

“SPECIES DOMINANCE” POLL RESULTS

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Abstract

*Opinions vary on the level of optimism/pessimism that should be appropriate regarding the prospect that humanity will replace itself as the dominant species this century, by building artefacts (artificial intellects, massively intelligent machines, with mental capacities trillions of trillions of times above human levels). Personally, I am tired of the unbridled optimism of people like Ray Kurzweil, who sees only the beneficial effects of cyborging humanity. I'm at the other extreme, predicting an "Artefact War" that will kill billions of people, as the "Terrans" (anti artefact) go to war to stop the "Cosmists (pro artefact) and Cyborgists (make humans artefacts)" from building artefacts. I thought it might be useful to consult the general public on these issues using opinion polls. This essay presents the **results** of two different questionnaires that were presented to A) a group of Australian academic electronic engineers (60% of whom thought an Artefact War is coming) and B) a group of American designers/architects who were more optimistic (maybe!?). This essay also proposes the creation of a new branch of sociology called "Artefact Sociology" that will investigate the sociological/psychological aspects of the "Species Dominance Debate" (i.e. "Should humanity build artefacts this century?")*

1. Introduction

For years, I have been complaining in the media, e.g. (http://www.youtube.com/watch?v=vDZc9QJU_Hg) that the level of optimism of Ray Kurzweil, concerning the rise of massively intelligent machines (artefacts = artificial intellects) this century, is irresponsibly high. Kurzweil is a "Pollyannist" i.e. he sees everything through rose colored glasses. I, on the other hand, paint a very pessimistic picture, predicting that a portion of humanity (the Terrans (anti artefact)) will go to war to stop the Cosmists (pro artefact) and Cyborgists (who want to upgrade themselves into artefacts) from building artefacts that will have mental capacities trillions of trillions of times above human levels. This "Artefact War" I predict will kill billions of people, using later 21st century weaponry. I am thus a "Jeremaist" because I think that the most realistic scenario is actually the worst.

Our polar opposite views on the rise of the artefact this century, don't seem to have influenced each other very much, so I began to wonder what could be done to get the

pollyannists to take the negative scenarios more seriously. The answer I came up with was to use *opinion polls* with the general public, to benefit from the “wisdom of the crowds.” If the pollyannists could see that a substantial proportion of humanity thought that the negative scenarios should be taken seriously, then maybe they would tone down the level of their optimism and become more realistic, more balanced, i.e. more pessimistic.

So, in the second half of 2011, I started taking opinion polls, by creating questionnaires. This essay reports on the results of two such polls. The first was a rather amateurish affair on my part, which nevertheless shocked me. It was to an Australian group of academic electronic engineers, 60% of whom thought that an “Artilect War” is coming between the Terrans and the Cosmists/Cyborgists. The second (more professional) was to an American group of designers/architects who were more optimistic, which showed interesting gender, religiosity, and age gaps in its results.

2. The 1st QUESTIONNAIRE

In August of 2011, I gave a “species dominance” talk to some electronic engineers at Melbourne University, in Victoria, Australia. The audience consisted mainly of professors, lecturers, post docs and grad students, i.e. heavily “techie.” What follows is the questionnaire itself, and then the results and a bit of analysis. In the next section (3.) a more serious questionnaire follows, that resulted from consultation with a sociology professor, along with its results.

QUESTIONNAIRE on MACHINES with SUPER HUMAN INTELLIGENCE

Definitions (please read this first)

Artilect : artificial intellect, massively intelligent machine

Cosmist : a person who wants humanity to build artilects

Terran : a person who does not want humanity to build artilects

Cyborg : cybernetic organism, part machine part human

Cyborgist : a person who wants to become an artilect by adding components to his brain

Species Dominance Debate : Should humanity build artilects in the coming decades?

Artilect War : A species dominance war between the Terrans and Cosmists/Cyborgists

A) Your sex

a) Male

b) Female

Ans :

B) Your age

Ans :

C) Your occupation/job

Ans :

D) Your religion (if any)

Ans :

1. Which ONE of these three philosophies do you have the most sympathy for?

a) Terranism (building artefacts/cyborgs is too risky to human survival)

b) Cosmism (artefact building is like god building)

c) Cyborgism (modifying humans to become artefacts)

Ans :

2. Do you think humanity should allow artilects to exist that are more intelligent than humans?
(Yes or No)

Ans:

3. Do you think humanity should allow cyborgs to exist that are more intelligent than humans? (Yes or No)

Ans:

4. Do you think that a species dominance war between human groups is –

a) Extremely unlikely

b) Moderately unlikely

c) Moderately likely

d) Highly likely

Ans:

5. If super intelligent artefacts come into being, do you think they will wipe out humanity with –

a) Zero probability

b) Very low probability

c) Moderate probability

d) High probability

e) Certainty

Ans:

6. Do you think a planet-wide maximum legal limit should be placed on the level of intelligence in our machines?

a) Yes

b) No

Ans:

7. If you answered Yes to 6. should that maximum level of artificial intelligence be less than human intelligence levels?

a) Yes

b) No

Ans:

8. If our machines approach human intelligence levels in the coming decades, would that make you feel –
- a) Very fearful
 - b) Fearful
 - c) Indifferent
 - d) Optimistic
 - e) Very optimistic
- Ans:

9. In the next few decades, which of these three technologies do you think will most change the way we live?
- a) Artificial Intelligence
 - b) Biotechnology
 - c) Nanotechnology
- Ans :

10. Should humanity technologically extend its mental and physical capabilities?
- a) Yes
 - b) No
- Ans :

11. Should humanity embrace or ban “super human” technologies?
- a) Embrace
 - b) Ban
- Ans :

Analysis/Comments re Questionnaire “Machines with Super Human Intelligence”

Raw Numbers

QA : males 24, females 5

QD : religious 6, non religious 15

Q1 : Preferred philosophy? Terran 6, Cosmist 6, Cyborgist 12

Q2 : Should build artelects? yes 25, no 2

Q3 : Should build cyborgs? yes 21, no 6

Q4 : Artelect War coming? Extr unlikely 6, mod unlikely 6, mod likely 9, highly likely 8

Q5 : Artelects wipe out humanity? Zero prob 5, v low prob 11, mod prob 9, high prob 3, certain 0

Q6 : Limit on AIQ? yes 7, no 20

Q7 : AIQ less than human? Yes 2, no 6

Q8 : Fearful/optimistic? v fearful 1, fearful 3, indiff 3, optimistic 15, v optimistic 6

Q9 : Biggest changer? AI 4, Bio 11, Nano 10

Q10 : Extend mental/physical? yes 25, no 3

Q11 : Embrace superhuman? embrace 24, ban 2

Comments

QA : Males more interested in this issue? 5:1

QD : Most were non religious ~ 5:2

Q1 : **Cyborgism most popular**, Cyb:Ter ~2:1, Cyb:Cos ~2:1

Q2 : Most want to see artelects built 25:2

Q3 : Most want to see cyborgs built 7:2

Q4 : 17:29 think mod or highly likely an artelect war is coming, i.e. ~60%
12:29 think mod or extraord unlikely an artelect war is coming, i.e. ~40%
i.e. 3:2 mod high-high:mod low-low

Q5 : Few people think artelects will wipe out humanity

Q6 : Most people DON'T want a limit on AIQ levels. 20:7

Q8 : Most people (v.) optimistic about machines approaching human level IQ 20:7

Q9 : Most people think biotech/nanotech will have biggest impact over AI 5:1

Q10 : Nearly everyone thinks humanity should extend mental/physical capacities ~8:1

Q11 : Nearly everyone thinks humanity should embrace super human technologies ~12:1

General Comments

If further, more scientifically based, questionnaires continue to show similar answers to Q4 above, then this is ***highly significant***. It would mean that the majority of people think that an Artelect War is coming. This will force the more optimistic of the artelect futurists to be less sanguine, and it will give the debate on the species dominance issue more focus. The ***world media*** should then be contacted, because this is ***big news***. If an Artelect War comes, then it may be the most significant event ever to happen to humanity, especially if billions of people are killed as a result.

3. The 2nd QUESTIONNAIRE

The above first questionnaire was created by me. It will be obvious to anyone that it was an amateurish affair. I am not a sociologist nor a psychologist, so my first questionnaire's methodology was not very scientific. It was more a "consciousness raising" device. Various sociologists criticized me for it, so for the second questionnaire, I got some professional help. The father of my good friend Ben Goertzel (Ted Goertzel) is an American sociology professor, so I asked for his help in making a second questionnaire by sending him the first as a guide to what I was trying to do. He then sent back his suggestions, which I changed a little bit. The resulting 19 questions, you can see below.

This questionnaire, in the actual format that was distributed to the people who filled it in, can be found (<http://profhugodegaris.files.wordpress.com/2011/11/hugo-degaris-questionnaire.docx>). On one side of the single page questionnaire were definitions of the three main philosophies concerning the species dominance debate. These definitions were

needed so that people who were new to the debate could familiarize themselves with the main viewpoints. The other side contained the questions.

In October of 2011, I gave an invited talk to the Applied Brilliance (AppliedBrilliance.com) meeting (similar in format to the TED talks) in Jackson Hole, Wyoming, USA. A video of this talk can be found (<http://vimeo.com/31063556>). The husband of the organizer of Applied Brilliance (Deborah Patton) helped tidy up the questionnaire a bit, and now I will use it again at the Humanity Plus conference (<http://hk.humanityplus.org/>) in Hong Kong in December 2011.

At the Applied Brilliance meeting, 42 of the 45 attendees filled in the questionnaires. It was an interesting bunch of people (mostly designers and architects, and definitely non techies), with a more or less 50/50 split between male and female, theist and atheist, and “oldies” (more than 50 years old (>50)) and “youngies” (less than 50 years old (<50)), so I was able to compare across gender, religiosity and age lines.

Specifically, of the 42 respondees, 24 were male, 18 female; 20 were theists, 22 atheists; 19 were under 50 (<50), 23 were over 50 (>50). 10 of them labeled themselves “Cosmists”, i.e. they believed that humanity should build artefacts (“artificial artefacts”, massively intelligent machines), 7 labeled themselves “Terrans,” i.e. they believed that humanity should NOT build artefacts, and 9 labeled themselves “Cyborgists”, i.e. they believed that people should modify themselves to become artefacts. 16 were not sure.

Summarizing :

Respondees : 42

Males 24, Females : 18

Theists : 20, Atheists : 22

Youngies (<50) : 23, Oldies (>50) : 19

Cosmists 10, Terrans 7, Cyborgists 9, Not sure 16

Notes on the 2nd Questionnaire

The questionnaire consisted of 19 opinions that respondees were asked to give a 1 to 5 score to. 5 meant strongly agree, 4 moderately agree, 3 not sure, 2 moderately disagree, 1 strongly disagree. The number of people who scored 5 or 4 were said in the percentages below, to have “agreed”. Those who scored 3 were said to be unsure (?). The number of people who scored 2 or 1 were said, in the percentages below, to have “disagreed.” For the raw scores, see (<http://profhugodegaris.files.wordpress.com/2011/09/copy-of-artbrilliancequestionnaireexcel.xls>).

The results are formatted as follows, taking one of the opinions as an example :-

Q10 There should be a law limiting the intelligence of computers and robots.

(male: a 04%, ? 21%, d 67%) (ath: a 00%, ? 18%, d 73%) (>50: a 00%, ? 16%, d 84%)

(fem: a 06%, ? 22%, d 67%) (th: a 15%, ? 25%, d 55%) (<50: a 09%, ? 26%, d 52%)

(all: a 02%, ? 21%, d 69%)

Comments: Most disagreed, especially the atheists, and the oldies very especially.

The opinion statement should be straightforward. (male: a 04%, ? 21%, d 67%) means that 4% of the males agreed, 21% weren't sure, 67% disagreed. The abbreviations used were, male: for male, fem: for female, ath: for atheist, th: for theist, >50: for the oldies, <50: for the youngies, all: for all the respondees. If a subgroup (e.g. atheists) of one of the 3 categories (gender, religiosity, age) differed by more than 15 percentage points from its corresponding opposite subgroup (e.g. theists), the percentages are given in **red**, for emphasis. The percentages are followed by comments that summarize in words, the main results of the opinion. These comments reflect closely the percentages of the all: results, as well as the **red** percentages.

2nd QUESTIONNAIRE RESULTS

Q1 Scientists should try to build computers that are smarter than people.

(male: **a 67%**, ? 13%, d 17%) (ath: a 55%, ? 14%, d 23%) (>50: **a 74%**, ? 16%, d 11%)
(fem: **a 44%**, ? 33%, d 06%) (th: a 60%, ? 30%, d 10%) (<50: **a 43%**, ? 26%, d 22%)
(all: a 57%, ? 21%, d 17%)

Comments: Most agreed, especially the men and oldies.

Q2 People should be allowed to implant computers into their bodies.

(male: **a 67%**, ? 21%, d 08%) (ath: a 55%, ? 32%, d 05%) (>50: **a 63%**, ? 26%, d 11%)
(fem: **a 39%**, ? 50%, d 06%) (th: a 55%, ? 35%, d 10%) (<50: **a 48%**, ? 39%, d 04%)
(all: a 55%, ? 33%, d 07%)

Comments: Half agreed, with the men and oldies agreeing more.

Q3 Highly intelligent computers will be risky to human survival.

(male: a 29%, ? 25%, d 33%) (ath: a 27%, ? 27%, d 36%) (>50: a 26%, ? 32%, d 37%)
(fem: a 33%, ? 28%, d 33%) (th: a 35%, ? 25%, d 35%) (<50: a 35%, ? 22%, d 35%)
(all: a 31%, ? 26%, d 38%)

Comments: Only about 40% disagreed, a third agreed. Scary.

Q4 It is against God and nature to build computers smarter than people.

(male: a 13%, ? 00%, **d 83%**) (ath: a 00%, ? 09%, d 82%) (>50: a 05%, ? 00%, **d 95%**)
(fem: a 00%, ? 28%, **d 67%**) (th: a 10%, ? 15%, d 75%) (<50: a 04%, ? 22%, **d 65%**)
(all: a 02%, ? 12%, d 81%)

Comments: Most (80%) disagreed with this, especially the oldies vs. the youngies.

Q5 Building computers smarter than people should be against the law.

(male: a 04%, ? 13%, d 79%) (ath: a 00%, ? 14%, d 77%) (>50: a 00%, ? 11%, **d 89%**)
(fem: a 00%, ? 22%, d 72%) (th: a 05%, ? 20%, d 75%) (<50: a 04%, ? 22%, **d 65%**)
(all: a 00%, ? 17%, d 79%)

Comments: Most (80%) disagreed, especially the oldies vs. the youngies.

Q6 It is against natural law to build robots that are part human.

(male: a 17%, ? 13%, d 63%) (ath: a 18%, ? 09%, d 64%) (>50: a 21%, ? 00%, d 79%)
(fem: a 17%, ? 39%, d 39%) (th: a 15%, ? 40%, d 40%) (<50: a 13%, ? 43%, d 30%)
(all: a 19%, ? 24%, d 50%)

Comments: About half disagreed, with males, atheists and oldies disagreeing a lot more.

Q7 A war between robots and humans is likely to happen in the future.

(male: a 17%, ? 21%, d 54%) (ath: a 18%, ? 32%, d 41%) (>50: a 16%, ? 37%, d 47%)
(fem: a 17%, ? 50%, d 28%) (th: a 15%, ? 35%, d 45%) (<50: a 17%, ? 30%, d 39%)
(all: a 14%, ? 38%, d 43%)

Comments: Only about 40% disagreed, with the women disagreeing a lot less than the men.

Q8 If superhuman robots are built, they may not care about humanity.

(male: a 38%, ? 38%, d 17%) (ath: a 27%, ? 41%, d 23%) (>50: a 37%, ? 42%, d 21%)
(fem: a 39%, ? 39%, d 17%) (th: a 50%, ? 35%, d 10%) (<50: a 39%, ? 35%, d 13%)
(all: a 38%, ? 38%, d 17%)

Comments: Nearly 40% of people agree with this, especially the theists vs. the atheists. Ominous.

Q9 No one should be allowed to implant a computer in his or her body.

(male: a 17%, ? 13%, d 58%) (ath: a 14%, ? 18%, d 59%) (>50: a 05%, ? 16%, d 79%)
(fem: a 00%, ? 28%, d 67%) (th: a 05%, ? 20%, d 65%) (<50: a 13%, ? 22%, d 48%)
(all: a 07%, ? 19%, d 64%)

Comments: Most disagreed, especially the oldies, whereas the men agreed more than the women.

Q10 There should be a law limiting the intelligence of computers and robots.

(male: a 04%, ? 21%, d 67%) (ath: a 00%, ? 18%, d 73%) (>50: a 00%, ? 16%, d 84%)
(fem: a 06%, ? 22%, d 67%) (th: a 15%, ? 25%, d 55%) (<50: a 09%, ? 26%, d 52%)
(all: a 02%, ? 21%, d 69%)

Comments: Most disagreed, especially the atheists and the oldies very especially.

Q11 I am frightened about the possibility of robots taking over the world.

(male: a 17%, ? 04%, d 71%) (ath: a 18%, ? 05%, d 68%) (>50: a 16%, ? 11%, d 74%)
(fem: a 28%, ? 22%, d 44%) (th: a 25%, ? 15%, d 55%) (<50: a 26%, ? 13%, d 48%)
(all: a 21%, ? 12%, d 60%)

Comments: Nearly 2/3 disagreed, especially the men and the oldies, but a third did not disagree.

Q12 It would be a great achievement to build robots smarter than humans.

(male: a 58%, ? 21%, d 13%) (ath: a 45%, ? 32%, d 14%) (>50: a 58%, ? 26%, d 16%)
(fem: a 39%, ? 44%, d 22%) (th: a 55%, ? 30%, d 10%) (<50: a 43%, ? 35%, d 09%)
(all: a 50%, ? 31%, d 12%)

Comments: Half agreed, especially the men and the oldies.

Q13 There is a real danger that super-intelligent robots will wipe out humanity.

(male: a 08%, ? 21%, d 63%) (ath: a 05%, ? 32%, d 55%) (>50: a 05%, ? 32%, d 63%)
(fem: a 11%, ? 39%, d 44%) (th: a 15%, ? 30%, d 50%) (<50: a 13%, ? 26%, d 48%)
(all: a 07%, ? 31%, d 55%)

Comments: Only about half disagreed, with the men and oldies disagreeing more.

Q14 It is human destiny to build entities smarter than ourselves.

(male: a 50%, ? 17%, d 21%) (ath: a 50%, ? 14%, d 27%) (>50: a 58%, ? 11%, d 26%)
(fem: a 50%, ? 17%, d 28%) (th: a 55%, ? 15%, d 20%) (<50: a 43%, ? 17%, d 26%)
(all: a 48%, ? 14%, d 29%)

Comments: Half agreed, especially the oldies, but nearly a third disagreed.

Q15 Scientists should leave the human genome as God and nature created it.

(male: a 13%, ? 25%, d 54%) (ath: a 09%, ? 32%, d 50%) (>50: a 16%, ? 16%, d 68%)
(fem: a 22%, ? 33%, d 39%) (th: a 25%, ? 25%, d 45%) (<50: a 17%, ? 39%, d 30%)
(all: a 17%, ? 29%, d 48%)

Comments: About half disagreed, especially the men, the atheists and the oldies.

Q16 Genetic engineering should be used to cure diseases and improve crops.

(male: a 67%, ? 13%, d 13%) (ath: a 59%, ? 23%, d 09%) (>50: a 74%, ? 16%, d 11%)
(fem: a 67%, ? 28%, d 00%) (th: a 75%, ? 15%, d 05%) (<50: a 61%, ? 22%, d 04%)
(all: a 67%, ? 19%, d 07%)

Comments: Most agreed, especially the theists.

Q17 Tiny robots should be built to enter the human blood stream and cure diseases.

(male: a 71%, ? 17%, d 04%) (ath: a 55%, ? 27%, d 09%) (>50: a 84%, ? 16%, d 00%)
(fem: a 61%, ? 22%, d 11%) (th: a 80%, ? 10%, d 05%) (<50: a 52%, ? 22%, d 13%)
(all: a 67%, ? 19%, d 07%)

Comments: Most agreed, with the theists and the oldies agreeing strongly.

Q18 A species-dominance war (Terrans vs. Cosmists/Cyborgists) is coming.

(male: a 25%, ? 17%, d 50%) (ath: a 14%, ? 23%, d 55%) (>50: a 11%, ? 37%, d 53%)
(fem: a 06%, ? 44%, d 44%) (th: a 15%, ? 35%, d 45%) (<50: a 17%, ? 17%, d 52%)
(all: a 14%, ? 29%, d 50%)

Comments: A quarter of the men agreed, almost no women. Half disagreed.

Q19 Human beings and artefacts can peacefully coexist.

(male: a 58%, ? 21%, d 08%) (ath: a 59%, ? 23%, d 09%) (>50: a 63%, ? 21%, d 11%)
(fem: a 33%, ? 44%, d 17%) (th: a 35%, ? 40%, d 15%) (<50: a 35%, ? 39%, d 13%)
(all: a 48%, ? 31%, d 12%)

Comments: Half agreed, but only a third of the women, with the men, the atheists and oldies agreeing more.

Gender, Religiosity, and Age GAPS

Men agreed more than women on the following opinions :-

Q1 Scientists should try to build computers that are smarter than people.

Q2 People should be allowed to implant computers into their bodies.

Q9 No one should be allowed to implant a computer in his or her body.

Q12 It would be a great achievement to build robots smarter than humans.

Q18 A species-dominance war (Terrans vs. Cosmists/Cyborgists) is coming.

Q19 Human beings and artefacts can peacefully coexist.

Atheists agreed more than theists on the following opinions :-

Q6 It is against natural law to build robots that are part human.

Q19 Human beings and artefacts can peacefully coexist.

Theists agreed more than atheists on the following opinions :-

Q8 If superhuman robots are built, they may not care about humanity.

Q15 Scientists should leave the human genome as God and nature created it.

Q16 Genetic engineering should be used to cure diseases and improve crops.

Q17 Tiny robots should be built to enter the human blood stream and cure diseases.

Atheists disagreed more than theists on the following opinions :-

Q10 There should be a law limiting the intelligence of computers and robots.

Oldies agreed more than youngies on the following opinions :-

Q1 Scientists should try to build computers that are smarter than people.

Q2 People should be allowed to implant computers into their bodies.

Q12 It would be a great achievement to build robots smarter than humans.

Q14 It is human destiny to build entities smarter than ourselves.

Q17 Tiny robots should be built to enter the human blood stream and cure diseases.

Q19 Human beings and artefacts can peacefully coexist.

Oldies disagreed more than youngies on the following opinions :-

Q4 It is against God and nature to build computers smarter than people.

Q5 Building computers smarter than people should be against the law.

Q6 It is against natural law to build robots that are part human.

Q9 No one should be allowed to implant a computer in his or her body.

Q10 There should be a law limiting the intelligence of computers and robots.

Q11 I am frightened about the possibility of robots taking over the world.

Q13 There is a real danger that super-intelligent robots will wipe out humanity.

Q15 Scientists should leave the human genome as God and nature created it.

It appears that the greatest differences lie between the oldies and the youngies, rather than between men and women, or theists and atheists.

There is a lot of detail in these answers that merit deeper study.

4. A New Branch of Sociology : “Artilect Sociology”

Given that the rise of the artilect will probably prove to be this century’s dominant global political issue, it makes sense to suggest that the sociologists and psychologists need to get interested in this huge issue and apply their respective skills to its elucidation.

I’m hoping that the above two questionnaires will inspire ambitious young graduate students or young tenure track professors in these two fields to undertake more comprehensive and more scientific studies on the species dominance issue. Once enough

studies of this type are undertaken, we will be able to talk about the establishment of a new branch of sociology or psychology, namely “artilect sociology” or “artilect psychology”. Once it is established, professors can write textbooks and teach courses at undergraduate and graduate levels on the topic.

Once the “wisdom of the crowds” is used in the “species dominance debate” (i.e. “Should humanity build artilects this century?”) then a more realistic, more balanced scenario of what is likely to happen can be created, instead of the naively and irresponsibly optimistic scenarios of the “pollyannists.”