

Social Spaces as Conceptual Spaces: Feminism as a Case Study

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This paper argues that the conceptual spaces framework (CSF) [3] can be useful for analyzing complex social domains. CSF is a formal framework for analyzing the structure of concepts, which proposes that concepts can be represented geometrically, as regions in similarity spaces. One of its strengths is its empirically-focused methodology, which allows researchers to infer the boundaries of concepts directly from empirical data, thus eliminating the need to rely on researchers' intuitions about meanings [2].

While the CSF has been shown to be successful when applied to perceptual concepts—giving rise to temporal spaces, auditory spaces, color spaces, shape spaces, and more (see [4] for an overview)—researchers have wondered whether the framework can be extended to cover nonperceptual domains as well. In particular, once we leave behind the cognitively basic domains and move to more complicated social ones, can the framework, and its experimental methodology, still be enlighteningly applied? Presenting a pilot study on a complex social and political conceptual domain—that of feminism in France—this paper argues that it can.

1 Social Spaces as Conceptual Spaces

Conceptual spaces are derived from empirical data by means of statistical techniques called *multidimensional scaling* (MDS), an optimization procedure that aims to construct a geometric object reflecting the relative similarities. In a typical procedure (see, e.g., [2]), participants are first presented with pairs of stimuli taken from a given conceptual domain and are asked to judge how similar the members of the pair are. MDS is then applied to the resulting matrix of similarity judgments to construct an n -dimensional similarity space in which the different stimuli can be located. In a second procedure, the same or a different group of participants is asked to identify the stimuli they deem most typical for some predicates related to the domain at issue. Finally, the similarity space combined with the prototype information is used to construct a conceptual space by applying the mathematical technique of Voronoi tessellation (see [2, 3] for details).

Applying the methodology described above to a complex social domain like feminism is challenging. First, because reliably constructing a similarity space requires a great many similarity judgments, the number of participants needed is quite high. Unlike with sensory domains, investigating French feminism requires access to participants who are knowledgeable about this social movement, which limits the participant pool. Furthermore, historical and

sociological research [5] shows that an individual’s feminism strongly depends on age, race, and personal experience, so that having a single participant perform both the similarity judgment task and the typicality task is crucial to understanding how such social variation may affect conceptual structure. Second, unlike in the case of perceptual concepts, it is not immediately clear what the relevant domain of objects exemplifying French feminism should be, nor how to generate them in a “bottom up” manner. This problem applies equally to the set of natural language predicates used in the typicality part of the experiment.

We suggest that research on *social spaces* in sociology, particularly [1], may hold answers to these questions. Deauvieu et al. developed an experimental paradigm to construct similarity spaces for everyday French people’s understandings of social class. They created thirty-three cards each describing a person based on a range of sociological information. They asked French participants to arrange the cards into at most ten groups based on the social position of the individual described on the card, to name each of their groups and identify its most representative member. Based on these categorizations, Deauvieu et al. then used MDS to construct a similarity space. Unfortunately, while Deauvieu et al. collected all the data needed to construct a conceptual space, they did not analyze their data associated with group labels and prototypes. In what follows, we describe a pilot study applying the methodology of Deauvieu et al.’s experiment to the domain of French feminism, with the goal of arriving at a conceptual space representing crucial concepts from this complex social domain.

2 Pilot study on French feminism

Inspired by [1], we took the relevant set of objects that exemplify a social domain to be people. In order to generate a list of relevant feminists in a “bottom up” manner, we based ourselves on the *CaFé* corpus (Abbou & Burnett, 2022), a corpus of interviews with feminist activists in Paris. From *CaFé*, we extracted all the occurrences of proper names cited by feminists in their interviews, and then used the thirty most cited feminist figures in the corpus as our domain of objects to be categorized. Since this was a pilot study to test our methodology, we asked twenty self-identified feminists in our entourage to perform the same tasks as in Deauvieu et al.’s study: participants were asked to sort as many of the thirty names that they recognized into at most ten groups; to give a label to each group; and to identify the most representative

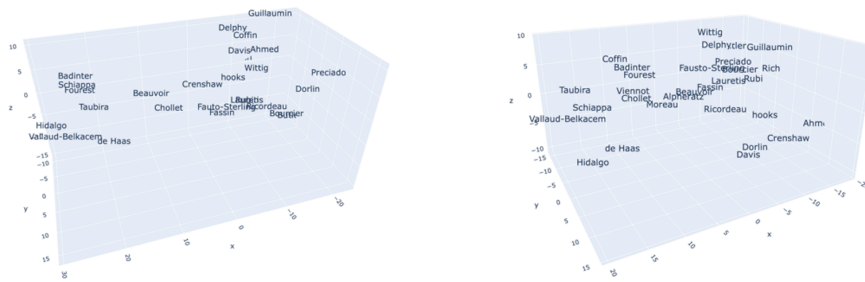


Fig. 1. Three-dimensional similarity spaces: intersectional (left) versus materialist (right)

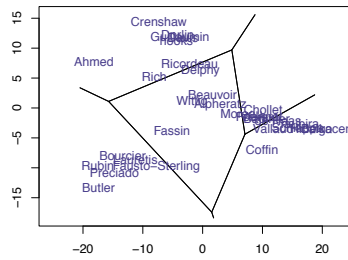


Fig. 2. Two-dimensional conceptual space of Parisian materialist feminism

member of each group. We also collected some demographic data about each participant, as well as information about their activism and which “feminist current” they identified with.

Following Deauvieu et al., we constructed a matrix of pairs $\langle o_n, o_m \rangle$ encoding how often objects o_n and o_m were classified in the same group. We then transformed our matrix pairs into distances and ran MDS analyses in R (using the MASS package). Based on the *Goodness of Fit* (GOF) values, we concluded that the best way to represent our data was by using a three-dimensional Manhattan space. The GOF value of the general space equalled 0.66, suggesting that our participants’ categorizations were relatively consistent and, furthermore, that application of the CSF to this social domain is promising. Importantly, the GOF value increased when we separated participants based on which feminist current they self-ascribed to. Figure 1 compares the similarity spaces based on the judgments of those participants who self-describe as *materialist* (GOF: 0.69) versus *intersectional* (GOF: 0.74). The difference between these spaces gives our second main result: people carve up the social space differently depending on their political positioning.

Using the `deldir` package for R, we were able to provide a proof of principle that one can obtain a full conceptual space from the data at hand. Specifically, we started by extracting the list of names that were most commonly cited as most representative of a category. We then used these as prototypes to create a Voronoi tessellation of the two-dimensional materialist similarity space (which still had acceptable goodness of fit), thereby obtaining the conceptual space shown in Figure 2. The cells are largely interpretable in light of the recurrent labels used to describe the groupings. Our results are preliminary evidence that the CSF can be meaningfully applied in the social domain.

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