Introduction

Many studies on the behaviour of animals searched for the main behaviour of the populations to compare it too other populations. Deviations of the mean within the same populations were discarded as random noise due to stochastic processes. Recent emperical data suggestes otherwise, where it is seen that within the same population animals tend to behave the same in different situations. This is seen in birds, chimpanzees, fish, amphibians [2], spiders [3] and insects [4]. This behaviour that is consist over time (as juvenile and as adult) and context (in interaction with a predator and potential mate) is referred to as personalities, much like human personalities. Examples can be found in many character traits like boldness[[1]](#footnote-1), agression[[2]](#footnote-2) and cooperation[[3]](#footnote-3). It is remarkable that personalities exist, espacially when it is seen from an adaptive perspective. If for individuals it is better to be able to react in any kind of situation the right way, then why is this not observed? Why has behaviour evolved toward a more static state instead of an infinite plasticity?

In many studies with humans, differences in cooperation would suggest three kinds of cooperatiive personalities: unconditional cooperators, unconditional defectors and conditional cooperators.[[4]](#footnote-4) Where it is seen that in a large part of the population chooses for ‘conditional cooperation’: cooperation depening on the environment being the person you interact with or other external factors. It could be suggested that the responsiveness of people induces cooperation.[[5]](#footnote-5) Too investigate this, responsiveness[[6]](#footnote-6) was introduced in a cooperation game[[7]](#footnote-7), the snowdrift. Several games come to mind, when thinking of cooperation (Snow drift, Prissoner’s dilemma, Stag hunt ect), which all show a differerent side of cooperation. The chioce for snowdrift was made because cooperation is inherently intended here and is expected to come up, see 2.1 The Snowdrift Game.

Therefore, the aim for this project is first to look if conditional cooperation can evolve in a Snowdrift game and mainly if conditional cooperation can induce the evolution of cooperative personalities.

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