

Fundamental Behavioral Properties – Part 2: Extending the Theory of Centers for Pattern Language 3.0

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Pattern languages were invented by architect Christopher Alexander as a way to flesh out in a practical way what he called the *Quality Without a Name* (QWAN) which causes the beautiful traits of towns and buildings to occur. Architecture with QWAN is said to have *wholeness* which is created by *centers* that intensify one another. Alexander defines the *15 Fundamental Properties* to show the way these *centers* interact with one another. In accordance with this, Alexander redefined patterns as a method to make these 15 properties occur in life. However, these 15 properties are *geometrical* properties whose effectiveness is limited to only *physical* objects. Accordingly, these properties are not compatible with pattern languages that are categorized as the *Pattern Language 3.0* group of patterns which deal with non-tangible human actions. We hypothesized that there must be another set of fundamental properties that deal with these patterns of non-tangible human actions, and created the *24 Fundamental Behavioral Properties* (Iba, et al., 2015a). This is part two of the series of papers which describe these properties in detail. It succeeds our paper presented in EuroPLoP 2015 which introduced 6 properties (Iba et al., 2015c), and will introduce another 9 more properties (BUILDING UP, ORGANIC GROWTH, REFLECTING, ACCOMPANY, ENHANCEMENT, EMPATHY, ENDEAVOR, DIFFERENTIATING, CONTINUOUS RELATION). By opening up the discussion on these properties with the patterns community we hope for these to become knowledge to help all who are writing and will write patterns for human actions to make their patterns full of life.

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1. INTRODUCTION

Pattern Language was proposed by architect Christopher Alexander in his challenge to reveal how beautiful architecture is built (Alexander et al., 1977; Alexander, 1979). He believes that good architecture has a certain quality he calls the Quality Without a Name (QWAN), and pattern language is a method he proposed to make this quality appear in towns and buildings. In his later years he refined his definition of the QWAN as something that has a *wholeness* which is created by a series of *centers* (Alexander, 2002). Under the idea of *wholeness*, pattern languages were redefined as a method to make these *centers* appear in buildings. These *centers* are said to enhance and intensify one another, and Alexander says that there are 15 geometric properties or ways in which these centers are interrelated. Alexander defined these properties as the *15 Fundamental Properties*, and said that patterns could be categorized under each of the properties.

Though its start was in architecture, today the method has grown to be applied to not only software design but to human actions. We refer to this category of patterns as Pattern Language 3.0 (Iba, 2013). Not just education or organizational design, the range of areas that the method covers sees no limit. These pattern languages written for human actions are starting to have as much vigor as pattern languages for architecture and software design. However, a comprehensive set of properties like the 15 Fundamental Properties for the architectural patterns which encompass these patterns for human actions in general does not yet exist. We believe such a new set of properties would enhance people's experience with writing and using patterns. In addition, though pattern languages in the Pattern Language 3.0 category are made in comprehensive sets (as a language), it is more effective if

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we used the patterns from different sets together. By categorizing patterns based on the properties, we can easily find patterns that we can use together.

For these reasons, we proposed the Fundamental Behavioral Properties to enhance people's experiences with Pattern Language 3.0 patterns (Iba, et al., 2015a). The first six of these properties was presented in a paper for EuroPLOP 2015 (Iba et al., 2015c). This paper extends that work by describing nine more of these properties in detail.

2. PATTERN LANGUAGE 3.0

Pattern language is a method proposed by Christopher Alexander to make architecture that is beautiful and has a quality of *life* (Alexander, 1979). It was also a method to allow the people who live in a home or a town who do not have any professional knowledge about architecture to participate in its construction process.

After its start in the architectural field, pattern languages were applied to the field of software design (Gamma, 1995). More recently, patterns are being applied to design human actions, and these kinds of pattern languages are called *Pattern Language 3.0* (Iba, 2013). This is a definition which positions these kinds of pattern languages as the third generation after pattern languages for architecture (Pattern Language 1.0 - for tangible, physical objects) and pattern languages for software (Pattern Language 2.0 - for non-tangible objects). Like Alexander's patterns in the Pattern Language 1.0 stage, the Pattern Language 3.0 patterns aim to make its target of design - the creative acts of humans - become livelier.

Today, many pattern languages for human actions have been written in a wide range of fields. We can see its pioneer in organizational change and education - *Fearless Change* by Manns and Rising (Manns and Rising, 2005), and the *Pedagogical Patterns* (Pedagogical Patterns Editorial Board, 2012). *Fearless Change* is a pattern language for making changes in organizations without creating any confusion or conflict, and today is used for designing organizations and training managers. The *Pedagogical Patterns* collects knowledge of how technicians can act as educators to teach programming to students. After the two were published, many including the authors of this paper have written pattern languages that do not necessarily fit in existing fields of study such as for learning (Iba and Iba Laboratory, 2014a), presentation (Iba and Iba Laboratory, 2014b), and collaboration (Iba and Iba Laboratory, 2014c). Its field of application has recently shown even more growth, and today, a pattern language for women to live beautifully and lively - the *Generative Beauty Patterns* (Arao et al., 2012)- and a pattern language for living well with dementia - the *Words for a Journey* (Iba et al., 2015b)- too exist. The area of coverage by the method sees no limit, and today, pattern languages for human actions continue to be written and presented at PLOP conferences around the world.

However, finding the relationships between the patterns and between the languages are put into the hands of the authors of each pattern language. There exists no common standard to find such relations. As a result, numerous pattern languages in numerous fields each exist separately, and no one can get a grasp of the whole. Many times a related pattern from a different pattern language is suggested during shepherding or during writer's workshops, but this still relies on the compiled experience of the people. Cases even occur where an author comes to their writer's workshop to discover that a similar pattern language was already made.

In addition, though each pattern is captured with words, since they are written at a rather abstract level, readers cannot physically observe the pattern as objects. Therefore for the readers, it is hard to determine if the pattern has enough life or not without having specific experience in the field. Though the growth of Pattern Language 3.0 is astonishing, we are in need of an indicator that will help us determine if a pattern is indeed increasing the amount of life in a person.

For Pattern Language 1.0, this was easy. The target of design was physical, tangible objects, and we could see with our eyes whether a pattern is applied or not, and whether it is increasing the amount of life or not. This is made possible by the *15 Fundamental Properties* (Alexander, 2002). Alexander organized his architectural patterns based on its relationships with the 15 properties, and we can see which patterns are associated to the same property. In addition, since each property is a quality that appears in architecture that has *life*, the association of patterns to these properties can help pattern languages accomplish its original goal: to make architecture with a quality of *life*.

Though its target of design has shifted over the years, the mere essence of pattern languages should not have changed. Therefore, we believe, that there exists a direct parallel between Pattern Language 1.0 and Pattern Language 3.0 in the aspect that fundamental properties exist. If we can identify these properties, as Alexander did with his 1.0 patterns, we can bring up our experience with pattern languages for human actions.

3. THE THEORY OF CENTERS AND FUNDAMENTAL GEOMETRICAL PROPERTIES

Alexander, in his 2002 book *The Nature of Order: An Essay of the Art of Building and the Nature of the Universe*, Book 1: *The Phenomenon of Life* (Alexander, 2002) describes "*the beauty of a building, its life, and its capacity to support life all come from the fact that it is working as a whole.*"(p.80) He calls this quality as the *wholeness*, and its units of composition were called *centers*.

If we consider a building as one *whole*, *centers* are the elements within the building which contribute to its beauty. An architecture with the QWAN is indeed a *whole* which is formed as a result of a set of richly overlapping *centers*, and the quality where *centers* and the *whole* are related in this way is called the *wholeness*. Though *centers* are the components of a *whole*, Alexander denies the idea that *centers* are mere *parts* of the *whole*. Unlike the general idea of a *part* within a *whole*, its boundaries are ambiguous. It does not refer to a specific and discrete part, but to a general area that is significant from its surroundings. For example, if we look at our faces and consider it as a *whole*, the nose would be one of the centers. We can easily identify our nose, but it is hard to define where exactly the boundary between our nose and our cheek is.

In addition, *centers* can be said to be nested within a larger *center*, and at the same time contain a smaller *center* within. This rich overlapping of *centers* that enhance one another is what makes an architecture full of life and beautiful.

On *centers* and how it increases the *life* of an architecture, Alexander states the Following.

"the degree of life which appears in a thing depends on the life of its component centers and their density. Thus, broadly, we have a theoretical scheme in which the life of a thing, or a building, or system, depends on the extent to which the centers in this thing cohere and help each other." (p.144)

The *life* of a thing is created by *centers* helping each other out. Alexander continues on how they support one another:

"About twenty years ago, I began to notice that objects and buildings which have life all have certain identifiable structural characteristics. The same geometric features keep showing up in them, again and again." (p.144)

Centers intensify the life of a thing by helping each other out, and, all can see geometrical properties in the way they help. Alexander identified 15 of these properties and called them the 15 Fundamental Properties (Alexander, 2002): 1. LEVELS OF SCALE, 2. STRONG CENTERS, 3. BOUNDARIES, 4. ALTERNATING REPETITION, 5. POSITIVE SPACES, 6. GOOD SHAPE, 7. LOCAL SYMMETRIES, 8. DEEP INTERLOCK AND AMBIGUITY, 9. CONTRAST, 10. GRADIENTS, 11. ROUGHNESS, 12. ECHOES, 13. THE VOID, 14. SIMPLICITY AND INNER CALM, and 15. NON-SEPARATEDNESS.

Figure 1 shows a visual representation of these 15 properties (Iba and Sakai, 2014). These were created by one of the authors based on its description in chapters 5 and 6 of *The Nature of Order: An Essay of the Art of Building and the Nature of the Universe, Book 1: The Phenomenon of Life* (Alexander, 2002).

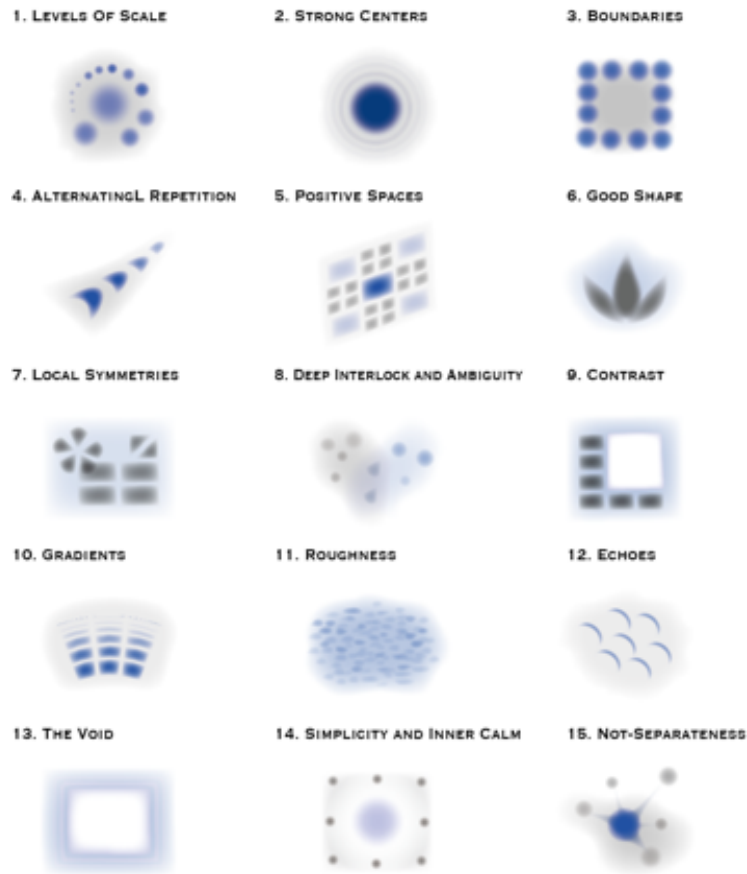


Fig. 1. Our Illustration of Alexander's Geometrical Properties (Iba and Sakai, 2014)

The 256 patterns introduced in *A Pattern Language: Towns, Buildings, Construction* (Alexander, 1977) each are interrelated with the 15 properties (Alexander, 2002). Pattern languages were redefined under the idea of *wholeness* and *centers* as a method to create *centers* within the *whole*. By understanding the 15 properties that the 253 patterns are trying to ultimately achieve, we can better apply the patterns into architecture, and thus, make architecture that has *life*.

Alexander, as we can see in the above quote, emphasizes that the 15 properties are *geometrical* properties. Though Alexander lists "organizations" as one of the things that *centers* give *life* to, he strictly states that the 15 *Fundamental Properties* are "*structural properties*" and "*geometric characteristics*" that "*architecture*" has. Therefore, we can infer that the 15 *Fundamental Properties* are primarily seen in physical objects, and not as apparent to non-physical objects such as organizations.

Patterns in the Pattern Language 3.0 category are written for human actions - a non-physical idea. Therefore, the 15 properties cannot be directly applied to these patterns. However, as we can see how Alexander said that *centers* help each other out in *organizations*, there must be some structures in the way *centers* help each other out in human actions. If we can identify these properties in the context of Pattern Language 3.0, we will better be able to apply patterns to our daily actions.

And, Alexander described an unfolding process for making lively things, there is also liveliness in this process. We describe this liveliness in the process of behavioral actions as *behavioral properties*. In this paper, we take a position that Alexander's geometrical properties and unfolding process are not sufficient and complete to capture *behavioral* feature of living systems. This paper will identify the fundamental *behavioral* properties of living systems.

4. FUNDAMENTAL BEHAVIORAL PROPERTIES

Here we have identified ways that the *centers* in human actions enhance one another as the 24 *Fundamental Behavioral Properties* (Iba, et al., 2015a). The properties are: 1. BOOTSTRAP, 2. SOURCE, 3. SPREADING, 4. ATTRACTION, 5. INVOLVING, 6. TOGETHERNESS, 7. BUILDING

UP, 8. ORGANIC GROWTH, 9. REFLECTING, 10. ACCOMPANY, 11. ENHANCEMENT, 12. EMPATHY, 13. SELECTION, 14. SIMPLIFICATION, 15. CONSISTENCY, 16. ROUGHNESS, 17. FLEXIBILITY, 18. ABUNDANCE, 19. ENDEAVOR, 20. CONNECTING, 21. POSITIONING, 22. DIFFERENTIATING, 23. OVERLAPPING and 24. CONTINUOUS RELATION. Please note the numbering of the properties is still open for discussion. The order we used is temporary and has no logic to it.

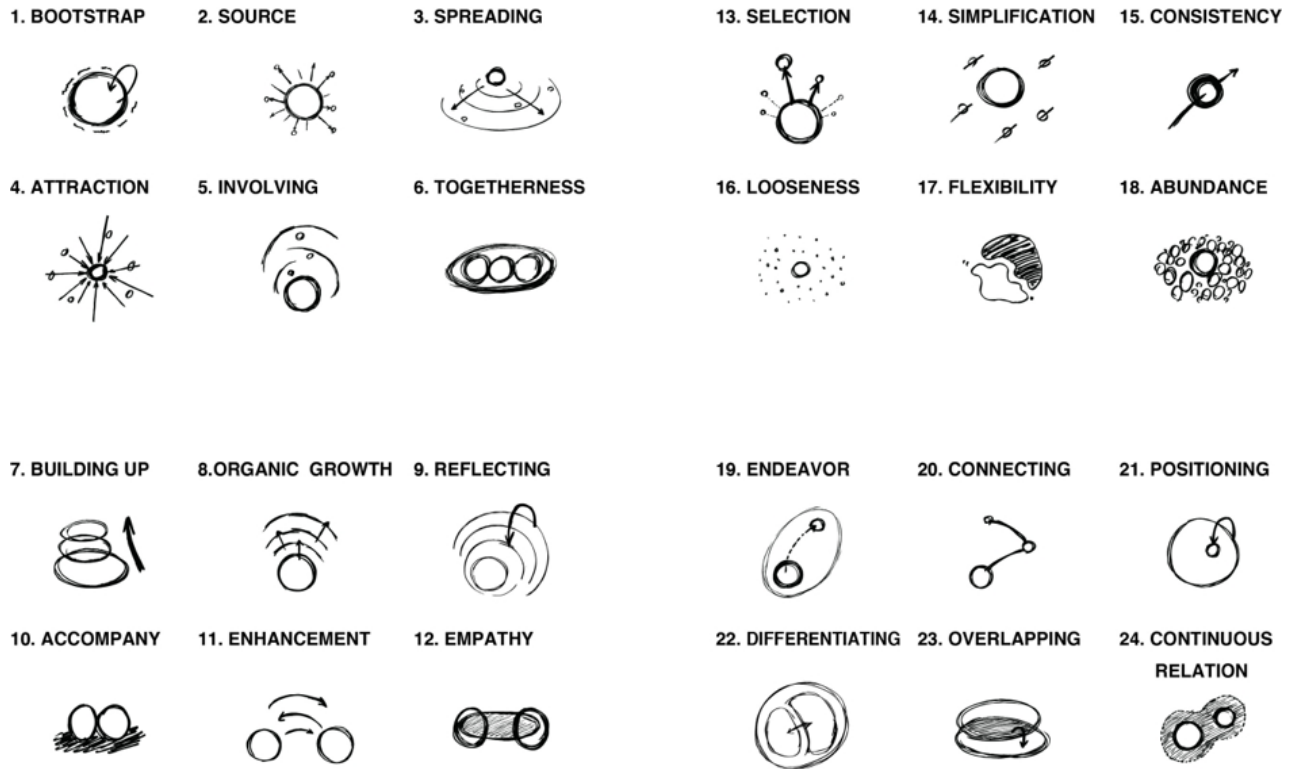


Fig. 2. Twenty-Four Fundamental Behavioral Properties

Properties 1 through 6 have been already presented at the 2015 EuroPLoP (Iba et al., 2015c). This paper will describe in detail the consecutive 9 properties: 7. BUILDING UP, 8. ORGANIC GROWTH, 9. REFLECTING, 10. ACCOMPANY, 11. ENHANCEMENT, 12. EMPATHY, 19. ENDEAVOR, 22. DIFFERENTIATING and 24. CONTINUOUS RELATION.

Like how Alexander associated the 253 patterns from *A Pattern Language* to the *15 Fundamental Properties*, we have associated Pattern Language 3.0 patterns that we have written in the past (Iba and Iba Laboratory, 2014a; Iba and Iba Laboratory, 2014b; Iba and Iba Laboratory, 2014c; Iba et al., 2015b) to these new properties. In this paper, we present 2 patterns however it seems that each property has more related patterns from Pattern Language 3.0.

4.1 BUILDING UP

Whole can become more lively when centers continuously build up with consistency. As centers build up continuously, built up centers strengthen each other and creates bigger centers containing them. By centers repeatedly creating bigger centers as they build up, the whole become more living.

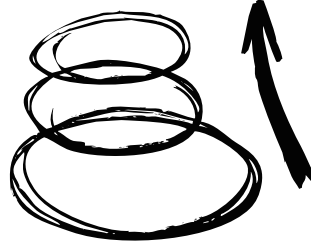


Fig. 3. BUILDING UP

For example, if you want to become a skilled soccer player, you must start with the basic of lifting and dribbling before you can go on to practice passing and shooting the ball. Then after that you can apply these skills to practice as a team and play in practice games. Each of the practices you do will build on top of the other practices to build the Whole of being a skilled soccer player.

“Self-Confidence Building” (Presentation Patterns: No.24) says to revisit what you have done and what things you have valued up until now one by one, and make it a source of confidence for your presentation. When preparing for a presentation, sometimes you feel unconfident even though you have put in a lot of time for its preparation. In such times, you should take time to reflect on all of the things you have done up until now. These experiences should all be leading to the present and be a powerful source of confidence. Stack these up and build your confidence to make a powerful presentation.

“Daily Use of Foreign Language”(Learning Patterns: No.8) advises its readers to use a foreign language on a daily basis to acquire it. If you are not used to speaking in that language, chances are high you will not be able to speak at a satisfactory level when the time comes where you have to speak in the language. This is because, unless you are using the language on a daily basis, speaking in the language is something “special” for you, and hence the nervousness arises. To avoid this you should prepare an environment where you can use the foreign language naturally. You can make it one of the official languages used in your team, read and write in the language regularly, and make an opportunity to present your ideas in the language. These efforts should wipe off the “specialness” that the language has, and you should be able to speak the language without any uneasiness once the opportunity comes.

4.2 ORGANIC GROWTH

The whole may become more living when a center grows gradually. A center can grow without losing its power by gradually growing while keeping its structure. As a center grows like so, the whole becomes more lively.

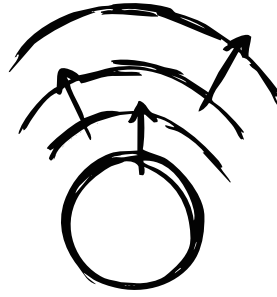


Fig. 4. ORGANIC GROWTH

For example, if a project is organized based on an idea by a single person, the project is to work together on gradually growing the idea. Through the growth of the idea, the project too will grow and become better. Growth of the idea by advice from the outside is hard to incorporate, and will not lead to growth of the team afterwards. Therefore, it is the piecemeal growth of the idea through project work that makes the project more alive.

“Fruit Farming” (Learning Patterns No.24) advises when starting a project, to not start big from the beginning, but to start small and lean and with a specific product, and to nurture the project from there. If you try to achieve great results from the start, chances are it wouldn't get achieved and the project will disintegrate. To avoid this, start with a rather small and feasible goal and grow from there. The chain of accomplishments will also nurture your confidence and motivation to eventually try something greater.

“Expression Coordinator” (Presentation Patterns No.17) says that to become a better presenter, you must listen to other people's presentations and look for techniques and expressions that you can use in your own presentation. You can start by imitating the techniques of others that you think are good, but from there you can start to create your own style. This will give you lots of presentation techniques, and you will be able to give attractive presentations that will not bore the audience

4.3 REFLECTING

As a center reflects on the trajectory of its change, the whole can become more lively. By reflecting on the center's change, each trajectory becomes new centers and strengthen each other, creating a living whole.

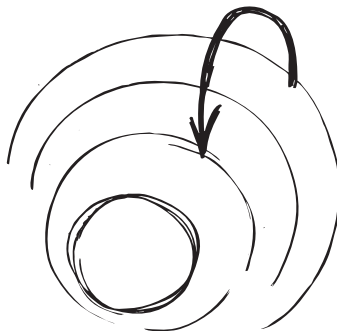


Fig. 5. REFLECTING

For example, when you are working within a team project, sometimes you might be given tasks that are dull and seem unimportant. These tasks are boring and you might not feel motivated at first. However, if you remember what the project is ultimately trying to accomplish, you will realize that

the task you are currently working on is indeed necessary, and later on in the project there will be a job that only you who did this task will be able to do. Your experience will be food for the future, you will be able to make the project more alive.

“The Right Way” (Learning Patterns: No.35) encourages its readers working on a project to continually ask whether the current approach you are taking is really the best way to achieve your goal. If there seems to be a better approach, do not hesitate to switch. In other words, this pattern urges you to pose the question of "how" to yourself again and again. By reflecting back on the process, you will be able to see how the things you did up until now are affecting the whole of the project, and how it could affect the whole from now. In this process, you will be able to see if the things you are doing are truly good for the whole.

When you seem to be stuck with a problem in a project and the situation seems chaotic, “Chaotic Path to Breakthrough” (Collaboration Patterns No.18) urges you to think of the situation as a chance for breakthrough and to pause and think well through the problem. Sometimes the team might run out of ideas that they can try, and an uneasy silence fills the room. This would make the team want to take the easy but unattractive plan B, but this silence is also a chance to pause and think deeply about the project. It is not easy to change foundational parts of the projects, but it is also sometimes a long but necessary step to take. Once this is done, you can from there make quick decisions and work on the project with vigor.

4.4 ACCOMPANY

A center is sometimes intensified when it is accompanied by another center placed right beside it (Fig.3). The center by itself may be powerless, but it becomes intensified by the power of the second center. As a result, the Whole will be more living.

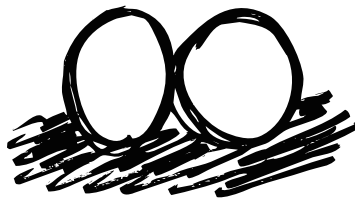


Fig. 6. ACCOMPANY

For example, very late at night in the subway or a train station you are alone waiting for a train and then another traveler comes in to also wait. Do the two travelers bring more life to each other even though there is no empathy between them.

”Encouraging Supporter” (Words for a Journey No.35) encourages the reader to support families that care for dementia patients as a way to attack the social issue of dementia. For those who have a dementia patient in their family, it is usually hard and takes courage to talk to someone about their troubles and worries of giving care. There are many who hold it in and suffer from loneliness. By accompanying these people and being there when they need someone to talk to, you can become an encouraging supporter for them.

“Vulnerability Disclosure”(Collaboration Patterns No.12) encourages its readers to share vulnerabilities such as weaknesses or worries that they hold with their project team members. If the tasks of the project were centers, a team is always moving as a whole. Therefore if even one of the members has something they are worrying about and this is taking away from the person's productivity, it will affect efficiency of the whole team. To prevent this, all members of the team should disclose the worries that they have to the other team members. By doing this, team members can cover each other up and work efficiently as a team with a strong bond.

4.5 ENHANCEMENT

When a center exists, a nearby center may be influenced by it and become intensified (Fig.5). This second center may then grow to influence the first center to make it stronger. This chain reaction of mutual enhancement will result in intensifying the Whole to be more living.

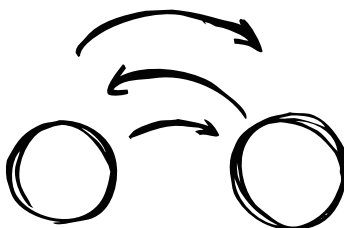


Fig. 7. ENHANCEMENT

For example, say you are studying about a subject by yourself. One day you might attend a study group with people studying the same subject. You will be surprised at all of the different interpretations that exist with people from different backgrounds. This will give a new point of view on the subject that you wouldn't have gotten on your own, and at the same time the other participants may be interested in the unique interpretations that you have. As a result studying the subject will become much more interesting than before.

“Spiral of Growth” (Collaboration Patterns No.04) says to inspire team members, and at the same time get inspired from what they are doing. A good collaborative project does not only finish a product, but at the same time the members of the team also gain growth through the project. When you see a fellow member trying hard, it should encourage you to also try hard. Then when other members see you trying hard, it will motivate them to try harder, which would then come back to you again. Seeing someone get motivated from your efforts is encouraging for yourself. By showing each other the efforts, it would be mutually enhancing, and the members can grow together as a team.

“Creative Clashes” (Collaboration Patterns No.26) says that when someone gives a suggestion, you shouldn't hesitate to give some negative feedback and discuss seriously which idea is better. By exchanging honest opinions, at the end the project should end up with a high-quality idea. Providing an opinion or an alternative should not be taken as a rejection of the original idea, but should be thought of as a chance to make the idea much better. With many thoughts clashing about the same idea, the project will be able to achieve a high quality.

4.6 EMPATHY

A center sometimes get strengthened when another center shows empathy towards it. The empathy shown towards a center is given back from the center that received the empathy, creating a resonance between them. The resonance strengthens the centers more, making the whole lively.

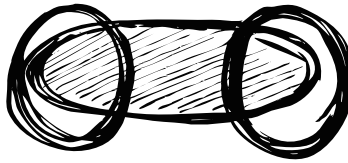


Fig. 8. EMPATHY

For example, if you are new to an area and need to make new friends in school, at first you may feel uneasy with the new people and environment around you. However, if you can find a classmate that you share a common hobby with, it will bring you some easiness. The empathy that arises from the commonality will empower you for the new student life that is about to start.

“Mind Bridge” (Presentation Patterns No.13) says that to convey a message effectively so that the audience empathizes with your ideas, you can use metaphors and specific examples that the audience can imagine. When introducing a new idea, the more original the idea is, the harder it is for the audience to understand the idea. We also tend to become suspicious of things we can't understand. So, the presenter must use easy examples that the audience can imagine and understand to make the ideas seem familiar to them. In addition, starting with this idea, the audience will also become familiar with the other ideas that the speaker has.

“The Seen World” (Words for a Journey No.25) encourages families that care for dementia patients to accept what the patient is seeing even if it is nonexistent. Sometimes the patients will say that they see or remember things that really did not happen. In these situations, you must first stand beside them and accept the things they are seeing, and try to change what they see by talking to them. If they find out that they are seeing something that other people can't see, it is very stressful and fearful for them. If someone can stand beside them, it will relieve some of their fears. In addition, for the person giving care, they would be able to understand the fears that the patient is holding. By both relieving the fear and by understanding their minds, it will bring a warm empathy to both sides.

4.7 ENDEAVOR

A center can get strengthened by endeavoring to a shining center. The shining center is strengthened by the fact that is aimed by another center, and the endeavoring center is strengthened by the act of endeavor. The relationship between these centers creates a bigger center including them and become lively as a whole.

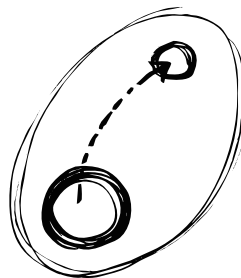


Fig. 9. ENDEAVOR

For example, if you are practicing your presentation skills, having a person whose presentations you admire as a goal will bring up your motivation to try harder. The person who is being looked up at, with you looking up at them, will seem even more attractive and shining from others. By setting someone as a goal, it will make both you and your goal more living.

“Image of Success” (Presentation Patterns No.3) advises you to have an image of your presentation succeeding and use it as a guideline to make your presentation have consistency. The more concrete the image is, the more you will know what you are lacking and have to do now to achieve that success. Once your presentation starts to become close to the image, not only will it excite and motivate you, but it will also make your image of success even clearer, and from there you can make your presentation even better. By having a strong image of success, the act of working towards a clear goal itself, the process of creating the presentation, and the image you are working towards - these three elements will become full of life to create an attractive presentation.

“Mission for the Future” (Collaboration Patterns No.1) says, when working on a collaborative project, the team should have an image of how the future should change, and it is the team's mission to make this future a reality. By seeing the connection between the future and the project, the motivation changes from simple wants to a mission that must be completed. By aiming towards this future, the team can itself become living.

4.8 DIFFERENTIATING

The whole sometimes become more living when centers are differentiated with each other (Figure 10). When a center is differentiated into several centers, each center will have unique power that other centers does not own. Those power gets strengthened as each center strengthens each other, creating a living whole.



Fig. 10. DIFFERENTIATING

For example, a scientist in her career, needs both a time to concentrate with some moderate pressure, and a time to relax and think about other matters. By taking breaks in between, she will be able to concentrate and work harder after breaks, and during breaks, will be able to relax even more. The contrast between the working periods and the breaks had affected each other to mutually intensify their effects.

“Brain Switch” (Learning Patterns No.22) suggests that you should switch between logical and intuitive thought processes when you feel one is not working well. It is hard to fully use both logical and intuitive thinking simultaneously, but just using one of the two will not work well neither. By consciously going back and forth between the two, your logical plans will start to have intuitive beauty and richness, and your intuitive reasoning will start to have rooted logical sense. The two will be mutually emphasizing, and result in a good idea.

“Dramatic Modulation” (Presentation Patterns No.7) suggests that when giving a presentation, you should put strong emphasis on the important parts, and quickly go through the less important parts. This modulation of voice will make the presentation attractive. In a monotonous presentation, the audience will not know which parts are important and which parts are not. By using this dramatic modulation effectively, you can also emphasize the main message of the presentation.

4.9 CONTINUOUS RELATION

A whole with centers having a continuous relationship has liveliness. As the relationship get longer, each center is strengthened and their strength as a whole becomes greater. When the relationship between centers continues on, the whole may become more living.

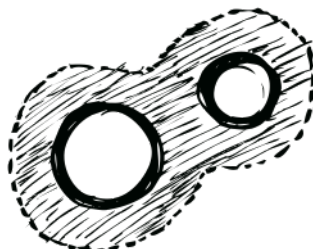


Fig. 11. CONTINUOUS RELATION

For example, as a married couple intensifies their bonds, they are affecting one another. At first they are two separate individuals, but as they spend many years together, they start trust each other as their partner who understands them the most. This bond intensifies and grows the more they spend time together.

“Enduring Strength” (Collaboration Patterns No.32) says that to be a creator, you must train your strength on a daily basis to get the most out of your performance. The act of creation is strongly linked with the person’s concentration and perseverance - in other words, both mental and physical strength is needed. Therefore, you must train your fundamental strength so that you can continue creating high-quality products.

”Going Together” (Words for a Journey No.16) advises a person who has a possibility of dementia to first go visit a doctor with a family member to get an examination as a first step to living well. Being diagnosed with the disease is fearful and stressful for both the patient herself and her family. In such times, if she can take the first step together with her family to make a fresh start, the new life about to start will not be a time of loss but a time to create new memories. By working together with family to fight the disease, her fears will eventually go away, and she can continue living well as herself.

4.10 THE NETWORK OF PATTERNS WITH PROPERTIES

Figure 12 shows the network of patterns with the 9 properties we described in this paper. A pattern is connected to another pattern contained in a different group through a property. For example, “Foreign Language Everyday” (Learning Patterns No. 32) is connected with “Self-Confidence Building” (Presentation Patterns No. 24) by the “BUILDING UP” property.

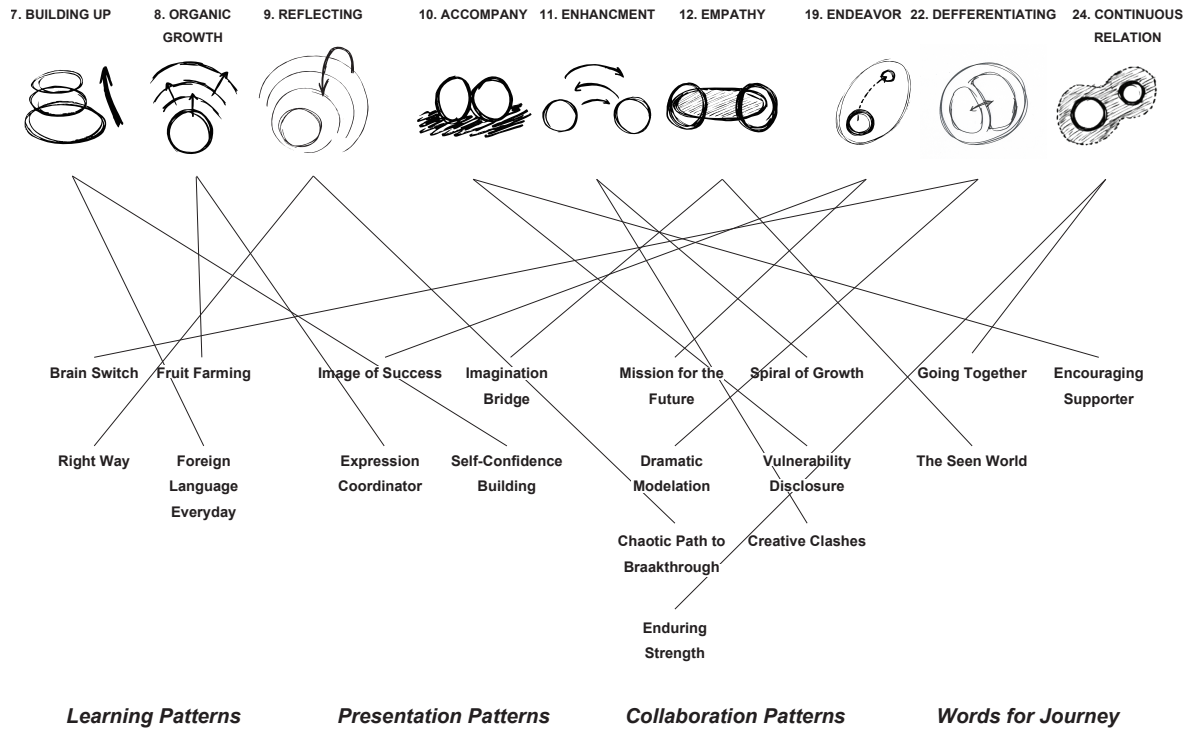


Fig. 12. NETWORK OF PATTERNS WITH PROPERTIES

5. CONCLUSION

This paper introduced the idea of the *24 Fundamental Behavioral Properties* to enhance the use of patterns of the Pattern Language 3.0 category. Out of the 24 properties, we described in detail 9 of them. Each property is associated with patterns from the Pattern Language 3.0 family to show its mutual relations.

The *Fundamental Behavioral Properties* describes the structures of *centers* helping each other out in human actions. By identifying these properties, we will be able to start a discussion on how to make human actions livelier at a more abstract level than the individual patterns. We will be able to evaluate if a pattern written has the power to accomplish the ultimate goal of Pattern Language 3.0 - to make the actions of us humans more full of *life*. In addition, since patterns from different categories are associated to each of the properties, we can apply and use patterns beyond the boundaries of each professional field.

We introduced the idea of behavioral properties and described some of the properties in detail in this paper, but the validity of these properties are left for testing and discussion if they truly exist, and if there are more than the 24 that we have identified. By creating an opportunity for discussion on each of the properties by pattern writers from different domains, we wish to identify more precisely the nature of human actions. In addition, we will need to continue our investigation if by identifying these properties, will it really bring up the quality of patterns, and if it will really give us a better experience with applying patterns.

Based on these areas left for further study, we will update, merge, remove, and add properties to the set. We will also search for new ways that these properties can be used in combination with patterns. This process is not just closed to our group, but we will create opportunities for discussions with all kinds of pattern writers. Though the process we wish to ultimately make the actions of people full of life for all.

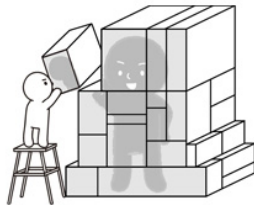
APPENDIX

These are summaries of patterns used for examples.

Self-Confidence Building, Presentation Patterns No.24

Self-Confidence Building

Self-confidence is never spontaneous.



You are imagining your *Image of Success* while putting the final touches to your presentation.

▼ In this context

Despite the effort you've put in, you don't have much confidence in your presentation.

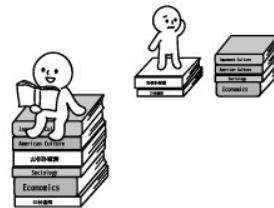
▼ Therefore

Remind yourself of all the time and effort you have put into this presentation, stack them up and build your self-confidence.

Daily Use of Foreign Language, Learning Patterns No.8

Daily Use of Foreign Language

Use a foreign language on a daily basis related to your life and interests.



You've recognized that you need to read, write, or speak in a foreign language in the near future.

▼ In this context

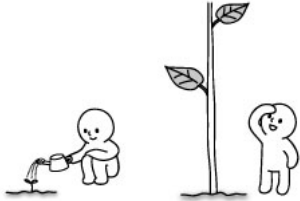
It's difficult to read, write, and speak in a foreign language without any practice.

▼ Therefore

Engage yourself in reading, writing, and speaking a foreign language in your daily life.

Fruit Farming

Start small, nurture growth, and your activity will bear fruit!



You are planning to create an output, but your vision might be too big.

▼ In this context

It is difficult to grow a big result at once.

▼ Therefore

Do your best to shape your idea, and then nurture it.

Expression Coordinator

Be picky.



You are working to make your *Touching Gift* even better.

▼ In this context

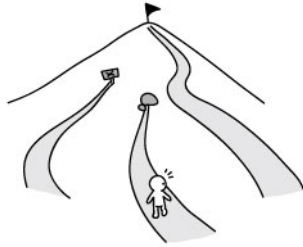
You feel you are always giving the same sort of presentations due to a lack of techniques.

▼ Therefore

Watch other people present, and take in any techniques that you think would help your presentation skills.

The Right Way

Is your current approach really leading you to your goal?



You are working on your activity in a certain way.

▼ In this context

The wrong way will lead you away from your goal.

▼ Therefore

Consider whether your current way is actually correct or not; then quickly change your approach as necessary.

Chaotic Path to Breakthrough

A new path is awaiting beyond the struggle of not knowing what to do.



The project is stuck and is making slow or no progress.

▼ In this context

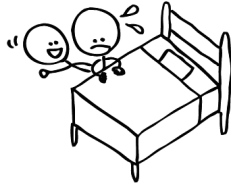
Considering the project's schedule and efficiency, you become tempted to settle at a quality that is lower than the team's usual standards.

▼ Therefore

Recapture the current situation as a chance to innovate new ways; stay where you are and thoroughly think through the situation.

Encouraging Supporter

Watch over and assist.



You have a friend who is giving care to a family member with dementia.

▼ In this context

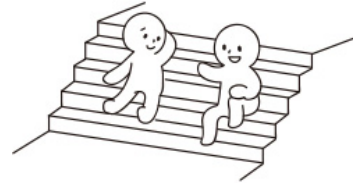
You feel rude to step into family problems, so you do not touch on the topic.

▼ Therefore

Have them talk about their situation and what kinds of efforts they are putting in.

Vulnerability Disclosure

One person's weakness becomes the team's toughness



You have troubles or worries about the project.

▼ In this context

You keep holding the troubles and worries to yourself, and the stress is posing bad effects on the project progress.

▼ Therefore

Whether they are related to the project or not, disclose your troubles and worries to your team members.

Spiral of Growth

Members enhance each other.



You are working together as a team on a project.

▼ In this context

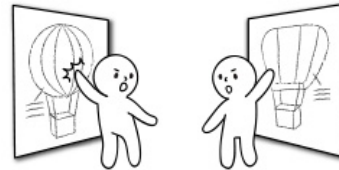
The project is limited in its possibilities only to the extent of the current abilities of its team members.

▼ Therefore

Get stimulated from the efforts of other team members, and then stimulate them. Work on the project as a team and grow together dynamically.

Creative Clashes

True quality comes only from earnest discussions.



A seemingly acceptable idea is up for approval.

▼ In this context

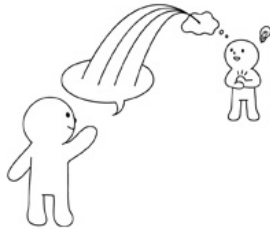
An intuition that something is not right may remain, but those opinions are barely expressed.

▼ Therefore

Share all your opinions, and have earnest discussions about how to reach true quality.

Mind Bridge

Metaphors to reach your mind.



You are making your presentation into a *Touching Gift* that gives the audience a memorable experience.

▼ In this context

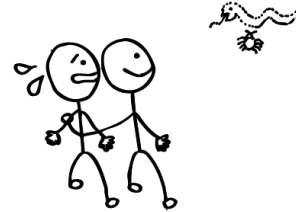
You notice yourself repeating the same words trying to explain an idea.

▼ Therefore

Use metaphors and specific examples to help explain to the audience.

The Seen World

Stand by them and share what they see.



Your loved person with dementia sometimes says things that differ from the facts and reality.

▼ In this context

Just plain neglect of what they are seeing will hurt the person's feelings.

▼ Therefore

Do not affirm or deny what they are saying or feeling.

Image of Success

Set a clear goal that you want the audience to achieve.



You made a plan on how to give your *Touching Present* based on the *Main Message*, and now you are thinking of what you want to accomplish through the presentation.

▼ In this context

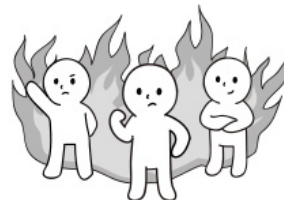
With unclear goals, you are unable to decide on your presentation details.

▼ Therefore

Have an image of success for your presentation.

Mission for the Future

Working towards a necessary future.



You are about to start up a new project.

▼ In this context

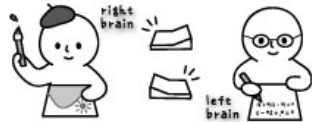
The future will not change if you only have a vague idea of what you want to do.

▼ Therefore

Have an image of how the future must be, and start working with the sense of mission that you must be the one to make this future a reality.

Brain Switch

Both logic and intuition are necessary for creative thinking.



You are creating an output, and you've had some progress.

▼ In this context

Logical thinking is not enough to achieve a breakthrough without intuitive thinking, and vice versa.

▼ Therefore

Switch between two modes of logical and intuitive thinking.

Dramatic Modulation

Attract the audience with an accentual rhythm.



You want to make the *Storytelling* that conveys the *Main Message* more appealing.

▼ In this context

Your audience may become confused as to what the *Main Message* is in the presentation.

▼ Therefore

Modulate the delivery of your presentation by altering your tone when conveying the *Main Message* to make it stand above the other less important sections.

Enduring Strength

A strong body with a strong mind.



You want to continue on with the *Creative Collaboration*.

▼ In this context

Situations occur where you have to give up a project due to physical or mental limits.

▼ Therefore

Train yourself regularly to achieve a strong body and mind that can bear the hardships of creation.

ACKNOWLEDGEMENTS

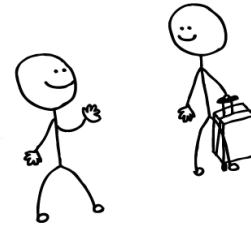
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Going Together

Taking the first step together



You recently became aware, due to forgetfulness or other behavior, that a family member may have dementia.

▼ In this context

If you do not take them to the doctor to receive proper care, it will hinder early detection and treatment and may cause symptoms to worsen.

▼ Therefore

Think of the first visit for examination as a start of "A New Journey" to live well with others as a strong individual with dementia and help them by taking the first step with them.

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