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# More Spooning In The Kitchen

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**Abstract**

Cooking together is an important part of everyday life. In cooking with others we share not only the experience of creating the meal, but a social event in which people enhance their relationships through shared stories, relating daily happenings and discovering new ideas about food preparation from each other. In this study we explore the human-food interaction by analyzing peoples daily cooking practices through a digital ethnography on YouTube videos of people "cooking together" in their kitchens. From an analysis of F-formations of social encounters in the kitchen, we map interaction patterns that occur during cooking, leading to the identification of the "spooning" configuration – a close-up view over the cooks shoulder - as an important part of the human-food interaction. We will use understanding gained from this process to design kitchen technologies that support meaningful and positive social and food experiences – specifically supporting people to cook *together* at the same time, but in different places.

**Author Keywords**

Cooking together; human-food interaction; F-formations; computer supported collaborative cooking.

## **ACM Classification Keywords**

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

## **Introduction**

Cooking together is an important part of our lives. We cook with friends, families, colleagues and strangers to share not only the experience of creating a meal, but as a social event where we enhance our relationships with others through shared stories, relating daily happenings and discovering new ideas about food preparation from each other. Recently, the kitchen has become a focus for HCI research into understanding the role that technology currently plays with regard to the cooking activity and what roles it might play in the future [4].

Understanding the shared cooking experience - how the physical and social context of the kitchen influence human-food interactions - will help to generate design ideas for technological augmentation of kitchen spaces. Our digital ethnography [3] analyses user-generated YouTube video footage to study people's interactions with co-present others, physical space, cooking artefacts, as well as the remote audience (via the camera). Our specific design agenda, as an extension of past research on ecologies of blended interaction spaces for the work domain [9], is to provide people with the experience of cooking with remote family, friends and others using their respective kitchens as a single, digitally "blended" cooking space. People sharing a blended cooking interaction should experience all the same essential qualities that make collocated interaction meaningful. We identify these elements toward designing technological augmentation to create opportunities for distant friends and relatives to share

their everyday activities, with food preparation as the conversational context.

## **Background**

We take the approach that kitchens are "sites where meaning is produced, as well as meals"[1]. Inspired by smart kitchen projects, especially collaborative cooking projects, our focus is on bringing remote people together in a meaningful way using a shared cooking experience. An important challenge for HCI researchers interested in the design of new domestic technologies is to observe and make sense of people's daily practices, so that these practices can inform design and seed innovation [1]. Understanding the human-food interaction is important so that our designs do not constrain people from performing their everyday activities in the ways that they want to. Therefore, to support a distributed shared cooking experience we need to get a sense of how people move around kitchen spaces, both in respect to co-present others, and also how they physically orient to the "person in the camera", that is, the remote person they are cooking with.

In the domestic research context, traditional HCI methods of "understanding users" such as direct observation, interview and questionnaires are not always possible, desirable, or even effective in gathering information about peoples activities in their own homes. As the movie "Kitchen Stories"[6] so charmingly illustrates, it is not ideal, or even logistically possible, to sit in an observation chair in the corner of people's kitchens to observe their cooking behaviors. The movie shows, and research confirms [2], that although the home is relatively easy to access, direct observation disrupts the ordinary flow of household



**Figure 1.** Sample scene from “Cooking Together” video 57

activities and can cause people to alter their ordinary behavior. Instead we use YouTube videos to access to how conversations in the kitchen unfold, how people interact with each other, with the food, and with the physical artifacts and spaces of the kitchen environment when cooking together. YouTube is becoming a useful resource for qualitative research projects, and the presence of the camera in these user-generated videos is so *overt*, as people play to and involve the camera in their interpersonal and food interactions, that our use of it becomes *covert*, as we observe social and physical influences on interactions in the activity of “cooking together”.

The physical aspects of cooking spaces shapes the kinds of experiences people have when cooking together. As well as the natural proxemics [5] involved in cooking together, the introduction of technology creates new “interaction proxemics” [9] in respect to the cameras and display artifacts. In proxemics, *intimate* distance is 0-45cm, *personal* distance is 45-120cm, *social* distance is 120-360cm and *public* distance is anything beyond 120cm. The very activity of cooking influences the ways people locate themselves. Working side-by-side at a kitchen bench changes how people relate as opposed to working opposite each other. Facing a video camera during the interaction adds yet another level of complexity, in respect to field of view of the camera affecting the viewers perceived distance from the cook. To support their conversations, people arrange themselves spatially in different kinds of focused interactions. The F-formation (facing formation) system is a conceptual tool devised by Kendon [7] that can be used to analyse physical spaces in terms of how they support social interactions and by extension, their potential augmentation with technology



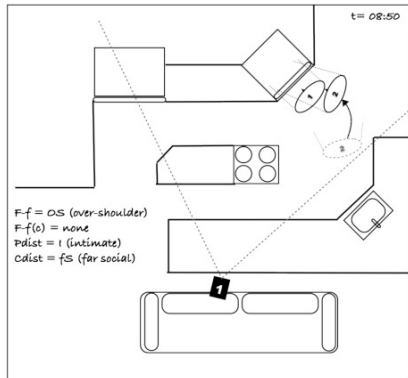
**Figure 2.** Content map of 61 analysed YouTube videos

[8]. These F-formations can be used to explore the influence of physical space on social interactions. In this system, individuals have a spaced called a *transactional segment* where people focus their attention and manipulate artefacts. An F-formation is formed when the transactional segments of two or more people overlap and create a shared inner space, where the main activity occurs, called the *o-space*. Kendon identifies the following spatial patterns that occur when people interact: *L-shaped* (standing perpendicular), *vis-à-vis* (facing) and *side-by-side* (formed by two people); *circular*, *rectangular*, *semi-circular*, and *linear* (for groups of three or more).

## The Study

In our approach, we studied a set of videos published on YouTube to understand particular nuances of the activity of people cooking together. This data source is relevant to us because we are interested in this case in people working with a camera feed. We used qualitative content analysis on a set of 169 YouTube videos comprising the search results for the keyword phrase “cooking together” on 15 November 2010, sorted by relevance (see Fig 1). After discarding non-relevant videos a final set of 61 videos were analyzed in depth.

Thirteen categories were derived from content analysis and eight main groupings from a content map (Fig 2). From each grouping: *family life*; *family cooking*; *celebrities cooking*; *amateur cooking show*; *professional cooking show*; *documentary*; *educational video* and *advertising*, a representative video was “transcribed” in detail, using a diagramming technique similar to Kendon’s [7] recording F-formations at a birthday party (p. 228). We recorded patterns of physical movement and bodily relationships of the cooks to each other and



**Figure 3.** F-formation Map of YouTube video 57

to the “remote person” (in respect to the camera view). Each frame recorded a newly established position of individuals and the position of the camera and field of view. Cooks transactional segments and o-spaces were diagrammed. Paths of movement through spaces and focal artefacts were also documented. The virtual position of the imagined viewer, made it possible to identify their participation in F-formations (see Fig 3). These maps were used to identify F-formation systems between collocated cooks; the viewer (the camera) and the cooks; and the perceived distance between the viewer and cook, using the distance classifications from Hall [5]. Identifying F-formations highlighted situations where an o-space was formed by participants’ transactional segments (including the viewer) and any focal artifacts located in that o-space. The proxemic coding indicated the intimacy of the interactions.

### Findings and Design Implications

Being able to map out whether a space provides adequate opportunities for social interactions is a good starting point from which to consider what kind of technology interventions can transform a space [8]. Focusing the digital ethnography on F-formations allowed us to identify situations when interaction with the camera, the cooking partner, and/or both, supported inclusion in the social encounter for all. In the analysis we identified a new spatial pattern that was an important part of the cooking interaction when including others. We called this pattern “spooning”. Spooning is an intimate interaction, important in showing and sharing progress during a cooking activity. People come from behind a person, both to assist and see what a person is doing. This is particularly poignant when you are viewing the activity through the camera.

A challenging consideration in designing camera and screen positions in a blended kitchen is to move away from the “stove top view” - toward supporting the kind of shared experience, i.e. an over the shoulder view of the action, and conversations around food preparation that make the human-food interaction meaningful and positive - by providing the spooning experience for our distributed cooking partners.

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