

Absorbent LI – Ideals of Lattice Implication Algebras

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Abstract— on this paper we present the concept of Absorbent LI – ideal of pass section notion polynomial math L. We communicate about the relations some of the Absorbent LI – requirements to ILI – beliefs, Associative LI – goals and awesome LI – desires of L. We exhibit the augmentation hypothesis of Absorbent LI – necessities and the crossing factor of Absorbent LI – dreams is additionally an Absorbent LI – best. We exhibit that the complement of Absorbent LI – first-rate is Absorbent channel. At lengthy closing we observe dubious idea to Absorbent LI – requirements and talk approximately the superb houses of hard to recognize Absorbent LI – desires.

Keywords: LI – ideals, Absorbent LI – ideal, Vague set, Lattice Implication Algebra.

I. INTRODUCTION

Amino acids are little biomolecules with a normal atomic Y. Xu [16] propounded and advanced the opportunity of Lattice suggestion variable primarily based math to analyze the practical framework. After that numerous analysts [1, 3, 12, 13, 15] doing their exploration on pass segment concept polynomial math and based the various LI – goals, inferred the few residences of those LI–convictions. to expand the idea of fluffy set, Gau and Buehrer [2] covered the opportunity of unwell defined set, which allow the partition of evidence enrollment and towards membership. T. Anitha and V.Amarendra Babu [8, 9, 10] exercise dubious plan to three LI – high-quality of grid proposal polynomial math and make bigger the possibility of obscure LI – best of pass segment concept algebras.

constant of this paintings in our past papers we delivered the FLI – dreams, TLI-convictions [7, 11] of Lattice thought algebras and decided more than one places of the requirements. After that we practice the opportunity of dubious to FLI – requirements and TLI - convictions and inferred more than one homes.

in this paper we present the opportunity of Absorbent LI – impeccable of cross section notion variable based totally math L. We talk the individuals from the circle of relatives a number of the Absorbent LI – desires to ILI – convictions, Associative LI – requirements and remarkable LI – convictions of L. We display the augmentation speculation of Absorbent LI – convictions and the convergence of

Absorbent LI – ideals is additionally an Absorbent LI – impeccable. We demonstrate that the complement of

Absorbent LI – immaculate is Absorbent channel out. at remaining we practice unwell described idea to Absorbent LI – convictions and disk the various homes of unclear Absorbent LI – standards.

II. PRELIMINARIES

Throughout this paper L represents the lattice implication algebra, otherwise we mention.

Definition 2.1[16]:

The complemented lattice L with universal bounds is a lattice implication algebra if it satisfies the following axioms:

- (I₁) $p \rightarrow (q \rightarrow r) = q \rightarrow (p \rightarrow r)$;
- (I₂) $p \rightarrow p = I$;
- (I₃) $p \rightarrow q = q' \rightarrow p'$;
- (I₄) $p \rightarrow q = q \rightarrow p = I$ implies $p = q$;
- (I₅) $(p \rightarrow q) \rightarrow q = (q \rightarrow p) \rightarrow p$;
- (L₁) $(p \vee q) \rightarrow r = (p \rightarrow r) \wedge (q \rightarrow r)$;
- (L₂) $(p \wedge q) \rightarrow r = (p \rightarrow r) \vee (q \rightarrow r)$.

Theorem 2.2[16]:

Let L be a lattice implication algebra. Then for all p, q, r ∈ L, the following axioms are hold:

- (1) $I \rightarrow p = p, p \rightarrow 0 = p, 0 \rightarrow p = I$ and $p \rightarrow I = I$.
- (2) $p \leq q$ if and only if $p \rightarrow q = I$.
- (3) $p \rightarrow q \leq (q \rightarrow r) \rightarrow (p \rightarrow r)$.
- (4) $((p \rightarrow q) \rightarrow q) \rightarrow q = p \rightarrow q$.

Definition 2.3[1]:

A nonempty subset H of L is called a LI – ideal if $0 \in H$ and $(p \rightarrow q)' \in H$ and $q \in H$ implies $p \in H$ for all p, q, r ∈ L.

Definition 2.4[15]:

A nonempty subset H of L is called a ILI – ideal if $0 \in H$ and $((p \rightarrow q)' \rightarrow q)' \rightarrow r' \in H$ and $r \in H$ imply $(p \rightarrow q)' \in H$.

Definition 2.5[13]:

A nonempty subset H of L is called a associative LI – ideal with respect to p if $0 \in H$ and $((r \rightarrow q)' \rightarrow p)' \in H$ and $(q \rightarrow p)' \in H$ implies $r \in H$ for all p, q, r ∈ L.

Definition 2.6 [7]:

A nonempty subset H of L is called a FLI – ideal if $0 \in H$ and $((p \rightarrow r)' \rightarrow q)' \in H$ and $q \in H$ implies $((r \rightarrow p)' \rightarrow p) \rightarrow r' \in H$ for all p, q, r ∈ L.

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Definition 2.7[6]:

A nonempty subset F of L is called an absorbent filter if $I \in F$ and $(p \rightarrow q) \rightarrow p \in F$ implies $p \in F$ for all $p, q \in L$.

Definition 2.8[2]:

A vague set H in the universal discourse U is characterised by two membership functions t_H and f_H with the condition $t_H(p) + f_H(p) \leq 1$ where $p \in U$.

The vague set $H = \{ \langle p, [t_H(p) + f_H(p)] \rangle, p \in U \}$

The vague value of p in the set H denoted by $V_H(p)$ is equal to $[t_H, 1 - f_H]$.

Notation [8]:

Let $I[0, 1]$ signify the group of all shut subintervals of $[0, 1]$. In the event that $I_1 = [a_1, b_1]$, $I_2 = [a_2, b_2]$ are two components of $I[0, 1]$, we call $I_1 \geq I_2$ if $a_1 \geq a_2$ and $b_1 \geq b_2$. We characterize the term imax to mean the limit of two interim as

$$\text{imax} [I_1, I_2] = [\max \{ a_1, a_2 \}, \max \{ b_1, b_2 \}].$$

Definition 2.9:

[2] permit A be an difficult to understand association of a universe X with fact enrollment paintings t_A and the synthetic participation work f_A . For any $\alpha, \beta \in [0, 1]$ with $\alpha \leq \beta$, the (α, β) – lessen or dubious cut of an ambiguous set A may be a fresh subset $A_{(\alpha, \beta)}$ of the set X given by means of

$$A_{(\alpha, \beta)} = \{ p \in X / V_A(p) \geq [\alpha, \beta] \}.$$

Definition 2.10[8]:

A vague set A of L is called a VLI – ideal of L if it $V_A(0) \geq V_A(p)$ and

$$V_A(p) \geq \text{imin} \{ V_A((p \rightarrow q)'), V_A(q) \}$$

for all $p, q \in L$.

Definition 2.11[10]:

A vague set A is called a VILI – ideal of L if $V_A(0) \geq V_A(p)$ and

$$V_A((p \rightarrow q)') \geq \text{imin} \{ V_A(((p \rightarrow q)' \rightarrow q)' \rightarrow r)'), V_A(r) \}$$

for all $p, q, r \in L$.

Definition 2.12[9]:

Let A be a vague set of a lattice implication algebra L. A is said to be a vague associative LI – ideal of L with respect to x if $V_A(0) \geq V_A(p)$ and

$$V_A(r) \geq \text{imin} \{ V_A(((r \rightarrow q)' \rightarrow p)'), V_A((q \rightarrow p)') \}.$$

Definition 2.13[7]:

A vague set H in L is said to be a vague fantastic LI - ideal of L if $V_H(0) \geq V_H(p)$ and $V_H(((r \rightarrow p) \rightarrow p) \rightarrow r)') \geq \text{imin} \{ V_H(((p \rightarrow r)' \rightarrow q)'), V_H(q) \}$.

III. ABSORBENT Li - IDEALS

In this portion we gift the concept of Absorbent LI – perfect of grid inspiration polynomial math L and communicate different places of Absorbent LI – convictions.

Definition three.1: A nonempty subset An of a move segment concept variable based totally math L is referred to as Absorbent LI – immaculate of L if $0 \in An$ and $(p \rightarrow (q \rightarrow p)')' \in An$ infers $p \in A$ for all $p, q \in L$.

event three.2: allow $L = \{0, p, q, r, 1\}$ be an immovable. At that point truly $(L, \vee, \wedge, \rightarrow, 0, 1)$ is cross phase notion

variable based math in which the paired task \rightarrow is portrayed as pursues:

\rightarrow	0	p	q	r	1
0	1	1	1	1	1
p	q	1	r	1	1
q	p	r	1	1	1
r	r	r	r	1	1
1	0	p	q	r	1

Then the set $A = \{0, p, r\}$ is an absorbent LI – ideal of L.

Remark 3.3:

Let $L = \{0, p, q, r, s, 1\}$ be a set. Then clearly $(L, \vee, \wedge, \rightarrow, 0, 1)$ is lattice implication algebra where the binary operation \rightarrow is defined as follows:

\rightarrow	0	p	q	r	s	1
0	1	1	1	1	1	1
p	p	1	q	r	q	1
q	s	p	1	q	p	1
r	p	p	1	1	p	1
s	q	1	1	q	1	1
1	0	p	q	r	s	1

Clearly the set $A = \{0, p\}$ is a LI – ideal of L. But it is not an absorbent LI – ideal of L because $(s \rightarrow (p \rightarrow s))' = 0 \in A$ and $s \notin A$.

From the following theorem it is clear every ILI – ideal of L is an absorbent LI – ideal of L.

Theorem 3.4:

Every ILI – ideal of L is an absorbent LI – ideal of L.

Proof:

Let A be ILI – ideal of L and $p, q \in L$ such that $(p \rightarrow (q \rightarrow p)')' \in A$.

$$\text{Since } (p \rightarrow (q \rightarrow p)') \rightarrow (p \rightarrow (q \rightarrow (q \rightarrow p)')) = (p \rightarrow (q \rightarrow p)') \rightarrow (p \rightarrow ((p' \rightarrow q') \rightarrow q'))$$

$$= (p \rightarrow (q \rightarrow p)') \rightarrow (((p' \rightarrow q') \rightarrow q') \rightarrow p')$$

$$\rightarrow ((q' \rightarrow p') \rightarrow p') \rightarrow p')$$

$$\rightarrow (q' \rightarrow p')$$

$$\rightarrow (p \rightarrow q)$$

$$\geq (q \rightarrow p)' \rightarrow q$$

$$= q' \rightarrow (q \rightarrow p)$$

$$= (q \rightarrow 0) \rightarrow (q \rightarrow p)$$

$$\geq 0 \rightarrow p = I$$

So $(p \rightarrow (q \rightarrow p))' \leq (p \rightarrow (q \rightarrow (q \rightarrow p)))'$, implies
 $(p \rightarrow (q \rightarrow (q \rightarrow p)))' \leq (p \rightarrow (q \rightarrow p))'$.
 Then $(p \rightarrow (q \rightarrow (q \rightarrow p)))' \in A$ as A is LI – ideal of L .
 Since $((q \rightarrow (q \rightarrow p))' \rightarrow (q \rightarrow p))' \rightarrow (p \rightarrow (q \rightarrow p))'$
 $= (p \rightarrow (q \rightarrow p))' \rightarrow ((q \rightarrow (q \rightarrow p))' \rightarrow (q \rightarrow p))'$
 $\geq (q \rightarrow (q \rightarrow p))' \rightarrow p$
 $= p' \rightarrow (q \rightarrow (q \rightarrow p))'$
 $= p' \rightarrow ((q \rightarrow p) \rightarrow q')$
 $= (q \rightarrow p) \rightarrow (p' \rightarrow q')$
 $= I$.

So $((q \rightarrow (q \rightarrow p))' \rightarrow (q \rightarrow p))' \leq (p \rightarrow (q \rightarrow p))'$,
 then $((q \rightarrow (q \rightarrow p))' \rightarrow (q \rightarrow p))' \in A$ as A is LI – ideal
 of L .

Clearly $(q \rightarrow (q \rightarrow p))' \in A$ as A is ILI – ideal of L .
 It yields $p \in A$.
 Hence A is an absorbent LI – ideal of L .

Remark 3.5:

The chats of the speculation three.four want not to be real.
 For the case the set $A = \{0, p, r\}$ is a permeable LI – great of
 L inside the version 3.2. besides it is not usually an ILI
 flawless of L because of the reality $((I \rightarrow p)' \rightarrow p)' = r \in A$
 and $(I \rightarrow p)' = q \notin A$.

From the ensuing hypothesis it's miles clean if a nonempty
 subset of L is both LI – first-rate and spongy LI – perfect of L
 at that factor it's far an ILI – best of L .

speculation three.6: permit A be LI – satisfactory of L . at
 the off chance that A_n is a spongy LI – exceptional of L , at
 that factor it's far ILI – perfect of L .

Proof:

Let A be an absorbent LI – ideal of L and $p, q \in A$ such that
 $((p \rightarrow q)' \rightarrow q)' \in A$.

Since $(p \rightarrow q)' \rightarrow (p \rightarrow (p \rightarrow q))' = (p \rightarrow (p \rightarrow q))' \rightarrow (p \rightarrow q)$
 $\rightarrow p'$
 $= ((p \rightarrow q) \rightarrow p') \rightarrow (q'$
 $\geq q' \rightarrow (p \rightarrow q)$
 $= (p \rightarrow q)' \rightarrow q$

So $((p \rightarrow q)' \rightarrow (p \rightarrow (p \rightarrow q)))' \leq ((p \rightarrow q)' \rightarrow q)'$,

Then $((p \rightarrow q)' \rightarrow (p \rightarrow (p \rightarrow q)))' \in A$ as A is an LI –
 ideal.

Implies $(p \rightarrow q)' \in A$ as A is an absorbent LI – ideal.
 It yields that A is an ILI – ideal of L .

Theorem 3.7:

Let A be LI – ideal of L . Then A is an absorbent LI – ideal
 of L if and only if $((p \rightarrow (q \rightarrow p))' \rightarrow r)' \in A$, $r \in A$ implies p
 $\in A$ for all $p, q, r \in L$.

Proof:

Suppose that A is an absorbent LI – ideal.

Let $p, q, r \in L$ such that $((p \rightarrow (q \rightarrow p))' \rightarrow r)' \in A$, $r \in A$.

Since A is LI – ideal of, we get $(p \rightarrow (q \rightarrow p))' \in A$.

Since A is an absorbent LI – ideal, we get $p \in A$.

So condition proved.

Conversely suppose that A be LI – ideal of L and $((p \rightarrow$
 $(q \rightarrow p))' \rightarrow r)' \in A$, $r \in A$ implies $p \in A$ for all $p, q, r \in L$.

Let $p, q \in L$ such that $(p \rightarrow (q \rightarrow p))' \in A$.

Clearly $(p \rightarrow (q \rightarrow p))' \rightarrow 0)' = (p \rightarrow (q \rightarrow p))' \in A$ and 0
 $\in A$, by condition $p \in A$.

Hence A is an absorbent LI – ideal of L .

Theorem 3.8:

Every associative LI – ideal of L is an absorbent LI – ideal
 of L .

Proof:

Let A be associative LI – ideal of L and $p, q \in L$ such that
 $(p \rightarrow (q \rightarrow p))' \in A$.

Clearly $((p \rightarrow 0)' \rightarrow (q \rightarrow p))' = (p \rightarrow (q \rightarrow p))' \in A$.

By theorem 33 [9], we have $(p \rightarrow (0 \rightarrow (q \rightarrow p)))' \in A$
 $\Rightarrow (p \rightarrow 0)' \in A \Rightarrow p \in A$.

Hence A is an absorbent LI – ideal of L .

Remark 3.9:

The converse of the theorem 3.8 need not to be true. For
 example the set $A = \{0, p, r\}$ is an absorbent LI – ideal of L .
 But it is not an associative LI – ideal of L because $((q \rightarrow p)'$
 $\rightarrow r)' = 0 \in A$ and $(q \rightarrow (p \rightarrow r))' = q \notin A$.

end result three.10:

allow A_n and B be LI – convictions of L with the end goal
 that $A \subseteq B$. on the off risk that A_n is a retentive LI – flawless
 of L , at that factor B is in like manner permeable LI –
 first-rate of L .

proof:

it's far spotless by way of the concept 3.9 [15] and
 hypotheses three.5 and three.6.

end result three.11:

allow A_n and B be retentive LI – convictions of L then $A \cap$
 B is also permeable LI – nice of L .

result three.12:

permit A be LI – ideal of L . in the event that A_n is a spongy
 LI – exceptional of L , at that factor it is an extraordinary LI –
 ideal of L .

proof:

it's miles ideal by means of methods for the concept 3.5 [7]
 and hypotheses 3.5 and 3.6.

hypothesis 3.13:

allow A be a nonempty subset of L . At that factor A_n is a
 spongy LI – perfect of L if and exceptional if $A' = p'/p \in A$ is
 a permeable channel of L .

evidence:

consider that an is a spongy LI – immaculate of L .

Then $0 \in A$, so $I = 0' \in A'$.

Let $p, q \in L$ such that $(p \rightarrow q) \rightarrow p \in A'$.

Then $((p \rightarrow q) \rightarrow p)' \in A \Rightarrow (p' \rightarrow (p \rightarrow q))' \in A$
 $\Rightarrow (p' \rightarrow (q' \rightarrow p'))' \in A$
 $\Rightarrow p' \in A$
 $\Rightarrow p \in A'$.

This proves that A' is an absorbent filter of L .

Conversely suppose that A' is an absorbent filter of L .

Then $I \in A'$, so $0 = I' \in A$.

Let $p, q \in L$ such that $(p \rightarrow (q \rightarrow p'))' \in A$.

$$\begin{aligned} \text{Then } p \rightarrow (q \rightarrow p)' \in A' &\implies (q \rightarrow p) \rightarrow p' \in A' \\ &\implies (p' \rightarrow q') \rightarrow p' \in A' \\ &\implies p' \in A' \\ &\implies p \in A. \end{aligned}$$

Hence A is an absorbent LI – ideal of L .

IV. VAGUE ABSORBENT LI – IDEALS AND RESULTS

in this component we blessing the idea of undefined Absorbent LI – high quality of framework motivation polynomial math L and bring approximately brilliant houses of ill described Absorbent LI – goals.

Definition 4.1: An difficult to understand set A_n on L is known as as dubious retentive LI – perfect of L if $V_A(0) \geq V_A(p)$ and $V_A(p) \geq V_A((p \rightarrow (q \rightarrow p'))')$ for all $p, q \in L$.

model 4.2: let L be grid inspiration variable based totally math inside the model 3.2. characterize the ambiguous set

$$H = V_H = \{ \langle p, [t_A(p), f_A(p)] \rangle / p \in L \} \text{ on } L \text{ as follows:}$$

$$\begin{aligned} t_H(a) &= 0.732 \text{ if } a = 0, p, r & f_H(a) &= 0.19 \\ \text{if } a = 0, p, r & & & \\ &= 0.431 \text{ if } a = q, I & &= 0.25 \\ \text{if } a = q, I & & & \end{aligned}$$

Clearly the vague set A is vague absorbent LI – ideal of L .

Remark 4.3:

Let L be lattice implication algebra in the remark 3.3. Define the vague set

$$G = V_G = \{ \langle p, [t_A(p), f_A(p)] \rangle / p \in L \} \text{ on } L \text{ as follows:}$$

$$\begin{aligned} t_G(a) &= 0.63 \text{ if } a = 0, p & f_G(a) &= 0.319 \\ \text{if } a = 0, p & & & \\ &= 0.51 \text{ if } a = q, r, s, I & &= 0.392 \\ \text{if } a = q, r, s, I & & & \end{aligned}$$

in reality the indistinct set A is VLI – best of L . however it isn't always a vague absorbent LI – perfect of L due to the fact $V_G(s) = [0.51, 0.392] \not\geq [0.63, 0.319] = V_G(s \rightarrow (p \rightarrow s))'$.

From the subsequent theorem it's far clean every VILI – ideal of L is a indistinct absorbent LI – best of L .

Theorem four.4: every VILI of L is a vague absorbent LI – best of L .

proof: allow A be VILI of L and $p, q \in L$. Clearly $(p \rightarrow (q \rightarrow (q \rightarrow p')))' \leq (p \rightarrow (q \rightarrow p))'$ and

$$(((q \rightarrow (q \rightarrow p))' \rightarrow (q \rightarrow p))' \leq (p \rightarrow (q \rightarrow p))'.$$

Since VILI- ideal is order reversing, we have

$$V_A((p \rightarrow (q \rightarrow p))') \leq V_A((p \rightarrow (q \rightarrow (q \rightarrow p))')) \text{ and}$$

$$\begin{aligned} V_A((p \rightarrow (q \rightarrow p))') &\leq V_A(((q \rightarrow (q \rightarrow p))' \rightarrow (q \rightarrow p))') \\ &\leq V_A((p \rightarrow (q \rightarrow p))'). \end{aligned}$$

Since A is VLI – ideal, it yields to

$$\begin{aligned} V_A(p) &\geq \text{imin} \{ V_A((p \rightarrow (q \rightarrow (q \rightarrow p))')), V_A((p \rightarrow (q \rightarrow p))') \} \\ &\geq V_A((p \rightarrow (q \rightarrow p))') \end{aligned}$$

Hence A is vague absorbent LI – ideal of L .

statement four.five: The chats of the speculation 4.4 want not to be authentic. for example the unclear set H is an sick described permeable LI – best of L in the example 4.2. be that as it can, it isn't usually a VILI incredible of L in light of the reality that $V_H((I \rightarrow p)) = [0.431, 0.25] \not\geq [0.732, 0.19] = V_H(((I \rightarrow p))')$.

From the subsequent theorem it's miles clean if a indistinct set on L is both VLI – ideal and vague absorbent LI – perfect of L then it is a VILI – best of L .

Theorem 4.6:

Let A be VLI – ideal of L . If A is a vague absorbent LI – ideal of L then it is VILI – ideal of L .

Proof:

Let A is a vague absorbent LI – ideal of L .

Clearly $((p \rightarrow q)' \rightarrow (p \rightarrow (p \rightarrow q))')' \leq ((p \rightarrow q)' \rightarrow q)'$ for all $p, q \in L$.

Since VLI- ideal is order reversing, we have

$$V_A(((p \rightarrow q)' \rightarrow (p \rightarrow (p \rightarrow q))')') \geq V_A(((p \rightarrow q)' \rightarrow q)').$$

Since A is vague absorbent LI – ideal of L , we have

$$\begin{aligned} V_A((p \rightarrow q)') &\geq V_A(((p \rightarrow q)' \rightarrow (p \rightarrow (p \rightarrow q))')') \\ &\geq V_A(((p \rightarrow q)' \rightarrow q)'). \end{aligned}$$

By theorem 25[9], A is VILI – ideal of L .

Theorem 4.7:

Let A be VLI – ideal of L . Then A is vague absorbent LI – ideal of L if and only if $V_A(p) \geq \text{imin} \{ V_A(((p \rightarrow (q \rightarrow p))' \rightarrow r)'), V_A(r) \}$ for all $p, q, r \in L$.

Proof:

Suppose that A is a vague absorbent LI – ideal of L .

So $V_A(p) \geq V_A((p \rightarrow (q \rightarrow p))')$ for all $p, q \in L$.

Since A is VLI – ideal, we have

$$V_A((p \rightarrow (q \rightarrow p))') \geq \text{imin} \{ V_A(((p \rightarrow (q \rightarrow p))' \rightarrow r)'), V_A(r) \}.$$

It yields to $V_A(p) \geq \text{imin} \{ V_A(((p \rightarrow (q \rightarrow p))' \rightarrow r)'), V_A(r) \}$.

Conversely suppose that $V_A(p) \geq \text{imin} \{ V_A(((p \rightarrow (q \rightarrow p))' \rightarrow r)'), V_A(r) \}$ for all $p, q, r \in L$.

Taking $r = 0$ in the above inequality, we have

$$\begin{aligned} V_A(p) &\geq \text{imin} \{ V_A(((p \rightarrow (q \rightarrow p))' \rightarrow 0)'), V_A(0) \} \\ &= \text{imin} \{ V_A((p \rightarrow (q \rightarrow p))'), V_A(0) \} \\ &= V_A((p \rightarrow (q \rightarrow p))'). \end{aligned}$$

Hence A is vague absorbent LI – ideal of L .

Theorem 4.8:

Every vague associative LI – ideal of L is vague absorbent LI – ideal of L .

Proof:

Let A be vague associative LI – ideal of L and $p, q \in L$.

Then clearly $V_A((p \rightarrow (q \rightarrow p))') = V_A(((p \rightarrow 0)' \rightarrow (q \rightarrow p))')$.

Since A is vague associative LI – ideal, we have

$$\begin{aligned} V_A(((p \rightarrow 0)' \rightarrow (q \rightarrow p))') &\leq V_A((p \rightarrow 0) \rightarrow (q \rightarrow p))') \\ &= V_A((p \rightarrow I)') \\ &= V_A((p \rightarrow 0)') \\ &= V_A(p). \end{aligned}$$

So A is vague absorbent LI – ideal of L.
discourse four.nine: the option of the speculation four.eight need never again to be substantial. for example the questionable set H in the model 4.2, is a questionable porous LI – first rate of L. yet, it's far some angle anyway a vague well-known LI – nature of L in moderate of the way that $V_H((q \rightarrow (p \rightarrow r)')) = [0.431, 0.25] \not\geq [0.732, 0.19] = V_H(((q \rightarrow p)' \rightarrow r)')$.

Hypothesis 4.10: let A be unclear set on L. On the off chance that A will be an ill defined retentive LI – perfect of L, at that point the set

$\hat{A}_a = \{p / V_A(p) \geq V_A(a)\}$ where $a \in L$, is an absorbent LI – ideal of L.

Proof: Let A is a vague absorbent LI – ideal of L and $a \in L$.

Let $p, q \in L$ such that $(p \rightarrow (q \rightarrow p)')' \in \hat{A}_a$.

So $V_A((p \rightarrow (q \rightarrow p)')) \geq V_A(a)$.

Since A is vague absorbent LI – ideal, we have $V_A(p) \geq V_A((p \rightarrow (q \rightarrow p)'))$.

It yields $p \in \hat{A}_a$.

Hence \hat{A}_a is an absorbent LI – ideal of L.

Theorem 4.11:

Let H be a vague set on L. Then H is a vague absorbent LI – ideal of L if and only if $H(\rho, \sigma)$ is an absorbent LI – ideal when $H(\rho, \sigma) \neq \emptyset, \rho, \sigma \in [0, 1]$.

Proof:

Suppose that H is a vague absorbent LI – ideal of L and $\rho, \sigma \in [0, 1]$.

If $H(\rho, \sigma) \neq \emptyset$ then there exist $p \in L$ such that $V_H(p) \geq [\rho, \sigma]$.

Clearly $V_H(0) \geq V_H(p) \geq [\rho, \sigma]$. So $0 \in H(\rho, \sigma)$.

Let $p, q, r \in L$ such that $((p \rightarrow (q \rightarrow p)')' \in H(\rho, \sigma))$.

Since H is a vague absorbent LI – ideal, we have $V_H(p) \geq V_A((p \rightarrow (q \rightarrow p)')) \geq [\rho, \sigma]$.

So $p \in H(\rho, \sigma)$ and it yields $H(\rho, \sigma)$ is an absorbent LI – ideal of L.

Conversely, Suppose that $H(\rho, \sigma) \neq \emptyset$ is an absorbent LI – ideal where $\rho, \sigma \in [0, 1]$.

For all $p \in L, H_{H(p)} \neq \emptyset$ since $p \in H_{H(p)}$, and so $H_{H(p)}$ is an FLI ideal of L.

So $0 \in H_{H(p)}$, then we have $V_H(0) \geq V_H(p)$.

Let $p, q, r \in L$, let us consider $[\rho, \sigma] = V_A((p \rightarrow (q \rightarrow p)'))$.

Then $(p \rightarrow (q \rightarrow p)')' \in H(\rho, \sigma)$. So $H(\rho, \sigma)$ is non empty and $p \in H(\rho, \sigma)$.

$\forall x, y, z \in L, V_H(p) \geq [\alpha, \beta] = V_A((p \rightarrow (q \rightarrow p)'))$

Thus H is a vague absorbent LI – ideal of L.

Theorem 4.12:

Let J and K be vague absorbent LI – ideal of L such that $J \subseteq K$. If J is a vague absorbent LI – ideal of L, then so is K.

Proof:

Let J and K are vague absorbent LI – ideal of L such that $J \subseteq K$.

Since $J \subseteq K$, that is $V_J(p) \leq V_K(p)$ for all $p \in L$.

Then clearly $J(\rho, \sigma) \subseteq K(\rho, \sigma)$ for every $\rho, \sigma \in [0, 1]$.

Since J is a vague absorbent LI – ideal then $J(\rho, \sigma) \neq \emptyset$ is absorbent LI – ideal.

It gives $K(\rho, \sigma) \neq \emptyset$ is a vague absorbent LI – ideal. It yields K is a vague absorbent LI – ideal of L.

Theorem 4.13:

Let A be absorbent LI – ideal of L. The vague set H defined by

$$V_H(p) = [\rho, \rho] \text{ if } p \in A \\ = [0, 0] \text{ if } p \notin A$$

is a vague absorbent LI – ideal of L, where $\rho \in [0, 1]$.

Proof:

Let H be a vague set of L, defined by

$$V_H(p) = [\rho, \rho] \text{ if } p \in A \\ = [0, 0] \text{ if } p \notin A, \text{ where } \rho \in [0, 1].$$

We have $0 \in A$ and so $V_H(0) = [\rho, \rho] \geq V_H(p) \forall p \in L$.

If $(p \rightarrow (q \rightarrow p)')' \in A$, where $p, q \in L$, then

$$V_A(p) = [\rho, \rho] \geq V_H((p \rightarrow (q \rightarrow p)'))$$

If $(p \rightarrow (q \rightarrow p)')' \notin A$, where $p, q \in L$, then $p \notin A$ and so

$$V_A(p) = [0, 0] = V_H((p \rightarrow (q \rightarrow p)'))$$

Hence H is a vague absorbent LI – ideal of L.

Theorem 4.14:

Let H be a vague absorbent LI – ideal of L. Then $A_H = \{p \in L / V_H(p) = V_H(0)\}$ is an absorbent LI – ideal of L.

Proof:

Since $A_H = \{p \in L / V_H(p) = V_H(0)\}$, obviously $0 \in A_H$.

Let $p, q \in L$ and $(p \rightarrow (q \rightarrow p)')' \in A_H$, then $V_H((p \rightarrow (q \rightarrow p)')) = V_H(0)$.

So $V_A(p) \geq V_H((p \rightarrow (q \rightarrow p)')) = V_H(0)$ as H is a vague absorbent LI – ideal of L.

And $V_H(0) \geq V_H(p)$, it yields $V_H(p) = V_H(0)$. Thus $p \in A_H$.

Hence A_H is an absorbent LI – ideal of L.

V. CONCLUSION

Thinking about Y. Xu blanketed the conviction of Lattice inspiration variable based math, a few scientists building up the rule of thumb of various channels and LI – convictions. from the begin Y. B. Jun delivered the possibility of LI – gives of Lattice notion variable primarily based math. After that various analysts proposed the unique LI – convictions like as LI – desires, ILI – convictions, high LI – requirements and so forth relentless of this work we proposed the thoughts of FLI-standards and TLI – convictions in our beyond papers. currently added the conviction of Absorbent LI – convictions and tested the diverse homes. After that we watch the sick described plan to Absorbent LI – requirements. it's far our legitimate with that our work encourages in helping and increasing one-of-a-kind investigates in this field

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