

# How to Make Patterns Powerful

## Realizing Contrast in a Pattern of a Pattern Language

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### Abstract

This paper presents how a feeling of contrast embedded in a pattern between two states, a state that is problematic and a state that is good, is important in order to bring inspiration for the readers to take the patterns into action. Consisting Context/Problem/Solution, patterns encourage readers to aim a state that is good and avoid a state that is problematic, by imagining both future of what it could be like if either state were to happen. The future state could be either a state experiencing a likely problem that could arise the context, or a state experiencing positive consequence brought by acting out the pattern's solution. Contrast that gives this positive push serves a crucial role for a pattern to be effective enough to bring a shift to the readers' behaviors. Quoting the words of Christopher Alexander, this paper introduces why and how a feeling of contrast is important for writing patterns. Then, we will use an example from a pattern language created by Iba, one of the authors of this paper, to demonstrate what contrast is and how it could be used in creating pattern language.

### 1. Introduction

Patterns of pattern languages are knowledge of ideas and methods for creating or practicing things better in quality in its certain area. A basic format of a pattern consists of Context/Problem/Solution. Although this has become a common rule for writing patterns, there is no inevitable reason why the patterns should take this form.

Some years ago, one of the authors, Takashi Iba (2013), presented in his book on pattern language, that every pattern of a pattern language contains what is important, how could it be achieved, and why it is important. If so, patterns could have taken a different format, for example What/How/Why. Then out of various different possibilities, why did Christopher Alexander, a proponent of pattern language, choose to write the patterns in Context/Problem/Solution format?

We came upon a conclusion that the reason is because Context/Problem/Solution format is the best way to fulfill the aim of pattern language which is to bring change to the behavior of the readers who do not know how they could create good designs or even have not yet taken action for it, to become able to create good designs. One possible reason can be seen in the philosophy of Alexander who believed in the importance of "creating" things, rather than mere understanding of things. For this reason, pattern language had to be written from the perspective of designers, not an analytic description or explanation of what good designs are. Another possible reason is because pattern language is based on an idea that good shapes and designs is harmony generated as a result of resolving inner contradiction, instead of giving additional features to the designs.

Based on the reasons listed above, it can be understood why it was inevitable for pattern language to be written in a format that could emphasize the difference between a state that is problematic and a state that is good. If so, then pattern writers when creating pattern language, must be more conscious of the difference between the two states, as well as change that could be brought from resolving the problem that arose in a problematic state.

In this paper, we confirm the above points by quoting the relevant passages from Alexander's literature. Then, we explain a way of thinking and practicing for grasping “contrast” and how it could be shown in the writings of the patterns. Although pattern language of human behavior (Iba, 2016a) is taken as examples, ideas mentioned in this paper could be understood and used in different fields and types of pattern language, such as architecture and software.

**2. Pattern’s Format**

**2.1 What is Important, How Could it be Achieved, and Why it is Important for Good Designs**

According to Iba (2013), pattern language is a language that explains “What” “Why” and “How” to create and practice things in a certain area (Figure 1). In this way, it could be said that every pattern describes what is important (What), how could it be achieved (How), and why it is important (Why).

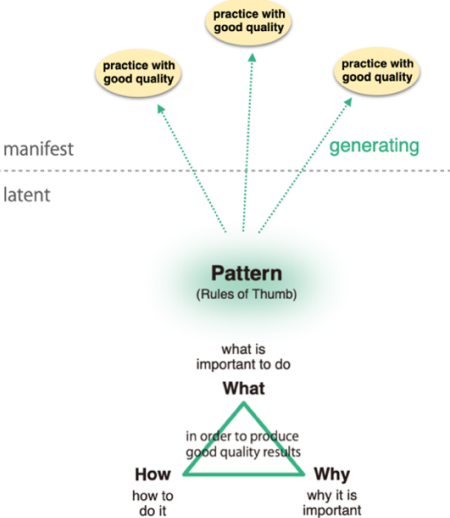


Figure 1: Patterns summarize the essence of a good practice

This concept of *What*, *How*, and *Why* explains the patterns well and is helpful in the creation of pattern language (Iba, 2021). It is even used in a format of Future Language (Iba, 2016b), a language for future vision, and it can be said as universal framework for understanding.

In Iba’s style of creating pattern language, we obtain what is important (What), how could it be achieved (How), and why it is important (Why) in pattern mining phase, such as through Dialogical Mining with practitioners or pattern mining from books or cases, then write patterns based on the information (Iba, *et.al.*, 2021) . In the writing process, What, How, and Why extracted from the mining will be transformed and written out in a Context/Problem/Solution format (Figure 2). In what context (Context), what problem tends to occur (Problem), and what solution (Solution) could resolve it would be the basic structure of a pattern. In this format, patterns support people in or around the context to practice a solution to avoid a problem that may occur in the future, or support people who have already fallen in to

a problem to get a better image of a solution that they could do to resolve the problem.

Now the question is, then why did we have to write patterns in Context/Problem/Solution format? What are the reasons behind it? Next section answers the question by referring to Christopher Alexander's books.

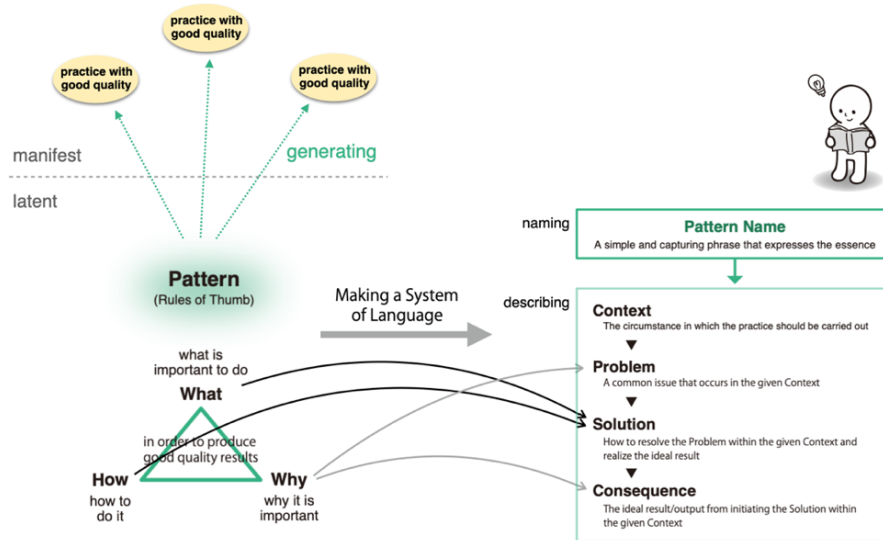


Figure 2: What is important (What), how could it be achieved (How), and why it is important (Why), written out in Context/Problem/Solution format.

## 2.2 What Makes Designs Good

What was Alexander's intentions, a proponent of pattern language, in designing format of pattern language? Alexander defined that a good design is a state of harmony generated as a result of resolving inner contradiction. In *Note on Synthesis of Form*, a book that can be said to be the starting point of his design theory, he mentions as following:

“When we speak of design, the real object of discussion is not the form alone, but the ensemble comprising the form and its context. Good fit is a desired property of this ensemble which relates to some particular division of the ensemble into form and context.” (Alexander, 1964, p.16)

“The task of design is not to create form which meets certain conditions, but to create such an order in the ensemble that all the variables take the value 0.” (Alexander, 1964, p.27)

Alexander also states the following in *The Timeless Way of Building*, his book discussing the concept and philosophy of pattern language:

“We have been taught that there is no objective difference between good buildings and bad, good towns and bad. The fact is that the difference between a good building and a bad building, between a good town and a bad town, is an objective matter. It is the difference between health and sickness, wholeness and dividedness, self-maintenance and self-destruction. In a world which is healthy, whole, alive, and self-maintaining, people themselves can be alive and self-

creating. In a world which is unwhole and self-destroying, people cannot be alive: they will inevitably themselves be self-destroying, and miserable.” (Alexander, 1979, p.25)

“Indeed, this subtle and complex freedom from inner contradictions is just the very quality which makes things live.” (Alexander, 1979, p.28)

“This oneness, or the lack of it, is the fundamental quality for any thing. Whether it is in a poem, or a man, or in a building full of people, or in a forest, or a city, everything that matters stems from it. It embodies everything.” (Alexander, 1979, p.28)

In this way, Alexander states that a good design is a state of harmony free of inner contradictions, and that it can be told in a comparison between a problematic state with arising inner contradictions.

It must be noted that although the problematic state and the good state could be grasped from the feeling of contrast, it does not mean that each state is just a comparison of each other. As referred above, Alexander believes that “the difference between a good building and a bad building, between a good town and a bad town, is an objective matter” (Alexander, 1979, p.25). Therefore, a good feeling in “subtle and complex freedom from inner contradictions” (Alexander, 1979, p.28) is not of comparison but of an actual good feeling that could be felt from its state.

However, a good state (or quality) is “objective and precise, but it cannot be named.” (Alexander, 1979, p.19). Because of this, instead of sufficiently writing direct description of good state that cannot be named, it can be said that the condition of the good state is expressed and told through distinguishing an obvious contrast between a problematic state. In this way, we can understand that patterns are written in Context/Problem/Solution format so it could successfully express the clear contrast between a problematic state (problem) that arises in the context and a design (solution) that result to a good state. Even if it was not originally meant this way, the format takes consistent form with such things.

### **2.3 Context/Problem/Solution Format**

Patterns are written in a form of Context/Problem/Solution. In his book, *The Timeless Way of Building*, Alexander explains the following:

“As an element in the world, each pattern is a relationship between a certain context, a certain system of forces which occurs repeatedly in that context, and a certain special configuration which allows these forces to resolve themselves.” (Alexander, 1979, p.247)

“We see, in summary, that every pattern we define must be formulated in the form of a rule which establishes a relationship between a context, a system of forces which arises in that context, and a configuration which allows these forces to resolve themselves in that context.

It has the following generic form:

Context → System of forces → Configuration.” (Alexander, 1979, p.253)

“Each pattern is a three part rule, which expresses a relation between a certain context, a problem, and a solution.” (Alexander, 1979, p.247)

Alexander explains what it means to capture such patterns as follows:

“In all these cases, no matter what method is used, the pattern is an attempt to discover some invariant feature, which distinguishes good places from bad places with respect to some particular system of forces.” (Alexander, 1979, p.60)

“Each of these patterns is an attempt to capture that essence of some situation which makes it

live. Each one is an invariant field, needed to resolve a conflict among certain forces, expressed as an entity which has a name, with instructions so concrete that anyone can make one (or help to make one), ...” (Alexander, 1979, p.275)

As it can be told from above, Alexander not only just explain or describe the good designs but aims to support creating and practicing of designs that are good. In book, *The Nature of Order*, Alexander quotes as following:

“I did not start out as a philosopher, and I have no special desire to write about philosophy or about the nature of things. This is not my trade. I am interested in one question above all – how to make beautiful buildings.” (Alexander, 2002, p.2)

So, pattern language was created as a tool to support creating or practicing good designs for people. Because of this, pattern language had to take a format that realizes it in a best possible way. In that sense too, Context/Problem/Solution format is efficient for the readers to stand in the perspective of designs in certain context and imagine a possible future with a problem that we tend to fall into, and a future with a good state realized by the solution of the pattern.

#### **2.4 Contrast as a Property to Enhance Life**

Alexander emphasizes the significance of contrast as a *property* to make a thing more alive in his book, *The Nature of Order*. Although he mainly discusses it with focusing on spatial design, the property is applicable to any kind of design in art and nature, just as he shows many examples in the book. In the chapter of the CONTRAST property, he said as follows:

“Another feature I have found repeatedly in works of art which have great life is a surprisingly intense CONTRAST --- far more contrast than one imagines would be helpful or even possible to sustain.” (Alexander, 2002, p.200)

“And in order for the thing to be truly whole, the contrast has to be pronounced. Black-white and dark-light contrast are the most common kinds. Empty-full, solid-void, busy-silent, red-green, and blue-yellow are all possible forms of contrast, too. However, the most important contrasts do not merely show variety of form (high-low, soft-hard, rough-smooth, and so on) but represent true opposites, which essentially annihilate each other when they are superimposed. In some sense, it is the contrast ----- awareness of silence created by a hand-clap----- which is going on here. The difference between opposites gives birth to *something*. This is the origin of yin-yang, active-passive, light-dark.” (Alexander, 2002, p.200)

According to Alexander, not just opposite, but contrast can generate the wholeness. He said:

“The contrast, instead of separating things, brings them together.” (Alexander, 2002, p.202)

In this sense, the contrast within a pattern is important because the contrast generates living wholeness in the pattern.

#### **2.5 Feeling as Instrument**

Alexander focuses on the importance of feeling. *Feeling* in this context is not of *emotion* but what could be felt through deep senses in the experience. A state problematic or good can be felt through feeling, and Alexander states the importance of observing it through the feeling.

“Yet we have no analytical way of being sure just what the forces are. What we need is a way

of understanding the forces which cuts through this intellectual difficulty and goes closer to the empirical core. We need a way of knowing which patterns will really help to bring the world to life and which ones won't. ... To do this, we must rely on feelings more than intellect. For although the system of forces in a situation is very hard to define analytically, it is possible to tell, in a holistic way, whether the pattern is alive or not. The fact is that we feel good in the presence of a pattern which resolves its forces. And we feel ill at ease, uncomfortable, when a pattern leaves its forces unresolved." (Alexander, 1979, p.286-287)

"It comes about because our feelings always deal with the totality of any system. If there are hidden forces, hidden conflicts, lurking in a pattern, we can feel them there." (Alexander, 1979, p.289)

In the book *The Nature of Order*, Alexander explains his method of using himself as a measuring instrument, and repeatedly mentions the importance of relying on our feeling as a guide.

"All these methods are special cases of a very general type of observation that relies on ... the observer's experience as a measurement on the system being observed to determine that system's objective degree of life." (Alexander, 2002, p.364)

"... in order to measure this degree of life, it is difficult to use what, in present-day science, are conventionally regarded as 'objective' methods. Instead, to get practical results, we must use ourselves as measuring instruments, in a new form of measuring process which relies (necessarily) on the human observer and that observer's observation of his or her own inner state." (Alexander, 2002, p.354)

"The method which I propose is therefore different from currently accepted forms of observation. It goes directly to the intuitions which are widely shared and raises them to a formal level as techniques of observation. You are asked to record your own inner feeling, your own inner wholeness – and this is used then as the measure of the degree of life in some system of the outer world you are observing." (Alexander, 2002, p.367)

"... when we pay attention to our own wholes, we find that the degree to which conditions in the external world do increase our wholes is predictable. We find, too, that the effect of these conditions on the human observer is reliable and replicable. The idea is that our feeling is not merely a subjective and changing thing, but that it itself is a reliable instrument – and that the condition, or state of this feeling, is a source of objective truth." (Alexander, 2002, p.368)

As we can understand from the references above, Alexander claims that what is problematic and what is good can be understood only by a feeling, and it must be that way. Because of this, we can say that in creating a pattern language too, it is important to focus on feeling toward what is problematic and what is good.

Next, we will explain the importance of feeling when creating pattern language, especially how it is important to grasp the feeling of contrast between state that is problematic and the one that is good. How it could be done will be explained as well.

### **3. Utilizing the Feeling of Contrast in Creating Pattern Language**

#### **3.1 A Contrast Between Two States in a Pattern**

A pattern of pattern language, roughly, includes two different states in opposite directions. One side is a state that is problematic and another is a good state with a positive consequence brought by a solution.

The “contrast” of these two states, make up the big picture of what the pattern is about.

When reading the patterns, the contrast of the two states work as a push from a problematic state to a good state, instead of just a static comparison of the two different states. The readers will feel motivated to aim the good state thus avoid the problematic one, and will be given a push to take an action. In this way, contrast gives a positive encouragement to bring changes in the way of behaviors of the readers.

In retrospect, we may have been too focused on the functional aspect written out in a pattern’s solution. We had expected that if the content proposed in the Solution was excellent enough, readers would naturally adopt the pattern and put it into practice.

However, in response, we argue the opposite that it is the effect of contrast of Problem/Solution that inspire the readers and bring change to their actions. It is the clear difference and a fall that could be experienced between problem and solution that makes the readers want to avoid the former and aim the latter. Contrast becomes the source of motivation that push the readers, and without it, the push would not be enough no matter how excellent and attractive the solution could be.

For this reason, it is important that a clear contrast is embedded and can be felt strongly from reading the patterns. To make this possible, we must know and be aware of its concept when creating pattern language.

### **3.2 Enforcing Patterns with a Sense of Contrast**

When creating pattern language, writers must be aware of the contrast of Problem/Solution, and write the patterns based on it.

In fact, one of the authors, Takashi Iba, for the past ten years, has been creating the patterns based on the feeling of contrast. When grasping the essence, such as writing the pattern sentences, making pattern name, or drawing Pattern Illustration, he imagined what it may be like in both problem side and solution side of the pattern and wrote/drew the pattern based on the gap he felt between the two sides. In most cases he used the feeling just within himself, but in some cases, such as when brushing up the patterns with couple of other members in team, he shared the feeling to them using explanation with words. Even so, what he did had not been addressed and thus the method was unestablished.

However, at one time, he began to notice that a difference in the quality of patterns between him and other members may be because of a lack a feeling of contrast. During his projects for creating pattern language, he shared the feeling of contrast and had the members consider it as well. In order for the members to understand what it is, he used examples from finished pattern language and by simple words or illustration, shared the contrast he feels to the members. In next section, we will show some examples of patterns and see how contrast is embedded in the patterns.

### **3.3 Pattern Name , Pattern Illustration, and Solution are Affected by the Contrast of the Pattern**

When writing patterns or making Pattern Illustration, Iba grasps the feeling of the pattern and also embeds them into the patterns’ sentences and illustrations based on the contrast he feels between its problematic state and its good state.

As presented in Iba (2021), when writing Pattern Names, it is better to choose its wording based on a feeling of contrast in the pattern. By firmly grasping the contrasting feeling, it is easier to understand what should be said for the pattern to symbolize the good state in a pattern. Similarly, a feeling of contrast could be helpful in Pattern Illustration and Solution sentences as well, as the writers would be able to include the nuances of good sate such as opened, simple, freely, or others. It would be effective for Problem sentences too, as the writes would likewise be able to include its nuances such as closed, thick, sharp and others.

## **4. Examples of Patterns and its Embedded Contrast**

When writing a pattern, a grasped feeling of contrast can be embedded in a pattern’s sentences, name, and illustration. To show and demonstrate how contrast can be felt in the patterns, here we show two examples from *Open Question* from *Words for a Dialogue* (Iba and Nagai, 2018), which is one of the high-quality

works of the author of this paper. The feeling of contrast described for each pattern is that of Iba who actually used that feeling when writing the patterns.

Note that by using simple words or illustration to describe the contrast he felt, he was able to share the feeling with other members involved in creating the pattern language; however, note that is the “feeling” of a contrast that is important, and that the words and illustrations describing them are merely a supplementary tool to visualize the feeling for sharing and documenting. Since the feeling is abstract and cannot be described so simply, words and diagrams are incomplete and do not fully describe the feeling of the contrast. For this reason, descriptions of contrast could vary and there is no definite or correct answer in how they could be described.

Even so, how contrast could be described through words or illustration itself holds a significant impact in creation of pattern languages. Because of this, pattern writers could share the feeling they grasped to other members and avoid misunderstandings or misinterpreting when trying to grasp the patterns together in a team.

#### 4.1 *Open Question* pattern from *Words for a Dialogue*

The first example is *Open Question* from *Words for a Dialogue* (Iba and Nagai, 2018). The pattern is as following:

### Open Question

Questions that open the other person’s mind and make them think.



You want to ask questions to hear the other person’s story.

▼ In this context

**If you ask closed questions where their response is limited to what you can think of, it will be difficult for them to express their true feelings.** People use questions when trying to understand another person. However, if you ask questions that limit them to ‘yes’ or ‘no’ responses or ask questions that offer a limited choice from multiple answers, you can never expand the dialogue beyond your imagination. You should try to reach the raw thoughts and feelings that they have never released.

▼ Therefore

**Ask open questions that make it easier for them to freely express themselves.** When initiating a dialogue, you should begin with an open question such as ‘How do you want us to spend this time?’. When they are talking about their experience, you should keep asking questions such as ‘When did that happen?’, ‘What did you feel when that happened?’ and ‘What happened next?’. In this manner, they can maintain focus on their experience and deeply discuss it.



▼Consequently

It becomes easier to deepen the understanding of their *Experienced World* by generating an environment where the person can speak freely and discuss things that they find important. This makes the other person feel that they can take initiative to deepen the dialogue by talking about what they want without being limited to what they are asked.

The contrast of this pattern can be expressed in words such as *closed/open*, and a rough sketch of the illustration is as shown in Figure 3.

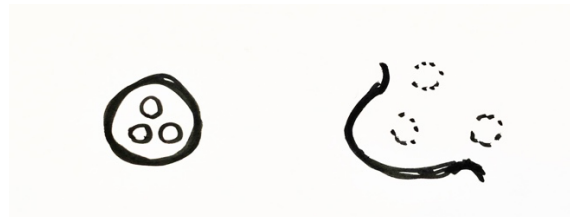


Figure 3: Contrast of a pattern *Open Question* (Closed/Open: Problem side on the left, Solution side on the right)

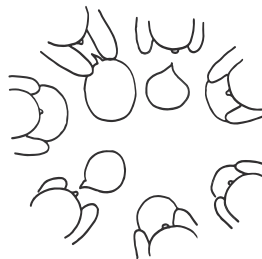
Some may say that a contrast closed/open seems functional and not so feeling based because it almost looks like it has been extracted from its pattern name, *Open Question*. However, it is the other way around, and it is the pattern name *Open Question* which had been written based on the what could be felt from the feeling closed/open.

#### 4.2 Invitation for Utterance pattern from *Words for a Dialogue*

The second example is *Invitation for Utterance* from *Words for a Dialogue* (Iba and Nagai, 2018). The pattern is as following:

### Invitation for Utterance

Make it known that all voices are significant.



The dialogue has begun.

▼In this context

**If only certain people are talking, other participants will lose their opportunity to speak and share their unique perspectives.** The flow of a conversation is strongly influenced by

what is said by those who frequently speak or have a strong position. In such a case, other people will lose their chance to speak and participants will be unable to hear everyone's opinions.

▼Therefore

**Provide opportunities for participants who are not sharing to express their own thoughts.**

In the beginning of the dialogue, you should create an opportunity for all participants to share their thoughts and expectations. For example, you can ask questions such as 'Why did you decide to participate in this dialogue?' and 'What do you expect to take away from this dialogue today?'. If there are people who are not saying much, you should ask them questions and help them share. In the end, you should again ask everyone to share their thoughts on the dialogue.

▼Consequently

All participants will be able to express what they are thinking and feeling. By hearing everyone's voices, people who frequently speak will focus more on sharing a dialogue rather than focusing only on their own thoughts.

A contrast that could be felt in this pattern is *From a certain direction/From all directions*, as shown in Figure 4. It is a difference between arrows going in the same direction together while in the other arrows face the inside creating a sense of focus towards the center or each other.



Figure 4: Contrast of a pattern *Invitation for Utterance* (From a certain direction/From all directions: Problem side on the left, Solution side on the right)

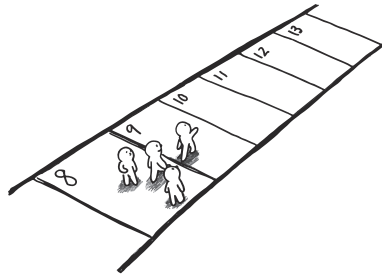
Based on the image that could be felt from this contrast, pattern illustration shows a situation of speech bubbles coming out of each member in the picture. Because the need of coming together and talking in the group was just made in the previous pattern, a circular image with bubbles being thrown into the middle can be felt as well. On the other hand, one way discussion can be felt in a problematic state where only part of the members is joining the conversation.

#### 4.3 *Everyday Meetings* pattern from *Words for a Dialogue*

The second example is *Everyday Meetings* from *Words for a Dialogue* (Iba and Nagai, 2018). The pattern is as following:

### **Everyday Meetings**

Continue the dialogue as long as needed.



You have started a dialogue to dissolve the problem.

▼In this context

**If you try to wrap things up within a certain period of time, participants will not be able to discuss the problem and thoroughly express their thoughts.** Everyone has their own personal life and a limit to their concentration and energy; thus, it is difficult for all participants to gather for a long period of time. Understanding each other through a dialogue, however, takes time. Holding a continuing dialogue is one of the main points that makes Open Dialogue effective, so it is essential to have enough time to do so.

▼Therefore

**Hold meetings frequently to continue the deepening dialogue.** In the Open Dialogue therapy sessions held in Finland, each meeting is approximately 60 to 90 minutes long and is first held every day for 10 to 12 days consecutively. How often the dialogue sessions are held can be decided later. At the end of each meeting, participants should reflect on what was shared, decide when they will gather next and what they will discuss at that time.

▼Consequently

There will be enough time to dissolve the problem through a dialogue. Participants will be able to carefully listen to others because they know that the dialogue will continue. Through such a thorough dialogue, a ‘Co-Created Understanding’ that helps dissolve the problem will be established.

The contrast of this pattern can be described *Separated/Continued* and a rough sketch of the illustration is as shown in Figure 5.



Figure 5: Contrast of a pattern *Everyday Meetings* (Separated/Continued: Problem side on the left, Solution side on the right)

As pattern name and illustration symbolizes the pattern, what felt in the good state is clearly embedded in the pattern name and illustration. A word “everyday” included in Pattern’s name *Everyday Meetings*, and a metaphor of events continuing like a calendar shows the continued feeling of the meetings which is the good state mentioned in this pattern.

## 5. Conclusion

This paper presents how a feeling of contrast embedded in a pattern between two states, a state that is problematic and a state that is good, with examples and how it could be used in creating pattern languages.

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## Reference

- Alexander, C. (1964) *Notes on the Synthesis of Form*, Harvard University Press.
- Alexander, C. (1979) *The Timeless Way of Building*, Oxford University Press.
- Alexander, C. (2002) *The Nature of Order, BOOK ONE: The Phenomenon of Life*, The Center for Environmental Structure
- Iba, T. (2013) *Pattern Language (Reality Plus series)*, in Japanese, Keio University Press.
- Iba, T. (2016a) “Pattern Language 3.0 and Fundamental Behavioral Properties” in *World Conference on Pursuit of Pattern Languages for Societal Change, 2015*, published in a book: Peter Baumgartner, Tina Gruber-Muecke, Richard Sickinger (Eds.), *Pursuit of Pattern Languages for Societal Change. Designing Lively Scenarios in Various Fields*. Berlin: epubli, pp.200-233
- Iba, T. (2016b) “Future Language for Collaborative Design,” *PUARL Conference 2016*.
- Iba, T. (2021) “How to Write Patterns: A Practical Guide for Creating a Pattern Language on Human Actions”, *28th Conference on Pattern Languages of Programs (PLOP2021)*
- Iba, T. and Nagai, M. (2018) *Taiwa no Kotoba [Words for a Dialogue]*, in Japanese, Maruzen Publishing.
- Iba, T., Oka, Y., Kimura, H., Inoue, E. (2021) “Extracting and Writing Key Elements in Pattern Mining: A New Method of Creating Pattern Seed,” *28th Conference on Pattern Languages of Programs (PLOP2021)*