

## How to Use Vector Theory to Write a Story

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### Abstract

The forces of physics are analogous to the forces of literature. Therefore, the elements of dramatic structure can be described precisely by vector theory. In this workshop, I will show participants how to use vector theory and qualitative math to create rising action, the climax, falling action, theme, atmosphere, and characterization.

Vector theory describes forces by sense, magnitude, and direction.[1] Vector theory also describes precisely what happens when forces converge. If we look at the elements of stories—the characters, the settings, and the things the characters use—as bodies conveying forces, then we have a means of understanding and manipulating those elements structurally to create dramatic build just as engineers use vector theory.[2] The analogy between vector theory and plot construction is direct. Characters, the things they use (henceforth to be referred to as “props” from the theater’s term for objects handled by characters that have meaning to the story), and settings all convey a *sense* (quality or typical behavior), either as an antagonist (-) or protagonist (+); a *magnitude*, some indicator of power level, ability, or strength; and a *direction* (course way) along which they travel.

The *sense* of a force is how the force moves or behaves. In engineering, forces moving downwards, to the left, or counterclockwise, are said to be of negative sense. In literature, these same movements are also considered negative, of the antagonist, because the connotations are negative: downward with hell, left with sinister, counterclockwise with backwards. Similarly, in engineering, forces moving upwards, to the right, and clockwise all have a positive *sense*, and again this is matched directly in literature with the protagonist who is upright (even angelic), righteous, and an “all around good” guy. *Direction* in math and engineering means the road, path, or course itself. Negative *sense* forces move along the *direction* in a southerly, downward, or as a street sign might say, “Wrong Way.” Positive *sense* forces move along the *direction* in a northerly, upwardly, or Right of Way. Thus qualitative expressions move the engineering concept of *sense* to the analogous forces of the antagonists and protagonists of literature.

The characters, props, and settings are not the forces themselves. They convey forces, and the forces act upon them. This means that when a character and a character, or a character and a prop, or a character and a setting, or any combination thereof meet, their forces are added together. This, in vector terms, is a convergence of forces. Convergences between forces are interesting, often exciting, because a different or a new force is created out of the convergence. Either the path or the magnitude of the force resulting from the convergence is changed.

Storytelling is about building interest and excitement to a climax that is transformative and satisfying for the reader or audience. All works of drama and literature have three parts to their plot structure: the rising action, which is the building of interest and excitement, the climax, which is the moment of greatest excitement and the moment where the transformation happens, and the falling action which satisfactorily shows the new state of affairs and gives a work its quality of closure, of being finished. The purpose of plot in literature and drama is to structure emotional experiences for the reader or audience in a way that those emotional experiences culminate in a transformation. Convergences of forces create rising action.

The converging of character forces can make them stronger, as in strength in numbers; or it can mean one character force triumphs over the other, the protagonist over the antagonist or vice-versa; or it can make them totally demolish each. Only those forces having to do with the building of interest and emotion toward the ultimate transformation are relevant to a story's plot. Bodies—characters, props, or settings—convey forces. A single body can convey one or more forces and can pass its force or forces to another body. When same *sense* forces converge their magnitudes are added to form a same *sense* resultant of increased magnitude. In literary terms we know this to be true. The protagonist becomes stronger when he is with like-minded pals, is in a positive environment, or has a useful object. The same for the antagonist, except he does better in a negative environment and with a nefarious object. These convergences sustain interest at the least, or are exciting at best.

When different *sense* forces converge, that is, when the protagonist and antagonist converge, it is exciting and causes rising action because one of the forces loses magnitude, and it is knocked off course to a greater or lesser degree. The convergence between different *sense* forces can be a convergence between the leading character and the villain, or the friend of the protagonist and the lackey of the antagonist. Fight scenes are so exciting because different *sense* forces are converging with one force clearly losing magnitude. The point of most excitement, the climax of the story, is the moment when all of the forces of the story converge at once, or the vast majority of them do. That is to say, the protagonist and all of his friends and objects, the antagonist and all of his cohorts and objects, as well as the setting that is also imbued with a force. The resultant of this convergence is either one of triumph for the protagonist (a happy ending), or triumph for the antagonist (drama or tragedy), or they annihilate each other and the situation of the opening story is returned to in status quo. Any forces that did not converge with the main forces do so right after the climax, having the same resultant as the climax. The resultant of the climatic convergence, in literary and dramatic terms, is the falling action.

### Procedure

Using vector theory in an arts context of literature, *sense*, magnitude, and *direction*, must be given in qualitative expressions as a bridge to literature's symbols and metaphors. We begin with the notion of *direction* by establishing by participant shout-outs the two opposite points of the course way: the point of origin where the characters begin their physical or emotional journey and the point where they end up, the point of closure. Next, again by participant shout-out, we determine who the protagonist and the antagonist are. We determine the magnitude of forces the protagonist and antagonist have at the beginning of the story. We add to our lists additional character and prop forces with their own *sense* and magnitude. Participants then shout out suggestions for convergences between the protagonist and antagonist, between the protagonist and his friends and objects, and between the antagonist and his cohorts and objects. Finally, participants take ten minutes to write a climax using the notes on *sense*, magnitude, and *direction* written on the board, such that all of the forces converge at the same moment and time to transform the main characters. Volunteers then read their climax scenes.

### Materials

I will use a black board or white board to write down the participant suggestions, and participants will need pens and paper.

### References

- [1] A. Jenson and H.H. Chenoweth. *Applied Engineering Mechanics*. McGraw Hill. 1983.
- [2] C. Clay. *Vector Theory and the Plot Structures of Literature and Drama*. Oestara Publishing LLC. 2005.