Study of Particular Conditions and Qualities of Enforcement Officers’ Self-Defense in Regulations of Arms use Act in the Light of Fuzzy Logic

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Abstract
In Aristotle Philosophy, as opposed to Eastern philosophy, everything is divided into 2 categories: black-white and yes-no, in which logical concepts and conclusions resulting from logical arguments have no moderate state. In this philosophy, you can’t be partially a truthful and partially a liar person, a relatively young and slightly old person, and a veiled as well as an unveiled person. In fact, there is no third aspect as bad or a bit bad veiled in Aristotle logic. However, no specified division exists in fuzzy thinking and different elements belong to various subjects relatively. Present paper is based on this principle that, in reality world, everything lies in the space between two black and white limits, and seeks to convey this message to readers that although black-and-white (Aristotle) logic is in existence, it is a special form of broad fuzzy logic. Subject of this paper, which with the help of fuzzy logic tries to study specific conditions and qualities of Enforcement officers’ self-defense in regulations of arms use Act, is, despite non-integrity of legal regulations on self-defense and inability of officers to recognize typical defense, how legislators believe in imposing punishments on perpetrators and officers with respect to conditions and circumstances governing each special case. Seemingly, in the line of duty defensive officered are not fully aware and knowledgeable of self-defense regulations and lack skills necessary to use arms which puts mission into judicial difficulties and, as a result, title of self-defense applies to it to a much less extent unfortunately. Secondly, it seems that with enactment of Provision 2 of Article 302 of Islamic Punishment Law approved by Islamic Consultative Assembly on 23/04/2013, we need to reflect on legislators’ interest in abandoning Aristotle logic in order to better match legal concepts with its complex and routine instances which can’t be usually placed in predetermined strict and rigid forms because, according to Aristotle logic, police officers’ self-defense in the line of duty occurs either based on arms use Act or otherwise, in which case if their acts and reactions violate given conditions of self-defense occurrence, especially in case of murder, they will be treated as murderers.

Introduction
In 1965, When originally Iranian professor of California University, Berkeley, Prof Lotfizadeh, published his first article titled “Fuzzy Sets”, nobody could imagine that article would be the first spark of the light of a novel world view in areas of mathematics and science and the first step to introduce a new realistic world view in the framework of completely novel but human nature friendly concepts. Although fuzzy topic (and its funder) was apparently severely challenged by a large number of scientists, mathematicians and engineers, such a challenge turned into admiration gradually with the advent of scientific applications of fuzzy logic and more academic world’s familiarity with and knowledge of fuzzy concepts so that, presently, more than 200 volumes and 1000 articles in fuzzy field are being published annually. Present paper does not address mathematical details of fuzzy topic. But rather it intends to express concepts and working basis of this thinking within one of scientific topics.

Fuzzy thinking has originated from a philosophical view with a several – thousand – year record as old as historical philosophy. Just as Divine religions philosophy is compatible with human nature, fuzzy thinking inspired by Eastern philosophy identifies world as it is. In Aristotle philosophy, as opposed to Eastern one,
everything is divided into 2 black-white and yes – no categories and no moderate state exists for logical concepts and conclusions from logical arguments, that is, you can’t be a partially truthful and a partially liar person, a relatively young and slightly old person, a veiled and an unveiled person as well as a criminal and a victim since the third aspect of the last case is deviancy or being about to commit crimes, which has remained neglected in this logic.

Unlike Aristotle philosophy, fuzzy thinking has no specified division, with different elements being belonged to various concepts and subjects relatively. In this way, we see how much this thinking is compatible with the world and human nature. To this point, it seems this view the world and human nature. To this point, it seems this view should not have been challenged since it has introduced a new perspective being a generalization of Aristotle logic. But the point is that this view questions classic mathematics which is based on Aristotle logic. It is at this point where disagreements begin to emerge.

Where we deal with the 2-value world, classic mathematics is a useful tool to express different concepts. But with growth of human thought and scientific and technological developments, there is an obvious need for more appropriate scientific tools to express more complex concepts of human life and environment. Fuzzy mathematics is responsive to such a need, namely necessity of expressing multivalve concepts instead of 2-value ones and of expressing the world realities as they are. During recent decades, fuzzy topic has been growing and expanding quickly in science world. Its applications have gone beyond mathematical and engineering domains, entering those of many other academic fields among which are industrial management, economic management, medical reengineering and industries engineering in which fuzzy applications are expanding. Other a field in which fuzzy topic is expanding slowly but fundamentally are educative science, sociology, ethics, aesthetics and law. For example, sociologists are interested in fuzzy topic because it is in agreement with their attitudes towards social issues, being capable of expressing what they express in compositional phrase in the fuzzy form of mathematical relations.

Present paper and original thought of fuzzy logic are based on this principle that, in reality world, everything lies in the space between 2 black and white limits. Present paper wants to convey this message to readers that although black and white logic is in existence, it is a special state of broad fuzzy logic. In Aristotle logic, the first and second preliminaries of any reasoning’s are decisive and precise phrases, so is the resulting conclusion. But the main problem with this logical reasoning is that, in real world, nothing possesses such a certainty that certain conclusions can be drawn from it, but rather phrases being expressed as the first and second preliminaries of reasoning are uncertain and/ or fuzzy (Kasko, Bart, “Fuzzy Thinking”, translation by Ghaffari, Ali. P. 10). Subject of this paper, which with the help of fuzzy logic tries to study specific conditions and qualities of Enforcement officers’ self-defense in regulations of arms use Act, is, despite non-integrity of legal regulations on self-defense and inability of officers to recognize typical defense, how legislators believe in imposing punishments on perpetrators and officers with respect to conditions and circumstances governing each special case. If seems that with enactment of provision 2 of Article 302 of Islamic Punishment Law approved by Islamic Consultative Assembly on 23/04/2013, we need to reflect on legislators’ interest in abandoning Aristotle logic in order to better match legal concepts with its complex and routine instances which can’t be usually placed in predetermined strict and rigid forms. Therefore, it is necessary to outline primary fundamental discussions of self-defense as follows. In relation to the issue of criminal liability limits, 2 separately independent categories of causes appear: (1) causes of impunity or criminal liability removal and (2) causes of crime legitimacy or acquittal causes.

In order to determine that self-defense falls in which category, it is necessary to explain these 2 kinds of causes briefly. A crime has 3 main elements: physical, spiritual and legal that if they are aggregated, the crime will be committed and its perpetrator will be punishable. However this principle does not always apply since, in some cases, legislators have foreseen some qualities that if they are realized, liability of perpetrators is ruled out so they can’t be punished. Qualities and circumstances causing this matter are of 2 types in nature: some having personal and inner aspects are related to perpetrators, which terminologically are referred to as causes of moral non-responsibility or of impunity including minority, insanity, physical and spiritual compulsion, distress and mistake, but others having external aspects are caused by external matters, being called acquittal or legitimacy causes including self-defense, rule of law and mandate of legal commanding, to say, victim consent which is arguable. Given that similarity of these qualities and causes is that they remove criminal liability, they are called factors removing criminal liability. On the other hand, there are some differences among such factors including: (1) by definition, causes of impunity are internal and personal so justification causes are thematic and external; (2) in relation to impunity causes, the crime remains and criminal nature of the act is not eliminated so committed act is not a crime with respect to legitimacy causes; (3) if several perpetrators commit a crime and impunity causes exist, they apply to each of them so in case legitimacy causes are obtained, they apply to all perpetrators because the act committed by the principal has no criminal nature; (4) impunity causes do not remove civil liability while legitimacy ones remove both criminal and civil liabilities; and (5) impunity causes are due to the lack of mental or spiritual element so legitimacy or acquittal causes are due to the lack of legal element.
**Problem definition and Research Questions:**

One of important enforcement missions of enforcement officers is treatment of offenders during prosecution, confronting and arrest. Due to other party’s impudence, unfortunately, likelihood of resistance, disobedience and fighting is very high; therefore, officers have to protect not only their lives and arms, but also citizens’ lives, properties and honor while being required to treat said group. At this point, issue of self-defense is important considering offender(s) attacks. As to file a complaint by attacker(s) against officers is one of solutions used by the former to get rid of alleged charges or at least to reduce effects of committed act(s) and, on the other hand, self-defense is subject to special and sometimes strict rules, officers being prosecuted in relation to the case of self-defense expect respective or generation to support them in any conditions and assist them during proceedings. Specially, families of such officers expect NAJA (Islamic Republic Police Force) to take necessary steps in supporting its officers and even their families, compensating their losses. Such expectations exist among other employees and coworkers of those officers faced problems while being in the line of duty, not meeting of which has negative effects on employees’ spirit and on implementation of NAJA’s missions. So this research seeks to answer following questions:

**Major research Q:** According to fuzzy logic, why do officers face judicial problems with self-defense?

**Minor research Q:**:

1) Are regulations on officers’ self-defense comprehensive and sufficient? And do judiciary officials have enough knowledge about problems facing enforcement officers in relation to self-defense issue?

2) Are officers completely legally aware of rules and conditions of self-defense? And does lack of skills necessary to use arms result in judicial problems for officers?

**Research Hypotheses:**

Main reason for why officers face judicial problems with self-defense is that they are not fully knowledgeable and aware of self-defense law and rules based on fuzzy logic.

**H$_{1}$:** Regulations on enforcement officers’ self-defense are not comprehensive and sufficient, so is judges’ knowledge of problems facing those (officers) in relation to the issue of self-defense.

**H$_{2}$:** Officers do not have perfect legal knowledge of self-defense rules and conditions and lack of skills necessary to use arms results in judicial problems for them.

**Research importance and necessity:**

In criminal cases, especially those with severe injury and/or murder, the accused refers to legal establishment of provision of Article 302 of Islamic Punishment Law in order to justify his act and to be free from civil and criminal liability and punishment. Usually, he claims that his act was done in position of self-defense and expects to be acquitted and/or exempted from being penalized. Obviously, self-defense is ruled out in many of such cases and the accused deserves to be punished. In case defender acts in accordance with self-defense regulations, he is not responsible for his act and attacker deserves whatsoever harms and injuries inflicted. But under normal conditions, defender’s acts entail severe punishments. So it is necessary to determine aspects of such an important issue precisely and to investigate NAJA’s officers’ acts in position of self-defense.

**Research Objectives:**

Main objective of present research is to examine officer’s self-defense weaknesses, which cause their acts not to fall in legal frame imposing compensation and punishment in relation to general aspect of crime on them, based on new fuzzy logic in order to examine and provide solutions to solve such problems for police operational and enforcement units.

**Fuzzy Logic:**

Science continuously has been associated with a mistake, seemingly perpetrated by all scientists. I never forget the day I discovered this mistake and found out the science is not true based on science bases and principles, everything includes only a fixed rule based on which it is true or false.

In the past, scientist’s analyzed surrounding world on this basis, although they were not always sure what is true or is false, but they had no doubt that every phenomenon is either true or false. For example, one must be able to say grass is green, not red, or whether atoms vibrate or not, and or the number of lakes in Maine State is even or odd. Each of these phenomena is given only one answer, with no moderate/intermediate state being in existence. But these examples should not be generalized to everything since doing so is a mistake, one perpetrated by science. This very reasoning has been dominated on logic and mathematics, phenomena related to which have only 2 states based on classic bases of science: they are either true or false, that is, logical and mathematical subjects are entirely true or false, black or white, unit or zero, etc. Science was mistaken in doing such an analysis of different mathematical and logical phenomena, in other words, science mistake was to generalize what being applicable only to particular instances to all phenomena, which, in fact, can’t be divided.
only into one of 2 forms of true or false and/or zero or unit. Such mentioned subjects should be measured relatively, then, being graded. Indeed, everything is relatively true or false. Always, some degrees of uncertainty apply to real phenomena’s truth or inaccuracy. In other words, real phenomena are not only black or only white, but rather they are slightly gray: they are always fuzzy, vague and imprecise to some extent. Science displayed gray/ fuzzy truths with mathematically black/ white tools, by which science expressed the entire world’s phenomena in this way while none fully true or false could be found. With this scientific mistake, new doubts were formed. While scientists were perpetrating mistakes in math and logic, they defended and supported their own ideas dogmatically. Such a belief in black and white, a 2-value system, goes back to the past, at least to ancient Greece. Democritus divided the world into atoms and void spaces. Plato made his world full of red, perpendicular or triangular shapes. Aristotle withdrew teaching his student, Alexander the Great, in order to write his feelings about his black and white laws in logic, which continue to be used by scientists and mathematicians in describing our gray world. Aristotle’s dual logic led to one law, that is, the law of either this or that, of the sky either is blue or not, that is, it can’t be blue and not be blue simultaneously, and of that can’t be both in existence and in non-existence.

It is Aristotle’s law that has been deciding what is true and what is wrong philosophically for about 2000 years. Regardless of your precision in observing different things, some things are not fuzzy, which come from math world. We accept that 2+2= 4, which is perfectly correct. But when we leave artificial world of math, fuzzy state makes all borders and limits blur so that our words must have divided the world into some pieces by a blunt knife. Fuzzy state’s formal name in terms of science is “multivalve state”, opposite to which is the 2-value state in which any question is given only 2 answers: true or false and/or unit or zero. Being fuzzy means being multivalve, that is, there are 3 or more options to answer one question, and maybe there is an indefinite spectrum of choices instead of 2 final choices per se. This means that instead of using a dual state, we use an analog state where there are countless gray shades between black and white. And finally, fuzzy state is whole thing a court judge tries to discard in order for him to be able to ask the accused if he admits alleged charge(s) or not at the end of proceedings, as his final defend. Is this person before the court as an accused of crime commission charge an adult with criminal liability or a minor lacking it. Initially, answer yes or no only. We can’t consider a perpetrator partially liable and partially not liable. A girl with an age of more than 9 lunar years can’t be considered a minor lacking sufficient common sense and cognizance to discern legislator’s mandates and prohibitions while a boy with less than 15 lunar years of age can’t be considered an adult with required cognizance and common sense even if it is proven by inquiring forensic medicine.

For the first time, in 1920s and 1930s, multivalve logic was developed for working with Heisenberg’s uncertainty principle in quantum physics. This mathematical principle states that you may not measure one thing as precisely as others, indicating we actually encounter a 3-value logic.

Statement that is true, false or in middle. On a smaller scale, John Luckassievich, polish logician broke down middle state into several pieces and reached a multi value state. Then, he defined middle state as a connected environment, a spectrum between inaccuracy and accuracy, between zero and unit. In fuzzy logic, degree of each statement accuracy ranges between zero and one, that is, it can range from 0% to 100%. Fuzzy phrases were introduced to scientific terms 30 years later when scientists like Bertrand Russel began to use term “ambiguity” for multi value state. In 1937, quantum philosopher, Max Black published an article related to dumb sets, which was ignored by science and philosophy worlds. If it were not the case, we would examine history of dumb logic instead of that of fuzzy one. In 1965, Lotfizadeh, then head of electric engineering department of California University, Berekeley, published an article titled “fuzzy Sets”, in which Luckassievich’s multi value logic was used for sets of objects and things. Lotfizadeh labeled those dumb or multivalue sets as fuzzy, elements of which belonged to them with different degrees such as a set of individuals satisfied with their jobs. He did use this name in order to separate fuzzy concept away from dual logic which was important at his time. Lotfizadeh saw that scientists were introducing math into their problems increasingly and trying to drive their scientific experiences by black/ white reasoning and by using computers and calculators. He selected word fuzzy, which grew in business markets instead of in universities and made some objections while rejecting philosophical ones from west scientists frequently. Fuzzy principle emerged after 3000 years of western culture, 3000 yeasts of efforts to deny, ignore and limit it.

Self – defense definition:
Initially, we discuss self-defense literally; next, we try to give a definition of this term. Self-defense or legitimate defense is an adjectival compound consisting of an adjective (legitimate) and a noun (defense); the former describes any acts being authorized and lawful in the views of legislators and the latter means the state of making distant, eliminating and removing force. According to definition given by Dekhoda Dictionary, defense is the state of evil warding off, and of aggression repulsion (Dehkhoda, 1973).

Special conditions and qualities of enforcement officer’s self-defense in regulation of arms use Act:
Under article 3 of NAJA Law, the aim of police force formation is to establish order and security, to
provide public and individual peace, and to safeguard accomplishments of Islamic Revaluation in this law framework in territory of Islamic Republic of Iran.

Undoubtedly, realization of this highly important and sensitive aim requires implementation of missions mentioned under Article 4 of described law.

Under this Article, legislator has assigned about 34 missions and tasks to police force, requiring carrying and using arms. Such missions mentioned under clause 8 of article 4 include: (1) to combat drugs, (2) to combat smuggling, (3) to combat indecent acts of corruption, (4) to prevent crime commission, (5) to detect crimes, (6) to inspect and investigate, (7) to keep causes and effects of crimes, (8) to arrest and prevent offenders from escaping and being hidden, and (9) to notify and enforce judicial orders; and missions not requiring carrying and using arms like those mentioned in clause 11 of enforcement of pass-related laws and regulations, clause 12 of enforcement of traffic laws and regulations, clause 13 of enforcement of military service laws and regulations, and clause 20 of organizing, equipping, training and preparing police units to perform assigned missions. Since in most cases, outcomes of shoot by officers are not remediable and since the most essential needs of a society are order, security and public and individual peace establishments which are one of the most principal tasks of a society ruling board being performed by its employees, and since threshold of people’s tolerance is lower in insecurity domain than in other problems’ of society, where most security harms are irreversible, in direction of confronting lawbreakers and criminals, ruling board has allowed police officers to treat such persons’ acts extremely severely, the most severe form of which is to use arms to suppress those persons. But legislator has enacted specific rules and regulations on using arms to which officers are bound so that protection of rights of both offenders and other citizens is provided. Thus, legislator has passed arms use Act for citizens’ and offenders’ rights to be observed and for making officers’ acts and behaviors normalized as well as for removing anarchy from using arms in armed police missions as well as for determining cases where police officers are authorized to use arms.

**Essential Cases:**

Essential cases mean: firstly, cases where officers are authorized to use arms under legislator’s prescription secondly, officers authorized to use arms do so if it is the last resort; and thirdly, in authorized cases, officers use arms if there is a reasonable relation and proportionality between consequences of shoot and their effects, where it is said that in such cases, officers need to ask themselves, “Is the subject shoot worthy?” then, they attempt to shoot. In summary, under above considerations, the principle is “non-shoot” except for essential cases established by arms use Act, obtaining of which is up to the armed officers. So recognition of essential cases is left to officers and its accuracy depends on their discernment power. Having been familiar with their legal duties and powers, armed officers often possess such a discernment power relatively.

**Conclusions:**

Present research is aimed at studying performance of NAJA officers in self-defense while being in the line of duty. Problem definition and research questions, importance and necessity of doing this research, and its impetus, aim and application are organized in this paper, so are its hypotheses. It is noteworthy that legal regulations on self-defense are variable, incomprehensive and insufficient. Typical defense is recognized with respect to conditions and circumstances governing each special case. In the line of duty self-defending officers are not fully aware of self-defense regulations and of the subject discernment. Lack of skills necessary to use arms results in judicial problems with missions.

**Recommendations:**

Given the importance of (legitimate) self-defense and right acts of officers in the line of duty and at position of self-defending and its effects on other NAJA missions as well as need for officers and commanders to be familiar with theoretical bases, laws and regulations and lawful and canonical rules of self-defense along with the need for judges to understand circumstances under which officers embark on self-defense and also the need for NAJA organization and commanders to support such officers, following recommendations are provided to be adopted by NAJA officials involved:

1. By interacting, NAJA preventive police arrange presence of judicial authorities (judges and interrogators) in NAJA missions in order for them to be further familiar with circumstances of NAJA officers’ self-defense;
2. All NAJA missions be documented and submitted to respectful judges considering cases related to self-defending officers while being in the line of duty;
3. Perfectly material/ spiritual support from NAJA for those officers whose acts’ accuracy at position of self-defense is obvious to organization;
4. NAJA Training Assistance plan to train officers sufficiently about lawful and canonical regulations and rules of self-defense. This should be an independent course credit being taught in police university and other training centers, with proper teaching hours being allocated;
5. Commanders avoid delivering arms to and authorizing officers with mental-psychological problems for any reasons;
6. Instruction of arms use Act be in a practical form; and
7. Making use of mass media facilities, degree and limit of NAJA officers’ powers to use arms at position of self-defense be explained to general public.

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