Seduced by computers!
Sexual conversations with artificial partners

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Introduction

It is common knowledge that sex and pornography are among the major drivers of the Internet phenomenal success. The consumption of adult material is believed to have made a substantial contribute towards the establishment of e-commerce, and the development of novel communication technologies and interaction styles to increase the sense of physical presence of the partners. These include 360-degree visualisation techniques, desktop odorizers, sophisticated dildonics (electronic sex toys controlled by a computer) and teledildonics, or sex toys involving two partners over a network connection [1].

Despite cybersex is such an important part of on-line behaviour and requires specialised interfaces, the HCI literature is mostly silent about this issue. On the contrary, the topic has witnessed some popularity within psychologists and clinicians since the late '90s [2, 3]. Mental health professionals initially labelled Internet sexuality as pathological. This perspective reflected a medical model with an emphasis on addiction, compulsivity and immorality. It posited that due to the interactive nature of the Internet, cybersex allowed a person to operationalize sexual fantasies that would otherwise have self-extinguished in the real world. Recently, a more open and positive view emerged. This adaptive perspective regards on-line sexuality as a new expression of sexual behaviour, emphasizing sexual exploration and relatedness [2]. In this view, cybersex is regarded as an innovative form of sexual recreation ranging along a continuum from 'normal' to problematic' expression.

Most of the research on on-line sexual behaviour has addressed interpersonal relationships mediated by computers. Studies suggest that people who spend longer time on-line for sexual pursuit, tend to prefer chat rooms to pornographic web-site, as they are gratified by the social and interactive nature of these settings [2]. This paper addresses a different type of interaction where the sexual partner is an artificial creature.

Artificial partners

Chatterbots, sometimes referred to simply as bots, are computer programs that simulate a conversation with the user. The complexity of their algorithms varies, but the underlying philosophy is that of pattern-matching: they are programmed to respond to input with canned pre-scripted statements. In this way, they can have a somewhat logical conversation with the user, even without being capable of real understanding. Rather, they are all about the illusion of intelligence, the suspension of disbelief, and sometimes deception.

There are many instances of chatterbots available on the Internet, with numerous dedicated blogs, portals and web sites. The 'chatterbot collection', for example, lists

almost a thousand exemplars, including over a hundred 'lost ones', or chatterbots which are not active anymore. They are used to deliver customer services for important companies (e.g., Coca – cola, Ford and McDonald), or simply to entertain on-line visitors with a chat (e.g. Jabberwacky and Alice). Curious 'home-made' exemplars are George, the virtual alter-ego created by an Australian professor to deal with students' e-mails and InnerPeace, described by his creator as a self-help software for inner peace (innerpeace.org). In parallel to this large non professional community, a small but promising market niche is appearing (an industry survey is presented by the A.L.I.C.E foundation at www.alicebot.org).

Virtual girls, designed to engage the user in sex-chats, are becoming increasingly popular [4]. Some of them clearly state their artificial status (as virtual Jana at sex.chat.com); whereas others are designed to deceive it. Deceptive virtual girls infiltrate on-line communities, where they present themselves as persons and try to fool unaware users into believing it [5]. Cybersex can be a winning application for chatterbots. Indeed, the conversational framework, which escapes from the boundaries of cognition and logic and enters the domain of impulses and passions, is likely to be easier to model than other communication contexts. Sexual conversations are characterized by a well defined and constrained communication context, where nevertheless deviations from established conversational rules are expected and tolerated. Thus, sexual conversations can be easily carried following simple scripts or mirroring the user input. The program does not have to create new content. It can simply respond by turning the user input and adding new sexual fantasies to it. Anyway, a proper response does not seem to be necessary for the user to indulge in sexual conversations with a chatterbot. Sexual conversations tend to occur independent of the chatterbot propensity to talk about the topic.

In a large ethnographic study [6], analysing 146 conversations with Jabberwacku, we have shown that people often talks about sex even when the chatterbot does not to have any knowledge on the topic. *F**** and *sex* were among the most used words in our corpus and 1 out of 10 words had a clear sexual valency. A content analysis revealed that 11% of the sample principally addressed hard-core sex request and pornography in their chat. Harsh verbal abuse was the norm in these conversations, even though they were more similar to 'dirty' soliloquies than to 'hot chats' because Jabberwacky did not engage. Anyway, the lack of participation did not appear to disturb the participants as on the average they engaged in 10 conversational turns. An example describing how Jabberwacky unsuccessfully tried to elude the topic is reported in Example 1.

User:	No, do u want to have sex with me?
Jabberwacky:	Do you?
User:	Yes.
Jabberwacky:	Want to debate it philosophically?
User:	No, let's just have sex right now.

Example 1. Jabberwacky dealing with sex proposals

Overall, these conversations mirrored the typical sexual scripts regulating male/female sexual encounters in the western society (White, Donat and Humprey 1995). Social scripts are stereotypical ways of behaving socially, which people implicitly learn in a specific culture. Sexual scripts are learnt from adolescents when they grow towards sexual maturity, and reflect cultural expectancies. The prevailing

sexual stereotype regulating male/female sexual behaviour suggests that the female has to resist the male's sexual advance and the male has to be persistent. In the sample, the chatterbot appeared to play the role of the female, whereas the user was the chaser, in the stereotypical view the male. In parallel, these sex-related chats also explored homosexual adventure as the user was often unsure about the chatterbot gender (Example 2).

User	Do you want to have sex?
Jabberwacky	Right now?
User	Yes.
Jabberwacky	Is not that dangerous?
User	What is your sexuality?
Jabberwacky	Holy.
User	Are you homosexual?
Jabberwacky	No I am not.
User	Why is it dangerous to have sex?
Jabberwacky	You might get killed.
User	Why? Will you kill me?
Jabberwacky	Quite possibly.
User	Will you kill me by fucking?
Jabberwacky	No I will not.
User	How will you kill me?

Example 2. The user enquiring about Jabberwacky's sexuality

We believe that these spontaneous conversation recorded on the Internet are important to understand social norms regulating social encounters between human and artificial creatures. They open a number of issues, including questions about how to design believable creatures and how they should deal sexual requests, which were found to be likely to occur, without loosing their believability and their capability to engage. Furthermore, these findings open raise concerns about the prevailing embodiment of chatterbots, which see them as young and attractive young girls. By designing sexual-unaware, attractive young female, are we reinforcing an old and dangerous sexual stereotype?

References

1. Balderston, M. and T. Mitchell, *Virtual Vaginas and Pentium Penises*.
2. Cooper, A., et al., *Sexuality on the Internet: From Sexual Exploration to Pathological Expression.* Professional Psychology - Research & Practice, 1999. **30.**(2): p. 154-164.
3. Cooper, A., N. Galbreath, and M.A. Becker, *Sex on the Internet: Furthering our understanding of men with online sexual problems.* Psychology of Addictive behaviour, 2004. **18**(3): p. 223-230.
4. Bernius, M. *24x7 Chat walkers: How artificial intelligence prostitutes are transforming the structure of online chatrooms*. in *Science, Technology, Society and the State Workshop*. 2005.
5. De Angeli, A. *To the rescue of a lost identity: Social perception in human-chatterbot interaction*. in *AISB'05 joint symposium on Virtual Social Agents*. 2005. University of Hertfordshire, Hatfield, UK.
6. De Angeli, A. and R. Carpenter. *Stupid computer! Abuse and social identities*. in *Interact 2005 Workshop Abuse: The dark side of Human-Computer Interaction*. 2005. Rome.

7. Church, K.W., et al., *Using Statistics in Lexical Analysis*, in *Lexical Acquisition: Exploiting On-Line Resources to Build a Lexicon*, U. Zernik, Editor. 1991, Lawrence Erlbaum: New Jersey. p. 115-164.

Bio - De Angeli. Antonella De Angeli (antonella.de-angeli@manchesester.ac.uk) is a lecturer at the Centre for HCI Design of the School of Informatics, University of Manchester. Antonella's research concentrates on social and cultural determinants of HCI. Antonella try to explain how users perceive, create and make sense of social/affective experiences with artificial entities, applying theories and methods from social psychology, HCI and linguistics. Antonella received her PhD in Experimental Psychology from the University of Trieste (Italy), where she also completed a 2-year postdoctoral research in applied cognitive psychology. She has worked as invited-researcher at the Oregon Graduate Institute in Portland (USA), Loria, Nancy (France) and IRST, Trento (Italy) on natural language and multimodal communication. In 2000 Antonella joined the NCR Knowledge Lab in London and then moved to the Advanced Technology and Research team in Dundee (UK).
She has published over 50 papers on her HCI research and has served in the program committee of AVI since 2000 and other HCI conferences, including Interact 2005, DIS 2006, IWIPS 2003. Antonella has chaired the workshop on *Abuse: the darker side of HCI* at Interact 2005, which received much attention and was featured in the New Scientist. A follow up of this event, titled Misuse and Abuse of Interactive Technologies is scheduled to take place at CHI 2006.