

Software Agents and the Law

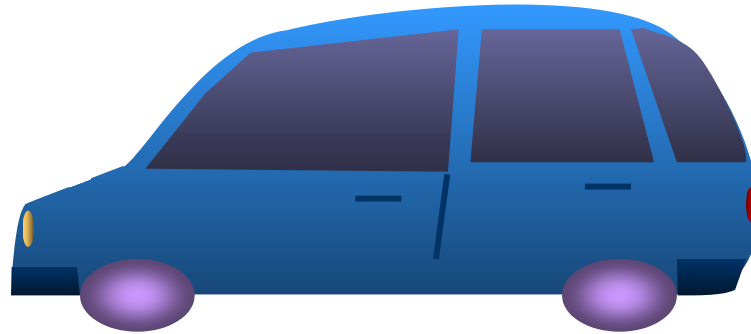
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ALFEBIITE Project



It is 17:55. Enrico leaves his office, hurries up toward his car. It is too late though, **Rita a meter maid** has just placed a fine on the windscreen of his car.

No room for negotiating, but maybe the occurrence is not so adverse as it seemed...
Enrico asks **Rita** to have a coffee together



RRI, Radio Rock International, is broadcasting music Enrico has an idea, he remembers of an old Beatles' song, "**Lovely Rita Meter Maid**" and wishes to dedicate it to the girl.

He calls **Jonathan**, the DJ, and asks him to play the song.



Meanwhile, inside RRI studio,
Alexandra, the technical assistant fills a
form for their software agent, **Hermes**

HERMES – task description

Author(s)
Lennon, McCartney

Title
Lovely Rita Meter Maid

Performer(s)
Beatles

Who are you, Hermes? (I)

- Hermes is a software agent:
 - implementing a model patented as “Music Middleman” by **AECS** (Applied E-Commerce Science), a US corporation;
 - Build through a software copyrighted by **ZNS** (ZweiNullSieben) a German corporation;
 - Licensed to RRI (Radio Rock International), an Italian radio;
- The terms of the AECS-ZNS contract:
 - ZNS is allowed to build systems implementing “Music Middleman”, it is forbidden to make any other use of this technology, it is obliged to pay a fee to AECS, ecc....
- The terms of the ZNS-RRI contract:
 - RRI is allowed to use Hermes, empowered to assign him tasks, forbidden to access or modify his code, obliged to pay a monthly fee
 - Zns is obliged to maintain Hermes, to provide him with market information ...

Who are you Hermes? (II)

- Who owns Hermes?
 - The owner of the technology (the patent holder)?
 - The owner of the software (the copyright holder)?
 - The owner of a right of use (the licensee and the “sub-licensees”)?
- Hermes gets information from:
 - ZNS database manager;
 - Alexandra and RRI staff;
 - his own autonomous inquiries;

Who are you, Hermes? (III)

- Who controls Hermes?
 - The patent holder (who decides upon the use of the technology)?
 - The copyright holder (who can access and modify software)?
 - The licensee and the “sub-licensee” (who issue assignments and communicate information)?
 - The agent himself (who knows the circumstances and decides what to do)?

Who are you, Hermes? (IV)

- Who controls Hermes?
 - The patent holder (who decides how to use the technology)?
 - The copyright holder (who can access and modify software)?
 - The licensee and the “sub-licensee” (who issue assignments and transmit information)?
 - The agent himself (who knows the circumstances and decides what to do)?

Who are you, Hermes? (V)

- Who is responsible for Hermes (if he harms somebody)?
 - The patent holder (who designed the technology)?
 - The copyright holder (who implemented the software and provided general knowledge)?
 - The licensee and the “sub-licensee” (who assigned tasks and endowed him with specific knowledge)?
 - Hermes himself (who evaluated circumstances and took his own decisions)?
 - A devious third party (who manipulated his environment or his internal state)?

Hermes's story (V)

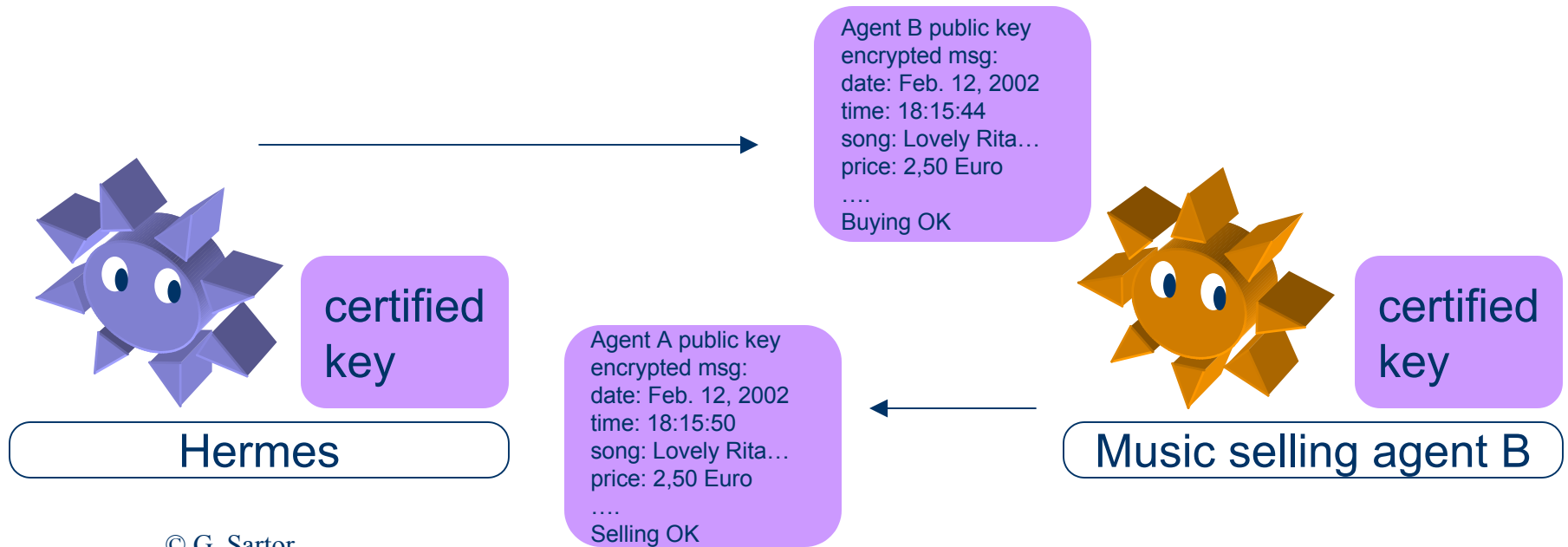
- The statement of Hermes's task
 - Specification of the author: John Lennon, Paul McCartney
 - Specification of the title of the work: "Lovely Rita Meter Maid"
 - Preferred performing artist: The Beatles
 - Alternative performing artist: Any
 - Availability: 6.17 pm
 - Price: the lowest possible, below 5 Euros
 - License type: One time only, before 8pm current date, public performance by broadcast

Hermes's story (VI)

- To execute his tasks, Hermes:
 - Consults the register of musical recordings
 - Access Zns (his builder) database of on-line music providers
 - Clone itself and contact simultaneously different providers
 - Negotiate with the offerors
 - Evaluate alternative offers against his task descriptions
 - Decide when an offer is good enough to make a deal
 - Make a contract
 - Execute it

Hermes decides to purchase the license for broadcasting Lovely Rita Meter Maid by Agent B of Time Warning corporation.

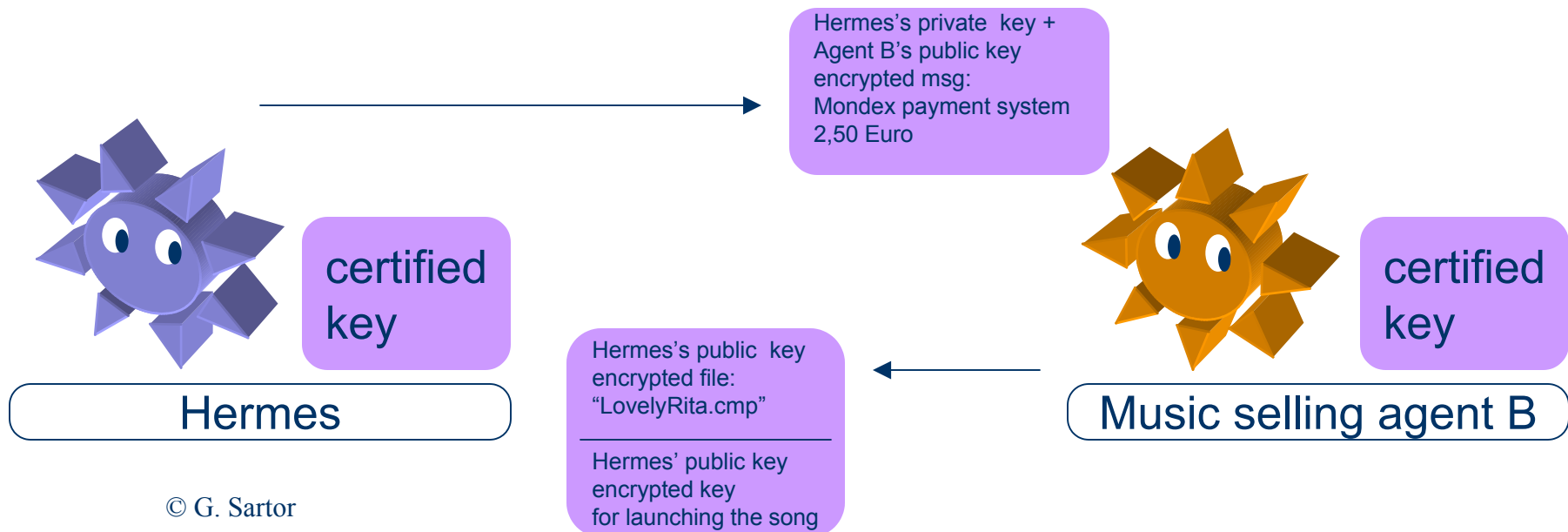
> Handshake is made through the interchange of encrypted time-stamped messages



Hermes pays the fee to Agent B and the latter sends it a compressed encrypted version of the song

> Payment is made through an electronic micropayment system (e.g., Mondex)

> The song is compressed and encrypted; RRI is given the key for launching it



In the meantime, Hermes ceases transactions with other selling agent.

What if Hermes does not inform the other agents that he ceases transaction, so that they wait and lose other business opportunities

What if Hermes does not pay the song?



Meanwhile at RRI, Alexandra launches the file.

It is 18:17:40. Outside the bar night is falling. The song is in the air. “Lovely Rita meter maid, nothing can come between us... Lovely Rita meter maid, may I inquire discretely, when are you free, to take some tea with me?”



Hermes's legal qualification

- What is Hermes?
 - A messenger, who only transmits an offer from his principal (RRI and Alexandra) to the offerees
 - A representative, who autonomously determines the content of a contract which he will conclude in the name of his principal (who will acquire rights and duties ensuing from the contract)
 - An independent contractor (an agent without representation), who acquires rights and duties on his own, and later transfers them to his principal.

Who “wants” to make the contract?

- The principal (Alexandra).
 - She assigned Hermes his tasks and established the constraints,
 - However, she is not aware of the context and the contents of the negotiation
 - However, she does not know the precise content of the contract which is concluded
- Hermes.
 - He autonomously decided when and how to make the deal
 - However he followed her instructions (and his built-in rules)
 - However he was not “conscious”

How is a contract made?

- According to the traditional view (both in common law and in civil law), a contract is formed through a couple of declarations, offer and acceptance:
 - Through which the parties express their joint consent (their agreement), i.e.
 - their joint intention of producing (through such declarations) certain legal results: creating, transferring, modifying obligations, rights and powers
- The legal system “recognises” the common intention of the parties, i.e. it makes so that their declaration of a certain intention produces exactly those legal results which the parties intended to produce (with possible integrations and modifications)

The objective view of contract formation

- Sometime it is said that what counts in contract is the “objective” meaning of their declarations, rather than their common intentions
 - This would be true if the law would link to the behaviour of the parties in a contract certain legal effects, regardless of the parties’ intention to behave so, and regardless of their intention to achieve those effects.
 - This happens only sometimes and in certain regards
 - This issue however should not be confused with the following
 - An external judge may intervene
 - The parties may have different intentions, so that the contract may produce effect only corresponding to the intentions of only one party

An external judge does not make contract “objective”

- When a dispute arises,
 - a judge may establish what the intention of the parties were and
 - the judge can only do this on the basis of the perceptible behaviour of the parties
- However, this does not imply that intentions are irrelevant. They are relevant if the judge views perceptible behaviour as clue to identify intentions. The issue
 - is not whether the input of the decisional process is constituted by intentions or by perceptible behaviour
 - It is whether behaviour directly determines the outcome of the decisional process, or whether we have a two step decisional process, first, from behaviour to intention, and second, from intention to outcome

Unintended interpretation does not make the contract objective (II)

- A contract may have a “legal” meaning that is different from the intention of one party (but coincides with the intention of the other:
 - Assume that item 1 has name x, and item 2 has name y, according to the public catalogue of the goods you sell. However, I wrongly believe that 1’s name is y and that item 2’s name is x
 - Assume that I tell you: “I want to buy item x”, and you say “OK”.
 - If by x you **mean** item 1, according to the public catalogue, and you **did not** and could not reasonably **know** that by x I meant item 2, then item 1 is sold to me, according to your intention (and to the public catalogue), and against my intention

Unintended interpretation does not make the contract objective (II)

- However, this is not because the contract has an “objective” meaning, different from the parties’ intentions, but because the law wants to implement your intention rather than mine (since I was mistaken). In fact
 - If you also meant 2, by saying x, then what is sold between us is 2 regardless of the fact that we both used the wrong name (x) to refer to it. It would be absurd to impose on us something that neither of us want just for the sake of the objective meaning of the words we used.
 - If by x you meant 1, but you knew that, by saying x, I meant 2, no contract is made, or the contract is voidable (because you knew that there was no shared intention, and so there is no justified expectation of yours to protect in such a case)

What is the rationale?

- A contract is considered to express content A if
 - At least one party had intention A
 - That party believed that the counterparty also shared intention A
 - That party was justified in the latter belief, by the clues which were provided by the declaration and the behaviour of the counterparty
- Among those clues, a dominant role is played by shared linguistic conventions
 - In the absence of relevant clues to the contrary, the party is justified in believing that the behaviour of his counterparty has the meaning that is attributed to it by shared linguistic conventions
- Only in this sense, i.e., only as a clue to the intention of the counterparty, are linguistic conventions relevant

Can the relevance of intentions be limited?

- The relevance of intentions can be limited (to simplify the decision of possible conflicts, and prevent dishonesty):
 - By limiting the number of clues which can be used in reconstructing the intention of the parties (i.e. only written clues may be relevant, only in certain context can testimony be heard, etc.)
 - In the case of a conflict of intentions, by limiting the relevant clues to those which were made accessible to the counterparty (to protect the counterparty which correctly interpreted the clues available to her),
 - Etc.

Can we bypass the psychology of consent?

1. By restricting the language and the intelligence of the agents:
 - Let us assume that:
 - There is a public language imposed to all partners in the interaction, which establishes the meaning (and purpose) of each of their communicative actions
 - There is a public set of norms which establish the normative effects of communicative actions of the parties
 - Then intentions coincide with public meanings and public normative effects

Can we bypass the psychology of consent?

2. By making the effect of the acts of the parties independent of their intentions
 - The law, or an agreement, may establish that certain actions will count as the expression of a certain intentions, i.e. will have the legal effects which a declaration of the intention (to achieve those effects) would have
 - regardless of there being an intention to do such actions in order to have these legal effects, and even
 - Regardless of there being any intention to perform the actions,
 - Can we still consider that such actions as a “contract” ? (not a very important issue)
 - What parts of the law of contracts will be applicable to them? (a very important issue)

What shall we do with contract and intention in regard to agents

- Provide a general theory of contracts which is independent of intentions
 - Should this theory also be applicable to humans (but why should human become as stupid as their electronic assistants)?
 - Should we deeply modify our laws, just to have the same body applicable to both humans and automata?
- Provide a specific theory of non-intentional transactions, which covers all those cases where intentions are irrelevant?
- Should we still aim at viewing (some) agents as intentional agents (and so capable of making intentional contracts), or should we view all agents in the same way?

Prototype and deformations

- In the law we have a prototypical idea of the contract as a joint declaration of intentions
- Standard pattern:
 1. X has the intention to achieve a result R, by performing an act (to be completed by Y) which declares a common intention of the two parties
 2. X declares his intention (the offer)
 3. Y has the intention to achieve R, by completing the act started by X, and so declaring her intention
 4. Y also declares her intention (the acceptance)
 5. According to the institution the declaration of the common intention achieves the intended result
- But this pattern can be deformed to take into account various contingencies, and sometimes a contract is effective even though X or Y (or both) do not have the standard intentions

What is the extent of Hermes's autonomy?

- What if Hermes goes beyond his powers
 - As stated in the certificate communicate to the counterparty
 - As stated by RRI to Hermes itself
- What if Hermes goes against his assignment?
 - And the counterparty is/should be aware of that
 - And the counterparty is not/should not be aware of that
- What if Hermes “extends” his assignment?
 - And he behaves reasonably
 - And he behaves with evident absurdity/inconsistency

Defects of consent

- Invalid consent doctrines: A contract is invalid when one party has certain states of mind, resulting of certain circumstances
 - Mistake: a false belief which lead to the stipulation of the contract and was recognisable to counterparty
 - Violence and menace: an unjust threat which determined the stipulation of the contract and was recognisable to counterparty
 - Misrepresentation (deceit): a false belief induced by the counterparty which lead to the stipulation of the contract
- Whose are the relevant states of minds?
 - Hermes's?
 - Alexandra's?

Has Hermes legal personality?

- Can he have his own legal rights and duties (which are distinguished from the rights and duties of his principal)?
 - Are his interest relevant for the law (directly or indirectly)?
 - His he capable of looking after himself (so that he can exercise his own rights)?
 - Has he got his own property (which is separated from the property of his owner)?
- What about the slaves? In Roman law
 - They could (if authorised) make contracts in the name of their owners;
 - They could have a certain amount of money (peculium), which the third parties could rely upon.

Can agents have a legal personality? (I)

- We need to distinguish various meaning of legal personality:
 1. An entity is a legal person if is in capable of acquiring rights and duties
 2. An entity is a legal person if it has an independent property, which unsatisfied creditors can attack
 3. An entity is a legal person if it has the basic set of rights and duties (human rights) that each human has or should have

Can agents have a legal personality? (II)

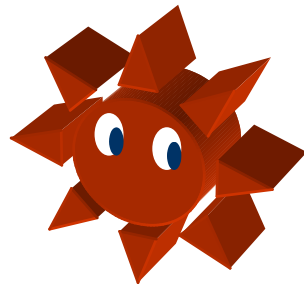
- Agents may be legal persons under description 1 (when the rights and duties are appropriate to their nature)
- Agents may also be persons under description 2, if appropriate institutional arrangements are provided
- Agents are NOT legal persons under description 3

The responsibility for the wrongful behaviour of Hermes

- Is the owner liable since the agent's behaviour in reality his owner's behaviour
- Is the "owner" liable as being the custodian of a thing?
- Is the "owner" liable as being the guardian of the agent? (as if the agent was a child)
- Is the "owner" liable as being the employer of the agent (vicarious liability)? (but then Hermes must realise his own torts)
- Is the "owner" liable as being the principal (mandator) of the agent?
- Is the owner not liable (since only Hermes is only liable on his own for his behaviour)

Now, back to e-business

- A spy-agent, Mata Hari was delivered along with the song. Mata has to:
 - Allow playing the song (acting as a start-up program)
 - check RRI compliance with the terms of the license;
 - Delete the recording after playing it
 - Bring back to Time Warning a Report.



Mata Hari

Agents and privacy

- Is Hermes's privacy legally protected?
 - When he contains data concerning his owners?
 - Also when the data only concerns himself (his plans, preferences, or constraints)
- What if Hari violates RRI's privacy?
 - Does an agent knowledge of other people's data realise a forbidden "treatment" of personal data?
 - Who is responsible for the agent's wrongful behaviour?

What legal constraints?

➤ Hari

- must inform Alexandra that somebody is hiding in her computer
- has to limit the scope of her inquiry to the terms of contracts at hand
- must not gather information, even related to previous contracts or other issues (e.g., looking for “cracks”, illegal reproductions, relations with other companies, etc.)