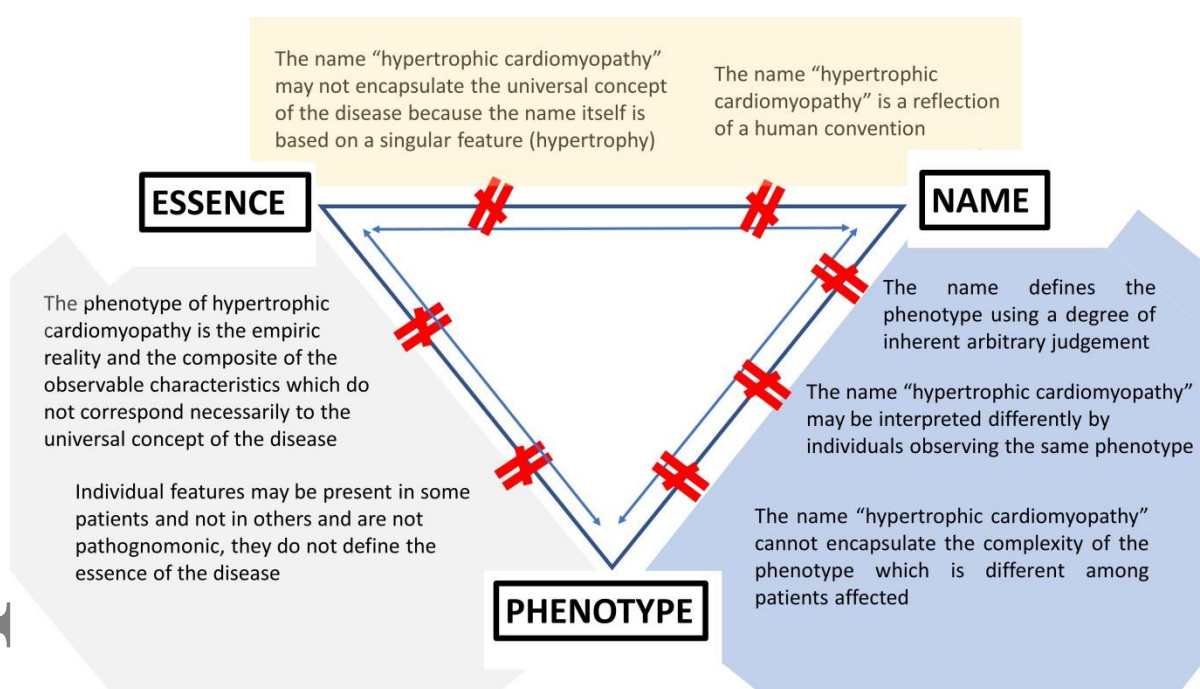
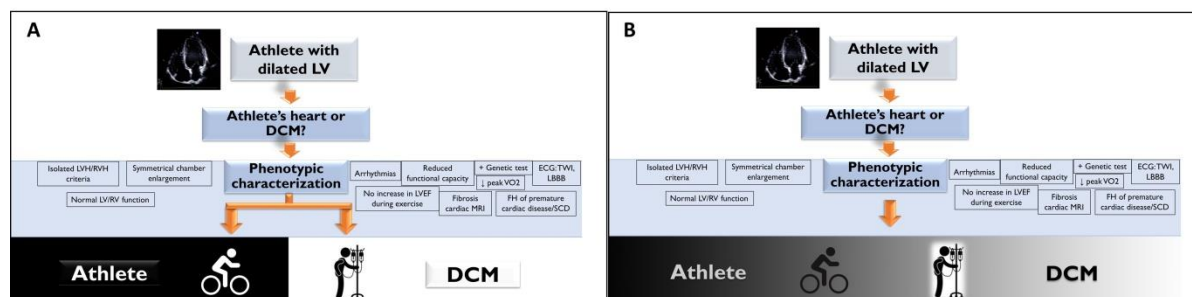


## Figure Legends

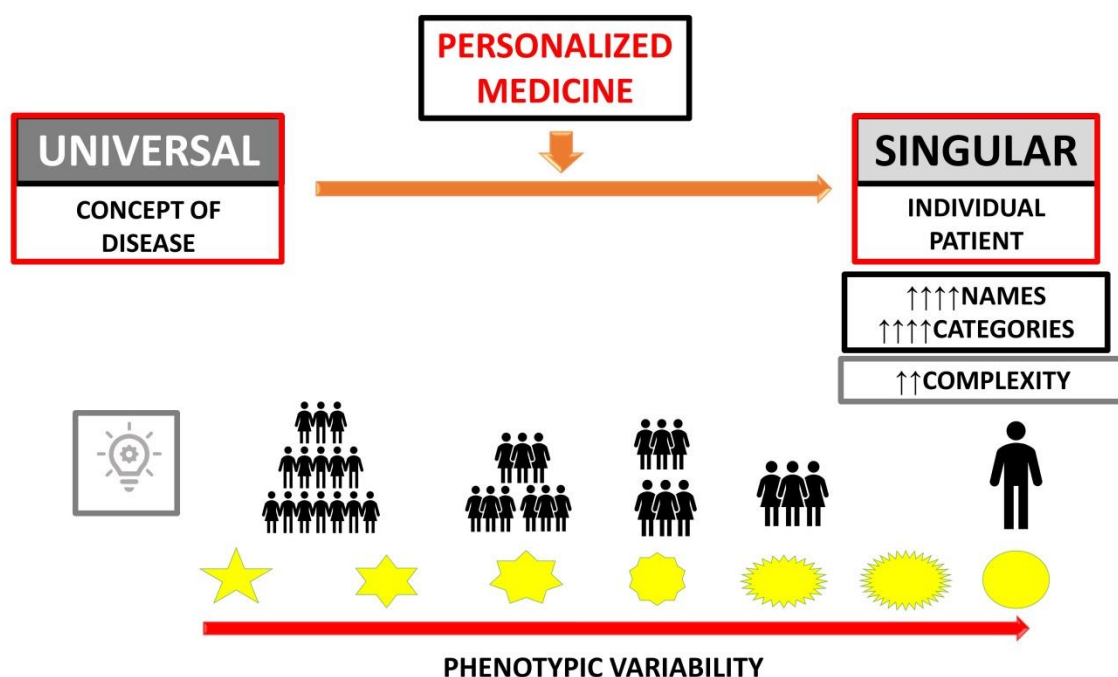
**Figure 1.** Relationship between essence, phenotype and name. Hypertrophic cardiomyopathy is used as an example to explain how these 3 aspects are inherently related, with several dilemmas affecting the link between them. The “non-equal” symbol represents the missing link between the 3 aspects.



**Figure 2.** Dichotomous approach to differential diagnosis between athlete’s heart and DCM (A). The combination of DCM and physiological adaptation to exercise is a possibility and an approach based on the recognition of “shades of gray” rather than mutually exclusive would account for the limitations of our knowledge based on empiric reality (the phenotype) (B).



**Figure 3.** Personalized medicine may raise significantly the level of complexity in definitions and nomenclature. This process is likely to result in enormous confusion, clashing with the human intellectual capacity to rationalize reality into meaningful categories. The phenotypic variability may be infinitesimally high is one considers the individual patient, rather than categories (increased variability is represented by the increase in geometrical complexity - yellow geometric figures).



**Figure 4.** Possible approaches to increase in complexity. Heart failure may be categorized in a myriad of different disease entities (small dots). Simplification into few major clinical outcomes and focus on practical management may solve the problem of overcomplexity, shifting the target away from categories. Artificial intelligence may enable the clinician to control overcomplexity through a useful interpretation of multiple names and terminologies attached to disease. Nomenclature and complex classifications would gain meaning and relevance if artificial intelligence provides tools to decipher categories as single entities with practical effects which are specific to each single category.