ON THE POSSIBLE INEVITABILITY OF AGING

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With a few exceptions (like Planaria, Hydra, etc), every organism ages and has an associated ever increaseing senescent phenotype. I don't take this to be a rule, at all. If a certain organism develops a reduced or non-senescent phenotype, and happens to be a crucial agent in ecological relationships (without leading to abuse of resources), the evolutionary pressure is there precisely inhibiting the emergence of phenotypes resembling those of senescence, as long as these organisms have another way of promoting population variance ensuring robust adaptation capabilities to adversity (enhanced turnover without relying on aging mechanisms - i.e. by binary fission, with any mutation that isn't letal being passed down to the progeny).
If we see aging as an equilibrium between cooperative and competitive forces between agents, a system that employs either of the extremes is at jeopardy. Systems that are composed of very competitive agents won't have the capacity, by definition, to cooperate (with inter-agent cooperation), and as such won't have their complexity increased, and over medium-long evolutionary scales will be out-competed. On the counterpart, systems that are composed of very cooperative agents are themselves at risk of being very easily exploited by other systems.

Quick Note 1 *On the matter of cooperation and over-cooperation. Lets imagine that a community of cells over some time happens to evolve a mechanism that leads to the apoptosis of individual agents, if their perceived fitness, by the community, happens to be sup-par. As such, this is taken to be a completely sacrificial event, in the sense that the individual agent itself doesn't gain anything (and loses everything), but the community has its overall fitness increased by eliminating damaged or sub-efficient agents. Now, if the signalling mechanism that ensures apoptosis is very easy to implement (no complexity in regulation, low resource allocation, etc), it is also taken to be very easy to exploit. And on the counter-part, a signalling mechanism that is*

very complex, has its advantage being very hard to implement by exploiter systems, however suffering in apoptotic efficiency in real cases (i.e. where there is no exploitation, and where the community would really benefit from elimination of sub-par agents). Taking this into account, the game we play here is a minimaxing one. Nevermind the fact that such community might be fitter, in the long run, by implementing bet-hedging strategies (i.e. some agents being sub-par in the present environment, but being fitter in others, assuring better adaptation capabilities), the problem we encounter is played at multiple scales. How do you assure that the solution to a certain scale (in terms of the cooperation-competition equilibrium) is not disruptive to higher scales?

There's nothing out of line said previously, but consider the following question:

Question 1 *Are there hard evolutionary funnels (for example in the mammalian class), such that if an anti-aging intervention was applied, the respective inputs would be allocated over negative feedback loops? Such an example would probably look like an early reduction in senescent phenotype, followed by a phase of more agressive senescent phenotype. Other concerns might go over antagonistic pleiotropy functions (i.e. possible reduction of fertility, etc).*

Question 2 *Is there such a thing as a free lunch?*