



THE UNIVERSITY *of* EDINBURGH

Edinburgh Research Explorer

## Turin's Foodscapes: Exploring Places of Food Consumption Through the Prism of Social Practice Theory

**Citation for published version:**

Calafiore, A, Grassi, E, Boella, G & Schifanella, C 2018, Turin's Foodscapes: Exploring Places of Food Consumption Through the Prism of Social Practice Theory. in *First Workshop on Platial Analysis (PLATIAL'18)*, Heidelberg, Germany. Zenodo, pp. 37-43. <https://doi.org/10.5281/ZENODO.1472743>

**Digital Object Identifier (DOI):**

[10.5281/ZENODO.1472743](https://doi.org/10.5281/ZENODO.1472743)

**Link:**

[Link to publication record in Edinburgh Research Explorer](#)

**Document Version:**

Publisher's PDF, also known as Version of record

**Published In:**

First Workshop on Platial Analysis (PLATIAL'18), Heidelberg, Germany

**General rights**

Copyright for the publications made accessible via the Edinburgh Research Explorer is retained by the author(s) and / or other copyright owners and it is a condition of accessing these publications that users recognise and abide by the legal requirements associated with these rights.

**Take down policy**

The University of Edinburgh has made every reasonable effort to ensure that Edinburgh Research Explorer content complies with UK legislation. If you believe that the public display of this file breaches copyright please contact [openaccess@ed.ac.uk](mailto:openaccess@ed.ac.uk) providing details, and we will remove access to the work immediately and investigate your claim.



# Turin's Foodscapes: Exploring Places of Food Consumption Through the Prism of Social Practice Theory

Alessia Calafiore, Guido Boella, Elena Grassi, and Claudio Schifanella

*Department of Computer Science, University of Torino, Italy*

This contribution wishes to propose an addition to the existing toolbox of techniques employed to approach and render explicit the place semantics embedded in geosocial data. Inspired by the notion of relational place introduced by human geographers, we focused on people's experience of the city derived from the aggregation of the points of view of different social groups. We analysed socio-spatial behaviour under the frame of social practice theories, defining social practices as collective social actions performed by groups of people that display a similar behaviour. Applying spatial pattern analysis and clustering on data extracted from TripAdvisor platform, we classified social groups of users depending on our prior knowledge and their spatial behaviours.

**Keywords:** place; social practice; food consumption; TripAdvisor

## 1 Introduction

The wealth of information generated by users' interaction on social media and web-based platforms have been the object of extensive exploration in the last decade. A large part of the information collected via social media is nowadays georeferenced and this has brought such platforms to be considered valuable sources for geospatial analysis and urban planning, along with official data provided by institutional agencies (Ballatore and De Sabbata, 2018; Bello-Orgaz et al., 2016; Campagna, 2016; Guo et al., 2017; Kelley, 2013; Rzeszewski, 2018; Shelton et al., 2015). Data that populate geosocial platforms are produced by a non-expert public and have the potential to provide a description of the city derived from the aggregation of many heterogeneous points of view and experiences (Elwood, 2008). Therefore, insights that can be extracted from such sources should be interpreted under a *platial* rather than purely spatial perspective. Place identity, differently from space, is directly related to people socio-spatial behaviours. This contribution wishes to explore the socio-spatial behaviour that emerges from these new bottom-up sources of information under the prism of social practice theory. The concept of social practice has been considered by philosophers and social scientists such as Tuomela (2002), Schatzki (1996), and Giddens (1986) as the minimum unit to analyse people behaviour and describe social phenomena. Furthermore, social practices have been treated in urban studies (Brenner and Schmid, 2015; McFarlane, 2011)<sup>1</sup> and social geography (Massey, 1994; Murdoch, 2005; Soja, 1989) as the proxy to understand the multiple identities of urban places from a relational perspective.

The data employed in this analysis come from the TripAdvisor website<sup>2</sup>, and are instrumental to test methods for clustering users' behaviour in terms of social practices. In particular we try to discover place-related regularities in the practice of food consumption in the city of Turin, Italy.

---

A Calafiore, G Boella, E Grassi, and C Schifanella (2018): *Turin's Foodscapes: Exploring Places of Food Consumption Through the Prism of Social Practice Theory*. In: R Westerholt, F-B Mocnik, and A Zipf (eds.), Proceedings of the 1st Workshop on Platial Analysis (PLATIAL'18), pp. 37–43

<https://doi.org/10.5281/zenodo.1472743>



First Workshop on Platial Analysis (PLATIAL'18)  
Heidelberg, Germany; 20–21 September 2018

Copyright © by the authors. Licensed under Creative Commons Attribution 4.0 License.



Figure 1: A typical restaurant page. Fields extracted are underlined in light grey.

## 2 A Platial Perspective on Cityscapes Through the Lens of Social Practice Theory

Place, differently from space, has been conceptualized as directly dependent on people experiences. As a consequence, our analysis aims at rendering explicit the social nature of people’s spatial behaviour. In order to do so, employing crowdsourced geographic data, we refer to social practice theory. There are many variants of social practice theory, among them the most comprehensive frameworks can be found in the works of Shove et al. (2012), focused on analysing changes in social practices and incorporating materiality in their conceptualization; Reckwitz (2002) approaching social practice theory from a culturalist perspective, therefore placing the social in relation with symbolic and cognitive structures of knowledge; Schatzki (1996) defining the site of the social as bundles of practices and material arrangements; and Tuomela (2002) considering social practice as a collective social action centred on the *we-attitude* of its participants. To the purposes of our work, we use Tuomela’s definition of social practices (Tuomela, 2002) since it specifically introduces the notion of *we-attitude* to unify participants of a practice by their shared intentionality. He claimed that “the core sense of a social practice is to be a repeatedly performed collective social action, because of a certain shared *we-attitude*, where the *we-attitude* must be a primary reason for the repeated activity, one without which the agents would not take part in it”. Therefore, given Tuomela’s conceptualization, social practices must be associated with a *we-attitude* which is shared within a group of people. For example, someone’s decision to go to a restaurant in the city centre can be occasional or recurrent – in the latter, we can assume that there is, besides the desire to go out for dinner or lunch, something else motivating the choice, e. g., that the person likes the city centre more than other areas. However, when we recognize a social trend, i. e., when the action is recurrent not only for an individual but for a significant number of people, we can consider it as a social practice, since what motivates the action is shared collectively (i. e., eating out in the city centre is considered to be “cool”). To identify this collective intentionality (*we-attitude*) we followed two directions. First, we selected activities performed by members of the same social group, which we knew a-priori from the datasets (Italian tourists, Turin locals, foreign tourists) and verified whether a convergence existed in their spatial behaviours. Secondly, we tried to detect emergent social groups, to cluster users according to their spatial behaviours, and to measure the similarity among cluster’s members and dissimilarity with others.

## 3 Datasets description

The information extraction of the TripAdvisor platform produced two datasets about Turin’s restaurants and the respective reviews. The first dataset consists of a scrape of the result page of the query: “restaurant in Turin”. Dataset one consists of 2116 observations, of which 1886 are within the Turin city boundaries. The addresses of all restaurants have been geocoded and mapped, and to each restaurant has been attached information about the cuisine type, ratings and average cost. Figure 1 shows a typical restaurant page in TripAdvisor highlighting the fields which have been extracted.

The second dataset consists of an extraction of each restaurant’s individual page, scraping reviews posted in four different languages: Italian, English, French, and Spanish. We count a total of 238,394 reviews from 2007 to 2016, of which 95% written in Italian and only 5% in the other languages.

Each review has a date, a title, and an excerpt, it is associated with the user id, user name, and the city where the user comes from. Not all user profiles have their origin set. We assume that all the reviews made in languages other than Italian have been added by foreign tourists. In order to distinguish among Italian tourists and Turin’s residents we subset the original dataset to have only users with the origin set and we filtered users whose origin is Turin or not (details on the distribution of total review by group are presented in Section 4.1). To count users we used as identifier the “userID”,

**Table 1:** Social groups on TripAdvisor

Social Group	Number of users	Number of reviews	Avg. reviews per user
Italian Tourists	45,404	93,961	2.069
Foreign Tourists	15,863	15,954	1.005
Turin Locals	28,000	104,815	3.743

“userName”, and “userOrigin”. However, some of them could not be recognized as individual users. This problem raises from the integration between Facebook’s login and TripAdvisor’s login. In some cases, indeed, we only know that the user is “A member of TripAdvisor on Facebook”. Depending on the privacy settings users can decide not to provide any information to TripAdvisor. These users cannot be clearly distinguished among each other, therefore they are not included.

## 4 Results

### 4.1 Comparing Social Groups’ Spatial Behaviours

In the present work we consider the activity of reviewing restaurants a proxy for two different social practices: that of using TripAdvisor itself and, assuming that users have actually visited the restaurants they review, the practice of eating out in Turin.

In light of the latter, we now try to identify different social groups in the data and compare their collective preferences regarding where to eat out in the city of Turin. We use our a-priori knowledge of users’ origins to filter reviews made by each social group: Italian tourist, foreign tourist, and Turin locals. The reviews from which we extract the users’ origin are 214,730 (90% of the total). Table 1 shows the number of users belonging to different social groups as well as the total reviews each group has posted. Although the number of reviews posted by tourists (Italian plus foreign) is slightly higher than the number of reviews posted by Turin locals, the latter are the most active in producing contents, posting 3.7 reviews on average. This is rather expected given that locals have more opportunities to visit Turin’s restaurants while tourists may be in Turin for a limited time and may not visit the city again.

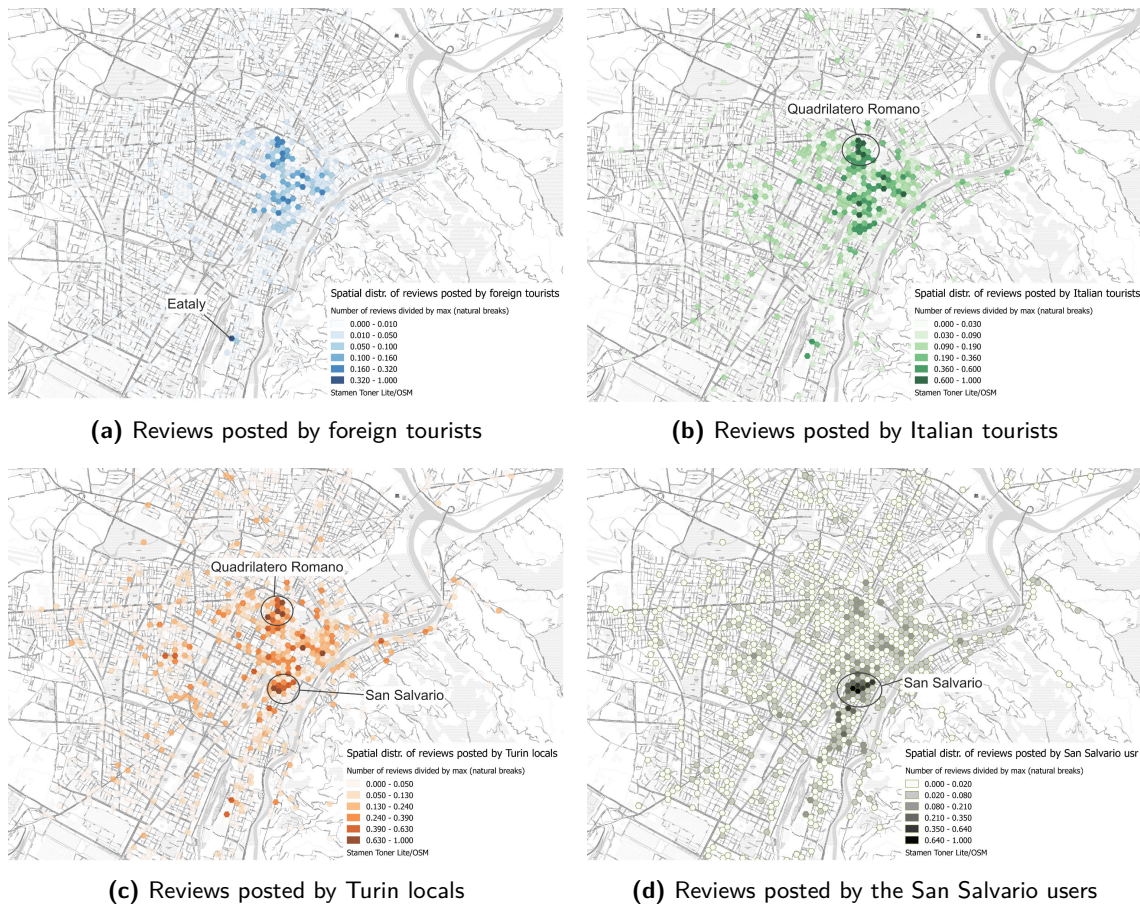
To evaluate how reviews posted by different social groups are spatialized we employed a grid of 971 hexagons of 33,000 m<sup>2</sup> each<sup>3</sup>. The area has been chosen to approximate the average area of the 92 census tracts of Turin. The reviews posted by members of each social group have been aggregated by cell. The resulting spatial distributions have been transformed dividing by the maximum of each distribution to render them comparable. Figures 2a, 2b and 2c show the spatial distributions of the three social groups.

### 4.2 Identifying Emergent Social Groups from Spatial Behaviour

Now we try to identify *emergent* social groups of users, unified by a shared we-attitude towards eating out in certain areas rather than others. We specifically investigated user preferences in visiting certain neighbourhoods of the city. We employed the neighbourhood as geographical unit since it better refers to what Egenhofer and Mark (1995) define the “naive geography” of the city. Neighbourhoods have been defined as a “key living space [...] which symbolizes aspects of the identity of those living there to themselves and to outsiders” (Meegan and Mitchell, 2001). Given the strong symbolic meanings people associate with neighbourhoods, we hypothesized that identifying clusters of users, depending on their neighbourhood preference structure, may help us recognizing possible shared additional reasons (a we-attitude) that motivate people in performing the “eating out” activity in certain areas.

We applied the K-Means algorithm to the data, a commonly used, simple but generally rather efficient clustering method. Essentially, the algorithm intends to partition  $n$  objects into  $k$  clusters in which each object belongs to the cluster with the nearest mean. This method produces exactly  $k$  different clusters of greatest possible distinction. The problem of this method is that the best number of clusters  $k$ , leading to the greatest dissimilarity between clusters, must be decided a priori. Since the objective of K-Means clustering is to minimize total intra-cluster variance or the squared error





**Figure 2:** Maps displaying the popular areas for each social group. Spatial distributions have been transformed dividing by the maximum.

function, we can evaluate which number of clusters minimizes the squared error running it  $n$  times and look at the total within clusters sum of squares.

The errors decrease significantly until  $k$  equals 5, therefore, we run the algorithm to result in 5 clusters. We run the K-means algorithm set with  $k = 5$  on an  $m \times n$  matrix where  $m$  is the number of users and  $n$  is the number of Turin's neighbourhoods. Each  $a_{mn}$  corresponds to the sum of reviews the  $m$ -th user has posted in restaurants located in the  $n$ -th neighbourhood. It resulted that user groups display very similar behaviour regarding the favourite neighbourhood – the global maximum corresponds to the city centre in clusters 1, 2, 3, and 5. While the strong preference of dining out in the city centre is rather expected, the distribution of reviews made by users belonging to cluster 4 changes significantly. The latter, compared to other clusters, has a very low number of reviews in the city centre and a global maximum corresponding to the San Salvario neighbourhood. What the analysis seems to highlight is the existence of a group of users who consistently visit San Salvario but very seldom dine out in other areas of the city. No other neighbourhood, including the most visited part of the city, the city centre, shows such a pattern. In our view, this circumstance is particularly significant. As a consequence of this result, we decided to consider those users as members of an emergent social collective, performing the same social practice of dining out in San Salvario, which we called *San Salvario users*.

## 5 Mapping Turin Foodscapes

Figure 2 displays the distribution of tourists' (foreign and Italian), Turin locals, and San Salvario users reviews<sup>4</sup>. Foreign tourists, as expected, tend to visit mostly the city centre. However, the maximum

number of reviews posted by foreign tourists corresponds to the area where the Eataly restaurant is located (no other restaurants are present within that cell), in the southern district of Lingotto. Eataly is a famous multinational chain of Italian high quality food; the same place is similarly very much reviewed by Italian tourists (see Figure 2b), but less by Turin locals (see Figure 2c). Comparing to foreign tourists, the spatial distribution of reviews posted by Italian tourists shows a more varied distribution of the peak areas (dark green). A cluster of cells with the highest values of reviews corresponds to the Quadrilatero Romano area (a portion of the city centre that is also the oldest part of Turin). Figure 2c shows Turin locals reviews' spatial distribution, which is similar to that of Italian tourist but differs from it in two regards: Eataly is not in the highest classes and a cluster in the San Salvario area is visible in addition to the one in Quadrilatero Romano. From this analysis we recognized at least three social practices related to social groups: tourists (particularly foreign) visit Eataly, Italian tourists prefer to dine out in the Quadrilatero Romano area, and Turin locals have two hot spots, Quadrilatero Romano and San Salvario. A fourth social group was detected through the clustering as the one of San Salvario (Figure 2d), *aficionados*, which clearly shows a peak in the area of San Salvario and low usage of other areas.

The construction of an identity of San Salvario as the neighbourhood of choice for night life venues is not new and is confirmed also by other studies about the city, which described some of the existing and potential consequences of this phenomenon. In particular, the increase in popularity of the neighbourhood has impacted the life of the residents, divided between those who desire quiet nights and those who enjoy a lively neighbourhood and, as warned by Semi (2015), face the risk of a gentrification driven by the nightlife change<sup>5</sup>. Therefore, what resulted from the data, even if in relation to a single social practice (dining out), mirrors quite well a specific social perspective from which we can see a part of the city, particularly from the perspective of Turin locals and a mixed group which favours to dine out only in San Salvario.

## 6 Conclusions

This work explored methods to detect social practices related to food consumption in the city of Turin from crowdsourced data. The data sample we have extracted is about Turin's restaurants, so that the great majority of the reviews are written in Italian. Also, we assumed that no Italian resident has written reviews in languages other than Italian. Moreover, a clear bias of our study is given by the fact that reviews do not correspond to actual visits. TripAdvisor, as well as other platforms<sup>6</sup>, are now allowing to make table reservations. Such data may allow less biased analysis. Framing our work in social practice theories drove us to associate spatial behaviours with specific groups of people, which show a shared collective intentionality. To this regard we believe the approach proposed has the potential to render explicit the multiplicity which emerges from the different ways people experience and use spaces. As Mela et al. (2014) maintains, "the choice of a specific space implies a broader selective act, whether conscious or not: in accepting the possibility of encountering a particular set of individuals, with whom one identifies, also diminishes the probability of encountering another". The methods applied in this work are specifically designed to identify the selective function that people embed when choosing where to dine out, looking at behaviours that are similar within a group and dissimilar to the others. Our contribution shows that, even with a single source of information, it is possible to identify emergent behavioural patterns associated with specific social groups, which use the city in different ways. Further case studies with richer and diverse data sources are certainly needed. The approach presented here can, in fact, be applied to domains other than that of dining habits: possible applications include extracting knowledge about the use of public space through the recognition of social practices associated to different demographics (who visits public spaces, e. g., young/old, male/female geographies) or interests (why visiting certain public spaces, e. g., sport, culture, tourism).

### Notes

1. Note that the two authors have different theoretical approaches to define urbanization process. However, in both cases urban practices play a crucial role in the characterization of urban spaces.

2. <http://www.tripadvisor.com>. The domain extensions employed to this analysis are .com to retrieve reviews in English; .it, for the reviews written in Italian; and .es and .fr, for the reviews in Spanish and French respectively.
3. We used hexagonal cells in line with recent works (Poorthuis and Zook, 2014; Rzeszewski, 2018; Shelton et al., 2014), which favour them to rectangular grids for essentially two reasons: hexagons can be more easily varied in size to address the modifiable areal unit problem and they share six instead of four neighbourhoods, which is an advantage for statistical analysis.
4. The number of reviews have been normalized dividing by the maximum of each distribution. Maps classes have been computed using the natural break function.
5. A similar pattern of change involved the Quadrilatero area, where the increasing number of restaurants and pubs was also accompanied by a change of the residents' social background.
6. for example, Open Table (<https://www.opentable.com>) and Yelp (<https://www.yelpreservations.com>)

## References

- Ballatore, Andrea and De Sabbata, Stefano: *Charting the geographies of crowdsourced information in Greater London*. Proceedings of the 21st AGILE Conference on Geographic Information Science, 2018, 149–168. doi: 10.1007/978-3-319-78208-9\_8
- Bello-Orgaz, Gema; Jung, Jason J; and Camacho, David: *Social big data: recent achievements and new challenges*. Information Fusion, 28, 2016, 45–59. doi: 10.1016/j.inffus.2015.08.005
- Brenner, Neil and Schmid, Christian: *Towards a new epistemology of the urban?* City, 19(2–3), 2015, 151–182. doi: 10.1080/13604813.2015.1014712
- Campagna, Michele: *Social media geographic information: why social is special when it goes spatial?* In: Capineri, C; Haklay, M; Huang, H; et al. (eds.), *European Handbook of Crowdsourced Geographic Information*, London, UK: Ubiquity, 2016. 45–54. doi: 10.5334/bax.d.
- Egenhofer, Max J and Mark, David M: *Naive geography*. Proceedings of the International Conference GIS, From Space to Territory: Theories and Methods of Spatio-Temporal Reasoning, 1995, 1–15. doi: 10.1007/3-540-60392-1\_1
- Elwood, Sarah: *Volunteered geographic information: key questions, concepts and methods to guide emerging research and practice*. GeoJournal, 72(3–4), 2008, 133–135. doi: 10.1007/s10708-008-9187-z
- Giddens, Anthony: *The constitution of society. Outline of the theory of structuration*. Oakland, CA: University of California Press, 1986
- Guo, Weisi; Donate, Guillem Mosquera; Law, Stephen; et al.: *Urban analytics: multiplexed and dynamic community networks*. arxiv:1706.05535v2 [cs.SI], 2017
- Kelley, Matthew James: *The emergent urban imaginaries of geosocial media*. GeoJournal, 78(1), 2013, 181–203. doi: 10.1007/s10708-011-9439-1
- Massey, Doreen: *Space, Place and Gender*. Cambridge, UK: Polity, 1994
- McFarlane, Colin: *The city as assemblage: dwelling and urban space*. Environment and Planning D: Society and Space, 29(4), 2011, 649–671. doi: 10.1068/d4710
- Meegan, Richard and Mitchell, Alison: *'it's not community round here, it's neighbourhood': neighbourhood change and cohesion in urban regeneration policies*. Urban Studies, 38(12), 2001, 2167–2194. doi: 10.1080/00420980120087117
- Mela, Alfredo; Chiodi, Sarah; Novascone, Roberta; et al.: *La città con-divisa. Lo spazio pubblico a Torino*. Milan, Italy: FrancoAngeli, 2014

Murdoch, Jon: *Post-structuralist geography: a guide to relational space*. London, UK: Sage, 2005. doi: 10.1111/j.1467-8306.2007.00587.x

Poorthuis, Ate and Zook, Matthew: *Artists and bankers and hipsters, oh my! Mapping tweets in the New York Metropolitan Region*. *Cityscape*, 16(2), 2014, 169–172

Reckwitz, Andreas: *Toward a theory of social practices: a development in culturalist theorizing*. *European Journal of Social Theory*, 5(2), 2002, 243–263

Rzeszewski, Michal: *Geosocial capta in geographical research—a critical analysis*. *Cartography and Geographic Information Science*, 45(1), 2018, 18–30. doi: 10.1080/15230406.2016.1229221

Schatzki, Theodore R: *Social practices. A Wittgensteinian approach to human activity and the social*. Cambridge, UK: Cambridge University Press, 1996. doi: 10.1017/CBO9780511527470

Semi, Giovanni: *Gentrification. Tutte le città come Disneyland*. Bologna, Italy: Il Mulino, 2015

Shelton, Taylor; Poorthuis, Ate; Graham, Mark; and Zook, Matthew: *Mapping the data shadows of hurricane Sandy: uncovering the sociospatial dimensions of 'big data'*. *Geoforum*, 52, 2014, 167–179. doi: 10.1016/j.geoforum.2014.01.006

Shelton, Taylor; Poorthuis, Ate; and Zook, Matthew: *Social media and the city: rethinking urban socio-spatial inequality using user-generated geographic information*. *Landscape and Urban Planning*, 142, 2015, 198–211. doi: 10.1016/j.landurbplan.2015.02.020

Shove, Elizabeth; Pantzar, Mika; and Watson, Matt: *The dynamics of social practice: everyday life and how it changes*. London, UK: Sage, 2012. doi: 10.4135/9781446250655

Soja, Edward W: *Postmodern geographies: the reassertion of space in critical social theory*. London, UK: Verso, 1989

Tuomela, Raimo: *The philosophy of social practices: a collective acceptance view*. Cambridge, UK: Cambridge University Press, 2002. doi: 10.1017/CBO9780511487446