Fuzzy Logic

Plotting

POV

Suspension of Disbelief

and

A Lot of Hard Work

By
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My formal education includes Physics, Computer Science, Mathematics and Statistics, Software Engineering, Telecommunications.

My informal education regards writing comes from the School of Hard Knocks which includes various workshops throughout the years and helpful rejection letters from kind editors, as well as receiving critiques on my work as well as providing critiques for others.

The following are my personal opinions and thoughts on a couple approaches to writing to perhaps shake up the routine and mundane approaches we may get stuck in.

Logic, by default, is a methodology that uses rational and accepted decision making to determine best results.

If you are a Star Trek fan, you might be inclined to believe one can separate the use of logic from the use of emotion to drive your decision making process.

To the contrary, logical decision making often requires the emotional component to define a desired result.   A great number of human decisions are driven by emotional needs.

To maximize happiness.

To minimize fear.

Analog devises, like the human brain, or a gas meter, or a mercury thermometer most always operate on a variable and inconsistent set of inputs to provide a basic result.

These devices, if mechanical, have extremely limited range of uses – any given device is most often designed for a single given output.

So … a LOT of analog tools were needed in the implementing of human ingenuity.

Today, to make things work faster, we've discovered that digital is more convenient.

These digital tools – computers - mostly run on a binary method of logical assumptions.

$(0,0) \mid 0$
$(0,1) \mid 1$
$(1,0) \mid 1$

$(1,1) \mid 0$

$(0,0) \mid 1$

$(0,1) \mid 0$
$(1,0) \mid 0$
$(1,1) \mid 1$
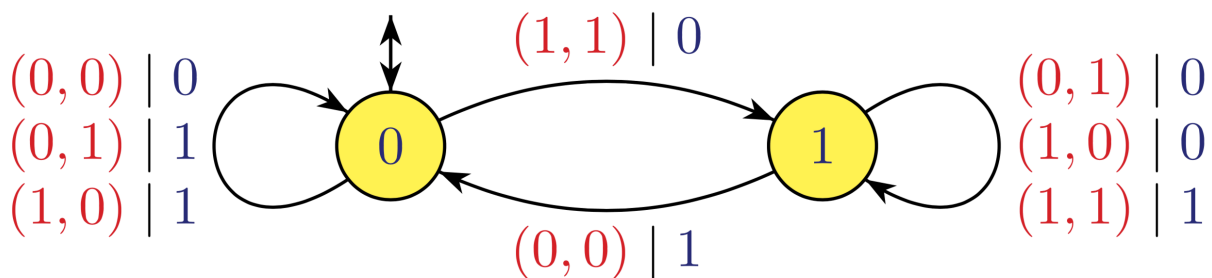
Problem statements must be worked to their simplest base derivatives.

If THIS happens, then THAT must follow.

One or Zero – True or False.

The only possible states.

At the core – that's how it works.

Computers are fast, and so they can be programmed to filter through myriad input parameters that, by necessity, can be defined with a true or false response to a question.

Maybe that's why some people see programmers as kind of geeky...

In almost any statement of cause and effect outside the
Boolean logic system (dealing with 1s and 0s)
there is a range between true and false that
mathematicians and statisticians call

degrees of truth

or sometimes
the likelihood of truth

Without getting into the math and statistics of fuzzy logic

The idea is - fuzzy decision making rule sets are based on
- functions that have conditional ranges for input
- an agreed upon description of the truth to recognize
within these ranges an agreeable true or false
assignment.

Interesting term, *'agreeable'*.   It kind of implies we're talking about some kind of POV…
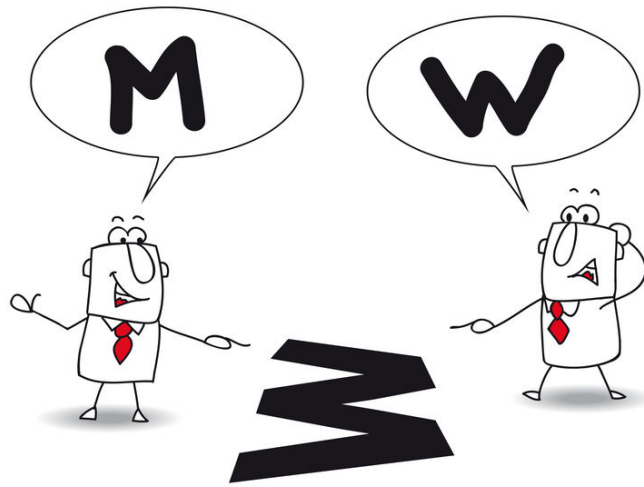
Science can be thought of as the process of observation to theorize and hypothesize and test and reproduce a set of proofs consistently (for some purpose).

- To test the validity of a premise.
- To define an accepted truth for observing our realities.

This requires an acceptance of the definition for our truth.

In mathematics, problem solving relies heavily on the acceptance of the correct definitions of the variables and parameters.

Not all truths are accepted as equal amongst everyone.

What kind of truths?

Depends on your point of view.

Depends on your life experiences.

The human mind receives and processes information to direct required action. But we also have past experiences to balance the expected outcome of that action.

Today, modern powerful computers are often using AI instead of linear knowledge-based case-decision procedures.

Modern AI learning techniques often utilize the child's mind method - learning through repeated testes and interactions to eventually predict the best decision for the best consequence.

The regret algorithm is a little known but interesting and powerful tool – looking back to see if similar decisions resulted in weighted positive or negative results.

average overall regret
for player #i up to time T

negative index means opponents'
strategies - in our heads up setting
it is singular (one opponent)

$$\hat{R}_i^T = \frac{1}{T} \max_{\sigma_i^* \in \Sigma_i} \sum_{t=1}^{T} (u_i(\sigma_i^*, \sigma_{-i}^t) - u_i(\sigma^t))$$

sigma indexed with #i is a strategy for player #i

here, we choose one strategy from all possible
strategies available for player #i

sum of the differences between the one fixed
best single strategy (sigma*) expected
utility and the one you actually played at
time t

A quick example of simple logic and action

Logic :

IF temperature is _30_ THEN the fan runs at _level 3_

This works if that's all you want.

Fuzzy Logic :

IF temperature is _Hot_ THEN the fan is _On_

This provides the opportunity to vary the terms
Hot and _On_.

The definition of _Hot_ may differ from one person to
another, and the speed of the fan - if _On_ - will depend on
the needs or expectations of the individual.

The accepted truth of an input or result will vary from
person to person.

The fan does not cool the room enough, yet for another,
it's just right.

It's all about dealing with your Point Of View.

An example that considers consequence.

The digital speedometer in a car indicates exact speed. It could be 30 mph.   Perhaps 60 mph. But only one speed in any given moment.

Now – you are driving through a playground.   How fast are you going?   32 KMH?   42 KMH?   What does that mean?   The numbers are exact. The interpretation of them with an awareness of your situation is what matters.

Are you going to get a ticket (what mood is the cop in)?
Can you stop in time (how far away is that kid)?
How much speed is too much speed?

Consequences exist when not understanding the definition of Speed Limit.

A driver's story:

The automobile is deemed safe and 100 on the highway feels dumb, and you drive at 125.

The 80 km speed zone in a construction area off the highway is stupid. There are no workers there on Sunday. So you do 110.

In a playground zone there are no observable children, so instead of 30 you do 45.

You get stopped by the police.

From the driver's POV you felt justified in your speed.

But the officer has a different POV, and may feel otherwise.

The officer's truth regarding the speeding infraction may include the danger the driver is imposing to others, or maybe the officer is simply in a good mood.

A fuzzy logic decision can be made to ticket you or not.

What has any of that to do with story telling?

In an interesting way, it's all about the POV you choose to use when looking at the world and trying to figure out your next move.

Cataloguing in our mind the myriad consequences of our actions is a great tool humans have allowing for a safer evolution of our species.

We can also choose to vary from arbitrary rules and known consequences to potentially better resolve an immediate situation.

Before we developed fantastic methods of information sharing, many of life's lessons were learned privately and shared with relatively few.

You'd have to be there to understand.

Depending on your life experiences, you may experience a situation that looks to be the result of illogical decisions.

Others will have different information, experiences and a personal sense of the truth of the same situation.
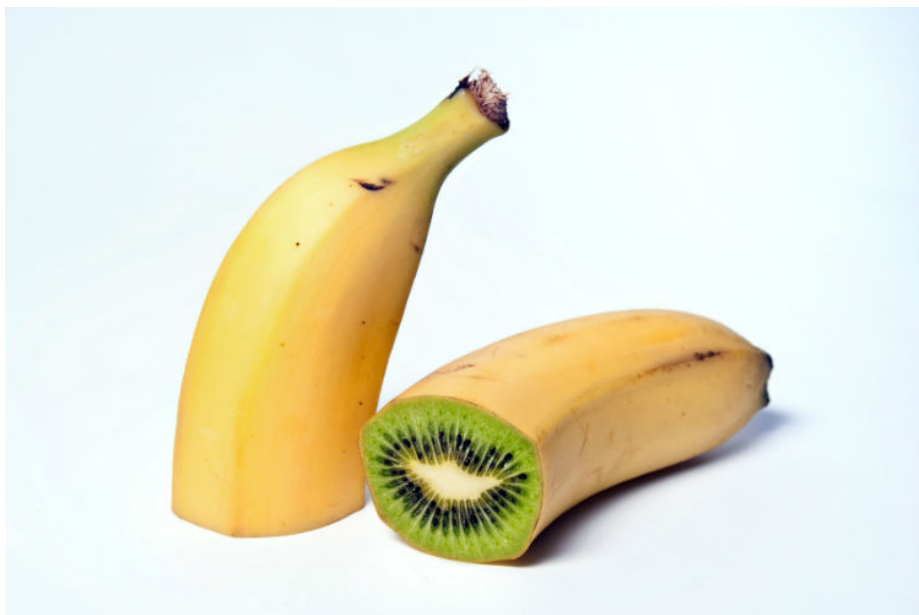
No worries… ???

More about writing stories

Readers like to figure things out for themselves inside a story.

Readers like to get exposed to new ideas and situations inside a story.

Readers , for the most part, want to have an interesting question posed, and have the question answered in an expected way.

Or even better, the unexpected.

We as authors set up a character to attempt to achieve or experience something, and tell our readers that story.

Our goal is to make that story as unique and interesting and entertaining as possible.

How ?

Plotting

Setting a path of events to take your character from one important and exciting place/situation to another without your reader feeling they're being jerked around.

FYI - Pantsers do plot. They have to. They will find their character in a place they might not have expected – now… what to do?   That's called plotting.
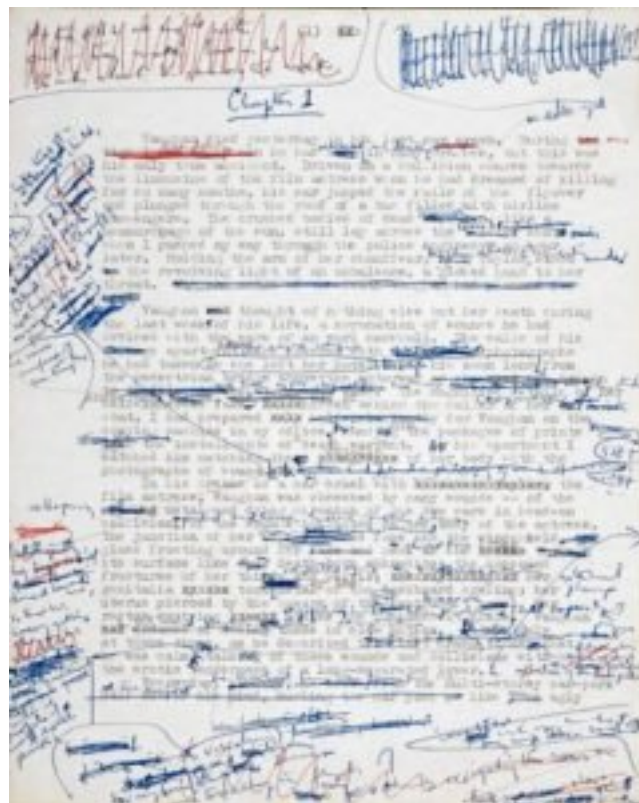
Interesting…

What to do to get your character *logically* to the next scene.

Logic ----   If - Then - True or False.

Do you want your story to make logical sense?

There are genre stories, lets look at Science Fiction, that rely on true science to drive the story plot.

If the character goes out the airlock without a spacesuit – they die. A Black and White scenario.

You cannot go faster than the speed of light. A Black and White scenario.

If the creature in Alien (perfect killing machine) finds you, you're gonna die. A Black and White scenario.

In Fantasy, a logical magic system is highly recommended.

The system must be consistent.

Successful Magic requires following the rules – or you're gonna die.   A Black and White requrirement.
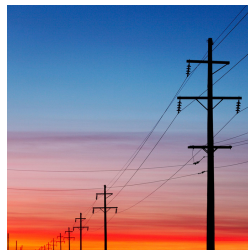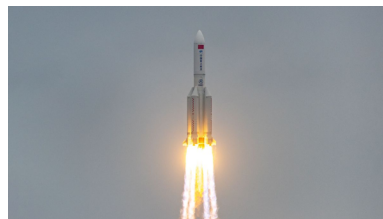
But – in all these cases, the real story is between 1 and 0.

The character survives vacuum, or the alien. We have warp drive.

Who really knows how magic works anyways… and if it works, do we really need to know how?

Fuzzy results might not really make sense unless explained from a particular POV.

I can use this thing and make it work, but I don't really know how it does it.

It's been suggested by many how-to-write help books – what would your character do in this situation?

Consider more than one alternative to action, perhaps pick the harder one, the one least likely to succeed. The road less travelled.

The reader probably knows many of the highways used in stories, so authors are tasked to invent a more interesting road.

And I don't mean – take that road, but holy crap! The bridge is washed out – or there are soldiers waiting there, or it's really really cold out, and they're hungry...

This can be construed as chaotic plotting, which can work quite nicely.

Can you envision a completely different road? Can you find a truth that is more challenging to explore?

Take the waterfall and probably die, but it's better than this...

And in doing that, what are the potential consequences?

It's very useful to understand what reactions the character and supporting cast will have to a plot decision – and very interesting to assign truth values to that.

Is this real?
Is this acceptable?
What range of actions can we tolerate?
Do the results justify the means?
Can we maintain our relationships if we do that?
What do we sacrifice?
Do we remain human?

As in science – try asking a more unique question. One that provides the opportunity for more interesting results.

Regardless - The answers to these questions may range, depending on the culture we chose for our stories, the setting, the time frame, the religious requirements, the politics of the time – the relationship the character is in.

All of these parameters provide a potential range of acceptable definitions of the truth.

You've all heard – you have cover art, a blurb, the first chapters of a story, and very quickly you have a contract with the reader.

Never break the contract.

Really?

Why not?

Go for it.

But do it skillfully and show the reader that your truth is just as likely as the truth the reader expects. (caveat – the reader may not initially like that, so skill and marketing sense are absolutely required here)

In fuzzy logic, even though we deviate from true and false, we must still abide by the truth of the result, and so truth from the character's POV must be well defined and accepted.

I think an important part of story development is to identify the truth of what the characters believe, the truth of the importance of consequence – and then push your characters over the edge of those boundaries.

In plotting, I've heard it said many times… OMG, I've got to get Sam from here to there, how do I do it?

The author has set up a situation where a plot point must be satisfied. I believe that when finding solutions to those questions, how to get them to that place – either physically or mentally, a good writer will ask the question… *What if they don't get there… what if they change their mind… what if they die…*

What if I try a new plot line?   nooooo… too much work…

BTW : Good writing is hard work.

As a reader, I want to be surprised at how my expectations were dashed and restructured in an entertaining and enlightened fashion.

I enjoy being fooled or outsmarted or dazzled with eye-candy. These are genre tropes many people enjoy.

But to have my world vision dashed?

To have the rug pulled?

This for me is a solid reason to turn the page – I really don't know what's going to happen next.

So when you are plotting, keep your eyes open for opportunity to see outside the box – beyond what you as author know is a rational course of action and try throwing your character out the airlock.

Who knows – maybe Joe was an android all along… Maybe goblins make better astronauts… Maybe there is a matrix.

Example of POV control –

I recently watched an interesting movie.

Two young female immigrant students in the same high school class, living across the street from each other, but in different words of opportunity. The more comfortable girl decides to tutor the struggling girl because she likes her.

This is a movie, btw. Not a book…

The movie has the advantage of a story author, a script writer, actors, music and lighting directors, and above all else the director of photography. The director points the camera and the audience has no choice but to follow.

Based on skilled reveals, the audience comes to realize – without direct dialog to indicate it – that the girls are attracted to each other. They grow closer, they explore the neighbourhood together, they study together, and they both become more more distracted from external obligations like school.

This is all shown using the tools of film making. Minimal or no dialog to reveal pressing character points or tell the audience what is going on.

The struggling girl loses her job.

The audience see this from the camera directors choice of POV, and as a result, we know that our helpful girl knows nothing of this.

Our struggling girl takes money from a boy for sexual favors to help her widowed mother pay the rent.

But !

From afar, our helpful girl sees her friend with the boy – and she is devastated – and she runs.

Pretty dramatic.

Can a novelist tell such a story?

The challenge – can you chose and control the POV in the scenes, the pacing, the dialog, the narrative – to allow your reader to _believe_ what is happening.

Every 'shown' reveal in the movie, every tidbit of information, comes from the crew and actors. NEVER do the girls confront each other and talk or fight it out.   All the emotion and drama comes from staging and POV camera angles.

How do you do that on the written page?

Tight control of POV is a good start.

Tension and conflict can be developed and maintained even at the sentence level. Certainly at the scene level, chapter level, and various plotting levels.

Even the assorted character extras deserve to be believed.

And consider again -

Do not always give the reader what they expect

Hard work?

Do we plot it all out before hand?

Plot it logically?

Are we that good that we can see into the hearts of our characters before they even take life on the page?

I find I do this regularly –

Write the scene based on what you had planned, based on your outline and perhaps what you wrote yesterday.

Then look at it and ask – is that the best my character can do?

What would they _never_ do in that situation?
Why not?

What could they do that might shock me?
Why would I be shocked?
Am I pleased?

Can you allow your character to simply react emotionally?

What are the consequences of that action?

Yes !!!

- As long as there is reason to believe they could do that.

- Reveals have to be placed strategically beforehand.

- Ensure that what your character did is possible.

- Tuning the results can be fascinating and fun - and worth it.

Consider –

The author will plot logically based on what the author knows. But the author needs to feel free to explore.

The reader needs room to grow with the story by anticipating, being surprised or validated – or even shocked.

The scene has to make sense, but over plotting logical details ahead of time can rob your characters of real growth (because in your head, they know what's going to happen – it's been plotted, and their reaction on page can become somewhat forced and even predictable).

<u>The author must plan the story logically, but only the characters will make it believable.</u>

If there is one takeaway for me, it's the above.   And you'll believe the character when they did the unexpected or unimaginable – there was something that made that choice believable. POV reveals done skillfully.

Building the character through their changing belief system is quite powerful.

If the logical story line was purposely tweaked through careful control of your craft - most importantly reveals through the correct POV - it will become believable.

Even if it's unbelievable.

If you think of fuzzy logic, think of what your characters believe, what you the author think they believe, and know the reader may not believe it, but if the character does, the reader almost has to – and so you challenge the readers belief system.

Now alter the character's reality in some way that changes the character's understanding of the truth.

Re-write the scene.

Go back and add what you need to make the scenes reality shift believable – perhaps from another character's believable POV.

See what happens and be amazed.

The eye see's all, but the mind shows us what we want to see.   *William Shakespeare*

Since we cannot change reality, let us change the eyes that see reality.   *Nikos Kazantzacis*

We do not see things as they are, we see them as we are.   *Anais Nin*

Seeing is not believing. It is only seeing.   *George MacDonald*

Thoughts???