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Performance-enhancing drugs, sport, and the ideal of natural athletic performance

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Abstract

The use of certain performance-enhancing drugs (PED) is banned in sport. I discuss critically standard justifications of the ban based on arguments from two widely used criteria: fairness and harms to health. I argue that these arguments on their own are inadequate, and only make sense within a normative understanding of athletic performance and the value of sport. In the discourse over PED, the distinction between 'natural' versus 'artificial' performance has exerted significant impact. I examine whether the distinction makes sense from a moral point of view. I propose an understanding of 'natural' athletic performance by combining biological knowledge of training with an interpretation of the normative structure of sport. I conclude that this understanding can serve as moral justification of the PED ban and enable critical and analytically based line drawing between acceptable and non-acceptable performance-enhancing means in sport.

Key words: performance-enhancing drugs, sport, natural, ethics, fairness, equality

Running head: Drugs and natural athletic performance

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Should the use of performance-enhancing drugs (PED) be banned in sport?

In public discourse, the issue is portrayed as a binary one (Lopéz 2014, Dimeo 2016). PED use is banned; its use represents cheating, and cheating is, by definition, wrong. Adhering to the PED ban is represented as a question of fairness. Moreover, most PED have harmful side effects of which some are serious. The ban is justified as a protection of athletes' health.

On closer inspection, however, PED use in sport emerges as a complex scientific and ethical issue characterized by deep disagreements (Loland and McNamee 2016). Some scholars see little or no justification of a PED ban in its current form (Tamburrini 2006, Savulescu 2015). Others discuss the possibility of replacing the ban with a harm-reduction approach (Mazanov 2016 , Breitsamer 2016, Kayser and Tolleneer 2017). Independent of position, however, most scholars address justification challenges. Reference to PED users as cheaters relies on the fact that PED are banned and provides no rationale for the ban itself. Justifying a ban with reference to the wrongness of breaking is a circular argument. Reference to risk of harm is of obvious relevance but needs elaboration. Indeed, use of PED such as androgenic-anabolic steroids (AAS) and erythropoietin (EPO) can lead to serious health problems (Birzniece 2015), but the same can be said of other sport practices. Extensive and hard training can result in fatigue and acute injuries (Soligard et al 2016), and in risk sports such as downhill skiing athletes are even exposed to the possibility of death. A more nuanced argument must draw on distinctions between different kinds risks and their rationales: those acceptable and those non-acceptable in sport.

Faced with difficulties such as these, defenders of the PED ban turn to the values of sport. According to the World Anti-doping Agency (WADA), PED use is against 'the spirit of sport' (WADA 2015, 30;

McNamee 2012). Among traditional interpretations of this spirit, and with considerable impact in the PED debate, is the idea of 'natural' as opposed to 'artificial' PED-enhanced performance.[1] In this article, I will examine more closely this idea. More specifically, I will examine whether the idea of 'natural' athletic performance makes sense from a moral point of view, and, if so, whether it is of help in critical line drawing between acceptable and unacceptable performance-enhancing means in sport.

The natural

Building on Norman (1996), Holland (2017, 4) remarks that when innovative biomedical technologies challenge what we may call biological background conditions and constraints – birth, illness, and death – they are often met with criticism of being 'unnatural'. Athletic performances, at least in elite sport, challenge our understanding of biological limits of human performance. The idea of PED as 'unnatural' falls within the same line of reasoning. How, in more detail, can references to what is 'natural' and 'unnatural' or 'artificial' be understood?

In everyday language, used as an adjective 'natural' characterizes something belonging to or coming from nature, that is, something that is not constructed, produced or modified by humans. Most PED are pharmaceutical products and not inherent in the human body and hence considered 'unnatural' or 'artificial'. Used as a noun, references to 'a natural' point to a person born with extraordinary abilities and developmental potential such as a gifted athlete.[2]

Kaebnick (2014) points to two problems here. First, conceptually speaking, ideas of what is 'natural' are multifarious and vague. There exists a challenge of finding 'a suitable definition' (Kaebnick 2014,

[1] For a collection of essays on PED and ideas of 'the natural', see Tolleneer et al (2013). See also van Hilvoorde (2007), Wasserman (2007), Agar (2007), Galston (2007), Murray & Murray (2007).

[2] See, for example, http://dictionary.cambridge.org/us/dictionary/english/natural. Accessed June 30th, 2017. For a classic tale of 'natural' talent in sport, see Bernard Malamud's 1952 novel *The Natural* (New York: Hartcourt Brace) with baseball pitcher 'natural' Roy Hobbs (played by Robert Redford in a 1984 film adaptation) as the leading character.

2). Butryn's (2002, 18) comment on sport is illustrative. Athletes do not enter into competitions as 'technological tabula rasae'. Most elite athletes have been engaged for years in scientifically and technologically based enhancement regimes. Moreover, elite athletes spend thousands of hours enhancing capacities and perfecting skills that have little or no direct functional or 'natural' value: throwing or kicking a ball with power and precision, skating on ice according to particular aesthetic ideals, or developing swimming endurance and skills. In a critical PED discourse, arguments relying on what is 'natural' seem to be of little value.

The second problem relates to an understanding of 'nature' as a social construction with no relation to a real world 'out there' (Kaebnik 2014). In normative discussions in particular, this can have problematic consequences. The history of women's sport offers vivid examples of how socio-culturally constructed norms are portrayed as biological truths and used to exclude and discriminate individuals and groups who do not conform (Cahn 2015).

Should references to 'the natural' be avoided in the PED debate? In spite of vagueness, concepts may work and exert normative force. Kaebnick (2014, 10) exemplifies with 'serviceable' concepts such as 'kindness', 'cruelty', 'generosity', and 'integrity'. In a similar way, most parents want their children to develop 'naturally', most people see the value of a 'natural' balance between sedentary behavior and physical activity, and most people admire 'a natural' when it comes to athletic achievement. Murray (2007, 505) notes how interpretations of human nature can be 'a framework for the possibilities of human flourishing' and open for critical reflection on 'the tension between our higher longings and our worldly biology.' If the aim is critical line drawing in issues such as PED use in sport, however, more precise operationalization is needed.

In her analysis of the use of 'nature' in ecology, Soper (1995, 155-156) distinguishes between three conceptualizations. In a first metaphysical sense, 'nature' refers to the realm of the non-human. This understanding is related to a broad philosophical discourse on the possibility of distinguishing 'nature' from 'culture' and 'humanity' and provides a general background for the PED issue. A second

sense is realist. 'Nature' points to a law-governed and mechanistic material world studied in physics, physiology and traditional medicine. Understanding the performing human body as a mechanistic system belongs to the realist perspective. In a third sense which Soper calls a 'lay' understanding, 'nature' refers to a phenomenological field: to observable and experiential qualities of 'nature', and to 'nature' as an aesthetic field and site of intrinsic value. A parallel understanding from sport can be a runner's experience of a 'natural' rhythmic flow of movement, a skier's sense of deep interaction with the natural environment, or the view of PED-enhancement as something 'unnatural' and 'artificial'.

In the discussion over PED, both realist and lay approaches are of relevance. In what follows, I first discuss a realist approach in terms of a biological approach to athletic performance and PED use. Secondly, and departing from lay understandings, I develop more explicit ideas of the norms and values of sport. In a third section, and combining the two approaches, I examine whether a biologically informed idea of natural athletic performance can provide normative justification in the debate over PED, and whether it enables critical line drawing in PED matters.

A realist approach: the biology of athletic performance

Development of athletic performance has a genetic base in terms of predispositions as defined in an individuals' genotype. Human genotypes are outcomes of evolution. The human genome, that is, the basic genetic characteristics of *homo sapiens,* has been relatively stable for at least 150 000 years. Provided no destructive environmental impact, individuals' genotypes remain stable throughout their life. Within this stable base, however (and with the exception of monozygotic twins), there is an immense diversity as each individual human being has his or her own unique genetic code. Genetically speaking, we are all different.

In sport settings, genetic predispositions exert decisive impact when it comes to development of sport-relevant capacities such as endurance, strength and power, and even responsiveness to

training regimes (Ahmetov et al 2016, Venezia and Roth 2016). Without favorable genetic predispositions, or athletic talent, elite performance becomes difficult if not impossible.

Talent is a necessary but in no way sufficient condition for sport success. Sporting development takes place in a highly complex interplay between genetic predispositions and environmental impact (Yan et al 2016, Mattson et al 2016). Sport relevant phenotypes (observable outcomes of the gene-environment interplay in terms of physical or behavioral characteristics with impact on sport performance) range from biochemical and physiological properties such as hematocrit levels in the blood, via appearance characteristics such as size and shape of the body, to complex behavior such as advanced technical and tactical athletic skills.

The human organism is characterized by strong adaptive capabilities and a high degree of phenotypic plasticity. Human beings can adjust to a diversity of ecological niches and develop specialized skills and technologies to cope with most environmental challenges and contexts.[3] Enhancement of sport performance provides good examples. Phenotypic plasticity can be observed in physiological responses to environmental impact, for instance in terms of increased hematocrit levels as adaptation to hypoxia (Schlichting and Wund 2014), and in athletes' active efforts to exploit adaptation potential as in training.

From a biological perspective, exercise and training expose the human organism to environmental stress and result in cascades of response and adaptation patterns from the molecular to the systemic level (Hoppeler et al 2007). These built-in patterns are results of human evolutionary history. Insight into the biology of human adaptation is a constitutive part of exercise science and evidence-based sport practice.[4]

[3] For a general view of the biology of human development and adaptive capacities, see Mayr (1997: 227-247).

[4] See Kenney et al (2015: 1-28) for an outline of paradigmatic premises of exercise physiology.

Biologically speaking, then, training can be defined as the systematic utilization of the phenotypic plasticity of the human organism as developed in evolution (Loland and Hoppeler 2011). This realist understanding corresponds well to common use of 'the natural' referring to qualities that come from 'within' and with which an individual is born. A genetically gifted athlete is 'a natural'.

On this background, PED use becomes problematic. PED are designed to bypass relatively slow 'natural' adaptation processes by direct impact on their biological target (Loland and Hoppeler 2011). AAS is employed to enhance muscle growth to a larger extent than what is the case with exercise regimes; EPO is used to boost the production of red blood cells on top of natural adaptation; and so on. The very idea of pharmaceutical enhancement is to exert impact above and beyond genetically based and limited talent.

In a normative discussion over the distinction between acceptable and non-acceptable performance-enhancing means, however, a realist understanding of 'the natural' is not sufficient. Biology does not on its own exert explicit normative force (Lenk 2013). Why should genetic predispositions limit performance development? Provided access to medically controlled PED use for all athletes, what is the problem? An informed response has to build on an understanding of what WADA refers to as 'the spirit of sport'. Normative arguments have to build on normative premises.

Lay understandings and the normative structure of sport

A place to start is with lay understandings of the purpose and meaning of sport. Sports are defined by their constitutive rules in which what counts as valid performance is defined more or less explicitly. The world of sport is diverse. Swimming coaches aim to cultivate other phenotypic characteristics than skiing coaches, and talent selection in soccer is based on different criteria than in gymnastics. Still, as the ban on PED is imposed on organized sport as a whole, there seems to be more general understandings in play.

An analysis of the rule structures of sport provides initial insights. A competitive set up implies measuring, comparing and finally ranking athletes according to rule-defined abilities and skills

(Loland 2002). The same rules define elimination of or compensation for what are considered non-relevant elements. By looking at elimination and compensation regimes, a clearer picture emerges.

In all sports, there is the ideal of equal external conditions. Inequalities are eliminated or compensated for. In ball games, there is drawing of positions and teams' changing of sides. In alpine skiing, inequalities in course conditions are evened out between racers. The quest for equal conditions is extensive and concerns what can be called system strength, too. Inequalities in financial, scientific and technological resources backing athletes and teams are compensated for to a certain extent by standardization of equipment and technology as is done in motor sports and sailing, and even by efforts to reduce financial inequalities such as the Financial Fair Play initiative in European soccer (Franck 2014).[5] A third area of concern is individual differences among athletes. In sprint running in which speed and power are crucial to performance, there is classification according to biological sex. In boxing and weight lifting where body size exerts significant impact, there is additional classification according to weight. Almost all sports have classification systems of these kinds.

How can the quest for equal conditions be understood? Why are some inequalities eliminated or compensated for, whereas other inequalities (in performance) are given core meaning and measured, compared, and ranked in meticulous ways? Further insights require moving from lay understandings of sporting rules and regulations to critical and systematic reflection upon the basic normative structure of sport and the wider context within which it has developed.

[5] When it comes to inequalities in system strength, current efforts are inadequate. In elite sport in particular, there is strong correlation between system strength and sporting success (Bosscher et al 2014). Moreover, attempts to regulate financial inequalities are challenging and sometimes contra-productive (Peeters and Szymanski 2014). Still, the very existence of such efforts indicates that the ideal of equal conditions is considered relevant and given extensive validity in sport.

Obviously, one reason for the quest for equal conditions is an interest in open outcomes. A 100-meter sprint race between record holders in the men's and women's class, or a sailing contest in which the assumed best sailors have superior technology, has rather predictable outcomes. The development of modern sport can be seen as an expression of a 'quest for excitement in unexciting societies' (Elias and Dunning 1986). As O'Connor and Dasgupta (2012) comment, elite sport in particular is about entertainment primarily, and its rules seem arbitrary from a moral point of view. This position, however, lacks explanatory force. If open outcomes and entertainment were main goals, we could imagine contests in which male sprinters were handicapped as compared to female competitors, in which the best sailors were given low quality technology, or contests between mediocre male athletes and elite women, between humans and robots, or between humans and animals. Such events do not typically classify as sport.

In his analysis of arguments from 'nature', Norman (1996) argues that human achievements gain significance only if there is a backdrop of conditions that are understood as absolute and not matters of choice. Holland (2017, 190-191) exemplifies with a runner accepting the ban on PED as a necessary constraint for his performance to be meaningful. Basically, rule systems of sporting games are systems of constraints and restrictions designed to cultivate particular sets of human abilities and skills and they can be understood in the context of even more general socio-cultural and moral norms.

A key normative premise, at least in Western culture in which most competitive sports have developed, is that unequal treatment of persons has to be ethically justified. Persons are attributed inviolable rights, and, in a Kantian formulation, are to be treated never only as means but always also as ends in themselves. This does not mean that they have to be treated equally, but as equals (Dworkin 1977, p. 370). The backing norm is one of fair equality of opportunity (FEO): In matters of distribution of significant goods and burdens, *we should eliminate or compensate for inequalities*

between individuals and groups upon which they exert little or no control and for which they cannot be held responsible.[6]

In Western societies at least, basic rights and duties are to be distributed equally among individuals independent of biological sex, color of skin, religion, sexual orientation, disability, and ethnic background. This calls for unequal treatment in a variety of settings of which some are controversial and others not. Few will dispute providing disabled individuals with extra resources to be able to compete at an equal level when it comes to access to education and work. Affirmative action, that is, positive discrimination to compensate for past discrimination and promote change, is a source of far more heated debate (Premdas 2015).

Returning to sport, FEO helps understanding the rationale behind standardization of external conditions, attempts on reducing system strength inequalities, and classification according to biological sex and body size. In most sports, these are inequalities that exert impact but for which athletes cannot be claimed responsibility.[7] The FEO norm can be reformulated in a sport-specific version FEO(s) (Loland 2002, 60): *We should eliminate or compensate for inequalities between athletes and teams that exert significant and systematic impact on performance and upon which athletes and teams exert little or no control and for which they cannot be held responsible.* Inequalities in for instance endurance and strength, or in technical and tactical skills, are to a large

[6] For a review and discussion of the fair equality of opportunity principle, see Arneson (2015).

[7] Body size, in particular body weight, can be impacted by athletes to a certain extent. One example can be boxers moving between weight classes for tactical reasons. Still, there are obvious limits to such tactics. A heavy weight boxer can never adjust to the feather weight class, and vice versa. The rationale for classification remains the same: Significant inequalities in body size are outside of athlete's sphere of control and responsibility and undermine the meritocratic aspect of sport.

extent outcomes of athletes' hard training and efforts and are not compensated for. Clearly, FEO(s) cultivates the meritocratic aspects of sport.[8]

This does not mean that there are no non-controllable elements at work. On the contrary, impact of chance and luck is significant in sport as in most other human endeavors. Athletic talent is determined at the moment of conception in a chance event sometimes referred to as 'the natural lottery'. Good luck includes among other things being born into systems that encourage sport performances, and staying healthy. Bad luck puts obstacles in the way. Still, in an extended sense, even here there is the possibility of athlete and team responsibility. As Simon (2007) points out, part of an athlete's challenge is coping with both controllable and non-controllable elements in rational ways. Good athletes reduce the impact of chance and luck, and concentrate on extending their sphere of control. 'The more I practice, the luckier I get', as the saying goes. Competitive sport is *primarily* meritocratic. In this way, athletic performances can be considered unique expressions of an individual. In biological terms, a performance is a unique phenotypic expressions of an immensely complex interplay between an individual's genotype and that individual's environmental background. Performances are 'authentic' in this particular sense.

These ideas open for understanding sport in a context of thicker, ethical ideals. Sport should not be seen as an ideal moral zone. Rather, elite sport in particular is better conceived of as a moral testing ground. Athletes are challenged not only on their sporting abilities and skills, but on their values (McNamee 2008). Do they show dignity in victory and defeat? Are they able to come back after

[8] It has to be said, though, that sports are not completely consistent in classification matters. On the one hand, there is classification according to biological sex in a series of sports in which sex does not really matter, such as in shooting and sailing. On the other hand, classification according to body size could be applied outside of combat sports and weight lifting, for instance in sports such as basketball and volleyball in which body height is crucial to performance. For critical discussions of fair equality of opportunity in sport, see Loland (2002, 151 ff) and Murray (2009).

losses and disappointments? Do they refrain from cheating, aggression, and violence? Some athletes cope with these challenges in admirable ways, whereas others do not.

The view of sport as a moral testing ground has a long history in sport, originating in ancient Greek athletics, being interpreted in terms of amateurism and fair play ideals in 19th century British sport, and synthesized in early 20th century Olympic ideology as conceived of by French baron Pierre de Coubertin (Skillen 1998). A common point is this: At its best, sport offers concrete and embodied instantiations of human excellence. Rephrasing Murray (2009), sport is a testing ground not just for *any* but for the *admirable* development of natural talent towards excellence.

PED and 'natural' athletic performance

Linking a biological understanding of natural performance with FEO(s) enables more specific positioning on PED use. Within this line of thought, PED use is unnatural and an 'artificial' way of performance-enhancement. At is it argued by the President's Council on Bioethics (2003, 130), performance-enhancing bio-technologies involve '... interventions that bypass human experience to work their biological 'magic' directly' and contribute to alienation and separation of '... our bodily workings and our conscious agency'. PED use 'weakens the connection between performance and agency' (Galston 2011, 175). Moreover, efficient PED use, at least in elite sport, usually includes assistance of external expertise. There is a 'logic of abjection' at play (van Hilvoorde et al 2007, 189): PED use challenges athlete responsibility and authenticity and thereby the ethical relevance of sport as a sphere of human excellence.

From this perspective, traditional arguments of fairness and health can be revitalized. Fairness in terms of rule adherence makes sense as a ban on PED, at least the potent ones such as AAS and EPO, can be morally justified. Health risks of PED use can be labeled non-relevant as they are different from risks integrated in athletic skill execution. A good long distance runner is able to 'listen' to his or her body and balance on the right side of fatigue injuries. Part of the expertise in downhill skiing is athlete ability to calculate and take risk in relation to own skills. PED is used to enhance performance

above and beyond talent. Such use contradicts ideals of 'the natural' and of athlete responsibility and authenticity of performance.

Still, however, challenges arise, in particular when it comes to line drawing. Why, for example, do anti-doping rules allow for use of technologically constructed hypoxic conditions to enhance hematocrit levels and the oxygen carrying capacity of the blood, and not pharmaceutical products such as EPO with more or less the same effect? Both technologies require external expertise, and potential performance enhancement is due not primarily to athlete effort but to exposure to technology.

Here, a realist understanding of natural training informs normative reasoning. EPO is designed pharmaceutically to bypass systemic adaptation processes and engage directly with the bone marrow's capacity to produce red blood cells. Performance enhancement takes place on top of natural adaptation. Athletes can no longer be identified clearly with the upper (and often decisive) edge of their performance, or what Malloy et al (2007) refer to as 'physiological authenticity'. The sphere of athlete responsibility and authenticity, and hence the potential for display of human excellence, is reduced.

Devises such as altitude tents and chambers, on the other hand, are developed to exploit response and adaptation patterns of the organism in which all effects of exposure to hypoxia, both beneficial and non-beneficial, are included (Sperlich et al 2017). This is within the range of 'the natural', or of athletes' 'physiological authenticity'. In other words, EPO use and the use of artificially constructed hypoxic conditions are related in different ways to sport values. It makes sense to accept artificially constructed high altitude tents and chambers even if one rejects the use of EPO.

It has to be emphasized that this discussion concerns the possibility of distinguishing in rational ways between acceptable and non-acceptable performance-enhancing means in sport. The conclusion should not be taken as a support of the use of technologically constructed hypoxic conditions. These technologies belong to a group of means and methods that contribute to medicalization and

technologization of performance. They challenge athlete responsibility, authenticity and excellence more than what is the case with training and athlete effort (Loland and Murray 2007, Loland and Caplan 2008). However, the 'grey area' debate and distinctions between *admirable* versus *acceptable* performance-enhancing means and methods is beyond the scope of this article.

Concluding comments

I started out with pointing at the complexity of the ethics of PED use in sport. Justification of a ban cannot rely on arguments of fairness and harm alone. An additional argument refers to PED use as against the 'spirit of sport' and as 'artificial' and 'non-natural'. I have examined whether the idea of 'natural' athletic performance makes sense ethically, and whether it is of help in line-drawing between acceptable and non-acceptable means.

An informed PED discourse depends upon understanding of the biology of human performance. I defined training as the systematic utilization of the phenotypic plasticity of the human organism as developed in evolution. I then added a normative interpretation of sport. Following Norman (1996), I articulated what I take to be a backdrop of 'absolute' constraints that provide athletic performances with significance and meaning. More specifically, I argued that the normative structure of sport was built on a fair equality of opportunity principle (FEO(s)) based on which athletes can be held responsible for their performances. An athletic performance can be considered an authentic expressions of athletes' development of natural talent towards excellence. This, I argued, is a basic premise for the moral relevance of sport.

In a final section, I argued that this interpretation of natural athletic performance can provide justification of the PED ban, and that it can be of help in distinguishing between acceptable and non-acceptable performance-enhancing means. I gave the example of exposure to hypoxic conditions with the help of technology, such as altitude tents and chambers, versus EPO use. I concluded that the former can be accepted as the technology utilizes the phenotypic plasticity of the human organism. It is within the range of 'the natural'. Use of EPO on the other hand implies an

unacceptable overrun of biological response and adaptation processes and is against the ideal of natural performance.

There is need for a few final comments. Firstly, I do not claim that reference to what is 'natural' should become standard terminology in justifying the PED ban. Without clear operationalization, the concept is vague and has a troubled history of being used to exclude individuals and groups from sport. What I do claim, however, is that careful elaboration of the idea of 'natural' athletic performance makes sense and enlightens both ethics and policy issues when it comes to PED use. References to athlete responsibility for performance and 'physiological authenticity' capture similar ideas and might be better suited in public discourse.

Secondly, I have presented *one* interpretation of the ideals of sport. As indicated in the introduction, sport can be framed differently, for instance by seeing medically controlled PED use as an integrated part of athletic enhancement and 'the spirit of sport' (Tamburrini 2006, Savulescu 2015). I find this to be a radical departure from the demarcating normative structure of sport and the values within which it is embedded. In my interpretation, sport is constituted by a carefully designed logic of constraints to cultivate a particular kind of human excellence. PED use contradicts this logic. No doubt, further debate will follow.

Finally, my argument is limited to the ethics of PED use in sport. I believe, however, that the idea of 'the natural' can be a normative 'rule of thumb' in most issues of human enhancement. It should be applied with care, though, and weighed against other norms and values. Distinctions between acceptable and non-acceptable performance-enhancing means depend upon context. For example, in situations of crisis where lives are at risk, use of stimulants by surgeons to endure extreme working loads, or EPO use by mountain rescue teams operating in high altitude, can probably be morally justified. Sporting games, however, are not about saving lives. In the interpretation suggested here, sport deals with a particular kind of human excellence within which the admirable development of natural talent is a constitutive part.

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