Title of entry: Individuals that impose costs

Synonyms: Dominance, Power, Aggression, Formidability

Definition: In humans, individuals that impose costs are those who signal both an ability and a willingness to inflict harm upon others.

Introduction

Traits that successfully signal an ability and willingness to impose costs comprise a dominance profile. Attaining social rank through dominance is reliant on an individual's propensity to induce fear of psychological, material and physical costs that the individual may impose upon their conspecifics (Buss & Duntley, 2006; Chance, 1967). Dominance has a deep phylogenetic legacy and likely persisted due to the prevalence of intergroup conflict throughout human prehistory that created a selection pressure for both physical and behavioural formidability (Manson & Wrangham, 1991; Wrangham & Peterson, 1996).

Physical formidability, resource control and the ability to impose costs

Given the importance of discerning who is most able to inflict harm upon others, it seems that humans have evolved cognitive capacities for extracting formidability-relevant information from morphological, or non-verbal, signals to dominance (Sell et al., 2009). Some of these signals may be the individual's physical strength and size (Blaker & Van Vugt, 2014), which may indicate to others their perceived aggression and ability to succeed in agonistic encounters (Archer, 1988; Gallup, White, & Gallup, 2007). Other visual characteristics, such as masculine facial characteristics (i.e. height-to-width ratio, more prominent feature brow), are believed to be signals of an individual's dominance (Little &

Roberts, 2012). These facial characteristics, with links to testosterone, signal an individual's formidability, fighting ability and propensity for dominance-related behaviors (Carré, Putnam, & McCormick, 2009; Stirrat, Stulp, & Pollet, 2012). Alongside this, auditory cues may signal an individual's dominance. Deeper vocal acoustics can convey an individual's threat potential through its stable relationship with physical strength and size and testosterone (both endogenous and exposure during development:(Bruckert, Liénard, Lacroix, Kreutzer, & Leboucher, 2006; Feinberg, Jones, Little, Burt, & Perrett, 2005). Expressions of vocal pitch are, however, dynamic and it seems that those high in dominance are disposed to modulate their pitch to invoke signals of their formidability, whilst those lower in rank or dominance reactively modulate their pitch to accommodate their high-dominance counterpart (Cheng, Tracy, Ho, & Henrich, 2016). While some evidence indicates that these markers do predict an ability to impose costs on others—and have further been observed to predict an individual's social rank (Keating, Mazur, & Segall, 1981; Klofstad, Anderson, & Peters, 2012)— recent evidence suggests that these relationships are likely to be small (Haselhuhn, Ormiston, & Wong, 2015).

Individuals high in dominance may maintain power through a monopoly over resources, be they material or sexual (Mazur, 1985). Individuals who are physically formidable, and thus have a greater chance of success during agonistic encounters (Archer, 1988), are more able to aggressively control group resources and face fewer costs (Hammerstein & Parker, 1982; Petersen, Sznycer, Sell, Cosmides, & Tooby, 2013). The defensibility of these resources has broad implications for the steepness of social hierarchies. When resources are scarce and certain individuals have disproportionate control, competition and rank asymmetries become heightened (Pierce & White, 2006). Low ranking individuals are likely to acquiesce to the wishes of a physically dominant individual through fear of both

physical harm and also of the individual withholding valuable resources (Hawley, 1999; Mazur, 1985).

However, physical formidability alone is a noisy signal and can also signpost an individual's ability to generate benefits for others (Blaker et al., 2013; Lukaszewski, Simmons, Anderson, & Roney, 2016), thus also being an attribute associated with prestige. Physical formidability is a form of embodied capital, whereby the narrower traits that comprise formidability (i.e. muscle mass and height) are biologically costly investments that take a great deal of time and energy to develop (Kaplan, Lancaster, & Robson, 2003). The information conveyed by physical formidability is multidimensional as the development of such traits can improve an individual's hunting and foraging ability (Apicella, 2014; Gurven, Kaplan, & Gutierrez, 2006; Jones & Marlowe, 2002) and aid in community defence (Van Vugt, Hogan, & Kaiser, 2008), alongside cueing an ability to inflict harm. The combination of physical formidability and individual differences in personality, motivations and emotional profile that signal an individual's willingness to inflict harm upon others (Cheng, Tracy, & Henrich, 2010) delivers a distinct profile that disposes certain individuals to propagate fear among group members.

Dispositional dominance and the willingness to impose costs

There are stable individual differences in the psychological profiles that make certain individuals disposed to dominance (Henrich, 2016). Individuals high in dispositional dominance are high in a combination of narrower personality traits, having high levels of aggression and extraversion, and dominance being marginally associated with neuroticism (Cheng et al., 2010). Moreover, those high in dominance are also narcissistic self-

aggrandizers and dominance has a negative association with genuine self-esteem and agreeableness (Cheng et al., 2010). This profile is linked with hubristic pride, which is marked by arrogance and conceit, and is further associated with poor mental health, lack of conscientiousness and an inability to forge and maintain stable, positive relationships (Tracy, Cheng, Robins, & Trzesniewski, 2009). However, hubristic pride may have evolved to motivate a willingness to impose costs on others. The related subjective and egocentric ideals of grandiosity and superiority may provoke anti-social behaviors that induce fear among conspecifics, which has reproductive and social benefits that balance the negatively associated outcomes (Ashton-James & Tracy, 2012). Furthermore, the combination of these stable traits and egocentric status motivations increases an individual's willingness to inflict costs on others to obtain goals (Sijtsema, Veenstra, Lindenberg, & Salmivalli, 2009).

There may be gender differences in cost imposition. Evidence suggests that males are more likely to impose direct costs on others through direct aggression (i.e. imposing physical costs on others), while females are more willing to indirectly aggress (i.e. gossip: Card, Stucky, Sawalani, & Little, 2008; Griskevicius et al., 2009). For instance, a key tactic in female mate competition involves spreading information aimed at maligning the reputation of her romantic rivals (Reynolds, Baumeister, & Maner, 2018), whereas males often focus their efforts on inflicting (or threatening to inflict) costs on rivals and mates in addition to provisioning benefits to the latter (Miner, Starratt, & Shackelford, 2009).

The costs and benefits of dominance and cost imposition

There is a plethora of individual benefits for high-ranking individuals whose positions are derived from signalling an ability and willingness to impose costs on others. In several small-scale societies, males high in dominance have greater reproductive success (von Rueden & Jaeggi, 2016) and achieve positions of considerable influence (Konečná & Urlacher, 2017). Experimental evidence has also indicated that males perceived high in dominance are more attractive as short-term mates (Kruger & Fitzgerald, 2011). Those high in dominance also have a greater likelihood of becoming leaders and to receive deference and achieve positions of high rank in both formal (Magee & Galinsky, 2008) and informal hierarchies (Cheng, Tracy, Foulsham, Kingstone, & Henrich, 2013).

While individuals high in dominance may impose costs on their counterparts, evidence also suggests that groups may, on certain occasions, benefit from the dominant inclinations of certain group members. There are fewer individuals vying for influence in dominance hierarchies, which may ease tensions within a group, facilitate effective coordination (Ronay, Greenaway, Anicich, & Galinsky, 2012; von Rueden, Gurven, Kaplan, & Stieglitz, 2014), and punishment of norm violators (O'Gorman, Henrich, & Vugt, 2009). Individuals high in dominance may also provide group benefits during times of intergroup conflict (Wilson, Hauser, & Wrangham, 2001). Such individuals may inflict costs on an out-group, increasing the competitiveness and success of an in-group (Halevy, Bornstein, & Sagiv, 2008). It is important, however, to note that these group benefits are by-products of those high in dominance creating fear to attain their egocentric goals. Recent evidence indicates that dominance-related social rank does not depend on (mis)perceptions of contributions from high dominance individuals (Cheng, Tracy, & Henrich, *in prep*). Thus, the benefits that may result in rank-relations weighted by dominance are a result of the fear of retribution that subordinate individuals harbour.

Constraining dominance and cost imposition

In many human groups there are several mechanisms that restrict an individual's ability to impose costs on group members. Humans are unusual in the ease with which they form cooperative groups and coalitions(Gintis, van Schaik, & Boehm, 2015). Coalitional groups can attain a multitude of fitness-enhancing outcomes in comparison to individuals acting in isolation (Price, Cosmides, & Tooby, 2002). One such outcome is the ability to coordinate action against those who impose costs on others (so-called '*reverse dominance*': Boehm, 2009). Many groups exhibit an aversion towards exploitative dominance-related strategies and groups members are more likely form alliances (Eibl-Eibesfeldt, 2017; Gavrilets, 2012); spread negative gossip (M. Feinberg, Willer, & Schultz, 2014); dislike (Anderson & Willer, 2014); or exit the group when there are available options (Price & Van Vugt, 2014) to counter the influence of an individual high in dominance.

Conclusion

The ability and willingness to impose costs on others comprises a dominance profile. The diminished potency of physical and overtly violent cost imposition, and the increased reliance on manipulation (Clutton-Brock, 2009) and coercion through psychological fear (Henrich & Gil-White, 2001), has distorted dominance relationships, constraining the efficacy of dominance to certain contexts. Such contexts when individuals can impose costs are those where no strong norms sanctioning dominance-related strategies have developed (Pandit & van Schaik, 2003), when the structural properties of a group make interactions

between subordinates incredibly difficult (i.e. transitive or non-cohesive groups: Pellegrini & Long, 2003), in formal hierarchies (Magee & Galinsky, 2008) and when groups have norms that may promote dominance (i.e. in delinquent gangs: Henry et al., 2000; Redhead, 2016). Nevertheless, group members may coordinate and, in some cases, effectively develop counter dominance strategies to level the influence of dominant individuals (Boehm, 2009).

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