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The Super Bowl of survival – Which North American sports team comes out on top?

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Abstract

This paper creates a hypothetical scenario where animal-based teams from the 4 major North American sports leagues are placed into an ecosystem together. After determining the likely predator/prey interactions between these organisms, the apex predators of this fantasy habitat are established. While 8 teams can claim ecological dominance and feature no natural predation, only the Toronto Maple Leafs are capable of long-term survival.

Introduction

A universal aim in sports is defeating, and commonly achieving dominance, over an opponent. As such, many teams represent themselves with powerful, dangerous animals. However, rather than vying for the Stanley Cup or Commissioner's Trophy, what if teams were competing for life itself?



Figure 1 – Bears versus Tigers in a much more literal context [1].

This paper places teams from the National Football League (NFL), the National Basketball Association (NBA), the National Hockey League (NHL) and Major League Baseball (MLB) into a World Series of survival. A 'playoff' will determine each team's validity, before those remaining will be placed into an ecosystem and a 'champion' will be determined.

Selecting Valid Teams

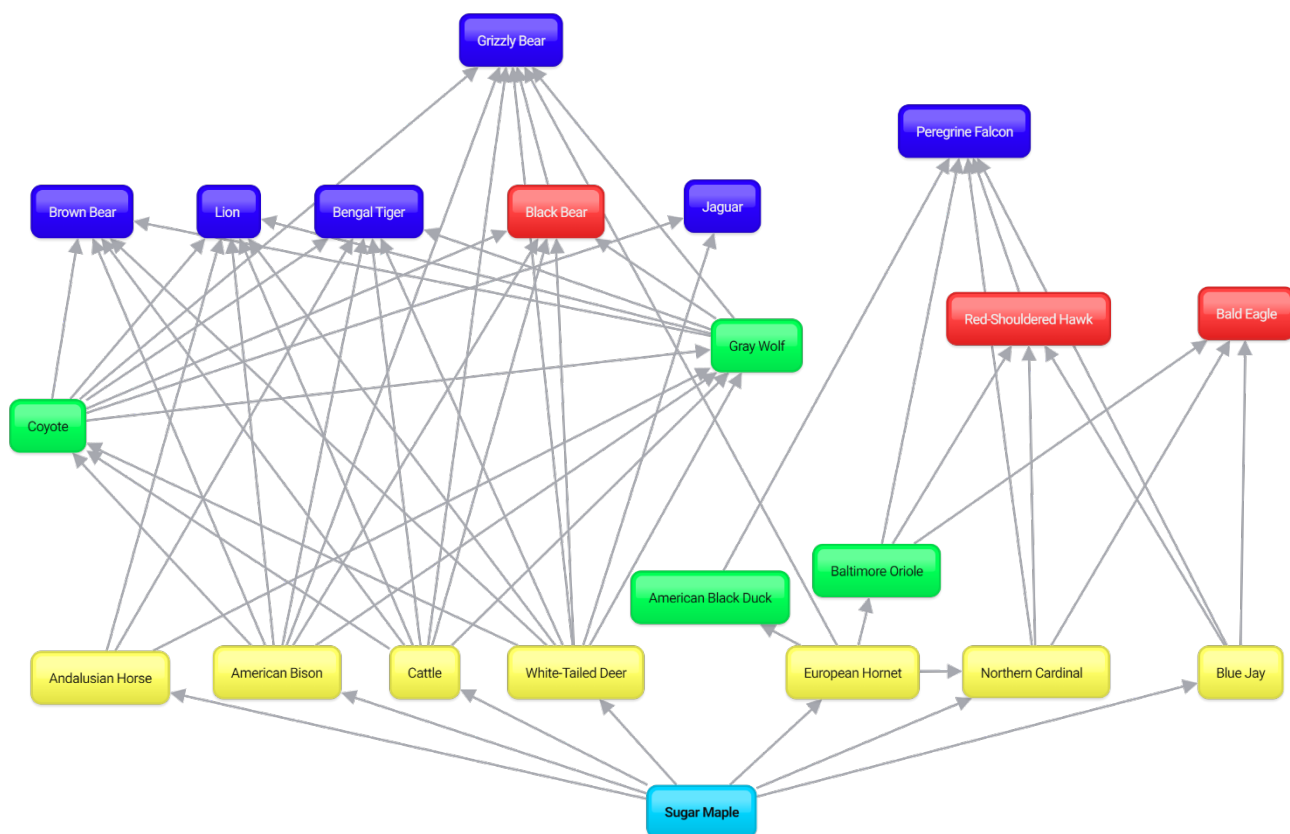
Limitations are made to assert what teams qualify for the ecosystem. Of 123 teams considered, 87 are represented by inanimate objects (e.g. Phoenix Suns), humans (Montréal Canadiens) or non-existent beings

(L.A. Angels) [2-5]. Of the 36 remaining, those represented by the same organism (Arizona/St. Louis Cardinals) are assimilated, leaving 30 distinct species. However, not all organisms could interact due to wildly different habitats. Marine organisms such as the Miami Dolphins, and those whose diet cannot be altered to accommodate organisms in the permitted list (like the Pittsburgh Penguins) are not considered.

Creating the Food Web

All food chains begin with an autotroph, an organism capable of producing the organic compounds required for life through harnessing only the energy of light of chemical reactions [6]. In all 123 teams, only the Toronto Maple Leafs are represented by such an organism, and so are the only producers in this ecosystem [4]. 7 'teams' could potentially survive off maple trees, and so are primary consumers [7-13]. These will then be preyed upon by secondary consumers, and so on. Figure 2 shows the predator/prey relationships between the 21 valid species and determines the apex predators of the system.

Figure 2 displays 6 organisms with no predators, representing 9 teams; the Boston Bruins, Detroit Lions, Cincinnati Bengals, Detroit Tigers, Atlanta Falcons, Philadelphia Eagles, Memphis Grizzlies, Florida Panthers, Carolina Panthers, and Jacksonville Jaguars. This simplified analysis concludes the fight for dominance is an 9-way tie.



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Figure 2 – Food web of all valid organism from the NFL, NBA, NHL and MLB. Light blue are producers, yellow are primary consumers, green are secondary consumers, red tertiary consumers, and dark blue apex predators.

Numerical Consideration/Trophic Levels

The above assumes all populations are large enough that interspecies relationships remain relatively stable. Another approach uses the number of players per team (NFL – 53, NBA – 15, NHL 23, MLB – 40) [2-5]. Another consideration is the biomass transfer efficiency. Nearly 10% of energy transferred between trophic levels is converted to biomass [14]. While 23 maples could support 15 hornets or 40 blue jays, insufficient biomass could be transferred to 106 horses or 53 cattle. Since ‘loss’ occurs between each level, it is unfeasible that this energy could sustain 129 jaguars and 93 tigers, among other predators [14]. In reality, the small number of prey will swiftly be wiped out by an overwhelming surplus of predators. The predators may attack each other, but eventually all carnivores will starve. Even omnivorous predators won’t find sufficient food to survive and reproduce. Only the maple trees remain, which will then reproduce asexually [15].

Assumptions

A number of assumptions have been made during this paper. Firstly, many teams are not specific about the species of their icon. Therefore, species similar to a

team’s mascot, or found in the team’s location, have been used. Secondly, many animals’ ranges do not overlap; a Baltimore Oriole is unlikely to ever meet a Bengal Tiger [16-17]. As such, dynamics between organisms have been estimated using real-life interactions between ‘analogues’ that each organism does interact with. It is also assumed that a habitat where all the ‘valid’ organisms could survive exists; a multi-niche land habitat is used to invalidate as few teams as possible. Also, it is assumed that the timescale is sufficiently short that selection pressures can be disregarded. Furthermore, all members of a species are deemed to be capable of breeding provided they are alive.

Conclusion

Although logical to assume the most dominant sports teams are represented by strong, carnivorous animals their large populations will likely cause them to drive each other, and their prey, to extinction. As the wait for a 14th Stanley Cup enters its 51st year, Leafs fans can take heart in the survivability of their team and celebrate being crowned champions of the Super Bowl of Survival.

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