

What is the social in social agents?

Jukka Vuorinen

Department of sociology, University of Turku, 20014, Finland
jukka.vuorinen@utu.fi

The social in social agents is examined in this paper. The social is approached from two different aspects. Firstly, social is considered as power or force that has an impact on everything that is social. In the second approach, social is perceived as connections. Both interpretations of the social are reflected on the agents: what is the social like and can it be reached in the case of social agents? Throughout the paper, an on-line assistant is used as an illustrative example.

INTRODUCTION

In this paper, I intend to examine, what the social in social agents is. I try to carry out my objective by going through an example that is related to a banal occurrence. One day while renovating the house I needed a new cabinet and I visited a few websites in order to see some of the selection available. On the Ikea site, I found something else than just a cabinet: I met Anna.¹ Anna is an application; more precisely she is a helper agent (or "automated on-line assistant") to whom you can address questions about Ikea and their products. If you are lucky, Anna understands your question and provides an accurate answer. In my case, I typed the question "What kind of cabinets do you have?" Anna popped up a window, which was prevented by another agent, the pop-up blocker on the web browser I used. After re-configuration of the pop-up blocker, I was able to see the window Anna opened. Finally, I found a cabinet in the opened window that pleased me. Therefore, I have to give some credit to Anna. I went on location and did the actual shopping. In brief, this is the illustrative story to which I shall frequently refer during the course of the paper.

¹ Ikea site: <<http://www.ikea.com/>>, direct address to Anna: <<http://193.108.42.79/ikea-us/cgi-bin/ikea-us.cgi>> (checked on 09-01-2007).

Anna could be categorised as a social agent easily, as her appearance² is human-like (though in a comic book style) and she seems to understand "natural"³ language. I assume that her "social nature" is not denied among computer scientists or interface designers. Therefore, it would in my opinion be important to explore what the social in social agents is. However, my aim is not to provide an objective account on what is social as such. Instead I try to illustrate – with the help of Anna – what that social is like in case of social agents and how the social could be interpreted here.

SOCIAL AS POWER BEHIND US

At first, it seems as if the social in social agents is derived from their ability to use and "understand" natural language and/or from the fact that social agents usually appear – more or less – in human form. The embodied fact social agents, perfect copies imitating an anthropomorphic form, can be found in science fiction. Such television series as *Battlestar Galactica* display artificial social agents (Cylons) that even have gods to worship. In other words, they do have a religion, thoughts about the sacred and the profane (see [3]). But as we know, the fact that social agents do not walk among us signifies, therefore, that we have to settle for Anna and her peers, and examine their sociality. However, science fiction is not to be forgotten, since it offers interesting aspects and visions that can be turned into series of critical questions concerning the implemented social agents in praxis. Religion – divisions on the sacred and the profane [3] – provides a frame to the first question that begins to undermine the social in social agents: Would Anna ever develop religious thoughts which would definitely reflect social feature? Maybe the question is neither fair nor accurate since there are millions of examples of activities that are considered to be social but which all the ultimate social agents, humans, have not

² Anna may vary depending on the country. For example, Anna in the UK-site looks different to other Ikea sites and is able to talk. My original discussion took place on a Finnish site, but I went through the same discussion with the US-Anna as well. The differences between Anna variants are irrelevant here. The actual interest lies on what the social in Anna is.

³ "Natural" and "everyday language" are the terms mentioned on the web page of Artificial-solutions that is the creator of Anna.

<<http://www.artificial-solutions.com/topmenu/productsservices/interactivewebassistant.4.367041cc112f05e1e8c80004769.htm>>

done. In order to be a social agent you do not have to do everything that is social. For example, if someone has never played golf s/he could still be considered social.

We could turn the composition the other way around. Instead of examining *what it is that Anna does that is possibly social* (i.e. she communicates in natural language and smiles), and what it is she does not do (play golf, develop religion, commit suicide etc.), we can concentrate on *what the social does to Anna*. If she is a social agent, she should be moved by the social. Classical sociological thought claims that social conditions influence people since they are social [2, 3]. In this manner, people who have loose ties to society commit suicide more likely compared to integrated people [2]. In order to be social, Anna should be influenced by such issues. We could now ponder, whether she would commit suicide or would the probability of suicide increase, if she was conditioned under poor social relationships? What are the possibilities of social influence in cases of social agents?

The previous aspect assumes that in order to be social, the agent subjected to social norms/powers does have to be influenced by the powers. Briefly, in case of artificial social agents, the reactions to social norms/powers would have to be programmed in their code. The problem, however, is that the sets of norms are extremely difficult to determinate, because they are unstable and on the constant move. Some studies on social agents have noted social norms, for example asymmetry of discussions, meaning that both sides of any discussion rarely occupy equal positions, equal social roles, but it is rather a composition of an adult and child, mentor and pupil etc. [1]. Yet, the consideration of role position is a minor factor when examining the sources of the roles. They are not stable but dynamic. Roles do not just appear from nothingness but are connected to the situation as well as to the cultural and historical background [5].

Moreover, the question of programming social norms is not about coding automatic responses of social agents but interpreting situations. In Anna's case, she can hardly discuss anything else but Ikea products. The vast set of norms and social situations are out of her grasp, and what is even worse, they are in their contingency extremely hard to

reach. On a concrete level, there are millions of variants of cultures that include millions of norms and interpretations. We cannot predict exactly – a knockout punch that lands on the face of computational and social agents – what will happen in the world of humans. The determinism is out of reach when it comes to social actors. An enlightening comparison can be made to economy and predictions concerning it. Economy should be much easier to deal with than the social worlds, but even with economy, we cannot come up with precise predictions. The aspect of social norms influencing agents declines designing options for artificial social agents: in order to be credible, they have to be strictly role-situated like Anna is. She does not discuss religion but products, as would the actual staff also do. But the difference still remains between virtual and actual: actual people can commit suicide, can come up with religious thoughts, can fall in love⁴, and can jump from one role to another. What should be programmed are the rules for role development, rules of culture. How this is to be achieved remains yet to be answered. Without a cultural development code, a social agent is – at best – a snapshot of a role that tells much more about us than the agent.

SOCIAL AS CONNECTION

An artificial social agent is not "social", if the social refers to possible influences of social conditions on the agent. At least Anna, who pops up windows, is not moved by social forces, social laws. The fact agents may conduct differently in science fiction. Notwithstanding the previous paragraphs, Anna could be regarded as a social agent, if we consider social as an adjective and perceive Anna as a connection or a bunch of connections (see [8, 9]). It is a connection between agents. This relates to every type of agents (human, computational or material). When I typed the question to Anna, it was a connection between her and me. When she opened a window for me, she made a connection to products, bridging herself between the products and myself. The social took place there at that moment of the connection. This way the social is not a feature programmed inside her (cf. the powers outside

⁴ Theoretically, though, it is claimed that (someday) agents could also be able to love [10].

subjecting her) but a connection that is created between her and the visitor on the page.

Anna's connections (and simultaneously the social) are not confined to a mere visitor. A Social Agent – such as Anna - has conditions that have made her possible (see [4]). It is not just her programming but also the formation of knowledge that makes the social agent possible. We can imagine the workload that lies behind the generation of the agent. The development of algorithms, a crucial part of the emergence of the social agent, presumes another set of things and knowledge. Development of microprocessors and computers as well as emergence of programming languages and the surfacing of interfaces have preceded Anna. This temporal "look back" is not a search for the beginning of an "idea" for Anna, rather it is a list of requirements that spread throughout time to the spatial axis: it is not just the development of direct links connected to Anna (like the code she is based on) but also other things and entities that are vital for Anna's existence, such as Ikea. Ikea starts a new set of threads that spread around connecting different aspects from the concepts of proprietary and profit to ideas of mass global markets. As new connections rise, the ground under Anna turns from solid to liquid. Emergence of a new algorithm may change her quite a bit. A marketing department may end up changing Ikea's yellow-blue colours to something else, forcing Anna on the move again.

Additionally, the visitors are also connected to the vast set of affairs, things and matters. I needed a cabinet. In order to need one and search for it on the net I must have had connections to consuming, Internet, and the capability to do so. These connections are the social. Anna is a node in a web that can be called social. The social pours in that network and is the source of social in social agents. It is not the inside of them, but the connection.

The connective aspect emphasises agency, what she actually does. In brief, she helps, she opens up windows, she understands questions, and so on. She is a shortcut for me. She does some work for me, she makes me ask her. She makes me type the question. This is part of her agency. Yet, if the social is considered a connection and agency, then we could open up a discussion of an agency of doors. Bruno Latour [7], for

example, describes the actions of a groom, a hydraulic door closer, and how problematic the same task would be for human actors. Closing a door does not sound like a difficult task as such, but in Latour's example it is one: without the groom (hydraulic door closer), a porter is needed to stand there for the dull assignment. Instead, here the material mechanism does the job just fine. Actually Latour, in describing the agency of material objects, starts with the door and the hinges; they enable a wall with a temporary hole in it. Without the door, people would have to drill a hole to get out. After that, the wall would naturally have to be repaired, if the interior was to remain an enclosed space. The door with hinges and a groom truly is a strong agent among human ones. [7]. Anna's agency does not differ from the door. Surely a door does not understand language, but it does not prevent the agency and the connections. If the connection is the source of the social, instead of language, then everything connective or disruptive would be a social agent. In this manner, even the pop-up blocker is social, because it initially prevented Anna from doing her job and, therefore, interrupted our connection. If the pop-up blocker came in the form of a human, it still would have the same agency; it would not add anything "social" there. In Latourian manner, the difference derives from the "modern" division between humans and others (see. [8], see also [6] p.149-181). In other words, we tend to see "speciality" in human form, even though in this case the pop-up blocker initially had agency over Anna. Anna lies in between the division mixing up the categories and this makes her stand out (cf. Haraway [6] p. 149-181). On the level of agency, she has nothing new to offer. She is a replica of an assistant – a social form that is not a new one but a mere digital copy.

CONCLUSION

There is not just one way to consider the social. During the course of this paper, it has begun to seem like the social in social agents is not social in the sense that it would move the agents from the outside. They are not subjected to social powers as themselves directly (they do not respond to changes in social conditions by themselves), but they can be seen as products of those powers and conditions. The social status can be given if the social is considered to be merely a connection with an agency. The aspect, though, takes us to a situation, in which the social

agent, such as Anna, loses her special position in the material/virtual world. The agent that appears to be non-social, namely the pop-up blocker, has agency as well. It may not understand "natural language", but it is as connective as Anna. There is no difference between them when it comes to the social. Certainly, their agencies vary from each other but, regarding the social aspect, neither one would come up with religious thoughts or end up committing suicide if they were treated (badly). Their social type is purely connective.

This aspect could be taken further by claiming that even a regular door has connective agency. Maybe someone would argue that Anna's agency is stronger, because she has the ability to talk back. She could be programmed to give angry answers; therefore she could have the capability to arouse emotions on the other side of the connection. Still, a locked door that does not talk back (at least in natural language) can block the way to Anna and her cabinets, and also arouse emotions while it seals a confined space.

It could be claimed that "social" agents are nothing more than a category with empty promises. The social is just a division between human/nature, material/social, and so on. The division might be legitimate and plausible if the agents could respond to the changes in social conditions and could, for example, end up developing addiction or committing suicide. Now, they are just as connective as a door.

REFERENCES

- [1] Aharoni, E., & Fridlund, A. J.: Social Reactions Toward People Vs. Computers: How Mere Lables Shape Interactions. *Comput. Hum. Behav.*, 23 (2007) 2175-2189
- [2] Durkheim, É.: *Suicide, A study in sociology*, Free Press, New York (1966)
- [3] Durkheim, É.: *The Elementary Forms of Religious Life*, Oxford University Press, Oxford (2001)
- [4] Foucault M.: *Archaeology of Knowledge*, Routledge, London (2002)
- [5] Goffman, E.: *The Presentation of Self in Everyday Life*, Doubleday, New York (1959)
- [6] Haraway D.: *Simians, Cyborgs and Women: The Reinvention of Nature*, Routledge, New York (1991)

- [7] Latour, B.: Where are the Missing Masses? *Sociology of a Door* (1992) Available at <<http://www.bruno-latour.fr/articles/article/050.html>>, checked 2007-04-05.
- [8] Latour, B.: *We have never been modern*, Harvester Wheatsheaf, New York (1993)
- [9] Latour, B.: *Reassembling the Social, An Introduction to Actor-Network-Theory*, Oxford University Press, Oxford (2005)
- [10] Sloman A.: Architectural requirements for human-like agents both natural and artificial. What sorts of machines can love? In Dautenhahn, K. (ed.): *Human Cognition and Social Agent Technology*. John Benjamins Publishing Company, Amsterdam (2000)