Abstract:
In business, stress can account for a surprising energy expense, leaving employees drained and unproductive. Stress can also have detrimental effects to teamwork further hampering their ability to function. A manager who can reduce or manage the stress of his subordinates will see an increase in not only the productivity but also the attitude of those subordinates. This article will present a comparison of the traditional and stable models for stress and provide some solutions for managers to manage or mitigate stress of employee and employer alike.

Introduction:
When discussing stress, it is useful to specify the certain terms that are likely to emerge in the discussion, such as subject, stressor, coping, and stress. For the purposes of this document, stress will be a potential harm that can cause physical harm without itself being physical. Since stress must be considered in its relationship to an involuntary individual, the stressed individual will herein be called the subject. Stress will be considered as originating from a source external to the subject, called the stressor. The subject’s method for dealing with the effects of stress will be called his coping mechanism. These are the elements common to all patterns that will be explored here.

This article will first show and explain some of the existing traditional models for stress. A similar description and explanation for a model generated using the Software Stability Model [1] will be then be added. This will be followed by a criterion-based comparison of the models, and, finally, an analysis of the applicability and implications of new model discussed here.

Traditional Stress Model:
There are a number of existing models for stress, each ranging in complexity and applicability. Most models cover only certain aspects of life, such as workplace stress which itself has many competing models and theories such as transactional, person-environment fit, conservation of resources, and demand-control [2]. While important, each of these models is somewhat lacking in applicability as stress on any aspect of life is stress on the entirety of a life. An example of workplace stress in the traditional style is shown in Figure 1 below.

This particular model operates under a number of assumptions. First, the model begins with any number of stressors that causes the perception of a threat, real or otherwise. Dependent on the subject’s
reaction to these perceived threats, the potential exists for the subject to experience a duality of stress and fatigue which subsequently must be dealt with. If the subject is unable to cope with the stress and fatigue or in some way mitigate its effects, the result is damage to the subject’s physical and mental wellbeing.

An example of this pattern could be the moving of a deadline at work, the stressor. When the deadline moves up, the subject, an employee, may see a threat to his job security if he believes he cannot finish in time. Over time, the stress causes health problems if the stress remains unresolved. The subsequent symptoms impact work performances, both of which the employer is likely to notice. The employer can then react to the situation by limiting the stressor.

**Stable Stress Model:**

The stable stress model [3], as presented in Figure 2 below, has a number of features unique to the stable software methodology. The central component of the model is stress which is merely the result of pressure. The pressure is caused by a reason, which subsequently determines the type of the pressure and resulting stress. There must also be an actor or party, namely the subject, that has the pressure and may feel stress based upon criteria set by the subject. Though the subject may be a party, or legal entity, it is more likely to be a single actor, such as a person or an animal. Finally, stress is manifested by evidence and results in damage to entities or events connected to the subject.

Of special interest is the manner in which the stress may be resolved. If the reasons for the stress cease, the pressure and stress are reduced as well. More importantly, the subject may choose to alter his criteria and become more or less accepting of his situation, which could also reduce the stress level.

Consider the subject mentioned in the previous example who had a deadline move up and, as a result, spent more time at work instead of at home with his family. The subject (actor) experiences pressure from both work and home due to the strenuous work hours (the reason). If the subject deems the reasons serious enough (criteria) stress will begin to take effect. Lower-quality work and neglect of family (evidence) shows the seriousness (level) of the stress which subsequently causes damages to family and work relationships. If the subject cannot prevail upon his superior to readjust the deadline, his only option is to change his outlook on the situation (criteria) to minimize the overall damage.

**Weighted comparison of traditional and stable stress models**

Both the traditional and stable models shown above may be compared based on certain criteria. For the purposes of this document, a total score of 100 points will be split based on the following:

- 20 Simplicity: The model scores high if it is not graphically complex
- 20 Completeness: The model scores high if it is accurate for given scenarios
- 20 Stability: The model scores high if it is stable across multiple contexts
- 20 Clarity: The model scores high if it is easily understandable to a layperson
- 10 Testability: The model scores high if it can be readily tested
Extensibility: The model scores high if it allows for adaptation through extension.

The results of the analysis of both models is shown on Table 1.

Discussions and Analysis

Abstraction
Given the weighted scores above, the stable software model for stress is more complete and applicable to a far wider array of scenarios than the traditional model. The stability model makes some sacrifices in clarity, since it is understood primarily by those with a familiarity of UML. Previous experience with stable modeling is an additional help, but the model sufficiently simple to be understood with some small measure of explanation. In contrast, the traditional model is relatively simple to understand, but it may not be accurate and certainly will not address problems outside of its extremely narrow scope.

Application
The stable model has an advantage in both accuracy and flexibility. It can be applied to stress from any source for any reason with any impact, rather than just stress originating from work resulting in fatigue and physical symptoms. Several engineering fields talk of stress in scenarios like wind stress or torsion stress on physical objects constructed by practitioners of that field. Not only is the traditional model shown here not able to handle domestic stress, but stress that does not apply to human emotions. Stress in the physical environment and in human emotions is only addressed simultaneously by stable models.

Impacts
Finally, the stable model offers some measure of hope that stress can be handled with more than just coping. While it allows for the subject to cope with the stress, there are additional options available to the subject and those around him. Specifically, reduction or elimination of stressors or altering the subject’s perception, the criteria, about the stress alleviates the stress and subsequent damage. For this reason as well as those mentioned above, the impact of using the stable model over traditional variants is a more accurate model of the situation and more effective mitigation of stress.

Conclusions
There are many models for stress, but not one of them is perfect. However, the Stable Software Model comes quite close. While one could argue for usage of other models under certain narrow circumstances, the SSM model offers a flexible approach to analyzing stress regardless of context. Learn this model, and the need to learn several and choose the best simply vanishes. Though the debate over theories of stress remain, at least there is now a model to encompass them and build software against.

References
[3] M. Fayad, private communication, Oct 2014. (From Dr. Fayad’s Sable Model Archive)