Argument from time as a framework and crossmodality as an evolutionary failsafe for gifts and disabilities

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The framework of time and gifts and disabilities

Time has several aspects that could be extremely enlightening that we will consider adopting. Those aspects or dimensions are Order, Onset, Duration, and Velocity. Order refers to arrangement of things relative to one another. Onset relates to how and when something begins. Duration concerns how long something occurs. Velocity refers to the rate at which time is perceived to travel.

Let us begin with the temporal aspect of order that characterizes the relation between gifts (g) and disabilities (d) as either one of “precedence” or “concurrence”. In other words, one and only one of the following situations may be the case: g before d, g after d, or g and d come to be simultaneously.

Time is traditionally thought to be linear [1]. Relations according to a linear view of time include before/after, earlier/later, and so forth. In relating g to d according to time, unless we allow for time to be circular, it would be impossible for both g and d to precede one another, as well as permit g and d to both come after one another. Nevertheless, a relation in which either both “g before d” and “d before g” OR “g after d” and “d after g” occur represents a simultaneous situation in which they come to exist at the same time referred to as concurrent. Conversely, nonconcurrent relations specify which of either comes before or after the other. We will consider an argument I present that supports precedence of gifts later in our discussion.

In addition to the aspect of sequence that imposes order, let us suppose another aspect of time was adopted for viewing the relation between gifts and disabilities referred to as causality. This perspective views the relation between gifts and disabilities as though one causes the other. What is most intriguing about this frame is that the causal dimensional/relational perspective entails our “subsumes” that of order of the “temporal”. That is, to say, I know that whatever is a cause of an effect necessarily precedes it. However, one must beware not to succumb to logically fallacious conclusions.

One such fallacy is “post hoc, ergo, propter hoc”, which says, “after this, therefore, because of this”. The fallacy warns that order itself does not imply causality, which means that it is false to conclude that “whatever precedes an event is necessarily its cause”. The view on the relation between gifts and disabilities being causal implies that at least one of following is correct: g causes d, d causes g, each one causes the other, or neither does. Under causality as a framework, the relation d causes g and g causes d will be presented with my argument through a hypothetical case in support of it as a relation.

Argument from time as a framework

In adopting time to characterize the relationship that exists between gifts and disabilities, we are initially limiting ourselves to conceding inclusively either “precedence” or “concurrence”. That is, to say, one exceptionality precedes the other or they both come to be simultaneously. We now argue from the perspective of precedence as a constraint and continue until an inconsistency is encountered. Along with Lovett’s statement, let us also assume that disability can exist isolated. Why? Because there is or has been someone with confirmed disability without validated gifts, the existence of at least one such individual implies isolation is possible for disability.

A potential explanation for the inability to validate gifts is either (a) an individual only has a disability, (b) someone who has a disability with a coexisting gift may not be able to manifest their gift in the presence of the disability, or (c) measurement instruments are unable to pick it up because of the disability. Without the existence of a gift, the manifestation of a gift, or the sensitivity of a measurement instrument to pick up gifts that exist, the person may only effectively be considered disabled. This means not all of those with disability possess gifts, or if some do possess them, then obtaining evidence is not possible. Under our assumptions, if all the gifted have, can, or will qualify as having some form of disability (i.e., 2e individuals), but not all those with disability have, can, or will have gifts (i.e., just disability), then one can reasonably conclude that disability precedes gift development!

Crossmodality: an evolutionary failsafe for gifts and disabilities

As to why disability would be established prior to gifts, we may never know for certain. Nonetheless, with time as our grounding framework, we can use basic principles of logic to reason our way through an argument. The main requirement for the process is to avoid inconsistency. One approach that we will use is to begin reasoning assuming the opposite of what we wish to claim, viz., that disability precedes gifts. As long as we do not contradict what was stated in previous remarks, we have not violated consistency.

So, let us suppose a time in the past in which disability before giftedness was not the norm among humans. This supposition forces us to contemplate a possible scenario in which the natural selection of humans who experienced disability before gifts occurs. Natural selection may be defined as the differential survival and propagation of a certain subset(s) of living organisms occurring over generations because members of the subset(s) have particular phenotypic variation absent from the rest of the population [2]. Phenotype refers to observable characteristics that are a consequence of interactive effects between one’s genetics and their environment [3]. So, the process of natural selection happens over a lengthy period of time at the end of which only generations of descendants from the original subset(s) of the population with the right phenotypic characteristics remain. Moreover, considering the remaining people whose phenotypes were naturally “selected” survived while those without it did not, it can be inferred that having certain characteristics unequivocally confers an evolutionary advantage.

Concerning natural selection, although use of phenotype brings to mind traits such as complexion, height, and fast or slow twitch muscle fiber predominance, things like the ability to taste bitter or having hyperacusis are considered phenotypes as well. Furthermore, we must include constructs such as intelligence, which paves the way for both disability as well as giftedness to qualify as phenotypic traits. The only requirement for the phenotype is that it be an observable characteristic that results from a combination of genotype and environment according to the definition provided. Nevertheless, my own interpretation and wording of the definition would replace the restrictive-sounding “observable” that is used since some may incorrectly interpret it to be a limitation set for sensory perception by use of the eyes. Because there are additional faculties of sound, taste,
touch, and smell, I would use “perceptible” to convey sensory modality irrelevance. It is my understanding that although a genetic mutation occurs or it does not, the process of natural selection in favor of that mutation occurs over time because of the conferral of some form of evolutionary advantage in possessing phenotypic consequences. Thus, even without knowing what that advantage is or how it came about at this point, the author suspects that a switch to disability preceding gifts likewise confers a phylogenetic fitness. The sequence of events involved in the evolutionary development of a species or taxonomic group of organisms is the definition of phylogeny [4]. Additionally, ontogenesis refers to “the process of an individual organism growing organically; a purely biological unfolding of events involved in an organism changing gradually from a simple to a more complex level” [4]. Thus, by phylogenetic edge, the author refers to the sequence that aids in the biological unfolding of events responsible for the existence and growth of an organism from simple to more complex in the evolutionary development of a species by either facilitating, protecting, or otherwise providing a specific benefit.

The key aspect of the benefit from my interpretation of the definition of portmanteau deserving emphasis is that of sequence. I think of evolution not as isolated events, but in terms of a sequence of events. For example, along the human evolutionary timeline, bipedalism — our ability to walk upright on two feet — occurred and has remained our method of locomotion. The evidence abounds not only for the existence of our having relied on our four limbs to walk but also for such method evolutionarily preceding bipedalism. Just look at infants as they grow and transition into various subsequent stages developmentally. So, given quadrupedalism as an event preceded bipedalism as an event in our evolutionary timeline, prior to the bipedalism event that occurred, either (1) no preference existed for either mode of human mobility and we just happened to be quadrupedal, or (2) at some point we used two hind limbs first then subsequently switched to all four limbs for locomotion. There is a problem with these alternatives, however.

Firstly, if alternative (2) were the case, then assuming evolution, going from bipedalism to quadrupedalism conferred an evolutionary advantage and our being bipedal now subsequent to quadrupedalism would mean we took a step backwards to before being bipedal. In the case of an absence of preference, there are a few indicators that would validate the claim. For one, no preference would entail finding evidence of both bipedal and quadrupedal locomotion in humans not just as children, but in adulthood as well. Also, there would be a closer proportion in each category than presently exists. Furthermore, the existence of no preference would suggest that both quadru- and bipedal alternatives might have arisen as variations of being locomotive, which itself was an alternative to either not being designed for locomotion or able to move out of the water (only inside) or locomotion without the use of limbs to move outside of an aquatic environment.

I would argue in favor of not being designed or able to move outside of water but only inside aquatic environments with two or four limbs, as do the sea animals that swim. Moreover, with the exception of seals, perhaps, since sea-swimming creatures with only two fins would appear to be at an anatomical disadvantage in attempting to surface and ambulate, it would be evolutionarily consistent to have quadrupedal species evolve from the ocean prior to bipedalism occurring. In support of my hypothesis is the recent discovery of the walking epaulette shark [5]. This shark has four limb fins, the anterior two of which are unusual in their placement allowing for it to surface and walk. Other than snakes who have mastered it, locomotion without limbs would seem to be disadvantageous. Regardless, it is not that bipedalism as an event occurred in isolation; it is that the sequence of events switched from the alternative order or developed anew and remained that matters. Likewise, I argue that the switch to disability preceding gifts is not simply an isolated event; it is a sequence shift. Instead of being gifted as an event preceding having disabilities as an event, or no precedence whatsoever, switching to experiencing a disability as an event preceding having a gift as an event is a change in the sequence of events! Now that we understand and have adopted the sequence of events framework for discussing evolution, let us consider how the switch to disability preceding gifts might be considered a benefit.

The author is reminded of people who lost their vision at an early age: by adolescence and even into adulthood, their remaining faculties had significantly improved. In particular, their hearing had become so highly refined and developed that it was considered to be superior to that of the sighted. Such superior hearing ability apparently had allowed for these individuals to negotiate their new lives quite successfully. Despite not being as well off as they were with sight, because these people fared far better with enhanced senses than without for obvious reasons, it appears that the enhancements accommodate for the recognized deficits due to the loss of vision. While not entirely incorrect, I would argue that to say these individuals adapt would be to miss the forest for the trees. Instead of merely adapting, a more accurate claim would be that these people experienced compensation.

There are many accounts in the scientific literature of visually impaired people experiencing similar compensatory sensory changes. Evidence suggests that the compensatory enhancement phenomenon is a result of something known as crossmodal plasticity. Crossmodal plasticity refers to the alterations that occur involving the reduction of input from one organ, resulting in the increased usage of another [6]. Although such a compensatory sense-heightening alteration may be an evolutionary mechanism that probably occurs to boost the individual’s chance of survival, there are limitations. Limitations as to how much compensatory enhancement can be achieved for certain functional sensory aspects exist, and in exchange for the enhancements permanent impairments will indeed affect other aspects [6].

While there is no way to accurately quantify how much influence blindness has on crossmodal compensation, the level of superior compensatory hearing that develops if compared to seeing peer controls would undoubtedly be considered auditory giftedness. Even though the process of crossmodal plasticity does occur to some degree in those who experience the loss of at least one sensory modality (e.g., vision in this case), the extent to which the increased usage of the other sense organ develops varies from one nongenetically identical person to the next. In addition to innate genetic differences as a possible explanation for variation, since the extent to which an individual’s hearing develops is inextricably linked with the hearing ability that develops in response to the absence or loss of vision, the other aspect that could comprise part of an equation accounting for variation is the sensory modality loss itself. That is, the extent to which the hearing ability develops (i.e., giftedness) may be correlated with the extent to which the lost vision experienced detrimentally impacts the individual. For instance, if someone who loses their vision primarily relied on it so that in its absence there is an enormous void to fill, then the hearing that develops must make up for the loss by developing to an extreme level. Though possible does not imply actual, from a logical standpoint it does at the very least allow us to assume it to be the case.

The author hypothesizes based on the evidence for crossmodal plasticity that since the extent to which an ability develops appears to be inseparable from the development of the ability itself, which is eerily similar to my argument concerning how conditions that result in disability are inseparable from the disability itself, there is at least one example in which the loss of sensory modality creates the experience of disability in response to which occurs crossmodal plasticity resulting in alternate sensory organ enhancement to a level that would be considered gifted. Furthermore, it is in the absence of one sensory faculty that developing another of the remaining senses helps someone: by allowing them to resume daily activities, affording them the best chances at survival.

The crossmodal development of gifted hearing is not only

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compensatory, but it also occurs when disability precedes the gift. When the events of disability and gifts occur in this order from a perspective of the aspect of order utilizing time as a framework the person seems to benefit. Considering the example of crossmodal plasticity given what happens in the order it occurs, there is no basis to suggest gifts could precede disability. In particular, if gifts were to precede disability, then the following questions would need to be answered: (1) How would it initiate without a prior loss of sense perception? (2) Which sense would be compensatorily enhanced if all were still present? and (3) How would it know to what extent to develop without the disabling loss of at least one sense preceding? Unless these questions all can be answered, then gifts are unlikely to precede.

The importance of the compensation that occurs in crossmodal plasticity cannot be understated. Interestingly, according to the New Oxford English Dictionary, by definition compensate means give or get something in recognition of loss, suffering, or injury; to make up for or offset a disability with development in another dimension or direction [3]. Not only does one definition describe what we argued occurs, but the other definition has the word “disability” included! As a phenomenon, either interpretation of the term “compensate” entails some sort of need or purpose being fulfilled. Whether it be to make up for or offset or recognize in exchange for loss, when a phenomenon is appreciated in terms of a need they satisfy or a purpose they are to ultimately serve, the framework from which it is appreciated is referred to as teleological [3].

In adopting a teleological co- or sub-framework on gifts that views them by their very nature as being compensatory phenomena, then in the absence of any preexisting deficits that result in disability, there would be nothing for which the development of gifts could be said to compensate! Therefore, the development of whatever probabilistically contingent defects one is to have causing the experience of disability — both deterministic (i.e., 100% likely) and stochastic (i.e., 100% possible) — must take precedence to any gifts. Moreover, this sequence affords the best opportunity for self-corrective efforts, which occurs through the development of gifts that are compensatory.

References


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