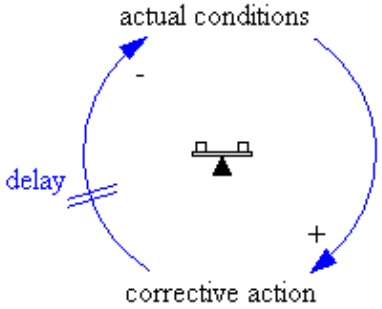
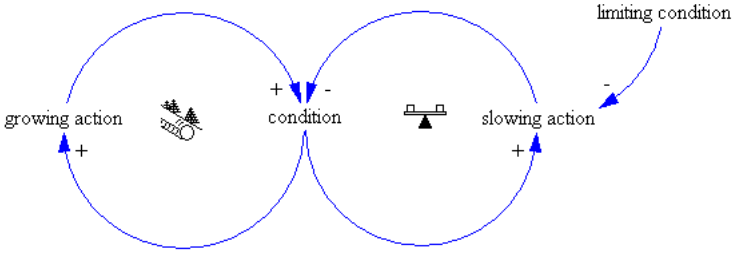
RedQuadrant

System archetypes are ways in which systems can behave.

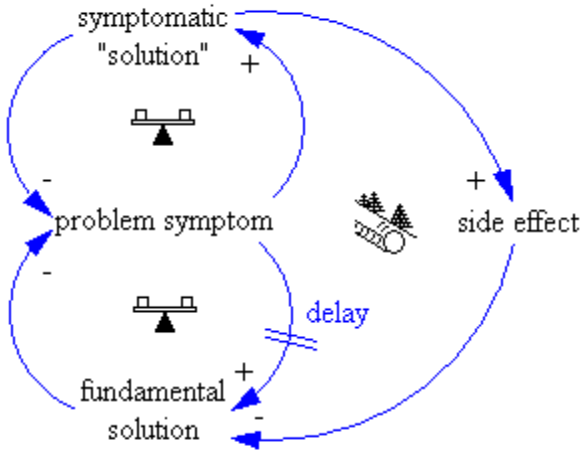
Balancing process with delay: a system in which the response to action is delayed. If the actors involved do not realise this, they might overshoot or underestimate what's required to reach their goals. This could be avoided by being patient, or by accelerating the reactions of the system to realized measures. Imagine trying to fill a glass with water if you only got a report of how full the glass was ten minutes after the event.



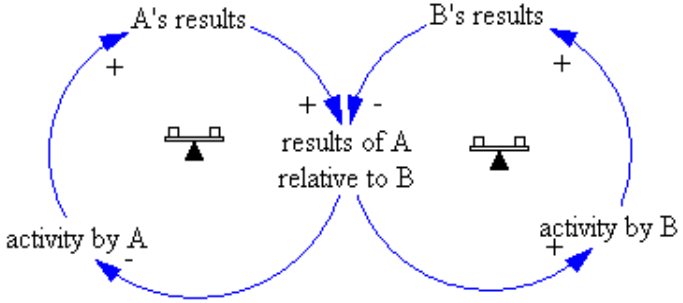
Limits to growth: growth continues until the system reaches a peak. The halt of this growth is caused by something inside or outside the system – but if these limits are not recognised, the methods which worked to generate growth keep getting applied more and more aggressively. This results in the opposite to what was desired. The solution lies in the weakening or elimination of the cause of limitation. Dieting is often given as an example of this.



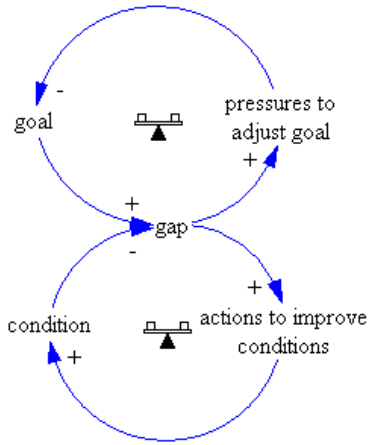
Shifting the burden: the problem is handled by a simple solution with immediate effect which "heals the symptoms". The main source of the problem is overlooked, because fixing it is hard and has no immediate outcome. The origin of the problem should be identified and solved in the long-term run during which the addiction to the symptomatic remedy decreases. An example of this might be paying debts by borrowing.



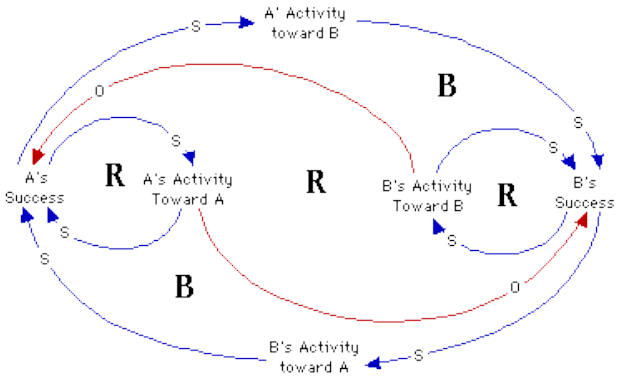
Escalation: a kind of non-cooperative game where both players believe only one of them can win. They are responding to actions of the other player in order to "defend themselves". Aggression grows and can result in self-destructive behaviour. The vicious circle can be broken by one agent breaking the defensive reaction pattern and turning the game into cooperative one. Example: arms race



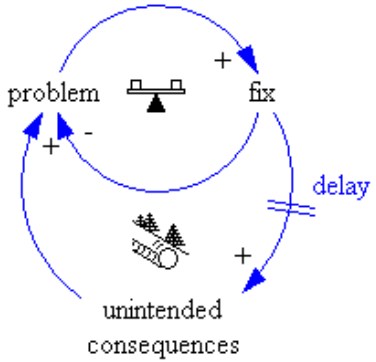
Eroding goals: a kind of shifting the burden archetype. As current problems need to be handled immediately, the long-term goals continuously decline. It can be avoided by sticking to the vision. Example: balancing the public debt.



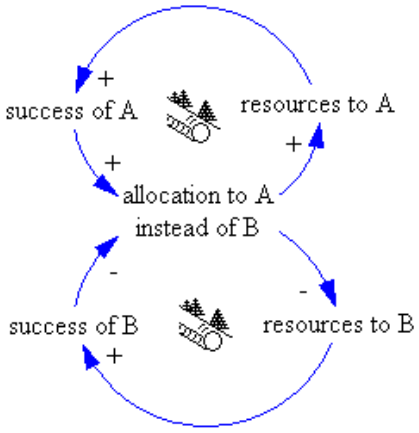
Accidental adversaries: the system will continue to grow if A and B support each other. However, A and B can also focus on improving their own position – when they do this, they each spend less time supporting each other therefore making it harder for the other, and then have to spend even more time on their own position. This show how focusing on your own goals can actually limit the success of the whole system, in turn making your own success less. A good example might be a sales team making sales which cannot be fulfilled by the delivery team, who in turn make it harder for future sales to be achieved.



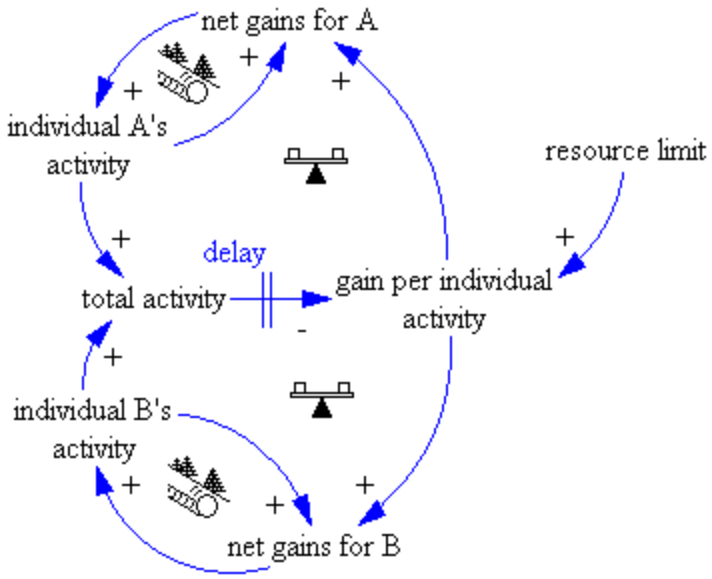
Fixes that fail: the problem is solved by some fix (a specific solution) with immediate positive effect. However, the "side effects" of this solution turn out to have negative implications in the future. The best remedy seems to be to apply the same solution. Example: saving costs on maintenance.



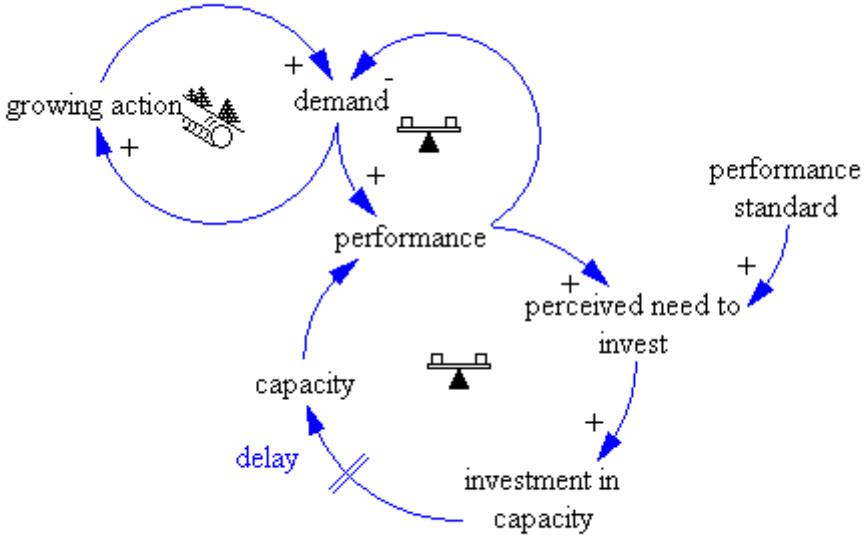
Success to the successful: two people or activities need the same limited resources. As one of them becomes more successful, more resources are assigned and the second one becomes less and less successful due to lacking resources. This "proves" that the decision to support the first one was "right". Problems occur if the competition is unhealthy and interferes with the goals of the whole system. To solve this, the two should be decoupled or received balanced resources. An example could be work vs. family.



Tragedy of the commons: where agents use common limited resources to profit individually. As the use of the resource is not controlled, it is used more and more – until eventually the revenues of the individuals decrease. Use gets increasingly intensified until the resource is completely used up or seriously damaged. To protect common resources some form of regulation must be introduced. An example might be fish stocks.



Growth and underinvestment
The limit to growth is the current capacity. It can be removed by sufficient investment in new capacities, but if the investment is not aggressive enough (or is too low), the capacities are overloaded, the quality of services declines and the demand decreases. Example: a small but growing company.



Materials adapted from www.systemsthinking.org, www.wikipedia.org, www.systemswiki.org and groups on LinkedIn including Systems Thinking http://www.linkedin.com/e/gis/27818, Systems Thinking World, and Lenscraft. Thanks to Gene Bellinger, Richard Veryard and Geoff Elliot.