An anthropological perspective on techno-animism and design implications for ageing care technology: The value of the valley?

Brussels, 2-3 June 2008

SENIOR: Socio-Anthropological Workshop on ICT and Ageing
Panel II: Techno-animism

Peter Lutz
Philips Research Europe (Eindhoven)
peter.lutz@philips.com

Outline

- Some working terms
- Emotive, expressive and interactive research with the iCat (demo)
- Ethnographic reflections: Fieldwork with older people
- Issues for ICT and Ageing: The value of the valley?

Working terms: Animism

- The term is derived from the Latin word *anima* meaning *breath* or *soul*.
- It embraces the belief that natural phenomena such as death, echoes, shadows and reflections have causal explanations.
- In anthropology it's used to classify religious belief systems in which both animate and inanimate objects have souls or spirits. Some scholars (e.g. E. B. Tylor) consider it the elementary basis of all religion.
- More generally, it is a worldview that spiritual life permeates all things including humans, animals, material objects and the universe.

(Source and further reading: http://en.wikipedia.org/wiki/Animism)

Working terms: Fetishism

- Fetish is derived from from Latin word *facticius* meaning *artificial* and *facere* meaning *to make.*
- Essentially, fetishism is the attribution of an object's inherent powers, qualities or values.
- Used in anthropology to indicate an object or group of objects believed to have supernatural powers, or a human made object with power over others.
- From a Marxist point of view commodity fetishism arises in capitalist market-based societies in which social relationships are transformed into apparently objective relationships between commodities or money.

(Source and further reading: http://en.wikipedia.org/wiki/Fetishism)

Working terms: Fetishism

"Believe me, Harry—it's become *more* than just another fetish."

Working terms: Anthropomorphism

- The term derives from a combination of the Greek words *ἄνθρωπος* (anthrōpos) meaning *human* and *μορφή* (morphē) meaning *shape* or *form*.
- It is the symbolic merging of uniquely human attributes with non-human creatures and beings, natural and supernatural phenomena, material states and objects or abstract concepts (cf. zoomorphism).
- Anthropomorphized subjects often include animals depicted with human motivation able to reason and converse, forces of nature such as winds or the sun, components in games, unseen or unknown sources of chance, etc.
- Almost any object can be anthropomorphized…

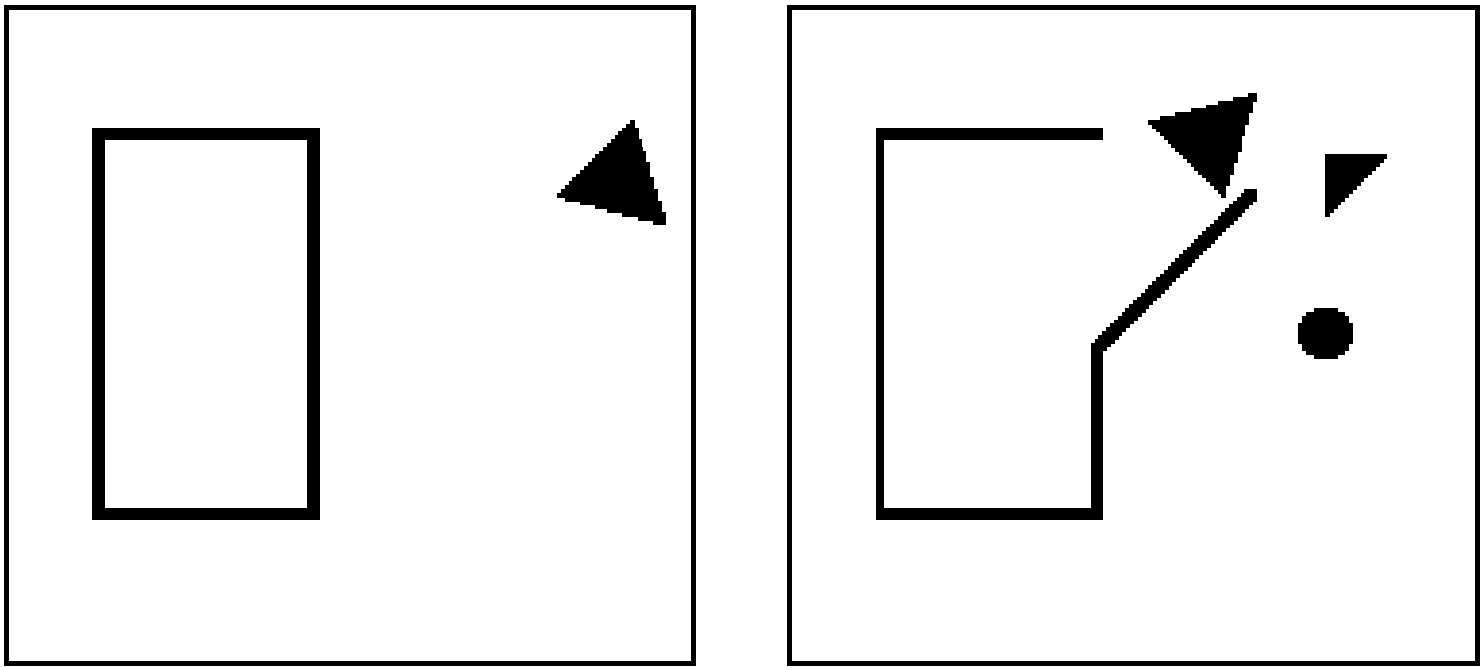
(Source and further reading: http://en.wikipedia.org/wiki/Anthropomorphism)

Working terms: Animacy

- Etymologically it stems from the same Latin word, *anima*.
- Originally it is a linguistic category or term, which has to do with how alive or alert (sentiency) a noun referent is deemed.
- Personal pronouns - especially first-person - usually have the highest level of animacy, followed by other humans (second & third person), animals, plants, natural elements, material objects and finally abstractions.
- In languages with explicit animacy hierarchies, deities or spirits embodied in certain animal or plant life may be highly ranked (e.g. totem cultures), even equal with human beings.

(Source and further reading: http://en.wikipedia.org/wiki/Animacy)

Working terms: Animacy



without commentary http://anthropomorphism.org/img/heider%20quicktime%20www.mov
with commentary www.youtube.com/watch?v=WKdThJ-eGwE

(Source: Heider & Simmel 1944 An experimental study of apparent behaviour)

Working terms: Animacy

- While animacy is universal, the specific referential meanings may be culturally bound. In Japanese for instance, in cases where 'natural' animacy is ambiguous, the speaker may decide whether a noun is animate or not.

- A robot, for instance, could be correlated with the animate verb (to signify sentience or anthropomorphism), or with the inanimate verb (to emphasis that is a non-living thing):

1)	*Robotto*	*ga*	*iru.*
	ロボット	が	いる
	robot	SUBJECT	to exist/to have

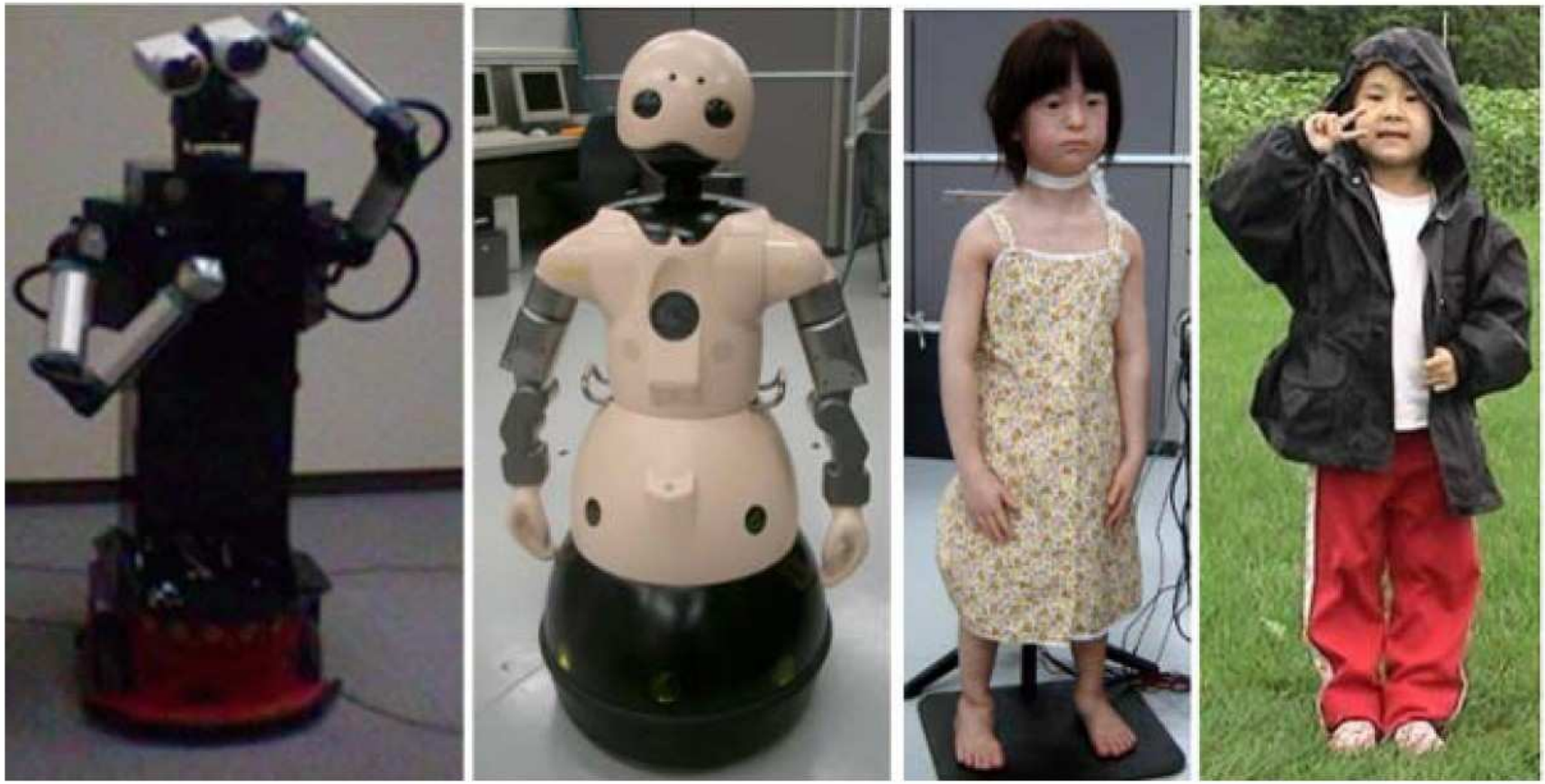
'There is a robot' (emphasis on human quality).

2)	*Robotto*	*ga*	*aru.*
	ロボット	が	ある
	robot	SUBJECT	to exist/to have

'There is a robot' (emphasis on non-human quality).

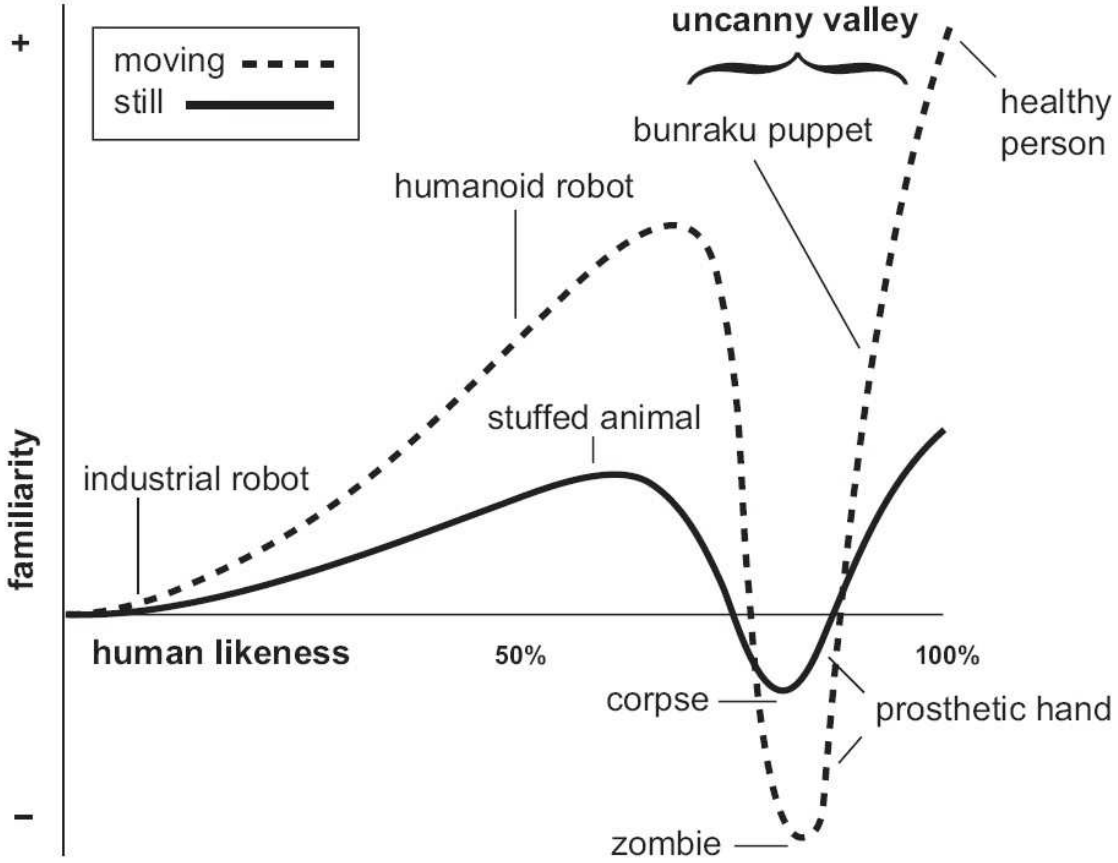
(Source and further reading: http://en.wikipedia.org/wiki/Animacy#Japanese)

Working terms: The uncanny valley



(Source: Ishiguro 2006 Interactive humanoids and androids as ideal interfaces for humans)

Working terms: The uncanny valley



(Source and further reading: Mori 1970 The uncanny valley & http://en.wikipedia.org/wiki/Uncanny_valley)

Techno-animism: Summary

- The works of Heider and Simmel, Reeves and Nash, and others have indicated and innate human propensity - and even willingness - to attribute non-human objects with human-like characteristics and intelligence, *even when we know fully well the objects aren't human*.

- This causal interpretation is largely perceptual in nature: fast, automatic, irresistible and highly stimulus driven.

- Multiple realities are possible, and sometimes even desirable.

- When the boundary between human and non-human animacy is stretched too thin, the human capacity to interpret meaning is displaced. This often gives rise to confusion and even fear: the uncanny valley (of freakiness).

iCat: Emotive, expressive and interactive research

A Home Dialog System is:

- an interactive device
- that provides functionality in an entertaining manner
- modelled after human-human interaction styles
- using multi-model UI (speech, vision, touch)
- using animated motion, light, sound and speech sequences
- using user profiles

iCat is a prototype for exploring:

- applications that users like
- interaction styles that users like
- emotion feedback and animation in robots
- software architectures for intelligent systems

Customers

- Philips Home Dialogue Systems (HDS) Technology incubator project
- CE CTO office

Partner

- Philips Design

Application ideas

- Messaging center ("John called at 15:44")
- TV zap assistant ("This movie is "The Matrix", it will end at 23:35")
- Story teller ("What should little-red-riding-hood do?: …")
- Health coach ("This morning you should take 2 red pills")
- Interactive DJ ("Would you like more "Dance" in your party mix?")

iCat capabilities

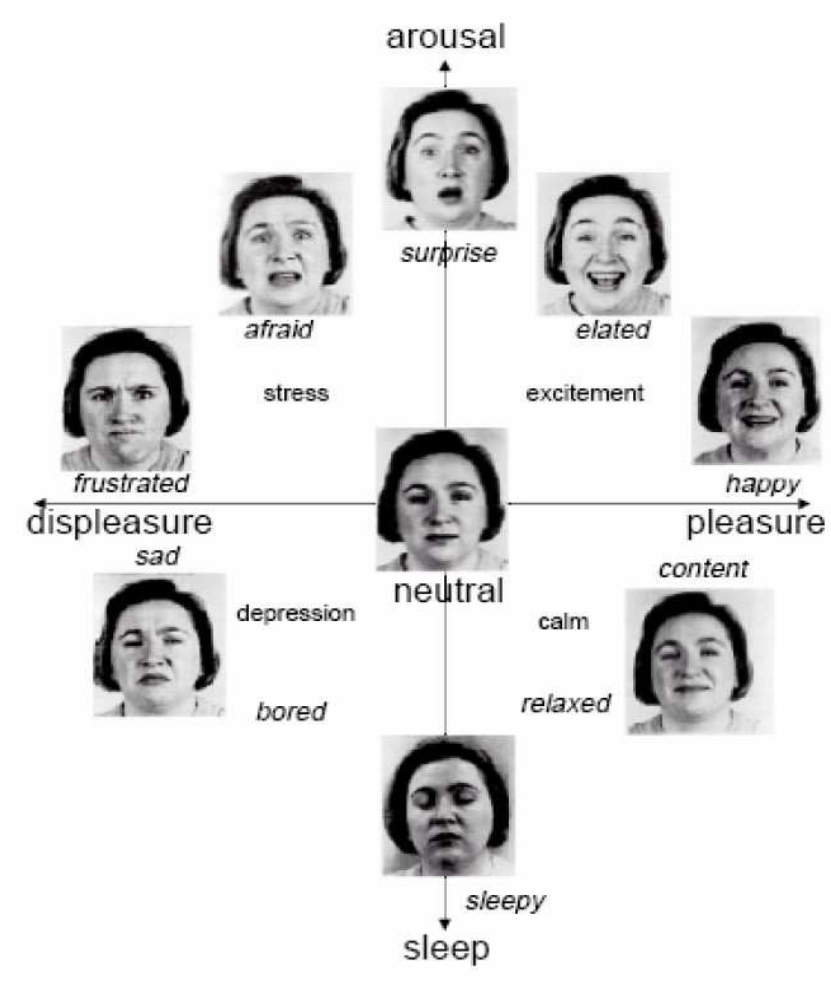
- Speech recognition
- Speech synthesis
- Expressive face with emotions
- Controlling devices in the home
- Face recognition
- Controlled via USB

Inside iCat

- 3 servo motors
- 3 degrees of freedom
- 4 RGB lights
- 4 touch sensors
- 2 microphones
- 1 webcam

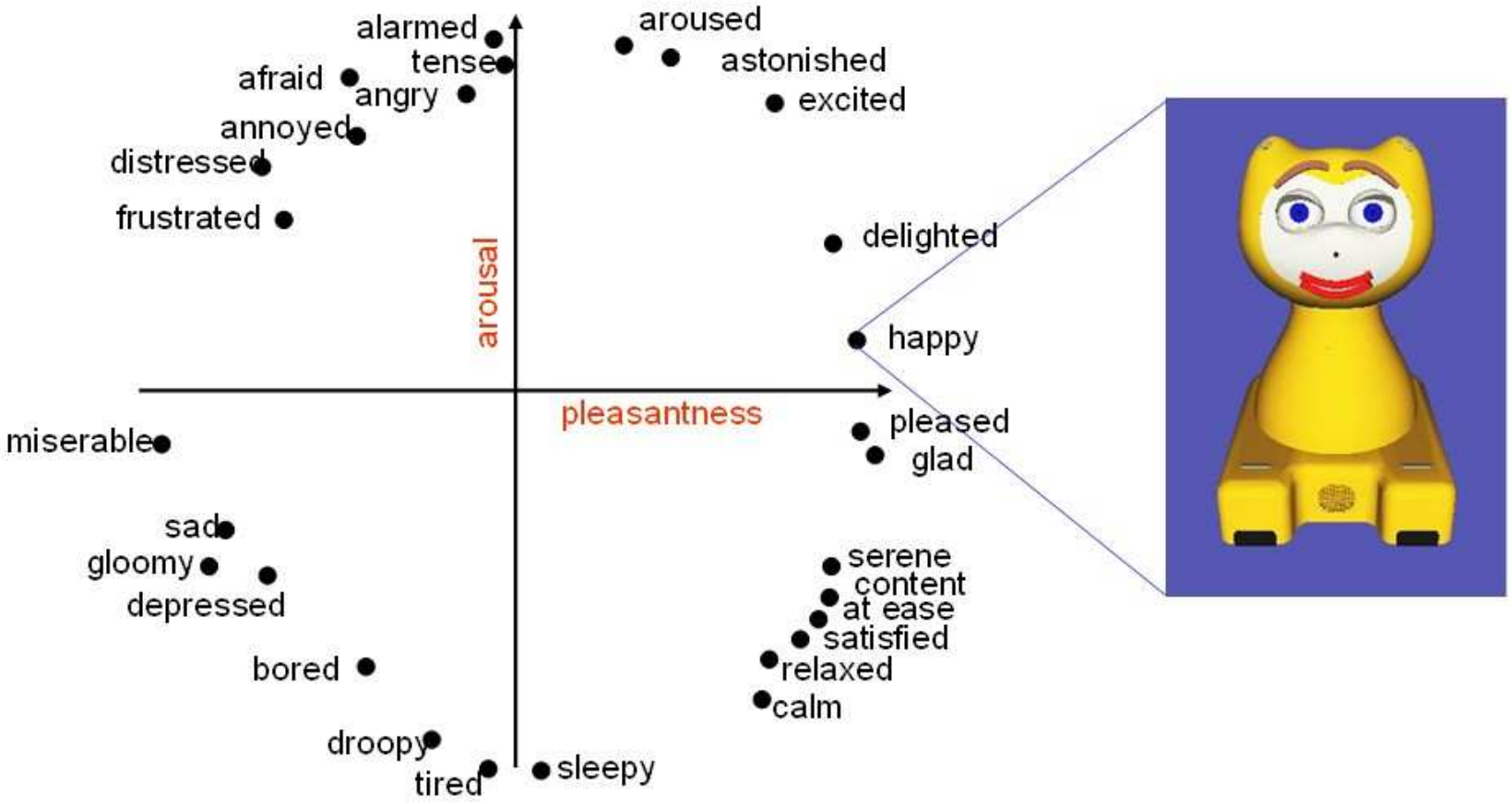
iCat: Emotive, expressive and interactive research

iCat: Emotive, expressive and interactive research



(Source: Breazeal 2003 Emotion and sociable humanoid robots)

iCat: Emotive, expressive and interactive research



(Source: Russel 1980 A circumplex model of affect)


Ethnographic reflections: Fieldwork with older people

Ethnographic reflections: Fieldwork with older people

- Fieldwork in the US and Sweden (2007-08) with older people (ca 65-95) conducted for the project *Social Intelligence for Tele-healthcare* (SIFT).
- Explore informal care practices with older people and the construction of social intelligence.
- Findings used to define design contextually-nuanced guidelines for future healthcare technologies.

Ethnographic reflections: Pets and loneliness

- June: Her two dogs play a significant role in her life. Indirectly they help increase her physical and social interaction as well as decrease her loneliness.

- Harriet: Mixed memories of her beloved dog with growing signs of Alzheimer's. His cruel death many years ago still prompted sadness. She remembered the event as “recent.” They ate ice-cream together and she tried to teach him to talk. She doesn’t have a pet now partly because they aren’t allowed in her flat. (She moved from her house a few years previously.)

- Perry: He feels lonely with no one to talk to. He likes animals and previously owned dogs, but would never have one now. He is concerned about his ability to properly care for a pet, even if he wanted to, as well as the time commitment required.

- Rachael: Previously owned a parakeet but she doesn’t feel lonely now “with all the nice people” around her. She has a robust social network.

- Doris: Lives alone (no pets) but has a rich social network. In the course of showing me around her house she happens upon a dancing/singing doll. She turns it on and proceeds to sing along with it. Significantly this is a doll from one of her adult daughters who keeps an loving eye on her.

Ethnographic reflections: Implications

- Pets can play a significant social role in peoples lives; they may augment existing social relationships in past & present.
- Pet ownership is a responsibility that some are unable/unwilling to manage.
- Being alone is not the same as being lonely; many people have robust social relationship and thus animistic technologies would play a less significant role.
- Pets can help increase levels of both physical and social activity.
- A focus on pet interaction is useful for thinking about the ways techno-animism may play a role in the lives of older people.

Issues for ICT and Ageing: The value of the valley?

Should we try to overcoming the uncanny valley? Here is a basic argument *for:*

The Uncanny Valley

12:11:21, by J.T. Fokkema 59 views , Categories: The world according to Fokkema

Apprehensive user
A.F.Th. van der Heijden is an apprehensive user of technology – which made it all the more courageous of him to kick off his guest authorship at our university on Thursday, 17 April. In his opening lecture entitled Pirouette of the scissor, this year's guest writer made his position clear: 'Technology is forced upon us'.

Social relation men and machine
In fact there are many people who share A.F.Th.'s feelings on this issue. After all, the relationship between man and machine does give rise to unexpected outcomes – a case in point is that of social robots; the greater their resemblance to ourselves, the more difficult the human-robot relationship becomes, at least initially. If the AIBO electronic dog begins to look too much like a Golden Retriever, then most of us will steer well clear of it. It is only after some time has passed that people become habituated to something that resembles the real thing. This period between apprehension and acceptance is called the 'uncanny valley'.

Give meaning to technology
So while technology may be perceived as useful, convenient, beautiful, amazing, and 'wow aren't they clever and skilful', none of this is enough to engender any deeper personal connection. The uncanny valley is one traversed step by step. This crossing would be quite a bit more pleasant for the user, not to mention faster, if the designer were aware of this risk of 'technological petrifaction'. It is for the designer to conceive of applications and uses for his creations, which he does by relying on that very same technology or its technological potential. An open attitude is the key to appreciating what technology means for the user. The ultimate aim is to understand and take account of the 'story of technology' that users have formed in their minds and that they reference in their day to day interactions with other people. While it may be said that engineers are the owners of technological knowledge, they certainly do not have the sole prerogative to give it meaning. Part of the fun is sharing. This is when you realise, for example, that the first AIBO does not actually have to have a shiny coat and a wet snout.

Step into the uncanny valley
Communication can help to narrow the uncanny valley. You can choose between shouting at the opposite ridge, or you can each take one step, and then a second, towards achieving an understanding of the other side. A.F.Th. is not interested in shouting, but has entered the uncanny valley as an apprehensive user with hopes of talking with us and encouraging us to talk about ourselves with one another and with society as a whole. The platform for this lofty communicative objective is to be the narrative techniques of cinema. I am very eager to see what the master class students will achieve. There is still so much to conceive and invent; what is most radiant is, after all, outside. I look forward to being dazzled during our guest author's concluding lecture With rattle and bell.

(Source http://fokkema.weblog.tudelft.nl/2008/04/29/the_uncanny_valley)

Issues for ICT and Ageing: The value of the valley?

Should we try to overcoming the uncanny valley? This is my argument *against:*

- The need for independence and control does not diminish with old age.
- While some have argued that the 'uncanny valley' should be narrowed, my concern that especially in cases of dementia, the uncanny valley could heighten levels of anxiety and a perceived loss of control.
- In agreement with Bryson (2007) I suggest "Intelligent" technologies for older age use should remain slave-like, designed to empower and suggest rather than police or replace.
- In line with Taylor and Swan (2007), I suggest that technologies should not be designed as intelligent *things*, but instead privilege *human* intelligence to enable people to act and reason more intelligently.

(and now, something completely different…)

www.youtube.com/watch?v=LC1zebIVSaw

Literature sources and suggestions

- Breazeal, C. (2003). Emotion and sociable humanoid robots. International Journal of Human Computer Studies, 59, 119-155.
- Bryson, J.J. (2007). Robots should be slaves. Artificial Companions in Society Forum: Perspectives on the Present and Future at Oxford Internet Institute, 45-48. http://www.companions-project.org/downloads/Companions_Position_Papers_20071026.pdf
- Fokkema, J. (2008). The uncanny valley. The World According to Fokkema. (blog editorial) http://fokkema.weblog.tudelft.nl/2008/04/29/the_uncanny_valley
- Heider, F, & Simmel, M. (1944). An experimental study of apparent behavior. American Journal of Psychology, 57, 243-259.
- Ishiguro, H. (2006). Interactive humanoids and androids as ideal interfaces for humans. Proceedings of the International Conference on Intelligent User Interfaces (IUI2006), Sydney, 2-9.
- MacDorman, K. F. (2005). Androids as an experimental apparatus: Why is there an uncanny valley and can we exploit it? Cognitive Science Society Workshop: Toward Social Mechanisms of Android Science, 106-118. http://www.androidscience.com/proceedings2005/MacDormanCogSci2005AS.pdf
- Michotte, A.A. (1963). The Perception of Causality. New York: Basic Books.
- Mori, M. (1970). Bukimi no tani [The uncanny valley] (K. F. MacDorman & T. Minato, Trans.). Energy, 7(4), 33–35. (Originally in Japanese)
- Reeves, B. and Nass, C. (1996). The Media Equation. Cambridge: SLI Publications, Cambridge University Press
- Russell, J.A. (1980). A circumplex model of affect. Journal of Personality and Social Psychology: 39, 1161–1178.
- Taylor, A. S. and Swan, L. (2007). Notes on intelligence. Artificial Companions in Society Forum: Perspectives on the Present and Future at Oxford Internet Institute, 45-48. http://www.companions-project.org/downloads/Companions_Position_Papers_20071026.pdf
- Wherton, J.P. and Monk, A.F. (2008). Technological opportunities for supporting people with dementia who are living at home. International Journal of Human-Computer Studies. (in press)
- Wikipedia en.wikipedia.org/wiki/

For even more read here's one good place to start: http://anthropomorphism.org/bibliography.html