

THE VALIDITY AND LIMITATIONS OF SOFTWARE AGENTS IN CONTRACT FORMATION

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A brief
discussion
under the
Electronic
Transactions
Act in
Australia

AGENDA

- Introduction
- Human Agents
- Electronic Agents
- Electronic Agents under the ETA
- Outstanding Issues
- Conclusion

- **UETA: Electronic Agents**

- Section 14: positive approach
- EDI contracts

- **The UN Convention on the Use of Electronic Communications in International Contracts 2005**

- Meant to apply to international electronic transactions only
- Not to apply to family type transactions
- Introduces “automated message systems: basically a software agent.
- Invalidity approach

- **ETA: follows the Convention except:**

- Applies to both domestic and international electronic transactions
- Applies to consumer transactions; so differs to the convention,

HUMAN AGENTS

- Agency is a complex legal construct.
- American Law Institute definition is:
The fiduciary relationship that arises when one person (a 'principal') manifests assent to another person (an 'agent') that the agent shall act on behalf and subject to the principal's control and the agent manifests assent or otherwise consents so to act
- *Agency is a question of law irrespective as to what each party describes their relationship.*

ELEMENTS OF AGENCY

- An agent is a person who acts on behalf of another (the principal) to bind the principal to some obligation (s);
- Both the principal and the agent both need to manifest either expressly or by implication their respective consent to the agency relationship;
- Irrespective of what the parties call their relationship, their relationship will be determined as a question of law. That is, it is a question of law whether an agency relationship exists.
- Generally, only the principal will be bound by the agents actions in binding the principal to some contractual obligations;
- The agent and the principal must be entities recognised by law;
- A person who mistakenly claims to be an authorised agent, but is not, will be held accountable for breach of warranty of authority.
- The liability for breach of warranty of authority is a strict liability regime based of contract law.

SOFTWARE/ELECTRONIC AGENTS

- the term “software agent” has no settled definition
- the definition adopted in this presentations will be:
“Software/electronic agents are programs that react autonomously to changes in their environment and solve their tasks without human intervention In this paper both terms “software agents” and “electronic agents” may be interposed and as such their use will mean the same.

SOFTWARE/ELECTRONIC AGENTS

- **Elements for Software Agents (Franklin & Graesser)**
 - **Autonomous** - execution without human intervention;
 - **Social/communicative** – ability to interact with other agents;
 - **Reactive/reactive** – ability to understand their environment and react to changes;
 - **Proactive** – ability to take steps to change their environment;
 - **Adaptive** – ability to adjust behaviour over time;
 - **Goal oriented/intentions** – explicit plans to carry out;

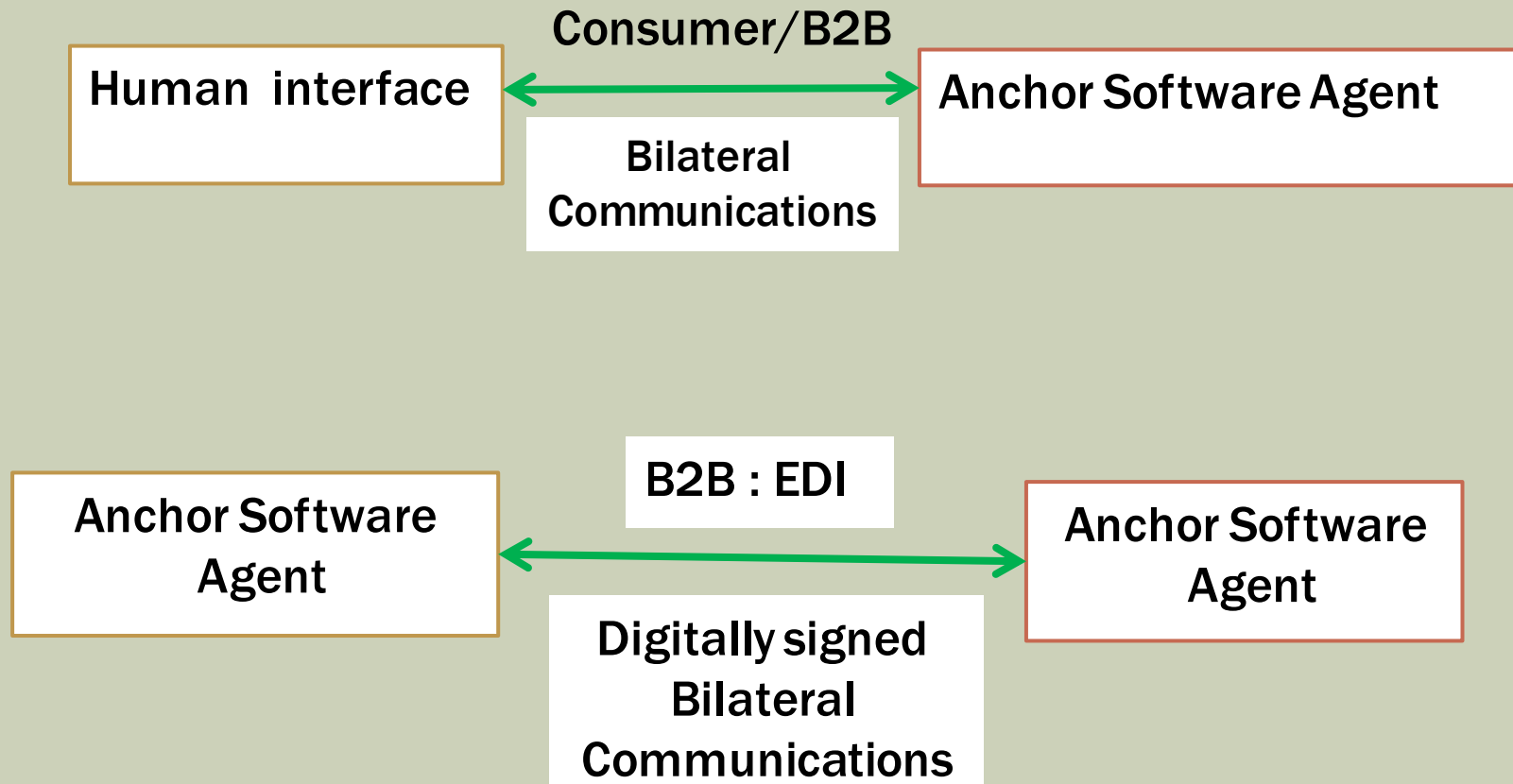
- Elements for Software Agents (Franklin & Graesser)
 - Persistence/continuous – internal state remains constant over time;
 - Mobility – ability to migrate over their environment;
 - Emotion – ability to express human like emotion. This may not be a characteristic that commercial organisation may desire in their software agent. For example in an auction the benefit of using a software agent is that an agent will not succumb to auction fever and will at all times act objectively and in accordance to its programmed negotiation strategy;
 - Intelligence - ability to reason;
 - Honesty – truthful in expression.

SOFTWARE/ELECTRONIC AGENTS

- Two main types of agents:
 - Anchor Software Agents;
 - Mobile Software Agents.
- Most current commercial deployments are Anchor Software Agents but most of the research involves mobile software agents.
- Examples of anchor software agents are:
 - EDI arrangements
 - Online auction systems like E-bay;
 - Online retail systems like Amazon.

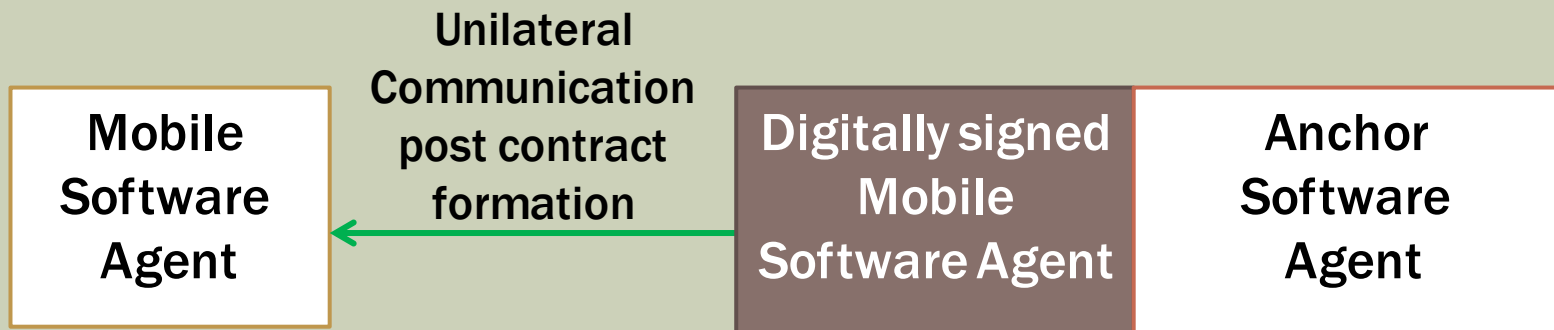
ANCHOR SOFTWARE AGENTS

MOBILE SOFTWARE AGENTS



ANCHOR SOFTWARE AGENTS

MOBILE SOFTWARE AGENTS



OUTSTANDING ISSUES

■ Jurisdiction : Mobile Agents

All communications/negotiations occur within the environment of the anchor software agent so jurisdiction without a governing law clause will be the jurisdiction of location of server hosting Anchor Software Agent.

■ Liability for Unauthorised Release of Mobile Software Agent.

■ Three options

- No liability: probably not justifiable.
- Liability on negligence: Principal only liable if inadequate security framework deployed.
- Strict liability.: same position as in breach of warranty of authority – Court may not impose this as technically there is no such thing as a secure computer environment.

CONCLUSION

- Software agents recognised in law.
- Invalidity of a contract will not arise solely because a software agent was used in part of the formation activity
- Outstanding issues arise such as:
 - determination of jurisdiction where a mobile software agent is used
 - Liability regime where there is an unauthorised activation of a software agent
 - Should a legal status of “normative agent” be developed as this type of technology matures. What does that actual entail.
- Further research is warranted in this area.