RTD2017

Proceedings of the 3rd Biennial
Research Through Design Conference

HotKarot & OpenSauce: Edible Storytelling & Design Speculations

Markéta Dolejšová, Tereza Lišková, and Martin Obert

Image credit: the authors.

RTD2017

HotKarot & OpenSauce: Edible Storytelling & Design Speculations

Markéta Dolejšová[1] , Tereza Lišková[2], Martin Obert[3]

[1] National University of Singapore, Singapore
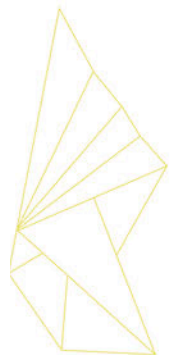marketa@u.nus.edu

[2] Material Times, Prague, Czech Republic
Tereza.Liskova@happymaterials.com

[3] Cancel 356, Prague, Czech Republic
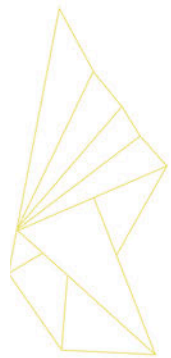martin@hotkarot.cz

Keywords: Design Research; Speculative Design; Food Design Speculations; Edible Storytelling; Social Inclusion; Female Homelessness

Abstract: The HotKarot & OpenSauce project explores the possibilities of speculative food design in encouraging social inclusion and interaction among citizens of different socioeconomic backgrounds. The project employs the associative power of taste embodied in edible storytelling prototypes that consist of a carrot hotdog served with 'narrative' sauces created in the online OpenSauce cookbook. The cookbook enables users to input various text narratives and, using the network text analysis technique, convert them into personalized sauce recipes to be served in a mobile street food bistro. As part of collaboration with the Homelike NGO providing social support to homeless women, we designed a series of "StreetSauces" made of the life stories of nine Homelike's clients. Here we report findings from an ongoing series of design probes conducted at the StreetSauce bistro, with an aim to identify the challenges and opportunities of edible speculations used in the design-oriented research.

Dolejšová, Lišková, Obert I HotKarot & OpenSauce

Introduction

HotKarot & OpenSauce (www.hotkarot.cz) is a speculative food design project using an edible storytelling artifact – a vegetarian carrot hotdog topped with personalized 'narrative' sauces made of people's stories – to create new forms of human-food interaction in a mundane street setting. While sneering at the tasteless hotdog-ketchup cult(ure), the project features a street food bistro that serves hotcarrots with a variety of digitally-enhanced sauces of unpredictable flavors. Along with the latest sauce item on the bistro menu – the so-called StreetSauces (www.streetsauce.cz) that are narrated and served by female homeless chefs – the project aims at expanding people's sensory capacities to recognize flavors of uncommon dishes and fringe lifestyles. From a research standpoint, the project probes the possibilities of material speculations (Wakkary et al. 2015) in navigating critical reasoning through edible design.
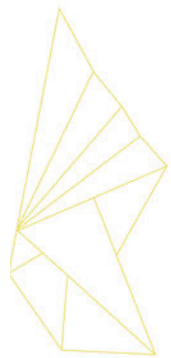
We frame the HotKarot & OpenSauce project within the broader field of food-HCI (e.g. DiSalvo 2012; Choi, Foth & Hearn 2014), specifically as a material speculation (Wakkary et al. 2015) that falls under the scope of critical and speculative design (Dunne & Raby 2013). Here we briefly outline the 5 years long genesis of the project, which was initiated as a personally motivated activity that over the time progressed into a socially engaged critical design initiative. Upon the introduction of our edible storytelling method, we discuss the StreetSauce sub-project and observations from 9 design probes organized with the street food bistro

operated by the homeless chefs in various places across the Czech Republic. Based on the challenges and opportunities encountered with the StreetSauce bistro, we outline the limitations and advantages of 'speculative food design' as a critical research practice. We conclude with a call for reflexive and responsible speculative design methods to be embraced by us as well as – possibly – other practitioners in the domain.

Edible Material Speculations

The term material speculations was introduced by Wakkary and colleagues (2015) and refers to the use of actual physical artifacts in a critical and speculative design research inquiry. Critical/speculative design methods use a critical theory based approach to challenge preconceptions about the role that products – be it tangible goods, social norms, or ideologies – play in everyday life (Dunne & Raby 2013). Unlike the design fiction approach that uses science fiction narratives and imaginary artifacts to make a critical inquiry (Bleeker 2009), material speculations use actual tangible objects to be acted upon in the present. That also applies to our edible prototypes, which serve as an actual functional design to be physically digested by the users, rather than as a 'diegetic prototype' or an imaginary prop (Kirby 2010). At the same time, the edible prototypes have a limited material existence and are intrinsically ephemeral (i.e. digestible).

The use of food in critical/speculative design projects has been advancing on many frontiers, including *designing with food* as an aesthetic object to

address issues beyond food systems, as well as *designing for food*, i.e. using food or other materials to question the status quo of the present food system and envision its possible futures. Critical and speculative food design projects have been introduced by artists, designers, as well as researchers.

Among the many examples is a Faked Meat project (2013), where the author Marie Vogelzang created a series of mock-meat dishes from fictitious animals to envision future meatless cuisines. The fictitious restaurant Bistro In Vitro (2015) 'opened' by Koert Mensvoort served conceptual dishes such as knitted meat or magic stardust-sprinkled meatballs, and invited customers to critically discuss the recent biotechnological utopias of lab-grown meat. In their De-extinction Deli project (2013) the Center from Genomic Gastronomy collective offered a speculative food future scenario of resurrecting and consuming extinct species. The Fermentation GutHub collective opened the Fermentation Bank (2015), a public space for cash-free exchanges of fermentation starter cultures (i.e. microbial media used to initiate fermentation process), and invited visitors to speculate about the possibility of 'microbial cryptocurrencies'. Food design speculations were also recognized by academia, mostly by the HCI domain (e.g. DiSalvo 2012; Dolejšová & Kaiying 2016). The last CHI'16 conference (http://chi2016.acm.org/) even hosted a separate panel on 'Food Fictions'.
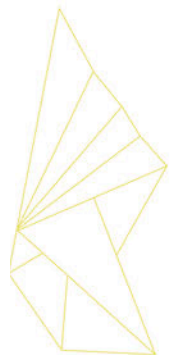
HotKarot & OpenSauce: Prototyping

The HotKarot project builds on the Czechoslovak tradition of 'bastlers' ('bastlíři' in the Czech language) – the everyday hackers and tinkerers designing low-cost alternatives to unaffordable proprietary goods and do-it-yourself (DIY) solutions to common everyday problems. In the times of Normalization in the former socialist Czechoslovakia (1968-89), 'bastling' was a common practice performed out of necessity rather than as a pure hobbyism. The idea of a vegetarian hotdog came up rather randomly, driven by our (www.cancel356.cz) collectively shared bastler attitude.

Figure 1. The HotKarot snack evolution – the inedible 'raw' phase. Photo: HotKarot.

While eating our bowls of carrot soup in a small bistro in the center of Prague, one of us kept speculating about the possible solutions to his dismal financial situation. After rejecting the options to get a nine to five

job or make enough money with his poetry, he turned off the idea of making *some money* for the idea of not spending *much money.* An inexpensive source of daily nutrition was one of the top items in his future frugality plan: with the requirement for a vegetarian, filling, and at least a little healthy and somewhat tasty meal, the combination of carrot + pastry was chosen as ideal (Figure 1).
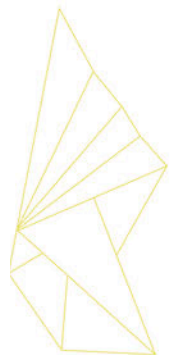

Figure 2. The first edible HotKarot & OpenSauce prototype: a cooked carrot in a pastry topped with a spinach sauce. Photo: HotKarot.

Figure 3. The HotKarot & OpenSauce mobile bistro, this time in Prague. Photo: HotKarot.

As the combination did not seem to meet the 'somewhat tasty' requirement, we got further inspired by a crowd of Tabasco sauce jars sitting on the bistro table, which eventually led to the scenario of adding a 'crowdsauced' sauce. Through a series of trial-and-error attempts to make the idea work, which involved crowdsourcing of sauce ideas from friends, as well as a series of public tasting probes, we eventually reached an edible prototype of the HotKarot & OpenSauce (Figure 2).

After a rather a rather mysterious call from a curator of a local art space, we found ourselves presenting the HotKarot & OpenSauce concept in a public PechaKucha-style event, and the message about a vegetarian carrot hotdog dish began to spread around the city like a carotene virus. Within the next three years, the frugal carrot-pastry plan became our daily bread: we built a mobile street food bistro (figure 3) and started traveling across various streets, cities, countries, and eventually also continents. Along the way, we designed the online OpenSauce cookbook (www.opensauce.cz) that to date contains over 300 personalized sauce recipes created by us as well as by other users.

OpenSauce

The interactive OpenSauce cookbook enables users to input various text narratives and convert them into personalized sauce recipes to be digested in an edible form. The key point for the conversion process are colors: all the ingredients in the cookbook are inscribed with a unique color and RGB number (e.g. tomato = red = #f05c2b). The narrative recipes are generated via a network text analysis that extracts a given number of keywords from the source text (for more details of the method see Paranyushkin 2011). The keywords are visualised in a network graph, which is mapped onto a color spectrum wheel – thereby, each node of the graph (i.e. keyword) assumes a particular spot on the wheel (i.e. color) and gets translated into an OpenSauce ingredient (Figure 4). The eventual recipe is visualised as a flock of colourful dots that represent the single ingredients; the source story is included beneath (Figure 5).

Figure 4. The OpenSauce principle. Photo: HotKarot.

Through this method, we can 'outsauce' any kind of written text: book chapters, magazine articles, biographies, conference proceedings, love letters, or birthday wishes. Thus, the OpenSauce serves as a personalized storytelling medium: each sauce tells a different story; each story has a different flavor, texture, colour, and aroma to be sensed by the users. The whole process is purposely arbitrary and designed to create surprising taste experiences as well as impromptu conversations. There is no semantic connection between the generated keywords and the names of the generated ingredients (e.g. 'pepper' as a keyword of the source text does not translate into pepper as an ingredient, and a very cheerful story does not create a recipe full of strawberries – although it possibly can). The OpenSauce randomness is further amplified through some small tweaks such as the 'love' or 'stardust' added to the list of retrievable sauce ingredients. Furthermore, the colourful dots in each recipe suggest only a rough ingredients' proportion and the exact measures are left for the user to decide.
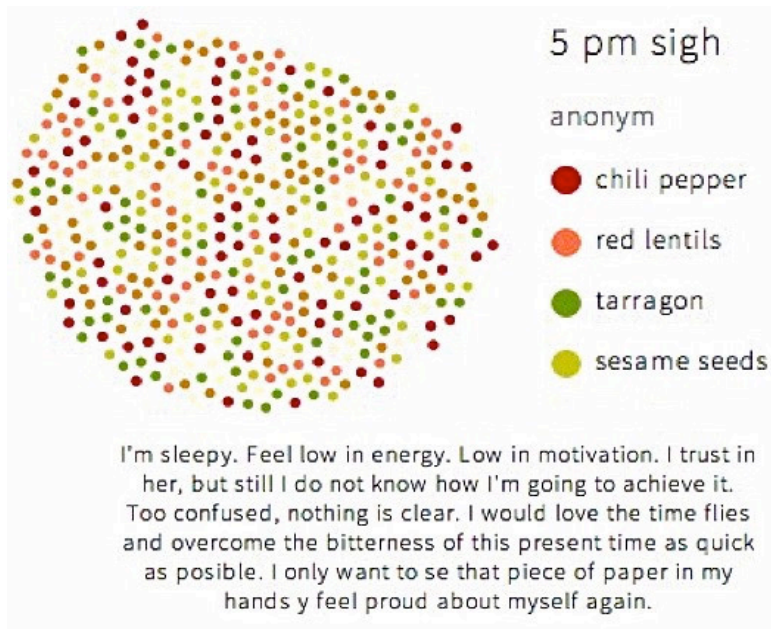
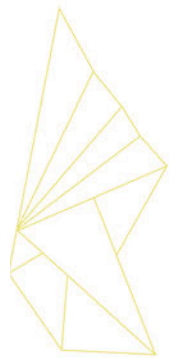Figure 5. Example of OpenSauce recipe. Photo: HotKarot.

The OpenSauce serendipity aims at provoking the users to arrive at their own self-determined understanding of social reality around them, rather than to simply accept and (re)use what has already been there. An OpenSauce recipe might consist of quite a wild combination of ingredients, and there is a chance that the recipe author will find it unpalatable or even disgusting. That creates an interesting tension. An example of such tension happened during our OpenSauce workshop

organized at the FoodCHI 2014 conference (http://foodchi.urbaninformatics.net). Before the workshop started, the conference organizers provided us with a list of participants' dietary restrictions to follow. While we fully comprehended the ethical importance of such precaution, we made it clear that we can only believe in the good intentions of the OpenSauce algorithm and wish everyone good luck. At the same time, we further encouraged all the participants to let their common sense navigate their outsaucing actions: if you are vegan or lactose intolerant and your recipe contains dairy, feel free to tweak it according to your personal needs. The OpenSauce does not follow any deterministic philosophies, dietary guidelines, food traditions, or cooking rules – if you do, be our guest. During the workshop, one participant who got trapped in the dreary situation of being lactose intolerant and having a yogurt in his recipe went out of the workshop venue to buy a soy yogurt. Others, however, felt too bad to cheat on the OpenSauce 'magic' and rather amended their story to generate another more digestible recipe. That, ironically enough, only confirmed the human obedience to 'smart' technologies that we wanted to avoid.

Edible Storytelling

The idea of using food as a storytelling medium is not new. Previous projects include Marie Vogelzang's Eat Love Budapest (2011), a one-to-one performance art piece where gypsy women narrated their life stories while feeding the visitors with a home-made food, or the Food Messaging

project (2014) where Jun Wei and colleagues envisioned new forms of social messaging through 3D printed food.

The storytelling component of the OpenSauce cookbook has **multiple modes of use**. So far, it served as a personal messaging system, a slam poetry prop, or a multisensory tarot reading device, as well as a way to present personal CV, send birthday wishes, or maintain a personal edible diary. For a conference in the Academy of Sciences Prague, we designed a series of Eschatology Sauces narrating various end-of-the-world scenarios according to different world religions, and let the audience to 'digest the apocalypse'. We found that the Buddhist ending is mild and sweet, while Christian has a bitter aftertaste (figure 6).
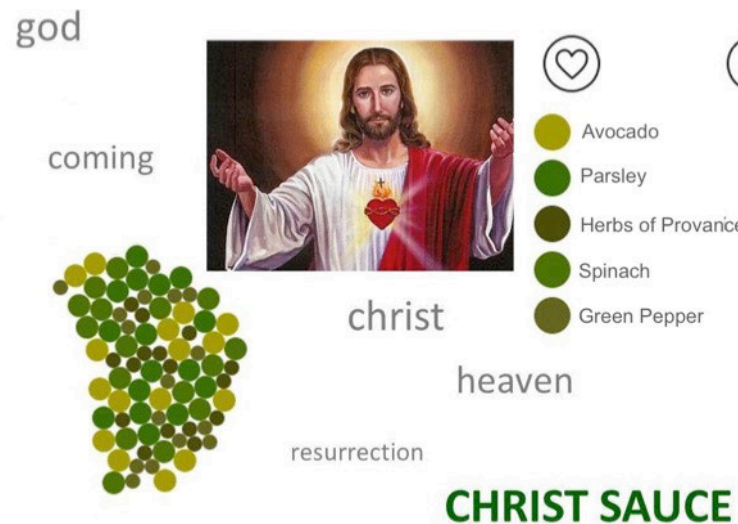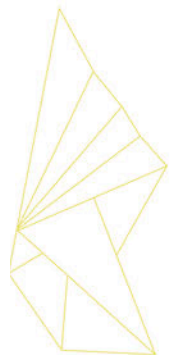

Figure 6. The Christ Sauce from the Eschatology series. Photo: HotKarot.

It felt a bit uncomfortable that the Muhammad Sauce contained red wine, but it eventually worked as a good conversation trigger that initiated a lively critical discussion among the conference attendees. One visitor even required a mixed sauce to offer his guts as a symbolical space for a 'hopefully peaceful negotiation'.

Figure 7. The Karot Tarot food prophecies. [HotKarot, 2016].

In the two days Karot Tarot Food Divination performance at the Prague Quadriennal festival (figure 7), for which we collaborated with the artist
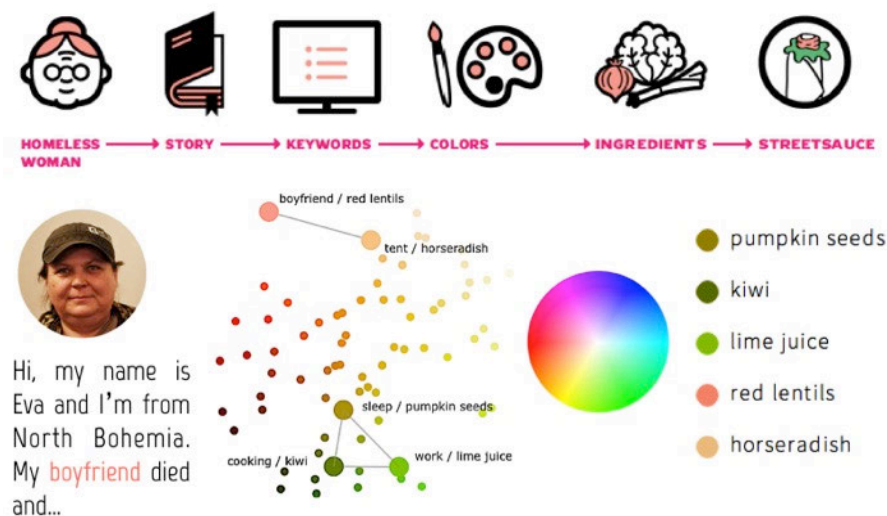
and tarot reader Darina Alster, we designed a set of sauces made from 22 tarot prophecies. During the event, Darina was providing a tarot card reading service to the visitors, who were later invited to taste their prophecies through their personal 'predestined' tarot sauce. Some visitors were unhappy about the ingredients of their sauce and required another one from the menu. We only replied that we are sorry and, well, that's life. To our pleasant surprise, many visitors did not obey to this (highly satiric) determinism and swapped their predestined snacks with each other. That enabled them not only to better satisfy their taste buds but also to learn more about their mutual prophecies and futures.

In 2014 we initiated a collaboration with the Prague-based NGO Homelike that provides social support to homeless women. At that time, Homelike was kick-starting their 'Chefs without home' initiative aiming to open a vegan bistro run by their clients, and we wanted to support their efforts. Our idea to invite the Homelike clients to make narrative OpenSauces out of their life stories and offer them together with the HotKarot snack was quickly agreed upon. Through several weeks of conversations with a group of interested clients, we co-designed a series of 'StreetSauces' made from their life stories, memories, and plans for the future (figure 8).

StreetSauce

The StreetSauce project imbued our food geeking activities with new meanings. While still keeping the speculative and humorous tone, our edible storytelling took a slightly more responsible, socially aware, or even activist tone; something we eventually started calling 'a food design for social good' (Dolejšová & Lišková 2015). The main idea here is to let the interested public to 'taste' the flavors of homeless life, and engage in conversations they might find difficult to develop otherwise. While enabling the StreetSauce chefs to cook and perform in our bistro, we aim at creating a public platform for meaningful yet not-so-serious conversations between individuals located at different levels of the socioeconomic 'food chain'.

From a broader perspective, we hope to use our speculative food design to help the Homelike organization to raise public awareness of female homelessness and highlight the often-ignored stories of women living on a street. Homeless people are usually not able to effectively communicate

their needs, as they fall out of a favorable interest of influential public figures such as politicians or celebrities. Female homelessness is a specifically sensitive form of this social exclusion that often remains 'hidden' to the public eye (Hetmánková 2013). Many homeless women are not rough sleepers without a shelter of any kind, i.e. they do not sleep on the street, but stay in temporary shelters such as asylum houses. That is also most often the case of the StreetSauce chefs, whose voices we aim to amplify through our colourful storytelling design.

So far, there have been 9 StreetSauce chefs actively operating the bistro. Some Homelike clients were initially keen on participating, but came only once or twice and eventually opted out of the project. Those who became more enthusiastic, though, gradually update their recipes and keep on experimenting with new ingredients. The chef Eva has, for instance, updated her recipe already six times, while adding her recent life experiences but also re-phrasing some moments of her past. The durability of the StreetSauce project thus brought about an interesting effect of the edible storytelling method: not only are the chefs willing to change the taste of their sauce (similarly as our FoodCHI workshop participants), but they also use it as a form of a reflexive diary, which creates an opportunity for introspection.

StreetSauce Design Probes

Along with the StreetSauce project, we switched our role from designers-as-performers to designers-as-observers and started focusing on what is going on around the bistro from a different perspective. After setting up a common ground with the chefs, we initiated a series of design probes in various public spaces including food festivals, art exhibitions, design showcases, a farmers market, as well as an everyday street. So far, we managed to organize 9 design probes with an aim to reach as diverse audience as possible (e.g. foodies, hipsters, gallery goers, or casual passersby). Over the time, the StreetSauce also began to work as a self-sustaining project organized by the Homelike members themselves, beyond the scope of our probes.

During the probes, the bistro visitors reacted differently, depending on the social context and space setting of the event. In the outdoor setting of a conventional street, which is probably the most 'natural' habitat for the StreetSauce bistro, the chefs were usually very relaxed, chatted with visitors and passersby, and enthusiastically described the stories behind their recipes (figure 9). Some visitors expressed their surprise that the chefs are 'so friendly and approachable'. At the bistro, the StreetSauce snack was served for a voluntary donation to be shared by the chefs (after the expenses on purchased material got covered). Visitors were usually willing to pay for their food and often left even more than the recommended donation amount. At the same time, if someone did not have money to pay with, the chefs always acted empathetically and served the food for free.
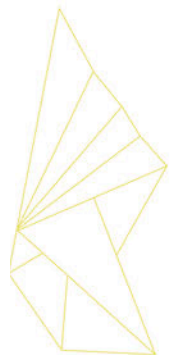
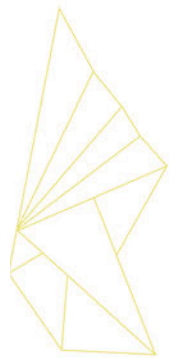Figure 9. The StreetSauce Bistro. Photo: HotKarot.

At the StreetFood festival organized in the Crossclub Prague, the bistro attracted quite a lot of attention, and we quickly ran out of our sauce supplies. The occasional compliments given to the chefs, such as that they are doing an 'incredible job', seemed to make the chefs proud. Many visitors were keen on spending some time at the bistro talking to the chefs – some of them even uploaded their own life stories into the OpenSauce cookbook and saved it as a sauce recipe. In that sense, the OpenSauce interface extended the live dialogues and served as an archive that preserves the stories in time. The reciprocal sharing of personal narratives seemed to create a friendly non-hierarchical space that leaves

some of the usual social preconceptions and stereotypes behind. For instance, the chef Helča (figure 10) recalls her conversation with a young mum with whom she, as a mother herself, shared some 'ups and downs' of motherhood. That might have – at least for a moment – blurred the distinction between the different social statuses of both women.

Figure 10. The chef Helča with her carrots. Photo: HotKarot.

At the Prague farmer's market 'Na Jiřáku', the StreetSauce bistro served as a new spectacular point of interest for the regular foodie shoppers. The bistro visitors were interested in the vegan hotdog dish rather than the StreetSauce concept itself, but those who came eventually asked about the idea; browsed through our information leaflets and posters; and

some of them event chatted with the chefs. In that case, the use of food as tantalizing multisensory design prop worked quite well and helped us to attract the public attention that we were hoping for.

At the Brick & Chic Design Showcase (figure 11) the bistro was subjected to a more critical response. The passers-by were rather hesitant to order the StreetSauce snack and some even politely refused to taste it, while not-so-silently expressing their scepticism about the bistro 'cleanliness'. The stereotypical preconception of the lower hygienic standards of the bistro and – by extension – of homeless people was seemingly painful to some of the chefs (who went through a basic cooking and bistro management tutorial covered by the Homelike organization, got their hygienic certificates for food vendors, and are fully capable to operate with food in public setting). In a conversation we had right after the event, the chef Růženka mentioned that although she enjoys cooking at the bistro, she still sees it as a peripheral intervention into the public perception of homelessness, and such activities would probably never change what people think about her. On the other hand, she mentioned that the positive feedback from some of the visitors made her feel appreciated and useful, and 'made her day a little happier'.

Figure 11. The StreetSauce chefs Eva and Růženka cooking their stories at the Brick & Chic Design showcase. Photo: HotKarot.

Reflections and Discussion

The HotKarot & OpenSauce bistro provides a conversational platform translating various personal narratives into edible storytelling artifacts, which can be tasted and discussed upon. The multisensory potential and aesthetic dynamics of food are explored as a medium to attract public attention and raise awareness of some less visible social issues and population groups. The findings presented here show that the use of food in material speculations has a potential to provoke critical reasoning. The

general familiarity of food as a mundane everyday object makes the edible speculation comprehensible, while its speculative nature (i.e. the option to taste someone's life through a sauce) makes it attractive for a broader audience. During the public events organized at the bistro, the visitors treated our speculative food as a challenge: some people had to embrace their courage even to taste the 'weird' snack; some came up with creative tweaks to make our techno-cuisine better suit their personal needs.
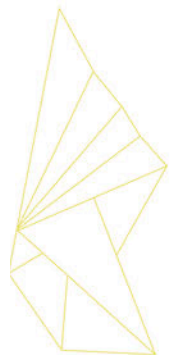
The StreetSauce collaboration shifted the HotKarot & OpenSauce project into a socially engaged (rather than personally motivated) activity. Along with the StreetSauce sauces, the bistro visitors have a chance to 'taste' the unpredictable flavors of homeless life, and also to exchange some stories with the StreetSauce chefs – people with whom they might not be able to talk otherwise. By purchasing the StreetSauce snack, they can satisfy their hunger and appreciate the chefs' labor through emotional and financial support located beyond the scope of common charity donation. The empathic exchanges of food and 'edible stories' also help to raise public awareness of female homelessness, and to some extent demystify the social stereotypes about people living without a roof over their head.

At the same time, the StreetSauce project bears some important limitations. First, the project involves women who represent only a small fragment of the homeless population. The women cooking in our bistro are willing to allocate resources to improve their life situation, and they would probably be active also without the StreetSauce project. That said, the StreetSauce offers only a peripheral support to the chefs, and its contribution to the existing scope of social work done in the field is rather minor.

The speculative design domain seems to be hesitant towards problem-solving of any sorts, and 'solutionism' is often portrayed as contradictory to the speculative design ethos (Blythe et al. 2016). Although it has never been our intention to solve anything in this world with our carrot hotdogs and sauces, we feel that the potential of projects like StreetSauce could be explored beyond the threshold of 'mere' critical commentary and awareness raising. This ambition, however, brings some doubts into our framing of the StreetSauce project as a 'speculative design': is it too tied to the present reality and the hindering social issues, too well-intended, socially engaged and solutionistic for a 'speculative design' project? Should we just stop framing it like that and choose some more appropriate (buzz)word?

While we found it convenient to present some of the HotKarot & OpenSauce projects such as the Karot Tarot in art and design venues, this setting proved to be less appropriate for the StreetSauce presentation. The occasional adversary reactions to the safety and cleanliness of the StreetSauce food, such as those at the Brick & Chic design showcase, are a troubling issue. The possibility of creating a space where the homeless ladies might get emotionally hurt is a serious problem that needs to be further reflected upon. On the occasions where we serve the HotKarot &
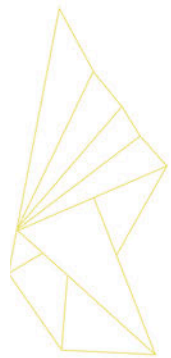
OpenSauce snack by ourselves, the ethical issues are not a big concern. However, the StreetSauce is indeed a 'different story' and requires a greater responsibility of us as designers. Was it inconsiderate to bring the StreetSauce bistro into the posh venue of the design showcase? In the future, should we rather keep the bistro on the everyday street to where it stereotypically 'belongs'? We feel that these questions and hesitations can be helpful in expanding the present discussion about the (lack of) possible distinctions between art and critical/speculative design domains that was initiated by Bardzell & Bardzell (2013) and further developed by Wakkary and colleagues (2015), who argue that material speculations can be better articulated within the everyday world rather than art gallery venues.

The HotKarot & OpenSauce was not conceived as a research project, and we learned to recognize it like that only after some time spent with cooking in the bistro. The initial personal (rather than academic, business, or otherwise professional) motivation to start the project is probably one of the main reasons behind its durability in time. Building on this observation, we would like to raise also the following issue for the RTD discussion: Is it so that many critical/speculative design interventions driven primarily by our academic motivations simply end, when a journal paper or conference proceedings get published? How to preserve a longterm impact of our critical/speculative design interventions while maintaining our scholarly positions, duties, and resources? In our case, the initial positioning of the HotKarot & OpenSauce food geeking as a personal and leisure activity, but later also as a socially engaged research

initiative, complicated our personal identification with the project. As a group of individuals with different professional backgrounds, we began to struggle to collectively define what exactly are we doing with our carrot hotdogs, and what should we do in the future. We feel that these challenges provide a good opportunity to discuss the possible connections and discrepancies between authors' motivations, professional affiliations, and the real outcomes and impacts of their critical/speculative design projects. We would like to invite other RTD attendees to revise our assumptions and discuss the issues of ethics, responsibility, and durability of critical/speculative design works with us.

Presentation of the project at RTD

The project will be presented performatively, as a food bistro operated by one of the StreetSauce chefs and some of the authors as a support. Conference participants will be invited to taste the HotKarot snack with OpenSauce made from the chef's life story and discuss the story with her, or just hang around the bistro and look into the accompanying materials (i.e. posters with the sauce recipe and the source story; an ambient audio loop with chef's voice narrating the story to be listened through headphones; the OpenSauce website with existing sauce recipes available via a laptop). Apart from the option to consume, visitors will be able to use the laptop to create their own personal sauces. In the case of any financial/personal issues preventing the StreetSauce chef from coming to Edinburgh, we will stream a live video of her cooking at the bistro in Prague, and cook the StreetSauce snack by ourselves.

Acknowledgements

Bibliography

Bardzell, J. and Bardzell, S. (2013). What is "critical" about critical design? In Proc. CHI 2013, ACM Press.

Bleecker, J. (2009). Design Fiction: A Short Essay on Design, Science, Fact and Fiction. Near Future Laboratory, 29.

Blythe, M., Andersen, K., Clarke, R., & Wright, P. (2016). Anti-Solutionist Strategies: Seriously Silly Design Fiction. Paper presented at the Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems, Santa Clara, California, USA.

Choi, J. H.-j., Foth, M., & Hearn, G. (2014). Eat, Cook, Grow: Mixing Human-Computer Interactions with Human-Food Interactions: MIT Press.

DiSalvo, C. (2012). Spectacles and Tropes: Speculative Design and Contemporary Food Cultures. The Fibreculture Journal (20 2012: Networked Utopias and Speculative Futures).

Dolejšová, M., & Kaiying, C. L. (2016). Squat & Grow: Designing Smart Human-Food Interactions in Singapore. Proceedings of the 2016 CHI Conference: SEACHI 2016 on Smart Cities for Better Living with HCI and UX, Santa Clara, California, USA.

Dunne, A., and Raby, F. (2013). Speculative everything: design, fiction, and social dreaming . MIT Press, Cambridge, MA.

Hetmánková, R. (2013). Zpátky ze dna: Zaostřeno na ženy. Jako doma, Praha.

Kirby, D. (2010). The Future Is Now: Diegetic Prototypes and the Role of Popular Films in Generating Real-World Technological Development. Social Studies of Science 40, 1, 41-70.

Paranyushkin, Dmitry. (2011). Identifying the pathways for meaning circulation using text network analysis. Berlin: Nodus Labs. Retrieved June 22, 2016 from http://noduslabs.com/research/pathways-meaning-circulation-text-network-analysis/

Wakkary, R., Odom, W., Hauser, S., Hertz, G., & Lin, H. (2015). Material Speculation: Actual Artifacts for Critical Inquiry. Paper presented at the Proceedings of The Fifth Decennial Aarhus Conference on Critical Alternatives.

Wei, J., Ma, X., & Zhao, S. (2014). Food Messaging. 2873-2882. doi:10.1145/2556288.2557.