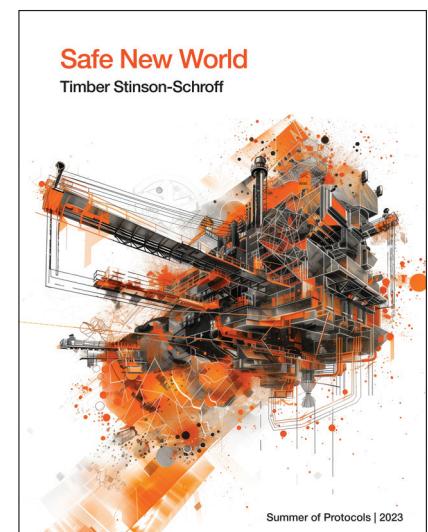
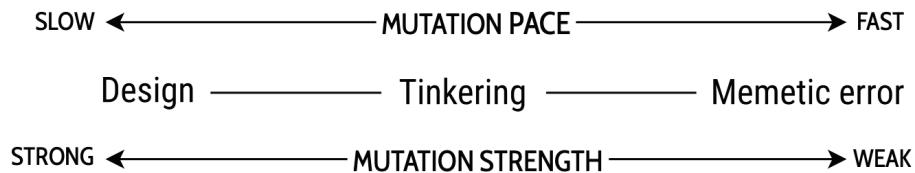


Protocol selection pressures

| Selection pressure | Description |
|---|---|
| Efficiency-Thoroughness Trade-Off (ETTO) | Safety protocols that greatly reduce accidents will be more likely to propagate, as long as they do not reduce productivity too much. Safety protocols with steep productivity costs are less successful. |
| Power/influence | Actors with power or influence, such as the extremely wealthy, can coerce other actors into following a protocol that benefits them. Low-power actors cannot. Protocols that help those with power are more likely to replicate. |
| Agency/freedom | High-agency actors can easily opt-in and opt out of following protocols. Low-agency actors cannot. Protocols that impose high personal costs if they are not followed are more likely to replicate. Workers in a free market have more agency than indentured servants. |
| Bandwidth (cognition, memory, physical) | Actors' abilities to perceive, remember, and replicate protocols are limited by cognition, memory, and physical bandwidth. Protocols engage in zero-sum competition for these resources. This selects protocols that are easy and cheap to mimic accurately. |
| Network size, density, and openness/flow rate | Protocols "live" on human networks. Network size, density, and openness (the maximum rate of information flow between actors) are all important factors in protocol selection. A network acts as a sort of memory. Large, dense, and high-flow networks provide a substrate for protocols that are more difficult to mimic. Small, sparse, low-flow networks kill complex protocols. Small companies cannot host as many protocols. The departure of a single employee can deeply harm the "memory" of the network. |
| Technology | Augments worker bandwidth by encoding protocols into technology, thereby freeing up bandwidth. Gas detection using candles was an active protocol, which was encoded into passive Atmospheric Monitoring Systems. More tech = more protocol capacity. Changes the ETTO of existing protocols. More effective insulation for residential houses led to problems with radon, which increased the value of existing radiation detection protocols. Enables the discovery and understanding of new hazards, like the role of lipoproteins as a risk factor for heart disease. |
| Speed of costs and benefits (feedback loops) | Protocols with immediate benefits are more likely to replicate. Short-term interests, like survival and status games, select protocols with immediate benefits. Health protocols face lots of competition from immediately beneficial protocols. The opposite is true for costs—the less immediate the costs of following protocol, the more likely it will be followed. |
| Legibility of costs and benefits | Protocols with legible benefits are more likely to be mimicked. Eye protection provides more legible benefits than hearing protection. The opposite is true for costs—the less legible the costs of following protocol, the more likely it will be followed. |
| Generality of benefits | Protocols that benefit a larger variety of actors are more likely to replicate. Anti-smoking protocols benefit not just smokers, but surrounding actors. |
| Agnostic adjacent networks | If a group has an absolute preference for following a protocol AND that protocol can be followed by the surrounding network, that protocol is likely to replicate. Food processing protocols, like a nut-free facility, are a good case. Not everyone can eat nuts, but everyone can not eat nuts. |
| Ethics | The ethics of an individual affect their acceptance or rejection of protocols. Early 20th-century coal miners, viewing themselves as entrepreneurs, might have had an ethic that favored risk-taking. |
| Horizon of concern | Longer horizons of concern, unlocked by longevity and or wealth, allow protocols with non-immediate benefits to compete. Workers focused on meeting near-term needs like food, water, and shelter don't have the luxury to follow protocols that will benefit them only in 20+ years. |
| Wealth | The level of wealth in an industry will affect workers' horizons of concern, their options for employment, and the amount of resources that can be reasonably spent on safety protocols. As the value of human life increases, so does the value of safety protocols. And vice versa. |
| Displacement | Some safety protocols displace costs from one group onto another, e.g., SUVs are safe, but reduce the safety of other drivers and pedestrians. The more risk a protocol displaces, the more power its participants need. A social order's tolerance for risk displacement affects protocol selection. |
| Public attention | Protocols that target well-publicized risks might replicate better. For example, concerns over consumer food poisoning led to improvements in factory sanitation protocols, achieving the target objective and reducing the rate of occupational disease at meatpacking plants in the process. |



Protocol Mutation Pace-Strength Continuum



Tech-Protocol Cycle

