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## PURSUIT OF PATTERN LANGUAGES FOR SOCIETAL CHANGE

A comprehensive perspective of current pattern research and practice

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# Cook-That-Dish Patterns for Tacos: A Tool for Collaborative Cooking

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This paper proposes Cook-That-Dish Patterns for Tacos, a recipe-like collection of patterns that function as a participation-inducing tool in collaborative cooking sessions, as well as its application. The Cook-That-Dish Patterns for Tacos (Taco Patterns, for short) presented in this paper, is a collection of twenty-seven patterns, divided into five categories: Pico de Gallo, Guacamole, Meat, Condiments, and Tortilla. Each pattern describes a step in the process of making tacos, in a concise "context-problem-solution-consequence" format. The Taco Pattern cards have been used in cooking parties, in which participants with various cooking experiences broke off into teams and worked simultaneously on preparing their assigned part, which come together as one meal. Through this implementation, we found that the patterns are (1) an effective tool to involve all participants with varying experience levels, (2) a practical format to convey the implications behind cooking processes, and (3) a valid tool to enable cooking to be done in a flexibly distributed manner.

Pattern language; cooking; collaboration; recipes; workshops

### 1. Introduction

Cooking, the art of preparing food for consumption is an activity that has been an essential and familiar part of people's everyday lives. It is a practical method in which humans have learned to survive with over the course of history, turning resources into forms that we can consume. Moreover, cooking can be a highly creative activity that can give both the person engaged in the cooking as well as those who consume the product, a sense of pleasure, satisfaction, and a higher quality of life.

In modern times, it has become easier than ever for one to engage in the activity of cooking. Ingredients can be acquired without having to grow them or hunt for them, and there are an abundant amount of information that teaches us how to cook, such as recipes, web articles, books, etc. Thanks to many that came before us, methods, tools, and knowledge on cooking have been developed and fine-tuned.

However, despite the fact that cooking has become more accessible than ever, it has become less essential to people's lives. Because of the widespread availability of restaurants, take-out options, and ready-made foods, many people simply have fewer opportunities to cook. Therefore, they have less familiarity with the activity, and can consequently feel intimidated or reluctant about cooking. It is to remove this fear, and invite more people to enjoy cooking, that we conducted this research.

### 2. Background

Over the past few years, there have been several research efforts dealing the topic of cooking, and using the pattern language method to open up the activity to more people. For instance, there have been several researches, which use the pattern language method to share the general knowledge of the cooking process, such as the Generative Cooking Approach (Isaku & Iba, 2014) and the Cooking Patterns (Akado, et al, 2016). The Cooking Language method has also been created as a method to allow people to gain a better understanding of individual ingredients and their functions in a pattern-like format (Isaku, et al, 2015). On the more social side, there are the Co-Cooking Patterns, which contain pattern about how to enhance better communication in collaborative cooking sessions (Isaku & Iba, 2015). Lastly, there are also patterns on how to incorporate the activity of cooking into everyday life, called the Cooking Life Patterns (Yoshikawa, et al, 2016).

With these previous works in mind, the purpose of this research is to create a tool which functions as an on-the-spot support that directly affects people's actions in the kitchen.

While the other works were effective for more long-term growth in its readers/users, we wanted to create a new type of patterns that can engage people in the activity of cooking and induce prompt learning/growth in their cooking, especially for those who are beginners. Therefore, we came up the Cook-That-Dish Patterns, a type of patterns that describes the process of cooking a certain dish. As mentioned earlier, there are prior works that deal with the general practical knowledge of cooking using the pattern language method (Isaku, et al., 2015; Akado, et al., 2016); however, the Cook-That-Dish Patterns is the first attempt to focus on a specific dish and provide all description of its recipe using the pattern format.

### 3. Cook-That-Dish Patterns

Here we present the concept of Cook-That-Dish Patterns, a new type of patterns that describe the steps on how to cook a certain dish. This new genre of patterns was created as a tool to replace the role of recipes with a more comprehensive and informative guide, to allow even beginners to cook well. Cook-That-Dish Patterns are similar to recipes in that they provide step-by-step instructions on how to make a dish, but differ in that the patterns provide an insight on the meaning behind each cooking process, a factor that is commonly lacking in recipes. Each pattern explains a certain step in the cooking process in the following format: context (the timing in which one should perform the pattern), problem (what would happen if the pattern is not performed), solution (what to do to prevent the problem from happening), and a "pattern name" that captures the essence of the pattern.

Using the pattern format to describe cooking processes allow readers to understand the significance of performing a certain step. That is, the reader is able to see that an action (the solution) must be done to prevent an undesirable outcome (the problem). Not only does this make the information clearer, but also by understanding why a certain action must be taken, the reader is able to take in the information and use it to make decisions on his/her own discretion.

Cook-That-Dish Patterns can be created for just about any recipe in any genre of cuisine. Examples of Cook-That-Dish Patterns that we have created thus far are as follows: Taco Patterns, Miso Soup Patterns, and the Carbonara Patterns (Figure 1). For any recipe, one cooking step can be translated to one or two patterns. Therefore, a recipe with ten cooking steps may contain around ten to fifteen patterns, depending on the difficulty and sophistication of the dish.



Figure 1: Examples of Cook-That-Dish Patterns (in card form)

### 3.1. Cook-That-Dish Patterns for Tacos (Taco Patterns)

The first example of Cook-That-Dish Patterns is the work we present in this paper; the Cook-That-Dish-Patterns for Tacos (hereinafter referred to as, Taco Patterns). The Taco Patterns is a collection of twenty-seven patterns that together describe the process of making tacos. For this particular collection of Cook-That-Dish Patterns, we intended for the patterns to be used in group cooking sessions, as tacos are a type of dish in which the cooking process can be broken down into several parts and cooked simultaneously by people in different teams. Furthermore, they can be served in a buffet style, allowing for people to assemble their tacos with whatever combination of toppings that suits their taste. As the patterns are designed to be used in collaborative cooking sessions in which people cook together, they are presented in the form of pattern cards that can be distributed among the participants and brought into the kitchen to refer to during the cooking process.

### 3.2. The Process of Creating the Taco Patterns

The collection of twenty-seven Taco Patterns was created through processes of data collection, pattern writing (Iba & Isaku, 2016) and pattern symbolizing (Shibata, et al, 2016).

In the beginning stage, we collected data on how to make tacos through examining various taco recipes, and extracted tips/methods that seemed to play a significant role in the cooking process of tacos. During this phase, we tested out the various cooking methods in the kitchen to see which tips/methods were useful and yielded good results. Through this process, we decided to narrow our patterns' focus on tacos comprised of five

main components: a tortilla, minced meat (beef & pork), pico de gallo, guacamole, as well as other toppings (Figure 2). This type of taco is one that is a common variety, and is fairly simple to put together. We then created a recipe-like list of steps to take, in making each component of the taco.











Figure 2: Five components of a taco: tortilla, meat, pico de gallo, guacamole, and other toppings

Using the list as a general guide, we then wrote down each step in the pattern format (context, problem, and solution). We wrote each cooking step in the pattern format to show what should be done (the solution) at which timing (the context) to avoid an undesirable result (the problem). For instance, one of the steps in creating a good "pico de gallo" is to leave the tomatoes in a colander (strainer) after dicing them. In the pattern format, this step was documented as follows.

Context: You have prepared the tomatoes and onions by performing

<1/4-Inch Dicing>.

#### ▼In this context

**Problem:** Tomatoes can become very watery after they have been diced, which can give tacos a soggy and unpleasant texture.

#### **▼**Therefore

**Solution:** After sprinkling with salt, leave the diced tomatoes and onions in a colander for about 10 mins to cut excess juice.

After all of the cooking steps were written in this manner, we then went through a symbolizing phase. During this phase, we assigned a "pattern name" and illustration to each pattern, and also designed the cards in which the patterns would be printed on. We also added an ingredient list card to each of the five categories, which show the ingredients/tools/number of people necessary, as well has the difficulty of the task represented by the number of stars. An example of a pattern card, "Draining After Cutting", and the category card for pico de gallo is shown in Figure 3.

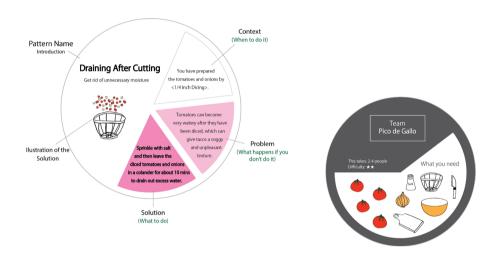


Figure 3: Example of a Taco Pattern Card (left) and Category Card (right)

A collection of twenty-seven Taco Patterns resulted from a three-month process of writing, revising, adding illustrations, and designing the cards. In order for the cards to be used in the kitchen by multiple people, the cards were laminated after printing. The entire Taco Patterns collection is shown in Figure 4.

Taco Patterns

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Figure 4: The Taco Pattern cards collection

### 3.3. The Overview of the Taco Pattern Cards

The Taco Patterns are comprised of twenty-seven patterns in five categories: four patterns in Guacamole, four in Meat, four in Pico de gallo, five in Other Toppings, and ten in Tortilla. In Table 1 below, the pattern name, illustration, and contents of the patterns (context, problem, solution) are shown in the order in which they should be executed for each category.

	Pattern Name	Pattern Illustration	Context, Problem and Solution
Guacamole	Chunky but Con- sistent		You are preparing the guacamole. In this context, leaving large pieces of avocado in the guacamole may create an unpleasant texture. Therefore, halve and scoop out the avocado with a spoon, and use a fork to mash it into a relatively uniform consistency.
	A Sprink- le of Color		You have mashed the avocados until it is <chunky but="" consistent="">. In this context, a guacamole with only avocados can be bland both in its taste and appearance. Therefore, add in some pico de gallo to make the texture and flavor more inte- resting.</chunky>
	Tangy Finish	Salt	You have mashed the avocados and added <a color="" of="" sprinkle="">. In this context, avocados have a mild flavor, which may be overpowered by the flavor of other ingredients. Therefore, sharpen and define the taste of avocados by mixing in salt and lemon, tasting and adjusting as you go.</a>
	Double Wrap		You have finished making your guacamole. In this context, if the avocados are exposed to oxygen, it will start to brown and will not look as good as it was when you just made it. Therefore, press a double layer of plastic wrap onto the surface of the guacamole to protect it from oxygen and retain its color.

Meat	Gentle Stir		You are cooking the ground meat in a large pan. In this context, if you try to break up the meat and stir too much, the flavor of the meat will be damaged. Therefore, gently move around the meat with your spatula and evenly cook the meat.
	Oil Cut		You are cooking the meat by <gentle stirs="">. In this context, as the meat cooks, the pan gets filled with excess oil from the meat. Therefore, as the meat starts to color and the pan gets oily, use a paper towel to absorb and remove excess oil.</gentle>
	Water the Pan		You are cooking the meat by doing <gentle stirs="">, and the meat is starting to color. In this context, if you continue to cook the meat without adding any moisture, the meat will become dry and hard. Therefore, after doing <oil cut="">, add water to the meat and continue cooking it as it simmers.</oil></gentle>
	Enough Punch	Spin	The meat is starting to brown and you are ready to season the meat. In this context, if the meat is lightly seasoned, it may not have enough flavor when it's eaten together with other ingredients. Therefore, do a taste test with several people and season the meat so that it has enough punch.

Pico de Gallo	Specks of Onion	You are going to make some pico de gallo. In this context, if you put too much onion, the strong flavor of onions will kill the flavor of tomatoes. Therefore, as a rule of thumb, use 1 small onion for every 4 tomatoes, and then adjust the ratio as you taste.
	Mul- ti-axis Cutting	You are doing <1/4 Inch Dicing>. In this context, dicing tomatoes and onions little at a time can be time consuming and tiresome. Therefore, leaving the stem intact, cut in half, lay halves on its flat sides, make horizontal and vertical cuts almost all the way through, and then dice in its place.
	14 Inch Dicing	You are cutting tomatoes and onions for the pico de gallo. In this context, unevenly sized pieces of tomatoes and onions will create an inconsistent texture in your mouth. Therefore, cut tomatoes and onions into relatively uniform 1/4 inch dices.
	Draining After Cutting	You have prepared the tomatoes and onions by <1/4 Inch Dicing>. In this context, tomatoes can become very watery after they have been diced, which can give tacos a soggy and unpleasant texture. Therefore, sprinkle with salt and then leave the diced tomatoes and onions in a colander for about 10 mins to drain out excess

Toppings	Large Water Bath		You are washing a delicate ingredient, in this case, lettuce. In this context, if you wash the lettuce directly under running water, it is hard to thoroughly clean it, and you also risk damaging the leaves. Therefore, fill a large bowl with water and wash the lettuce gently in the water bath.
	Dry Before Cutting		You have washed the lettuce leaves in a <large bath="" water=""> and are going to cut them. In this context, if you cut and serve wet lettuce leaves, the taco will taste watery and soggy. Therefore, gently pat the lettuce leaves with paper towels to remove the beads of water.</large>
	Several At Once		You have done <dry before="" cutting=""> and are now ready to cut the lettuce. In this context, if you cut the lettuce leaves one piece at a time, it is inefficient and also makes it harder to cut evenly. Therefore, stack up a few lettuce leaves, gently roll them together, and cut into even, &lt;1/4 Inch Strips&gt;.</dry>
	¼ Inch Strips	The state of the s	You are ready to cut the lettuce <several at="" once="">. In this context, if the lettuce is cut too large, it will be difficult to fit it into the taco shell with other ingredients. Therefore, cut the lettuce leaves into strips that are about 1/4 inch wide.</several>
	Half & Half	Sour Yogurt	You are going to make a sour cream sauce. In this context, sour cream on its own is not soft enough to evenly distribute onto the taco. Therefore, add the same amount of yogurt into the sour cream and mix together until it has no lumps.

Flour Tortillas	Flours First	Flour end	You are measuring the ingredients for the tortilla. In this context, if the ingredients are put into the bowl in a random order, it may not mix evenly. Therefore, start by mixing all of the dry ingredients first, before adding in the wet ingredients.
	Mix with Chop- sticks		You have placed ingredients into the bowl starting with "Flours First". In this context, if you mix the mixture while the water is still hot, you may burn your hands. Therefore, mix evenly in a large motion with chopsticks until the dough is cool enough to touch.
	Knead Until Smooth	FLOUR	The dough is starting to come together as you "Mix with Chopsticks". In this context, the dough will not become smooth if you keep mixing it with chopsticks. Therefore, use your hands to knead the dough until there is no loose flour remaining.
	Rest the Dough		You have executed "Knead Until Smooth". In this context, if you cut and roll out the dough right away, the tortillas will not come out evenly. Therefore, cover the dough in plastic wrap and let it rest for about 10 minutes.
	Roll and Rest		The time to "Rest the Dough" is over. In this context, if you cut and roll out the dough simultaneously, the tortillas will be deformed. Therefore, cut the dough and roll into balls with your hands and let rest for another few minutes.

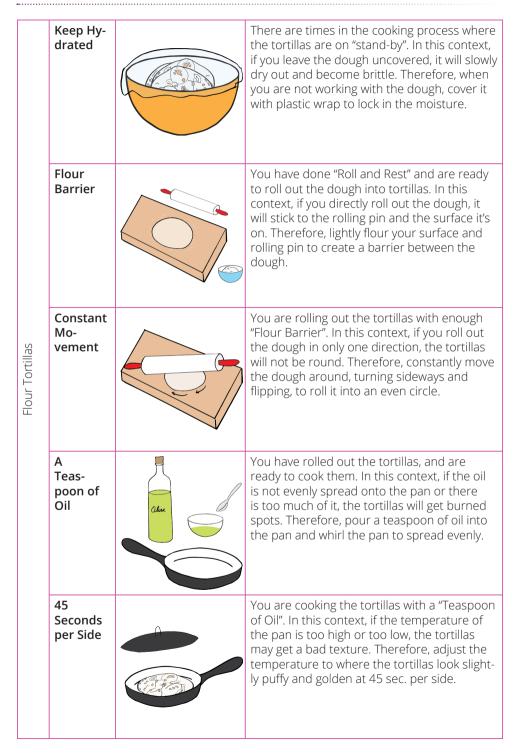


Table 1: Overview of the contents of the Taco Patterns

### 4. Using the Taco Patterns: Collaborative Cooking Sessions

We have used the Taco Patterns in cooking parties, in which university students (and occasionally teachers) get together and cook together in groups. The participants of the sessions have varying cooking experiences; there were some who cook for themselves every day, and some who have rarely used a knife in their entire lifetime. The aim of these cooking sessions was to see whether and how the pattern cards would allow such people with various cooking experience levels to successfully cook a meal *together*, without having the people who are more experienced take over the process and the others observing as bystanders. Up to present, we have conducted five workshops from with around fifteen to thirty-five people in each session, engaging more than a hundred participants in total. For this research, participants were students from Keio University SFC campus.

### 4.1. Cooking with the Pattern Cards

In our cooking sessions, we convened people in large kitchen spaces and asked them to cook tacos together, using the pattern cards. Each session began by showing participants the five categories from the Taco Patterns as well as their levels of difficulty/estimated number of people necessary and guiding them to self-organize the teams in which they would work in. After dividing into groups, we took some time for self-introductions and ice breaking.

Once the group members are comfortable with each other, we distributed each of the five teams with the corresponding pattern cards as well as the ingredients/tools necessary to complete the task. After each team has what they need, they take time to go over the pattern card with each other one by one and decide the order in which they will carry out the patterns.

Some teams assigned a member to each pattern, and each would be responsible for making sure that the pattern is carried out during the cooking process.

After the teams have established a common understanding of the process, each team cooks their part of the taco according to the patterns (Figure 6). During the cooking process, they could refer back to the patterns if necessary. In the end, the finished parts are served in individual dishes, and a buffet-style taco dinner is ready for everyone to enjoy.



Figure 6: Cooking session using Taco Patterns (Photos taken April 21st, 2016 at a facility near Keio SFC)

### 4.2. Conversation Examples and Feedback from Participants

As explained above, the Taco Patterns were used as a guide for each team through the cooking process, and particularly played a role in functioning as common vocabulary for the participants. The following contain some examples of the conversations that took place during the sessions.

- 1. Conversation sample from Team Tortilla, regarding the patterns, "Teaspoon of Oil" and "45 Seconds Per Side":
- » Participant A "Okay, I think we should start cooking the tortillas. We need about a Teaspoon of Oil" for each tortilla, right?"
- » Participant B "Right, and make sure to cook them '45 Seconds Per Side'... I think the heat should be lowered since it's cooking a lot faster right now."
- 2. Conversation sample from Team Pico de Gallo during the buffet dinner, regarding the "Draining After Cutting" pattern.

- » Participant C "I now see why 'Draining After Cutting' was so important. Look at all the juice that came out! I guess we should have left them in the colander for longer."
- 3. Conversation sample from Team Meat, regarding the "Enough Punch" pattern.
- » Participant D "Hey, can you have a taste and see if it's okay? I feel like I may have made it too spicy."
- » Participant E "I think it's good! The 'Enough Punch' pattern said it should be slightly over seasoned, anyway."

(All conversation samples taken from session on May 24th, 2016)

In addition to the patterns function as a common vocabulary, we received feedback about its ability to cover information which are often missing in standard recipes, such as that "by taking the time to go over each pattern, [the participant] was able to learn about why each step had to be taken. [The participant felt] like the 'problem' section was the most insightful part." Furthermore, there were comments that the patterns encouraged collaboration among the teams, such as that "even though [the participant] had very little experience with cooking, [the participant] was able to partake in the cooking process because the patterns allowed everyone to be 'on the same page'". After the cooking sessions, there were three cases in which participants convened their own cooking sessions using the Taco Patterns, with a new group of participants.

### 4.3. The Function of the Patterns

Through the implementations, we found that the patterns are an (1) an effective tool to involve all participants with varying experiences, (2) a practical format to convey the meaning behind cooking processes, and (3) a valid tool to enable cooking to be done in a flexibly distributed manner. Firstly, it enables cooking to be an activity in which all participants are involved regardless of experience by having a common vocabulary to communicate about the cooking process. Secondly, by conveying the meaning behind cooking processes in a practical, concise manner, even beginners can grasp the good practices in cooking. After grasping the basic cooking steps, they can be adjusted and applied to create each persons' own variations. Lastly, its presentation as categorized pattern cards enables cooking to be done in a flexibly distributed manner, allowing for a relatively large number of people to cook simultaneously. Using this method, we anticipate that there can be future applications in which such collaborative cooking workshops can be held for various recipes and for various groups.

### 5. Conclusion

This paper presented Cook-That-Dish Patterns, a new type of patterns for cooking, and focused on the Taco Patterns as an example. The new type of cooking patterns, which was explored through this research, serves as an alternative method of documenting/sharing the knowledge behind cooking a certain dish, and is effective in communicating the intentions behind each cooking process. Furthermore, using the pattern card format in the cooking process allow for cooking to be done by groups of people simultaneously, suggesting new possibilities for large-group cooking sessions. We anticipate further research on opening up the knowledge behind cooking processes to involve more people to participate in the activity of cooking.

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### We live in a time of social and cultural change.

Old patterns are losing their validity and relevance new patterns are needed and in demand.

We need a new approach which can formulate, generate and engage such patterns.

The pattern language approach of Christopher Alexander serves this purpose - the interdisciplinary and participatory building blocks for societal change.

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