

# Norms in artificial agents society : A Review

Amarjeet kaur<sup>1</sup>, Harjot kaur<sup>2</sup>,

Student, Computer Science, GNDU Gurdaspur, India.<sup>1</sup>

Assistant professor, Computer Science, GNDU Gurdaspur, India.<sup>2</sup>

**Abstract:** Norm is a something that is usual, typical or standard. Shaking hands after a sports match is an example of social. Norm is a term used to refer to a variety of behaviors, and accompanying expectations. The concept of a norm is problematic. It is not only due to the different views on norms in different research areas, but also since the concept is used in everyday life in ambiguous ways. In this paper, we discuss different types of norms. We also discuss the life cycle of a norm which are made of four phases, i.e., norm creation, spreading, enforcement, and emergence. In addition to this, we also discuss relationship of norms and culture.

**Keywords:** Norms, types of norms, norm life cycle, culture and norms

## I. INTRODUCTION

A norm is a group – held belief about how member should in a given context. Social norms are the behaviours and cues within a society or group. This sociological term has been defined as “the rules that a group uses for appropriate and inappropriate values, beliefs, attitudes and behaviours. These rules may be explicit or implicit. Failure to follow the rules in serve punishments, including exclusion from the group.

Norm is a something that is usual, typical or standard. Shaking hands after a sports match is an example of social. As indicated before, a norm is a standard (e.g. a rule of conduct) within a group or society. According to Bicchieri (2006): “‘Norm’ is a term used to refer to a variety of behaviors, and accompanying expectations”. She also points out that conformity to norms is not necessarily consistent, and may depend on the types of norms.

In general parlance, the term ‘norm’ refers to that which is most common, or that which is ‘normal’. For sociologists, norm means any shared standard of behaviour which in turn entails certain expectations of behaviour in a given situation. As such, that which is normal (most common) is not necessarily normative (a shared expectation). According to Oxford Dictionary of Sociology (1994), “a norm is a shared expectation of behaviour that connotes what is considered culturally desirable and appropriate”. M. Haralambos (2000) defines it as “a norm is a specific guide to action acceptable and appropriate behaviour in particular situation”.

In simple terms, norms are guidelines which direct our conduct in particular situation. They are similar to rules and regulations in being prescriptive, although they lack the formal status of rules. These rules or social expectations (norms) specify how people should and should not behave in various situations.

They are both prescriptive—they tell us what they should do and proscriptive—they tell people what they should not do. Laws, dress codes, rules of sports and games—all express social norms. For instance, norms of dress provide guidelines for what to wear on particular occasions—at funeral, at dinner party, at dance, in the bank, in the hospital and so on. Norms of dress vary from society to

society. In terms of laws governing dress, the nude bather on a public beach is subject to official punishment.

Norms are established standard of behaviour maintained in a society. “Thou shalt not kill” is a norm found almost in every culture. We typically expect that people will be quite in the theatre hall while the film is shown. This is an example of a most general social norm expectation. Norms are relative. In different societies, there can be different norms for some particular behaviour. Even in one society, the norms may differ from community to community. They are not static, but change from time to time and society to society.

## II. TYPES OF NORMS

The concept of a norm is problematic. It is not only due to the different views on norms in different research areas, but also since the concept is used in everyday life in ambiguous ways. Morris [1] proposes a definitional between norms and the closely related concept of values after which he proceeds to present a classification scheme for different types of norms. Morris concludes by summing up a selection of 17 characteristics in four categories that can be used to typify norms. These are:

### A. Distribution of the Norm.

- Extent of Knowledge of the norm
- Extent of Acceptance of or Agreement with the Norm
- Extent of Application of the Norm to Objects

### B. Mode of Enforcement of the Norm.

- Reward – punishment
- Severity of sanction – light, unimportant – heavy, important
- Enforcing agency – specialized, designated responsibility – general,
- Source of authority – rational, instrument – divine, absolute, autonomous
- Degree of internalization by objects – little, external enforcement required – great,

### C. Transmission of the Norm.

- Socialization process - late learning,

- Degree of reinforcement by subject – very little – high, persistent
- D. Conformity to the Norm.
- Amount of conformity attempted by objects – attempted by the few – attempted by almost everyone.
- Amount of deviance by objects – very great – very little Kind of deviance – formation of sub norms – patterned evasion – idiosyncratic deviation.

Two general types of norms that can be inferred from this classification scheme are what calls an absolute norm and a conditional norm. In the first case all right hand side characteristics apply while for conditional norms all left hand extremes apply.

Trumela [2] distinguishes two kinds of social norms namely, rules (r-norms) and proper social norms (s-norms). Rules are norms created by an authority structure and are always based on agreement making. Proper social norms are based on mutual belief. Rules can be formal, in which case they are connected to formal sanctions, or informal, where the sanctions are also informal. Proper social norms consist of conventions, which apply to a large group or whole society or socioeconomic class, and group-specific norms. The sanctions connected to both types of proper social norms are social sanctions and may include punishment by others and expelling from the group. Tromela also described personal norms and potential social norms. These potential social norms contain, among others, moral (m- norms) and prudential (p- norms) norms:

- Rules are obeyed because they are agreed upon.
- Proper social norms are obeyed because others expect one to obey.
- Moral norms are obeyed because of one's conscience.
- Prudential norms are obeyed because it is the rational thing to do [3].

The motivational power of all types of norms depends on the Norm – being a subject's reason for action. And Norms need is be "internalized" and "accepted". Therborn [4] distinguishes among three kinds of norms. Constitutive norms, Regulative norms, Distributive norms. Constitutive norms define a system of action and an agent's membership in it. Regulative norms describe the expected contributions to the social system. Distributive norms defining how rewards, costs, and risks are allocated within a social system.

Within deontic logic, a norm is viewed as an expression of the obligations and rights connected to the role an individual has within a larger social system. The legal theory view on norms corresponds with Trumela's r-norm. It is backed by formal sanctions. The different schools in legal theory do not differ on the definition of a norm but it is different on the mental dimensions of norms. The

following reasons for norm accepting and obeying are given [5]:

- Norms are accepted out of fear for the authority issuing the norm
- Norms are accepted since they are rational
- Norms are accepted from a sense of duty
- Norms are accepted since they solve problems of coordination and operation

The use of norms in artificial agents is a fairly recent development in multi agent system research. In the multi agent systems research different definitions of norms are used. The following views on norms in Multi agent system research are described:

- Norms as constraints on behavior
- Norms as end
- Norms as obligations

But the most research on norms as constraints on behavior via social laws. In the sence the social laws are even more strict than the r – norms. The social laws are designed to avoid problems caused by interacting autonomous selfish agents, therefore improving cooperation and coordination by constraining the agents' action choices.

In the current work agents are viewed as having personal norms and coalition norms. The coalition norms are subjective, thus every agent has an individual view on each norm of the coalition. The personal norms emerge from the interaction with the environment and coalition norms emerge from interaction with the other agents.

The learning of norms can be divided in two types, the emergence of norms and the acceptance of norms. The emergence of norms is learning at the level of the social system and the acceptance of norms is learning at the level of individual agent [6].

Social norms perform the following main functions: They direct, regulate and control human behaviour. The process by which norms and other behavioural regulators are transformed into personality elements is called socialization. They help in satisfying our social needs. They help in establishing social order by mitigating tensions and conflicts in society. They act as measuring scale to evaluate social behaviour. They act as ideals and objectives in certain situations. They help in predicting behaviour.

### III. NORMS' LIFE-CYCLE

Mostly Researchers interested in norms have experimented with several mechanisms associated with norms. The four phases of the norm life-cycle. Which are norm creation, spreading, enforcement, and emergence. Even through has not been any agreement on these phases by social researchers, so the use of four phases as they broadly capture the processes associated with the norm life cycle [7].

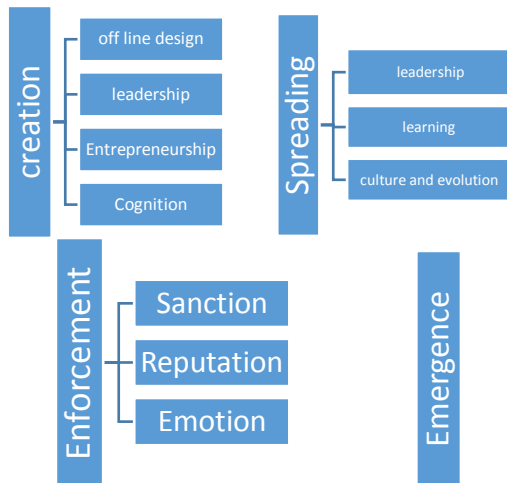


Figure 1. The life-cycle of a norm

The norm spreading is the second phase of the norm cycle. The third phase of the life-cycle is the enforcement of the norms where norm violators may be punished, their reputation impacted or emotions such as shame. The fourth phase of the life cycle is the norm emergence phase.

- Norm creation: norm creation in multi-agent systems refers to the mechanisms by which an agent comes in the society and to know what is the norm of the society. Norm creation are three phases offline design, leadership specified norms, and entrepreneur norm.

In the offline designed, norms are designed off-line, and hardwired into agents. Walker and Wooldridge [8] note the following about the off-line design of norms. “*The off line design of norms will often be simpler to implement and might present the designer with a greater degree of control over system functionality.*” But there is a number of disadvantages with this approach. First it is not always the case that all the characteristics of a system are known at design time. Some researchers have used this approach to compare the performance of a normative system with a non normative. This approach suitable only top down prescription.

Leadership approach – some powerful agents in the society come up with a norm.

Entrepreneurial approach - In agent society, they may be some norm entrepreneurs who come up with a norm. When an agent come up with a new norm it tries to convince other agents.

Cognitive approach – the cognitive ability to recognize what the norms of a society are based on the observations of interactions.

- Norm spreading: It defines spreading as to become dispersed, distributed, or scattered or to become known or disseminated. an agent in this model creates its notion of what the norm is based on inference.

- Norm enforcement: It refers to the process by which norm violators are discouraged through some form of sanctioning. A sanctioning mechanism is the punishment of a norm violator. The process of enforcement helps to sustain norms in a society.

- Norm emergence: it reaching some significant threshold in the extent of the spread of a norm.

#### IV. NORMS AND CULTURE

Normative behavior displays a wide range of variability from culture to culture. The role of culture in a Multi-Agent-System is the first step in the analysis of its effects in policymaking. Culture can be described as a normative system: it exerts pressure to conform to established conventions on its

Members. It is advantageous to the individual to imitate and learn from others, because social learning save us the cost of testing the environment through a process of trial-and-error [9]. But culture will also operate through different mechanisms—direct teaching, sanctioning of deviant behaviors, etc. that pressure individuals to adopt the practices of their group. In the context of Multi-Agent Systems the socialization process responsible for the reinforcement and preservation of norms in a society is transferred to and implemented through intelligent normative agents interacting together [10].

Cultural and social norms are highly influential in shaping individual behaviour, including the use of violence. Norms can protect against violence, but they can also support and encourage the use of it. For instance, cultural acceptance of violence, either as a normal method of resolving conflict or as a usual part of rearing a child, is a risk factor for all types of interpersonal violence. It may also help explain why countries experiencing high levels of one type of violence also experience increased levels of other types. Social tolerance of violent behaviour is likely learned in childhood, through the use of corporal punishment or witnessing violence in the family in the media or in other settings.

Cultural and social norms are rules or expectations of behaviour within a specific cultural or social group. Often unspoken, these norms offer social standards of appropriate and inappropriate behaviour, governing what is (and is not) acceptable and coordinating our interactions with others [11]. Cultural and social norms persist within society because of individuals’ preference to conform, given the expectation that others will also conform. A variety of external and internal pressures are thought to maintain cultural and social norms [11]. Thus, individuals are discouraged from violating norms by the threat of social disapproval or punishment and feelings of guilt and shame that result from the internalization of norms.

Cultural and social norms do not necessarily correspond with an individual’s attitudes (positive or negative feelings towards an object or idea) and beliefs (perceptions that certain premises are true),

Although they may influence these attitudes and beliefs if norms becomes internalized. Cultural and social norms also vary widely; so, behaviour acceptable to one social group, gang or culture may not be tolerated in another.

Interventions that challenge cultural and social norms supportive of violence are often integrated with other approaches. The examples described here, however, are limited to those interventions which exclusively or primarily aim to change cultural and social norms to

prevent violence. Although not all of them have been evaluated, these examples are presented to help gain a better understanding of this approach to violence prevention. Example: The social norms approach to health promotion assumes that people have mistaken perceptions of the attitudes and behaviour of others. Prevalence of risky behaviour (e.g. heavy alcohol use and tolerance of violent behaviour) is usually overestimated, while protective behaviours are normally underestimated. This affects individual behaviour in two ways: by justifying and increasing the prevalence of risky behavior, and by increasing the likelihood of an individual remaining silent about any discomfort caused by such behaviour (thereby reinforcing social tolerance of it). The social norms approach seeks to correct these misperceptions by giving people a more realistic sense of actual behavioural norms, thereby reducing risky behaviour. The theory has been applied widely in the United States to reduce excessive drinking among college students and has been associated with decreased alcohol misuse and smoking. Social norms approaches have also reported some success in changing the attitudes of male peer groups towards risky sexual. Misperceptions about attitudes towards violent behaviour have also been documented for bullying, suggesting that social norms approaches could reduce this form of violence [12].

## V. CONCLUSION

In this paper, firstly, we have proposed a typology of norms and then a four phase model of the norm life – cycle. Secondly, we have argued that culture makes a difference for policy effectiveness. Cultural and social norms are rules or expectations of behavior within a specific cultural or social group. Cultural and social norms persist within society because of individuals' preference to conform, given the expectation that others will also conform. A variety of external and internal pressures are thought to maintain cultural and social norms.

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