, perceiving context,
 - may get to a run status on a host upon starting conditions,
 - do not require interaction of user,
 - may invoke other tasks including communication

Functions & Characteristics of software agents

- . In short some of these studies describe agents as software tools that have the following functions and characteristics:
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- • **social ability**: agents interact with other agents or individuals,
- • **reactivity**: agents respond to changes that occur in their environment,
- • **pro-activity**: agents are programmed to pursue goal directed behavior,
- • **adaptivity**: agents assimilate to the user's habits and benevolence assuming that they do not have conflicting goals, and
- • **mobility**: some agents can move in an electronic environment, in our case the Internet.

Agents in “weak mode”

- **On the slightly weak mode, an agent is one that has at least some of the following characteristics:**
- **autonomy**: agents operate without direct intervention of humans, and have control over their actions and internal state;
- **social ability**: agents interact with other agents (and possibly humans) via an agent communication language;
- **reactivity**: agents perceive their environment and respond in a timely and rational fashion to changes that occur in it;
- **pro-activeness**: agents do not simply act in response to their environment, they are capable of taking the initiative (generate their own goals and act to achieve them).
- (Woodridge and Jennings “*Essential properties of an Agent*”)....

Agents in “Stronger mode” Conception

- **In the stronger notion, the agent is perceived as having** mental properties, such as knowledge, belief, “intention”, obligation. In addition, and agent has other additional properties such as:
- mobility: agents can move around from one machine to another and across different system architectures and platforms;
- veracity: agents do not knowingly communicate false information;
- benevolence: agents always try to do what they are asked of;
- rationality: agents will try to achieve their goals and not act in such a way to prevent their goals from being achieved.

“intelligent agents”

- The fourth notion of the agent is inter-inclusive. On this notion, “intelligent agents” are described as **software entities that carry out some set of operations on behalf of a user or another program with some degree of independence or autonomy, and in so doing, employ some knowledge or representation of the user's goals or desires**

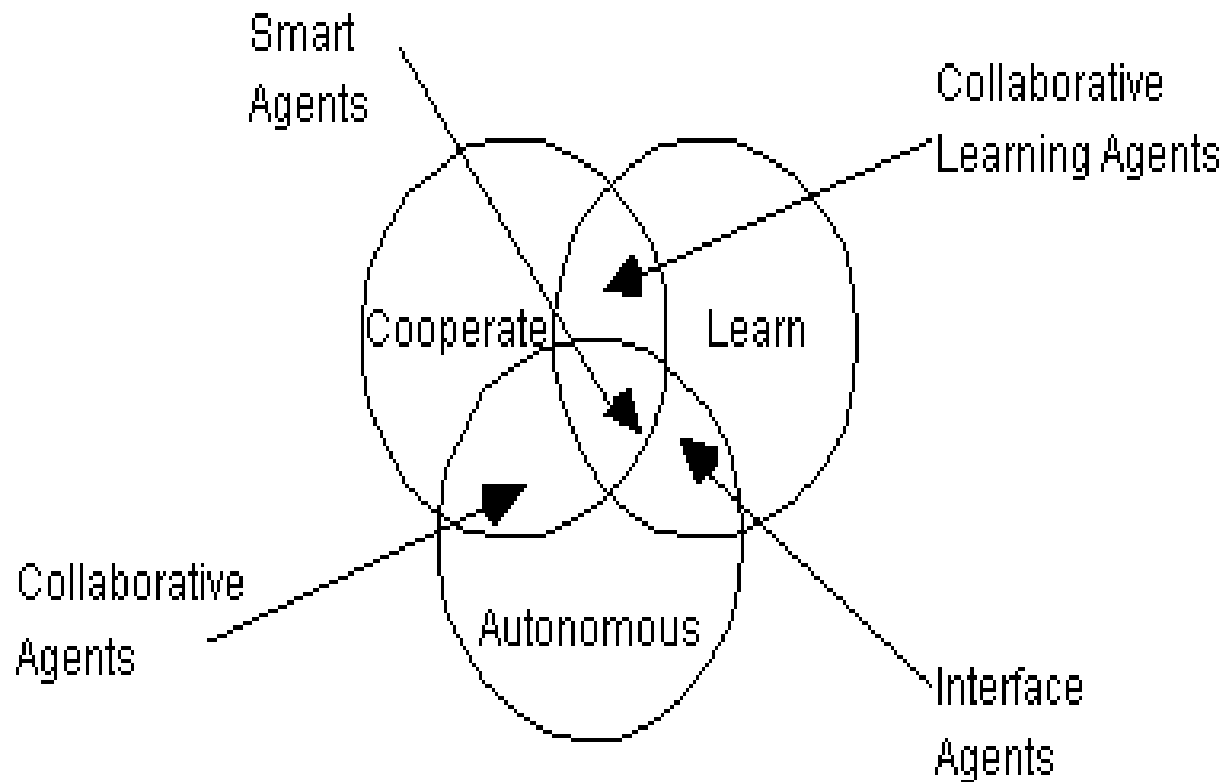
-Concept of 'Multi-Agents'

- Software agents can activate and run themselves, not requiring inputs or interaction with a human user. Consequently “software agents” are essentially robots and are often “intelligent robots” or ‘semi-intelligent agents

Three main fields of all 'E-agents'

- Nevertheless the operation of all agents will at least fall within these three main fields: DAI, PAI, and DPS.
- DAI stands for “distributed-artificial-Intelligence”;
- PAI stands for “parallel-artificial-intelligence” and
- DPS stands for “distributed-problem-solving”.

Topologies of agents in graphic representation



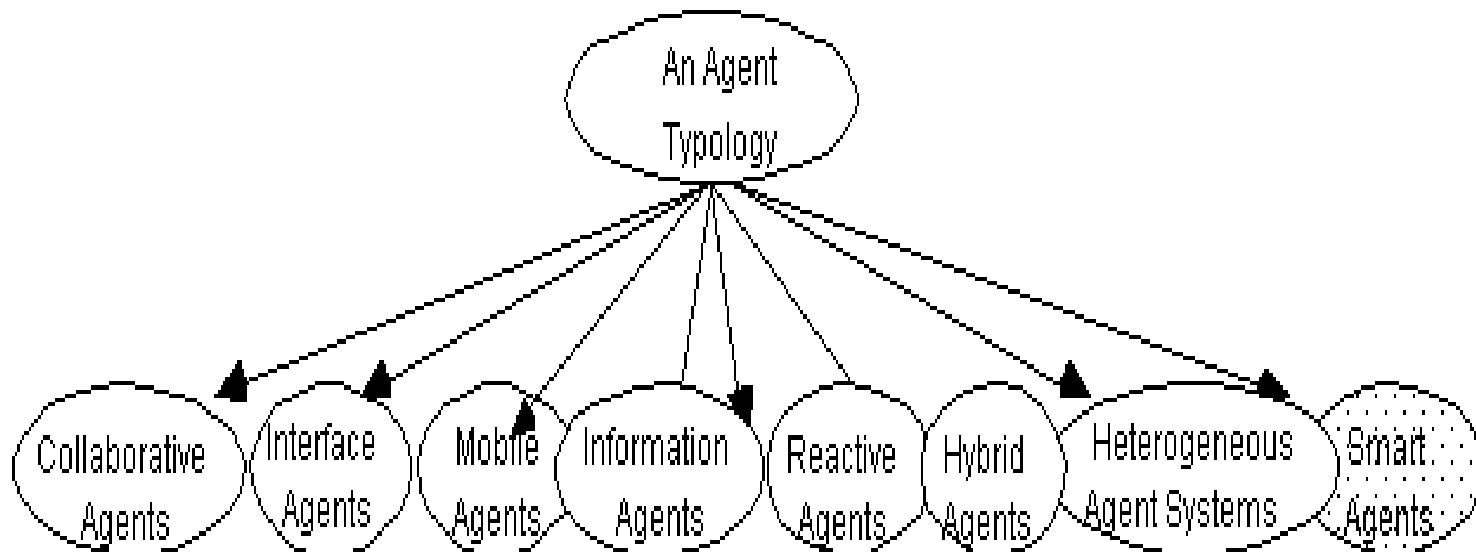
Thus some other categories adduced in this presentation define these types of agents as including the following:

- **Passive agents** - or agent without goals.
- **Active agents** - with simple goals.
- **Cognitive agents** – in computer software and related electronic telecommunication these agents normally contain complex and sophisticated calculation

The agent environment can also be divided into several sub-categories which include:

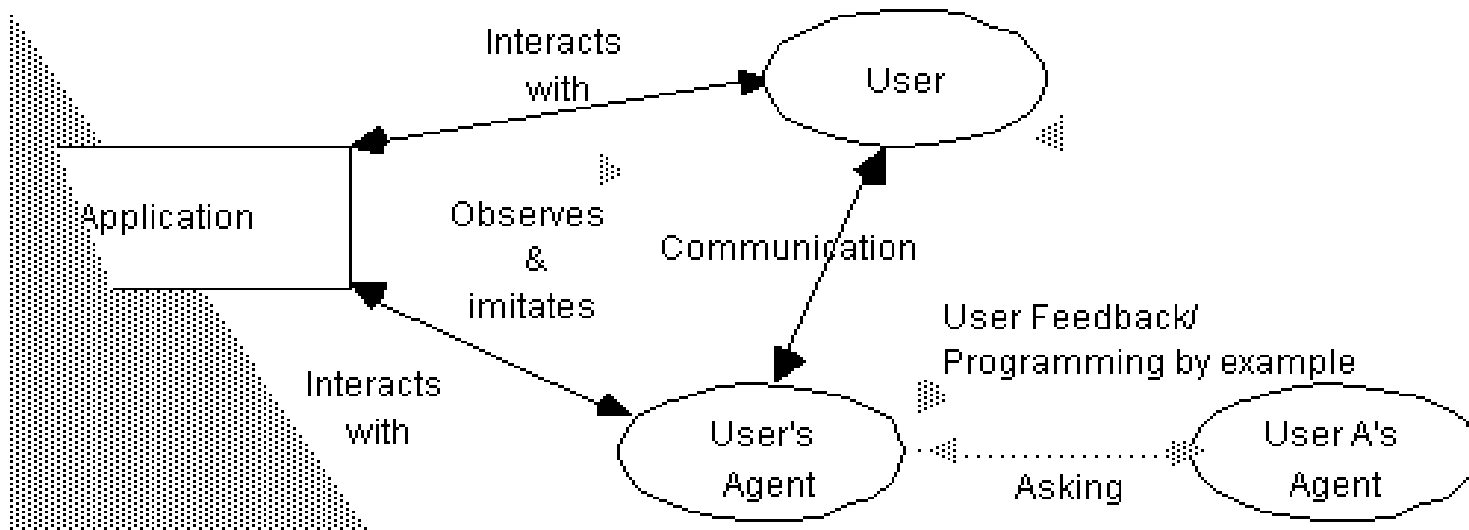
- **Virtual Environment**
- **Discrete Environment**
- **Continuous Environment**

Classification of software agents



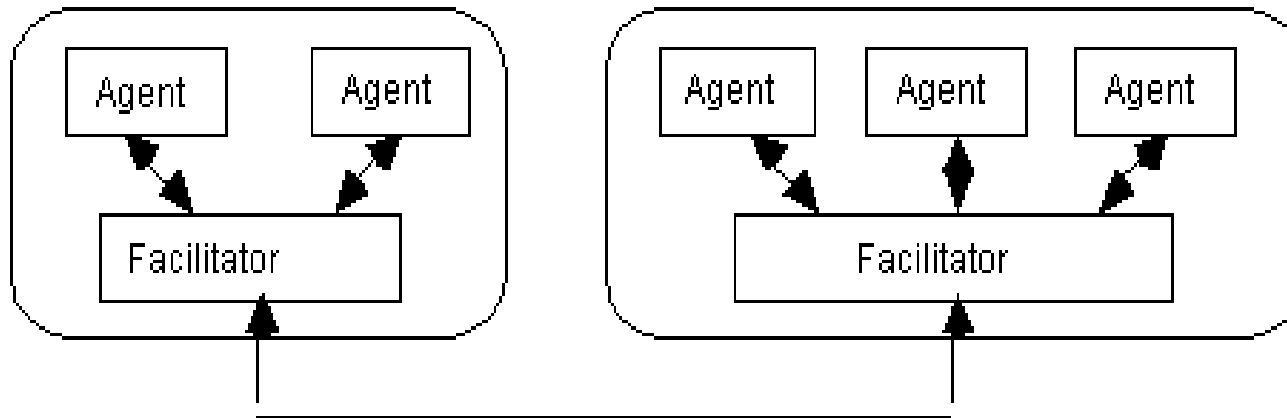
Interface between electronic agents

- Interface between electronic agents



Electronic agents in “federated system”

- Agents in a “Federated system”



AUTOMATED TRANSACTION: SOUTH AFRICA

- Automated Transactions= South African Perspective.
- Electronic communication Act=
- Section 22/23 (validity of data messages in contracts)
- Section 25 (contracting with 'robot' who is responsible?)

Section 25 (ECA)

- South African common-law principles dictate that where mistakes occur in electronic communications through the malfunction of an electronic agent, the party that installed the malfunctioning electronic agent must assume the risk of any defects or delays in the transmission. Meiring argues that the proviso in section 25(c): “...unless it is proved that the information system did not properly execute such programming” is helpful, although not totally helpful.

South Africa= Section 25

- Section 25(c) of the ECT Act mitigates the risks of defects as a result of programming malfunction. Where the electronic agent merely fails to respond to a data message or where delays occur in the transmission of a data message or in the performance of an action, section 25(c) will be of little assistance. As noted above, South African common law dictates that where mistakes occur in electronic communications through the malfunction of an electronic agent, the party that installed the malfunctioning electronic agent must assume the risk of any defects or delays in the transmission. Section 25(c) has altered this rule as the risks associated with programming malfunction have been mitigated.

AUTOMATED TRANSACTIONS: Namibia

- To a large extent, the Namibian law on electronic transactions mirror that of South Africa. The electronic Transactions Bills based on the UN instruments on Electronic Commerce, such as the South African Electronic Communication Act is also to a large extent based on those instruments.

In the Namibian context, several applications in the electronic environment reflect the interconnection between dependencies of several applications, which mimics the way people's activities are conducted by an organization. Dependency of intelligent electronic agents and software agents reflects an organizational form of business. In each scenario such dependency is quite different

But several common elements can be identified:

1- Processing Dependency; 2- Simple Processing Dependency; 3- Transactional Dependency; 4- Informational Dependency; 5-

Processing Dependency, in this form of an electronic agent operating under processing dependency, the system requires some work to be carried out remotely by other application modules in order to complete its own processing.

Thus this type of "processing dependency" may fall into two sub-categories, which are (i) "simple processing dependency" where an application module needs another (probably remote) application module to perform some task before it can proceed or complete processing; (ii) "transactional dependency" where an application module requires several application modules on different, probably remote, sites to carry out some task before it can progress. In this "transactional operation mode" the operations at issue must be carried out in an 'all or nothing' fashion.

Example of this transactional operation mode" is a banking transaction. Then in addition to the processing dependency, there is the "Informational Dependency".

In this kind of dependency, a software application module needs to convey some information to one or more remote application modules as a consequence of some event within its jurisdiction.

Conclusion

- In the analysis of automated transactions that employ software agents, there is still no strict rule. The rule that simply attributes the full risk to the person who installed operates the electronic agents is too simplistic. It should be accepted with caution
- Electronic agents are very diverse and interact in different environment and in different ways.

Conclusion

- Due consideration should be given to the use of multiple agents.
- The rule thus far encapsulated in section 25 of ECA is of limited use in the context of “multiple electronic agents”.