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Compartmentalization as the norm: Exploring the bundling of (un-)sustainable practices in Germany

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ABSTRACT

In the face of intensifying socio-ecological crisis phenomena, a public and academic discourse of urgency has developed with regard to the sustainable transformation of lifestyles. However, in reality, individuals prove resistant to normative calls for more sustainable consumption and consumption patterns often remain inconsistent across different domains of everyday life. A variety of relatively well-studied causes exist for this (e.g., behavioral lock-ins or motivational goal conflicts). Nevertheless, it remains crucial to empirically investigate questions such as: Between which everyday domains are relations of congruence or incongruence particularly pronounced? And how do these relations differ with sociodemographic variables?

Starting from a practice theoretical perspective on everyday life, I present empirical findings on the clustering of (un-)sustainable everyday practices in the fields of energy, food, and mobility. Drawing on population representative survey data from the German cities of Muenster and Stuttgart (n = 2005), I identify six distinct clusters of (un-)sustainable practice patterns by combining a multiple correspondence analysis and a hierarchical cluster analysis. Furthermore, I show how these clusters relate to sociodemographic characteristics. My overall analysis reveals that compartmentalization rather than congruence of (un-)sustainable everyday practices is the empirical norm. However, two clusters represent uniformly (un-)sustainable performances of practices but each only account for less than 10% of the surveyed population.

1. Introduction

In the context of sustainability transitions, a mix of efficiency, sufficiency and consistency strategies is usually called for in order make societal metabolism compatible with ecological limits. At the individual or household levels, these strategies range from consuming resources more efficiently by adopting improved technologies, to simply consuming less or substituting environmentally harmful products with environmentally friendly ones [1]. Policy-makers, officials and civil society organizations alike demand a greening of lifestyles, in order to lower the ecological impact of household consumption and tackle humanity's grand socio-ecological challenges. However, apart from niches, a substantial greening of lifestyles has yet failed to materialize throughout late-modern societies. Individuals seem to be locked into resource- and carbon-intense lifestyles and everyday practices. While there is an uptake of sustainable practices in some domains within specific social strata—e.g., increasing vegetarianism in young urban milieus—a coherent resource-light and low-carbon conduct of everyday life does not seem to be emerging on a broader scale. In the conduct of everyday life, a combination of sustainable and unsustainable practices seems to be the norm, varying in its structure across different social milieus. Needless to say, the labeling of practices as (un-)sustainable and the normative demand to perform practices sustainably or to participate in sustainable practices, respectively, is always an ascription from others (e.g., researchers, activists, politicians) that is not necessarily shared by the individuals involved in the respective practices. These individuals may hold other primary action orientations while solving everyday action problems, or hardly have any degree of freedom over the way they conduct their everyday lives (see e.g., [2]). This is what both pragmatist action theory and practice theories suggest (see e.g., [3]). Thus, despite the emergence of sustainability as a guiding principle of economic activities as well as a way of conducting everyday life [4], it is actually not surprising that individuals' participation in sustainable everyday practices appears to be at best fragmented. Nevertheless, the reduction of CO_2 emissions produced by households in late-modern societies requires a simultaneous and deep transition in the everyday practice domains of eating, mobility, housing and resource consumption in general [5]. This not only calls for changes in everyday practices, but also requires

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changes in infrastructures, supply systems and policies that currently stabilize, normalize and (re-)enforce resource- and CO_2-intense everyday practices. In this context, it is crucial to understand how consumption patterns are structured and how resource consumption practices interlink in everyday life, so that potential pathways for sustainable transformations of everyday life can be identified [6].

This analysis uses a practice theories perspective as a 'theoretical lens' for developing a conceptual understanding of everyday life. Andreas Reckwitz defines a practice as "a routinized way in which bodies are moved, objects are handled, subjects are treated, things are described and the world is understood" [7,p. 250]. Practices are formed by interrelated activities that constitute certain ways of doing, such as showering, cooking, washing or cycling. From a practice theory perspective, individuals are crossing points and carriers of practices [8,7,p. 256]. This means that they perform different practices during their everyday life. The (un-)sustainability of lifestyles—which can, according to Anthony Giddens, be understood as more or less coherent sets of practices [9,p. 81]—depends on the real-world performance of practices. This means, the type of performed practices as well as the specific way in which they are performed is crucial for the resource and CO_2 intensity of different lifestyles. As will be further illustrated below, there is empirical evidence of both congruence and compartmentalization of the performance of sustainable practices in everyday life. Thus, some practices seem to form coherent patterns with regard to their sustainability while others don't. This study empirically explores the formation and structure of (un-)sustainable practice constellations in the performance of everyday life. Here, the term practice constellation denotes a set of performances of practices that empirically co-occur. The study analyzes representative survey data collected from inhabitants in two German cities, Stuttgart and Muenster, which contain information about the performance of different everyday life practices. This explorative empirical analysis is guided by the following research questions: How are associations between (un-)sustainable everyday practices structured? Which (un-)sustainable everyday practices co-occur? To what extent is the structure of (un-)sustainable everyday practices associated with sociodemographics?

2. State of research: compartmentalization or congruence?

Consumption patterns of private households in the areas of home heating, domestic energy use, transportation and food significantly impact their overall resource use and CO_2 emissions [10–12]. Thus, sustainability-oriented research in the social sciences has a longstanding tradition of analyzing the formation and structure of (un-)sustainable household consumption patterns. One crucial question here is: How and under which circumstances are behaviors organized in a congruent way, in terms of their resource and CO_2 intensity, so that they form coherent sustainable patterns?

Social-psychological research has particularly contributed to an enhanced understanding of how self-identity, self-efficacy beliefs, moral self-regulation, values, knowledge and norms influence positive or negative spillover between different behaviors. Spillover can thereby be understood as "an observable and causal effect one behavior has on another" [13,p. 2]. This strand of research focuses on the mental processes underlying the formation of (un-)sustainable consumption patterns. There is some empirical evidence that correlations among different kinds of environmentally friendly behaviors exist (e.g., between recycling and energy saving) (see e.g., [14,15]). However, these correlations usually tend to be relatively weak [13,p. 3]. Furthermore, empirical evidence of the absence of spillovers or even negative spillovers also exists (e.g., [16–19]). Other empirical findings suggest that spillovers are more likely to occur within specific behavioral domains (e.g., [20]). The unclear nature of the empirical evidence may be due to the fact that the research subjects of the specific studies are quite diverse and that only specific behavioral domains were investigated in each case. These studies also focus on individuals and their behaviors and usually do not investigate the extent to which certain behavioral patterns are group-specific.

Sociological research, in contrast to social-psychological research, tends to focus on the analysis of behavioral patterns and the differences in the prevalence of respective behavioral patterns across social groups. Thus, mental processes leading to ecological (in-)congruence across behaviors are only of secondary interest here, while the structures of everyday life, structural compatibilities between different behaviors, shared social meanings and characteristics of social milieus are the focus of the analysis. Of course, the boundaries between this strand of sociological research and the aforementioned social-psychological research are fluid to some degree. The sociological strand of research is heavily inspired by the observation that environmental awareness (and other mental dispositions) does not necessarily lead to pro-environmental behaviors [21], or as Anita Engels puts it: "Environmental behavior is a fascinating sociological puzzle, as we have to acknowledge the persistence of environmentally damaging behavior despite growing environmental awareness and concern" [22,p. 71]. In particular, sociological lifestyle research has tried to empirically identify sustainable lifestyles, as well as the features of corresponding social milieus who have such lifestyles [23–25]. This research showed that pro-environmental behaviors significantly vary across different social groups, since specific behaviors are laden with differing social meanings across groups, and social groups also naturally differ with regard to their living conditions (mainly determined by characteristics such as income, occupation, education and age), which constrain or enable certain behaviors.

Besides lifestyle concepts, approaches based on practice theories have become more relevant for understanding consumption patterns during the last decade [26]. Empirical research inspired by practice theory approaches has focused on the patterning of practices and found that congruence of practices in terms their sustainability can, if at all, be expected within certain domains of everyday life [27–34]. Everyday life is compartmentalized into different domains with their own inherent logics. On the basis of empirical data gained from in-depth interviews with individuals on their consumption practices, Amélie Anciaux has further elaborated the concept of compartmentalization [30]. She identified three different forms of compartmentalization: inter-thematic, intra-thematic and periodic. Inter-thematic compartmentalization refers to the adoption of sustainable practices in some domains of everyday life but not in all. Intra-thematic denotes the co-existence of sustainable and unstainable practices within the same domain of everyday life and periodic compartmentalization means that sustainable practices are performed only at certain events or times. Also with regard to compartmentalization, Carolin Zorell and Mundo Yang [34] used German survey data to show that sustainable purchasing, reduced consumption and sustainable mobility form different practice domains which were only performed by 13.1% of the respondents in combination. The authors identify social class, age and infrastructures as reasons for the compartmentalization of those practices. This indicates that although environmental considerations may be part of a person's discursive consciousness in general, they may only be partly actualized in the performance of everyday life [35,p. 49; 36,p. 37]. Thus, constellations of practices emerge partly independently of an individuals' motivational orientations, leading to—at least from the perspective of an observer—an incoherent fragmentation. Furthermore, the performance of most activities in everyday life are not subject to the individuals' free will. This is particularly emphasized and theorized by practice theory approaches, which will be further considered in the following section.

3. Theoretical considerations concerning the performance of everyday practices

Normative demands to consume more sustainably have become part of individuals' everyday experiences. For example, more and more

products are framed in an ecological way and this is reflected in their advertising [37], and laws such as carbon taxes are implemented to steer individuals' performance of everyday practices in a more sustainable direction. Nevertheless, as shown above, individual performances of practices seem to be relatively resistant against both moral appeals for change and financial incentives or disincentives directed at changing them [3,38]. To gain an understanding of why some practices are so unruly and follow their own inherent logic of change, it is necessary to look deeper into the fabric of everyday practices.

Some practice theory scholars such as Theodore Schatzki, Alan Warde or Elizabeth Shove consider the conceptual distinction between practice-as-entity and practice-as-performance as central to a more elaborate understanding of everyday practices [39,p. 8; 40,p. 89–90; 41, p. 133–134]. Practice-as-performance refers to the empirically observable performance of practices by individuals, while practice-as-entity denotes the specific elements and their interlinkages that form the respective practice. Here, different practice theory scholars specify different elements which they consider as crucial for the formation of a practice [42,p. 64].

At first glance, everyday practices, in particular consumption practices, serve the purpose of satisfying needs and thereby of expressing personal and social identities [36,p. 30]. Accordingly, Anthony Giddens describes lifestyles as "a more or less integrated set of practices which an individual embraces, not only because such practices fulfil utilitarian needs, but because they give material form to a particular narrative of self-identity" [9,p. 81]. Under the conditions of late modernity, where individuals are not endowed with a predefined identity any more, they are put into a situation where they have to develop identities on their own [43]. They are supposed to become what they want to be. Identity becomes a project which is enacted through social practices on an everyday basis. Furthermore, lifestyle can be understood as some kind of management of living, where individuals struggle to find solutions to everyday problems of action [44]. Lifestyles are thus as much made up of problem-solving strategies as they are motivated by a need to express one's identity. As Pierre Bourdieu poignantly elaborated both empirically and theoretically, lifestyles and the social practices associated with them are group-specific and shaped by social structures (see e.g., [45]). According to Bourdieu, the performance of practices as well as their interpretation and evaluation are fundamentally social in the sense that they are features of certain social groups within a society and are appropriated through socialization. This points to the fact that subjects' performances of practices are never fully idiosyncratic and governed by free will but by "social sense" [45,p. 241] and in particular by what Bourdieu called "habitus" [46,p. 72]. The habitus is shaped by an individual's position in the social space, which is in turn determined by his or her endowment with different forms of capital, in particular economic, social and cultural capital [47]. Ultimately, the performance of practices varies across groups of people according to their habitus.

Practices also co-occur in different types of constellations. According to Elizabeth Shove and colleagues, practices are held together by shared elements such as materialities involved in the performance of these practices, rules, skills and social meanings [39]. Furthermore, since practices are located in space and time, co-location and temporal sequencing or synchronization are further important aspects constituting associations between practices [39,p.,84–85]. Elizabeth Shove and colleagues distinguish between two basic types of practice constellations: bundles and complexes [39,p. 81]. Practices forming a bundle are only loosely linked by co-occurrence and thus simply co-exist. A complex of practices, however, involves a deeper integration of practices resulting in a co-dependence of these practices. Thus, practices can co-exist in the form of bundles or even become co-dependent and form practice complexes if the performance of one practice requires the performance of another. For example, cooking food requires practices of purchasing or cultivating food. Practices and constellations of practices also co-evolve together with infrastructures. This means that they are recursively related to them: infrastructures as material components of practices both enable and are shaped by the performances of practices [48]. For example, road infrastructures are part of the practice of car driving and thus enable the performance of car driving. Simultaneously, the practice of car driving also makes road infrastructures appear necessary and calls for their maintenance and expansion.

To sum up, individual performances of practices can be regarded as products of self-identity, of the smaller and bigger necessities of managing everyday life, of the location of individuals in the social space and their corresponding habitus, as well as of their entanglements with materialities such as infrastructures. This enumeration may not even be exhaustive, however it already hints that any expectation of uniformity among the performances of everyday life is likely naïve. Instead, one should expect to find a kind of potpourri of performances in the empirical data. Furthermore, practices typically occur in the form of bundles and complexes. Thus, specific constellations of practices, which can either represent co-dependence (in case of complexes of practices) or mere co-existence (in the case of bundles of practices), should also be empirically observable.

4. Methods

4.1. Data

The data used to answer the research questions stems from computer-assisted telephone interviews with inhabitants of the two German cities Stuttgart and Muenster. The populations for the surveys were the German-speaking resident population aged 18 and over with a landline at their main residence. Since mobile phone numbers cannot be assigned to a specific location, only people with a landline could be interviewed. The central topics of the survey were attitudes toward different transport policy measures, political attitudes, perceptions of different transport-induced risks, general questions on mobility behavior and sustainable consumption, as well as sociodemographic data. The sample drawing procedure and interviewing were administered by two professional public opinion research companies (GMS Dr. Jung GmbH and ARIS Umfrageforschung GmbH). The representative random sample was drawn using the number blocks from the ADM selection basis for telephone samples (ADM = Working Group of German Market and Social Research Institutes). If several persons over 18 years of age lived in one household, the target person to be interviewed was identified using the "last birthday method". In Stuttgart 1003 and in Muenster 1002 complete interviews were carried out in March and April 2020.[1] The final data set was weighted on the basis of the current micro census in order to compensate for structural distortions in the sample. The variables gender, age (by age group) and household size were used for weighing. Table 11 in the appendix compares the distributions of the variable characteristics according to the micro census with the distributions in the (unweighted) sample in both cities. There are no major distortions that could be of concern in terms of representativeness. Thus, the sample can be regarded as representative of the cities Stuttgart and Muenster. Since the two subsamples of Stuttgart and Muenster had the same size, although Stuttgart has approximately twice as many inhabitants as Muenster (see Table 1), they were additionally weighted by population size for the statistical analyses.

[1] The survey period coincided with the intensification of the coronavirus crisis in Germany and the associated lockdown of public life and changes in individual mobility behavior. The data set contained the date of the interview in each case, so that it was possible to systematically test for temporal effects on the response behavior. However, no evidence of changes in response behavior over time was found. The telephone interviewers were also instructed at the beginning of the lockdown to explicitly point out that the questions on mobility behavior were about normal behavior and not the current behavior during the lockdown.

Table 1
Key data for the cities of Stuttgart and Muenster.

	Stuttgart	Muenster
Inhabitants	630,305 (2020)	311,420 (2021)
Area	207 km^2 (2020)	303 km^2 (2021)
Purchasing power per inhabitant	€27,596 (2021)	€25,380 (2021)
Length of bicycle lanes	190 km (2021)	470 km (2021)
Modal split	Bicycle: 8% Pedestrian traffic: 29% Public transport: 23% Motorized individual transport: 40% (2017)	Bicycle: 39% Pedestrian traffic: 22% Public transport: 10% Motorized individual transport: 29% (2013)

Sources: Inhabitants and area https://www.stadt-muenster.de/stadtentwicklung/zahlen-daten-fakten.html; https://www.statistik-bw.de/. Modal split: https://www.stadt-muenster.de/verkehrsplanung/verkehr-in-zahlen.html; https://nachhaltige-mobilitaet.region-stuttgart.de/wp-content/uploads/2020/04/infas_Pr%C3%A4sentation_Mobilit%C3%A4tskongress-2019.pdf. Length of bicycle lanes: https://www.stuttgart.de/item/show/656000; https://www.stadt-muenster.de/verkehrsplanung/verkehr-in-zahlen.html. Purchasing power: https://www.mb-research.de/_download/MBR-Kaufkraft-Kreise.pdf. All sources last accessed on 16.09.2021.

Since prevalent mobility patterns and mobility cultures vary between cities [49], having data from two cities with quite different mobility cultures can be considered an advantage for the analysis. Thus, city-specific differences in the performance of mobility practices can be potentially revealed. Furthermore, when it comes to mobility practices, existing infrastructures are a significant aspect [50]. It is obvious that mobility patterns in rural areas are different from those in major cities with a well-developed public transport system. Only in such cities do people have at least some degree of freedom concerning their participation in certain mobility practices. Thus, focusing exclusively on urban areas makes it possible to observe the patterning of mobility practices in a context where mobility practices are more diverse and variable.

Table 1 summarizes some key characteristics to provide a quick and basic impression of the two cities. As Table 1 shows, the cities can be regarded as comparable with regard to purchasing power. However, there are remarkable differences between them in terms of modal split. Muenster is a bicycle city with a high volume of bicycle traffic, while Stuttgart can be regarded as a car city. Stuttgart is also approximately twice the size of Muenster in terms of population. Nevertheless, both cities constitute important centers in terms of public authorities, job opportunities and leisure activities for their wider surroundings.

4.2. Statistical approach

In order to explore the bundling of everyday practices, a multiple correspondence analysis (MCA) was applied to the variables in the data set that contain information on the performance of everyday practices (for an overview, see Table 2) [51–54]. The MCA was performed using XLSTAT 2021. MCA is a multivariate data analysis technique used to identify latent structures in data sets through an analysis of multidimensional contingency tables. It is similar to a principal component analysis. However, unlike a principal component analysis, variables on different scales can be jointly analyzed. The key outputs of an MCA are two-dimensional graphical representations of the different identified dimensions or axes, as they are usually referred to in the literature on MCA. Distances between the categories of variables are calculated according to the frequency of their co-occurrence. Thus, frequently co-occurring variable categories are located close to each other on the same axis. The MCA was carried out as a so-called “subset MCA” [55]. This means that cases with missing data can be included in the mathematical calculation without visualizing the missing data categories, which would complicate the interpretation of the results. This has the advantage that no cases have to be excluded due to missing values and the variable categories that are relevant for the respective research objective are clearly presented [55,p. 215–216].

Table 2
Practice variables and their relative frequencies in the sample.

Variable[a]	Categories	%
Meat consumption	+ (everyday/several times per week)	54.6
	= (several times per month)	26.3
	– (seldom/never)	15.3
	missing	3.8
Organic food consumption	+ (always/often)	56.2
	– (seldom/never)	41.5
	missing	2.4
Energy saving	+ (always/often)	59.5
	– (seldom/never)	36.0
	missing	4.5
Product avoidance	+ (always/often)	63.1
	– (seldom/never)	34.2
	missing	2.7
Green electricity consumption	yes	24.0
	no	64.4
	missing	11.6
Bicycle use	+ (daily/several days per week)	42.2
	= (few days per month/less than once a month)	25.4
	– (never/almost never)	28.1
	missing	4.2
Public transport use	+ (daily/several days per week)	47.0
	= (few days per month/less than once a month)	36.7
	– (never/almost never)	12.3
	missing	4.0
Car use	+ (daily/several days per week)	61.9
	= (few days per month/less than once a month)	28.0
	– (never/almost never)	5.9
	missing	4.3
Private flight(s) last year	Yes	33.4
	No	61.3
	Missing	5.3

Note: Percentages may not total 100 due to rounding; weighted sample.
[a] The respective survey questions were worded as follows: bicycle, car and public transport use: how often do you use the following means of transportation? Car/bicycle/public transport; meat consumption: how often do you eat meat or sausages?; product avoidance: how often do you avoid buying certain products for environmental reasons?; organic food consumption: how often do you buy organic food?; energy saving: how often do you limit your private energy consumption at home for environmental reasons?; green electricity consumption: do you purchase green electricity, i.e. do you have a green electricity tariff?; private flight(s) last year: have you used an airplane for private travel in the last year?

In order to identify constellations of practices, the variables in Table 2 were included in the MCA to represent different domains of everyday life where (un-)sustainable practices can be performed. For the variables meat consumption, bicycle use, public transport use and car use, the survey questions' original response categories were combined, in order to enhance the interpretability of the MCA results by producing more basic distinctions between the frequency with which practices were carried out.

In a second step, a hierarchical cluster analysis (HCA) [56,57,p. 128–130] was performed using SPSS 25.0 to identify sub-groups that feature specific patterns of the practice constellations revealed by the MCA. Individual factor coordinates obtained from the MCA were included in the HCA. The HCA was performed using the first three axes identified by the MCA, which explains 89.9% of the variation in the data. Average linkage within groups was used as a clustering method and the squared Euclidean Distance as a similarity measure. Average linkage within groups was preferred over other cluster methods such as Ward, since it is considered the most appropriate for detecting groups of varying size, which can be assumed to best describe the empirical reality of social groups [58,p. 350–351]. Furthermore, by minimizing the

average distance between cases in a cluster, it produces homogeneous clusters, which matches the aim of the study. The number of clusters was determined by identifying an inconsistent increase in the similarity measure ('elbow criterion') and also by applying the Mojena rule[2] to determine the number of clusters which best approximates the underlying population [59]. Both the Mojena rule and the elbow criterion suggested a six-cluster solution. To further ensure the robustness of the identified cluster solution, the sample was randomly divided into two halves and then the cluster analysis was repeated. No substantive deviations in terms of number of clusters and cluster profiles were detected, which can be interpreted as an indication of the robustness of the identified cluster solution [61,p. 333]. In order to get an idea of the practice-related and sociodemographic profiles of the six identified clusters, the following was examined within each cluster: the relative frequency of the different practice variable categories included in the MCA as well as various sociodemographic variables (see Table 2 and Table 13 in the appendix). This examination focused on categories which were overrepresented. Categories were considered as overrepresented when a) their relative frequency in the cluster was 5%age points greater than in the overall sample, b) categories with relative frequencies smaller than five percent in the cluster were twice as prevalent in the cluster compared to the overall sample and c) the hypergeometric test comparing the relative frequency in the cluster and in the overall sample yielded a significant result [62,p. 336; 52,p. 85].

5. Results

5.1. Multiple correspondence analysis

As already mentioned above, the MCA dimensionalizes data in order to reveal latent structures. This allows the space of practices—i.e., the empirical structure of the relationships between different social practices—to be explored. This means that categories of practice variables that frequently empirically co-occur are grouped together to reveal their inherent structure. The axes identified by the MCA can thus be regarded as representations of constellations of practices.

The first step in the interpretation of the MCA results is to determine how many axes are carrying substantial information and thus should be considered in the interpretation. Table 3 shows the eigenvalues of the first seven axes and also their modified variation rates.

With three axes, a cumulated rate of Benzécri's modified variation rate of 89.9% is reached. This means that the first three axes retain 89.9% of the variation contained in the data. Therefore it was considered reasonable to draw on these three axes for the interpretation of the structure of the data.

Table 3
Eigenvalues and modified rates of the MCA's first seven axes.

Axis	Eigenvalues	Modified variation rates[a]
1	0.145	56.9%
2	0.132	20.7%
3	0.127	12.3%
4	0.121	4.6%
5	0.117	1.5%
6	0.112	0.1%
7	0.111	0.0%

[a] Variation modified according to Benzécri 1992: 412.

Figs. 1 and 2 graphically show the structure of the space of practices as it is captured by the first three axes. The following interpretation of the axes is based on 16 categories with an above-average contribution to the determination of the respective axis (see also Table 12 in the appendix) [63]. Each category with an above-average contribution is underlined and larger than the other categories in terms of font size.

Axis 1 in Fig. 1 is determined by different mobility practice categories. The left pole of axis 1 thereby represents a car-centered mobility practice, which is characterized by relying on car mobility ("car+"), primarily abstaining from public transport use ("public transport-") and moderate bicycle use ("bicycle="). Interesting hereby is that regular car use seems to be compatible with moderate bicycle use but hardly with moderate public transport use. This indicates some kind of competition between the practices of car driving and public transport use, which seems to not be as pronounced in the case of car and bicycle use. The right pole of axis 1 represents a rather multimodal ("public transport+" and "bicycle+") and also particularly low-car or car-independent mobility practice ("car=" and "car-"). Please note that the data stem from two major cities with well-developed public transport systems. Thus, alternatives to car use are basically available. However, a car-centered mobility practice nevertheless seems to be a prevalent formation with regard to everyday mobility.

Axis 2 is determined by product avoidance and energy saving practices. The upper pole represents the absence of the performance of product avoidance and energy saving practices ("product avoidance-" and "energy saving-") and the lower pole their frequent performance ("product avoidance+" and "energy saving+"). Thus, this axis can be interpreted as reflecting the degree of voluntary and conscious restraint of consumption practices. In the case of energy saving, the amount of energy consumption is consciously restrained, while in the case of product avoidance, the range of products that could be consumed is restricted. The dimensionality of the practice variables revealed by axis 1 and 2 also shows that mobility practices and domestic consumption practices seem to build distinct domains of everyday practices.

We now turn to the interpretation of axis 3, which is graphically illustrated in Fig. 2 together with axis 1. At the upper pole, axis 3 features the absence of organic food consumption ("organic food-") as well as a meat intense diet ("meat+"). The lower pole mainly represents the frequent consumption of organic food and the eschewal or minimization of meat consumption ("organic food+" and "meat-"). The lower pole also contains the purchasing of green electricity ("green electricity yes"). Axis 3 thus mainly represents the performance of different food practices. However, a mainly vegetarian and organic diet is also associated with green electricity consumption. Ultimately, axis 3 reveals another constellation of everyday practices which can be differentiated from those represented by the axes 1 and 3.

In order to test for city-specific differences, the eta coefficient [64] was calculated for the association between the dichotomous variable city (Stuttgart/Muenster) and the continuous individual factor coordinates for each axis obtained from the MCA. In the case of axis 2 (consumption restraint) and axis 3 (food), no significant association exists between the two cities and the practice constellations represented by these axes (axis 2: eta = 0.025, $p = 0.258327$; axis 3: eta = 0.036, $p = 0.103668$). In the case of axis 1 (mobility), there is a very weak but significant association (eta = 0.067, $p = 0.002821$). A car-centered mobility practice seems to be slightly more prevalent in Stuttgart than in Muenster.[3] This comes as no surprise given the differences in the modal split between the two cities depicted in Table 1.

To sum up, three axes were identified which cover a considerable part of the variation in the data and represent the performances of

[2] Mojena has developed a statistical stopping rule in order to determine the optimal number of clusters [59]: "Computationally, one takes the average fusion value and adds to it a critical score times a measure of the standard error of the fusion values from the entire hierarchy. The first occurrence where a fusion value exceeds this confidence limit suggests that the previous hierarchy level was optimal" [60,p. 164]. According to Mojena, the optimal confidence limit lies between 2.75 and 3.50 [59,p. 361].

[3] The mean value of the individual factor coordinates of axis 1 (mobility) is −0.02 for Stuttgart and 0.04 for Muenster.

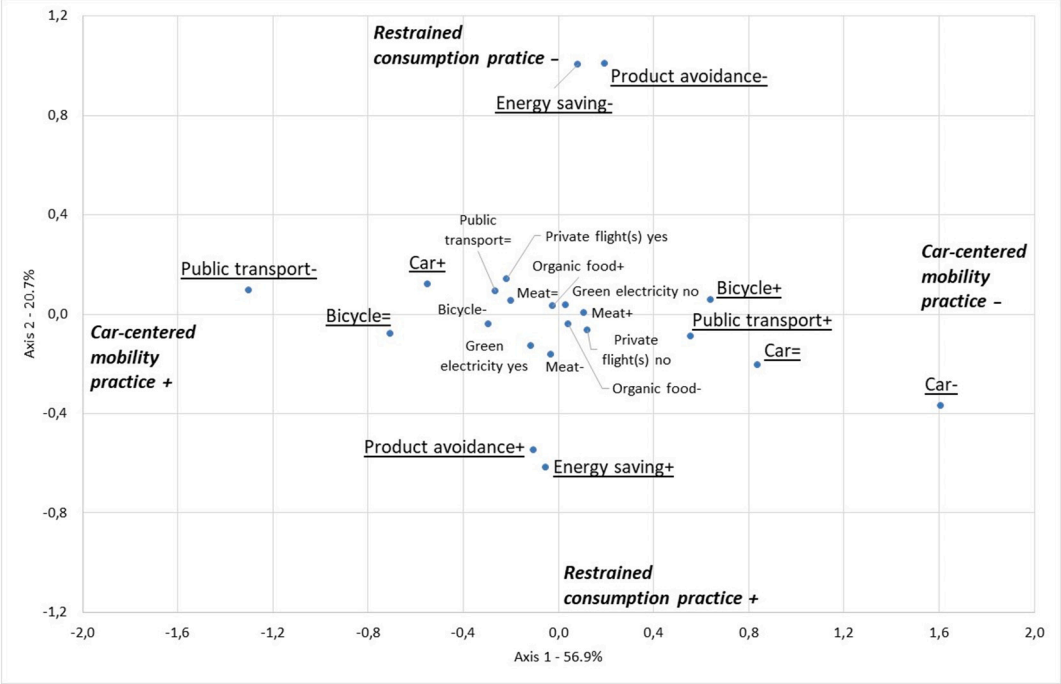

Fig. 1. Space of practices (axes 1 and 2).

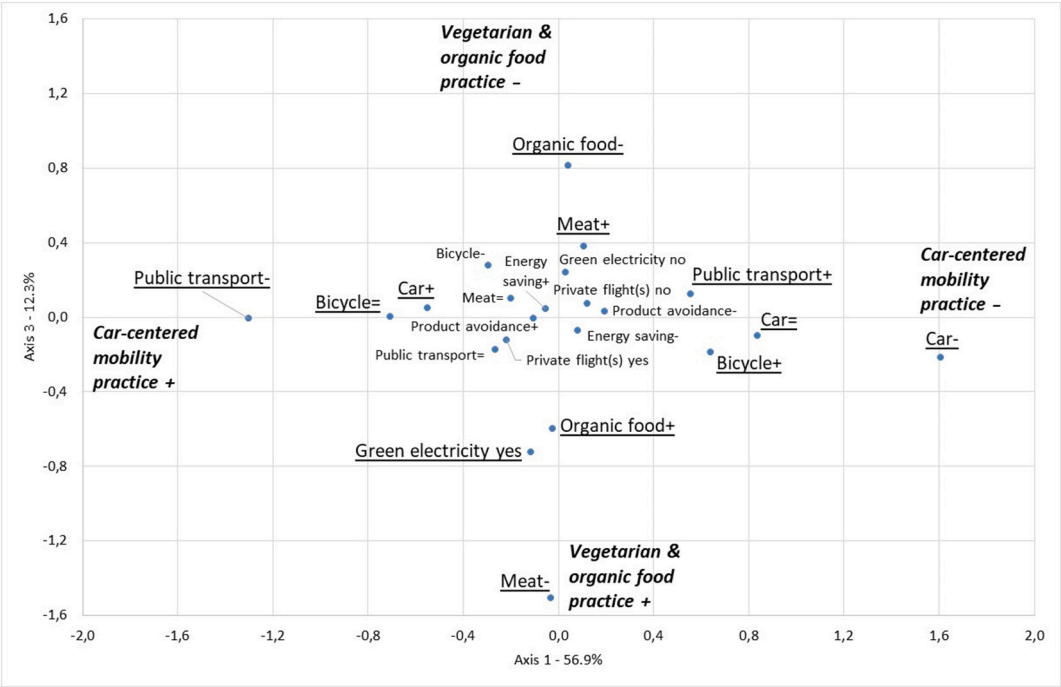

Fig. 2. Space of practices (axes 1 and 3).

practices in the domains of mobility, consumption restraint and food.

5.2. Cluster analysis

In order to carve out frequent empirical combinations or patterns of the practice constellations identified by the MCA, a hierarchical cluster analysis was performed on the three axes. Table 4 shows the similarity coefficients and Mojena criterion ($\tilde{\alpha}_i$) for the last 20 stages of cluster formation. Highlighted in grey is the inconsistent increase in the similarity coefficients explained above, which indicates that a six-cluster solution is most fitting to represent the structure of the data.

In the following, we now explore the characteristics of the six clusters by comparing the relative frequencies of different sociodemographic variable categories, and also the practice variable categories included in the MCA in the cluster to the relative frequencies in the overall sample. The labels for the different clusters (e.g., "consumption restraint green/food green/mobility grey" in the case of cluster 1) were determined dependent on the frequency of the performance of (un-)sustainable practices in the domains of mobility, consumption restraint and food. For example, cluster 1 was labeled "consumption restraint green" since

Table 4
Similarity coefficients and Mojena criterion ($\tilde{\alpha}_i$) for the last twenty stages of clustering.

Stage	Number of clusters	Coefficient	$\tilde{\alpha}_i$
1985	20	0.176	0.365
1986	19	0.185	0.436
1987	18	0.191	0.486
1988	17	0.197	0.537
1989	16	0.220	0.750
1990	15	0.228	0.830
1991	14	0.229	0.840
1992	13	0.241	0.966
1993	12	0.245	1.009
1994	11	0.263	1.214
1995	10	0.301	1.696
1996	9	0.335	2.184
1997	8	0.357	2.530
1998	7	0.362	2.611
1999	6	0.403	3.324
2000	5	0.450	4.239
2001	4	0.540	6.280
2002	3	0.569	7.018
2003	2	0.664	9.714
2004	1	0.809	14.644

Note: Since the squared Euclidian distance was used as a similarity measure, the similarity coefficient represents the squared Euclidean distance between the two objects which are joined [65,p. 316].

the categories "product avoidance +" and "energy saving +" were overrepresented indicating sustainable or "green" performance of consumption constraint. The label "food green" was also assigned to cluster 1 because the categories "organic food consumption +" and "meat consumption –" were overrepresented, also signifying a sustainable or "green" performance of practices in the food domain. The label "mobility grey" was eventually assigned due to the overrepresentation of the categories "public transport use –", "public transport use =", "bicycle use –" and "car use +". Tables 5 to 10 show those variable categories, which are significantly overrepresented in the respective cluster (for an explanation of why a category is considered overrepresented, please see Section 4.2). This gives us a comprehensive overview of empirically occurring cluster bundles and also of the sociodemographics of the individuals participating in the respective practice constellations.

Table 5
Profile cluster 1 (overrepresented categories).

Category	% sample	% cluster	Hypergeometric test (*p*-value)	Over-representation
Public transport use –	12.8%	27.1%	0.000	2.11
Bicycle use =	26.5%	43.4%	0.000	1.64
Meat consumption –	16.0%	25.0%	0.000	1.57
Green electricity consumption yes	27.2%	40.9%	0.000	1.50
Organic food consumption +	57.5%	85.3%	0.000	1.48
Public transport use =	38.3%	55.1%	0.000	1.44
Car use +	64.7%	92.5%	0.000	1.43
Product avoidance +	64.9%	81.6%	0.000	1.26
Private flight(s) last year yes	35.2%	43.6%	0.000	1.24
Energy saving +	62.2%	75.3%	0.000	1.21
Full-time work	47.2%	54.2%	0.000	1.15

Note: Ordered by column overrepresentation; weighted sample.

Table 6
Profile cluster 2 (overrepresented categories).

Category	% sample	% cluster	Hypergeometric test (*p*-value)	Over-representation
Meat consumption –	16.0%	67.1%	0.000	4.21
Car use –	6.1%	14.3%	0.000	2.34
Car use =	29.2%	61.4%	0.000	2.10
Green electricity consumption yes	27.2%	56.0%	0.000	2.06
Student/ apprentice/ voluntary service	11.2%	22.5%	0.000	2.00
Household income ≤ 1.000€	11.4%	22.5%	0.000	1.98
Party preference Buendnis 90/Die Gruenen	22.1%	38.5%	0.000	1.74
Bicycle use +	44.1%	75.2%	0.000	1.70
Organic food consumption +	57.5%	94.3%	0.000	1.64
Age 18–29	21.5%	31.7%	0.001	1.47
Energy saving +	62.2%	81.2%	0.000	1.30
Product avoidance +	64.9%	82.0%	0.000	1.26
Public transport use +	48.9%	60.9%	0.001	1.24
Muenster	33.0%	39.6%	0.016	1.20
Female	50.2%	58.3%	0.009	1.16

Note: Ordered by column overrepresentation; weighted sample.

Table 7
Profile cluster 3 (overrepresented categories).

Category	% sample	% cluster	Hypergeometric test (p-value)	Over-representation
Car use –	6.1%	12.6%	0.000	2.07
Car use =	29.2%	53.5%	0.000	1.83
Product avoidance –	35.1%	63.9%	0.000	1.82
Energy saving –	37.8%	65.5%	0.000	1.74
Public transport use +	48.9%	72.2%	0.000	1.48
Bicycle use +	44.1%	64.3%	0.000	1.46
Household income ≤ 1.000€	11.4%	16.4%	0.000	1.44
Age 70 and over	16.0%	22.0%	0.000	1.37
Full-time work	47.2%	58.5%	0.005	1.24
Meat consumption +	56.7%	64.1%	0.000	1.13
Private flight(s) last year no	64.8%	70.1%	0.001	1.08

Note: Ordered by column overrepresentation; weighted sample.

5.2.1. Cluster 1: consumption restraint green/food green/mobility grey (27.2%)

Cluster 1 contains 27.2% of the people in the sample. It is the largest of the six identified clusters. This cluster represents a pattern of everyday practices that can be described in terms of its ecological impact and in reference to the axes identified by the MCA as consumption restraint green, food green and mobility grey. Specifically, this means that people in this cluster frequently use their car for transportation, hardly eat meat, frequently eat organic food and also frequently restrain their consumption with regard to energy and certain products. Furthermore, private flights are more common in this cluster than in the overall sample. The only sociodemographic variable overrepresented in this cluster is full-timework. Thus, the practice pattern represented by this cluster seems to be relatively independent of the sociodemographic characteristics of those who perform the respective practices.

Table 8
Profile cluster 4 (overrepresented categories).

Category	% sample	% cluster	Hypergeometric test (*p*-value)	Over-representation
Organic food consumption –	42.5%	100.0%	0.000	2.35
Party preference AfD/Alternative für Deutschland	5.9%	11.8%	0.002	1.99
Energy saving –	37.8%	67.3%	0.000	1.78
Product avoidance –	35.1%	62.2%	0.000	1.77
Car use +	64.7%	94.5%	0.000	1.46
Bicycle use =	26.5%	38.6%	0.000	1.45
Public transport use –	12.8%	17.8%	0.013	1.38
Green electricity consumption no	72.8%	99.3%	0.000	1.36
Household income 2.000 to 3.000€	31.1%	39.0%	0.008	1.26
Bicycle use =	29.3%	36.7%	0.007	1.25
Meat consumption +	56.7%	69.2%	0.000	1.22
Male	49.8%	56.8%	0.009	1.14

Note: Ordered by column overrepresentation; weighted sample.

Table 9
Profile cluster 5 (overrepresented categories).

Category	% sample	% cluster	Hypergeometric test (*p*-value)	Over-representation
Product avoidance –	35.1%	100.0%	0.000	2.85
Energy saving –	37.8%	100.0%	0.000	2.65
Student/ apprentice/ voluntary service	11.2%	18.9%	0.003	1.68
Car use +	64.7%	94.7%	0.000	1.46
Age 30–39	19.3%	27.1%	0.004	1.40
Organic food consumption +	57.5%	74.8%	0.000	1.30
Public transport use =	38.3%	49.0%	0.001	1.28
Private flight(s) last year yes	35.2%	44.1%	0.004	1.25
Green electricity consumption yes	27.2%	33.3%	0.019	1.22
Bicycle use =	26.5%	31.9%	0.024	1.20
Male	49.8%	59.7%	0.002	1.20
Household income 2.000 to 3.000€	31.1%	37.1%	0.026	1.19

Note: Ordered by column overrepresentation; weighted sample.

5.2.2. Cluster 2: dark green (7.2%)

Cluster 2 is the smallest cluster, encompassing only 7.2% of the people in the sample. It represents a consistently green practice pattern. People in this cluster frequently perform every kind of sustainable practice ranging from frequent bicycle and public transport use, moderate to low car use, meat avoidance, consumption restraint with regard to energy use and certain products, organic food consumption and green electricity use. Regarding sociodemographics, supporters of the Green Party (Buendnis 90/Die Gruenen), females, high-school students, tertiary students, apprentices, people doing voluntary service, people aged between 18 and 29 and people with a low household income level are overrepresented. The sociodemographic profile of the cluster indicates that a lifestyle of mainly younger people is outlined here. This cluster is also more prevalent in Muenster than in Stuttgart. This point is particularly interesting, since it could be assumed that the higher prevalence in Muenster is due to the fact that Muenster's urban infrastructure is more bicycle-friendly than that of Stuttgart. However, the relative share of students in the total number of inhabitants is also approximately twice as high in Muenster as in Stuttgart.

Table 10
Profile cluster 6 (overrepresented categories).

Category	% sample	% cluster	Hypergeometric test (*p*-value)	Over-representation
Energy saving +	62.2%	100.0%	0.000	1.61
Organic food consumption –	42.5%	68.0%	0.000	1.60
Product avoidance +	64.9%	100.0%	0.000	1.54
Public transport use +	48.9%	64.0%	0.000	1.31
Car use –	6.1%	8.0%	0.013	1.31
Car use =	29.2%	37.1%	0.000	1.27
Meat consumption +	56.7%	70.8%	0.000	1.25
Green electricity consumption no	72.8%	86.5%	0.000	1.19
Private flight(s) last year no	64.8%	72.6%	0.000	1.12

Note: Ordered by column overrepresentation; weighted sample.

5.2.3. Cluster 3: consumption restraint grey/food light grey/mobility green (24.1%)

Cluster 3 contains 24.1% of the people in the sample. It is characterized by the absence of consumption restraint with regard to energy and certain products, frequent bicycle and public transport use, low to moderate car use and frequent meat consumption. Furthermore, leisure trips by plane are less common here compared to the whole sample. In terms of sociodemographics, people aged 70 and over, people with a low household income level and full-time employees are overrepresented. Given its sociodemographic structure, the cluster seems to portray a lifestyle that is prevalent among two different social groups: elderly people and people working full-time. It is also a rather large cluster.

5.2.4. Cluster 4: dark grey (8.8%)

Cluster 4 contains 8.8% of the survey respondents. In terms of size, this is one of the smaller clusters. With regard to the performance of sustainable everyday practices, it can be labeled as consistently grey since persons in this cluster are not involved in any of the surveyed sustainable practices. This cluster is also characterized by an overrepresentation of males, people with medium household income (2.000 to 3.000€) and voters of AfD/Alternative für Deutschland, a right-wing populist party with a strong anti-environmentalist orientation [66]. The relative preference for an anti-environmentalist party in this consistently unsustainable cluster forms the counterpart to the relative preference for the Green Party in the consistently dark green cluster (cluster 2).

5.2.5. Cluster 5: consumption restraint grey/food light green/mobility grey (7.7%)

Cluster 5 includes 7.7% of the people in the sample and is the second smallest cluster. The prevalent everyday practice pattern in this cluster is composed of a reliance on frequent car use in terms of mobility practice, rare or no consumption restraint regarding energy use or product purchase but also of frequent consumption of organic food. Furthermore, people purchasing green electricity and those who have flown privately in the last year are also overrepresented. Thus, apart from frequent organic food consumption and consumption of green electricity, this cluster mainly features an unsustainable practice pattern. With regard to sociodemographics, people aged between 30 and 39, males, people with a medium household income (2.000 to 3.000€) as well as high-school students, tertiary students, apprentices and people doing voluntary service are overrepresented.

5.2.6. Cluster 6: consumption green/food grey/mobility light green (25.1%)

Cluster 6 is the second largest cluster; it includes 25.1% of the people in the sample. This cluster features frequent consumption restraint and frequent use of public transport combined with a moderate or low level of car use. Furthermore, meat is frequently consumed and people in this cluster are less likely to purchase green electricity compared to the average person in the sample. Also, leisure trips by plane are less frequent in this cluster. In terms of sociodemographics, this is the only cluster where no sociodemographic variable is overrepresented. Thus, the practice pattern represented by this cluster seems not to be specific for any social group.

6. Discussion

The purpose of this study was to gain a better understanding of the patterning of the performances of (un-)sustainable everyday practices. The research resulted in three key findings, which will be further elaborated and discussed in the following.

First, everyday practices form domain specific constellations: mobility, food and consumption restraint (see MCA results). This result is consistent with the previous literature that discusses domain-specific performances of practices in terms of their sustainability [28–30,32,33]. As we have seen, compared to the other axes, the mobility practice axis explains the bulk of the variation in the data. Mobility is also the domain of everyday life which links and integrates other practices such as shopping, leisure, childcare and work [67]. Since transportation is essential in modern everyday life, it can be assumed that this part of everyday practice is the most unruly one with regard to perceived individual degrees of freedom in the performance of mobility practices [68]. Furthermore, mobility is also one integral means of handling "time squeeze" [69] in everyday life. In late modern societies schedules become more and more personalized, which leads to a need for even more scheduling in order to be able to interact with others and to participate in institutionalized events [70]. This also brings in its wake a need for flexible locomotion. From this perspective, it comes as no huge surprise when the mode of performance of mobility practices is detached from the mode of performances of practices in other domains of everyday life leading to inter-thematic compartmentalization [30]. In particular, when green food practices or resource saving practices sit alongside grey mobility practices (see cluster 1). Moreover, there also exists some kind of rivalry between the performance of different mobility practices in everyday life. Although a multimodal everyday mobility practice definitely exists—as clusters 2 and 3 show—some performances of practices preclude others. For example, if one relies on car mobility to get to work, this happens at the expense of daily public transport use. Car driving and public transport use can be regarded as substitutes with regard to means of locomotion, which compete for the attention of practitioners [71,p. 2493]. As the MCA has shown, a frequent performance of car driving is associated with lower levels of public transport use compared to the average person in the sample. Thus, rivalry in the performance of different practices may be a reason for intra-thematic compartmentalization [30], leading to a situation where sustainable and unsustainable practices coexist within a given domain, but are performed with different intensities. With regard to the ecological impact of practices, it is not only the type of practices but also the intensity of their performance that is crucial [72,73].

Second, these domain-specific constellations empirically occur in different patterns and are in some cases associated with specific sociodemographic features of the respondents (see cluster analysis results). This sheds further light on the link between the performance of practices and social structure. It is obvious that the performances of practices may vary due to the availability of resources, existing infrastructures, needs, identities and social meanings associated with the performance of certain practices. As recent research on energy consumption practices has also shown, specific ways of performing practices are transmitted between generations [74,75]. Thus, as Bourdieu has most famously pointed out, socialization matters with respect to the performance of practices [47]. All these different aspects (availability of resources, existing infrastructures, needs, identities, social meanings, conditions of socialization, etc.) are also not uniform across social groups [76]. Hence there is a varying degree of voluntariness and constraint in the performance of practices, which results in group-specific patterns. For some, for example, the engagement in resource-saving practices is enforced by the need to save money. Furthermore, the performances of practices are also shaped by existing infrastructures as well as the respondents' access to them. This is particularly evident in the field of everyday mobility. However, access to infrastructures varies across social groups and is partially dependent on their socio-economic status. Infrastructures are also location-specific, thus bringing about location-specific performances of practices (see e.g., cluster 2, which features a particularly bicycle-affine mobility practice and is more prevalent in the 'bicycle city' Muenster). All in all, this underpins the fact that performances of practices are mostly group-specific and form—as we have seen—group-specific patterns. For example, clusters 2 and 3 represent practice patterns that are more prevalent among younger or elderly people, respectively. Regarding the results of the cluster analysis in general, income, occupation, age and gender are the most important sociodemographic variables underlying the different patterns of practice constellations represented by the clusters. In terms of gender, females are overrepresented in cluster 2, while male are overrepresented in cluster 4 and 5. Thus, these clusters exhibit a gendered character. Particularly interesting is that the male dominated clusters 4 and 5 are those that can be regarded as the most unsustainable of the six identified clusters. This is in line with previous research that has shown that men are generally less likely to engage in pro-environmental practices than women [77]. Furthermore, performances of everyday practices are almost always gendered, not least due to the unequal distribution of care work among men and women [78]. Besides gender, the different age categories are also a crucial characteristic of the different clusters. Certain age cohorts are overrepresented in three of the six clusters. As previous research has shown, age is a relevant structuring factor of practice performances [79]. This partly also stems from the fact that there are age cohort specific circumstances of socialization that shape practice performances. As mentioned above, disposable income is also a critical factor in enabling or limiting the performance of certain practices. Consequently, specific income strata are overrepresented in three of the six clusters. Finally, occupation is the variable that is most prevalent in the clusters. Occupation categories are overrepresented in four clusters. As occupation has a profound impact on the structuring of a person's everyday life, it is highly relevant for the performance of everyday practices.

Third, while inter-thematic compartmentalization is the norm, cluster 2 and cluster 4 represent uniformly (un-)sustainable performances of practices. This indicates that congruency may well exist, however as an unlikely scenario, since both clusters are of minor prevalence in the population compared to the other clusters. As Françoise Bartiaux and Luis Reátegui Salmón [28] have empirically shown, smaller households typically carry out more green practices. This analysis revealed a similar pattern: in the dark green cluster, younger individuals in particular are overrepresented and they tend to live in smaller households on average. Moreover, since supporters of the Green

Party are also overrepresented in this cluster, it can be assumed that in this case the pattern of green practices is most likely brought about and held together by an overarching social meaning (i.e., caring for the environment) that is associated with the performance of the different practices. Additionally, the relative preference for the Green Party in the dark green cluster is mirrored by a comparatively high support of the anti-environmentalist party AfD/Alternative für Deutschland in the dark grey cluster 4. This further underpins the entanglement of everyday practices with identity and social meanings. However, a low income level is also overrepresented in the dark green cluster 2 and a medium income level in the dark grey cluster 4. This may stem from the fact that younger individuals, who have lower income, are also overrepresented in cluster 2. It might also suggest, however, that some practices that are classified as green or sustainable (e.g., frequent cycling or eating no or little meat) may just be performed due to the lack of financial resources. This is an important point, since co-existence of practices does not mean co-dependence. As demonstrated above, different domains of everyday practices can be identified. However, although the performances of practices are structured in a similar way, this does not mean that the pattern is generated by a specific relationship between the practices—be it due to shared social meaning, dependence on the same infrastructures or something else. In terms of the ecological impact of lifestyles, it is of no relevance how the respective practice constellations emerge [73]. However, when it comes to understanding the formation of practice constellations, the differentiation between co-dependence (practice complexes) and co-existence (practice bundles) is of crucial importance.

Finally, there are also at least four potential limitations concerning the results of this study that need to be stated. The first limitation concerns this important distinction between co-depending practices forming complexes and co-existing practices forming practice bundles. Due to the restricted possibilities of survey research in general and the data set used here in particular, the difference between the complexes and bundles of practices could not have been explored in detail. Thus, the empirically identified practice constellations must be basically understood as formations of co-existing practices – i.e., practice bundles – where co-dependency – i.e., practice complexes – can only be assumed and made plausible as discussed above. The second potential limitation is that the selection of surveyed practices is necessarily exclusive. For example, the data did not include information on clothing or showering practices, which can also have a considerable ecological impact. Thus, the practices analyzed here represent a specific segment of everyday life. However, due to the manifoldness of everyday life, it is unlikely that one study alone could actually capture the big picture. Third, the survey data on the performance of pro-environmental practices may have been biased by social desirability [80], meaning that respondents have overstated the performance of pro-environmental practices. This may particularly be the case for the energy saving and product avoidance variables since the respective survey questions were formulated with regard to pro-environmental motivations (see Footnote a found in Table 2). Furthermore, the questions on energy saving and product avoidance were quite general compared to the other survey questions on food or transportation. Unfortunately, it is not possible to check to what extend these issues have affected the results of the analyses. In any case, directly measured data on the performance of practices would be more reliable than self-reported data [81]. The forth potential limitation is the focus on two specific cities. Thus, the scope of the findings is potentially limited to urban contexts and the specificities of urban milieus. However, one must also take into account the fact that this study necessarily relied on an evaluation of comparable spaces, since comparing rural and urban areas is particularly problematic with regard to the performance of mobility practices.

7. Conclusions

The analysis revealed continuums of domain-specific dark grey to dark green practice constellations with group-specific elective affinities between some of them. Thus, there does seem to be some kind of order in the chaos of everyday practices. As the study has shown, this order can be revealed empirically. The present research thereby contributes to a growing body of evidence suggesting that the actual 'greening' of lifestyles is a complex endeavor, since everyday life is fragmented into different domains. These domains are in turn governed by inherent logics, which also vary across social groups. Thus, the greening of demand, as one element that is relevant to sustainability transitions, proves to be as complex as the greening of supply [82]. The results presented here thereby suggest two implications.

First, those interested in making lifestyles and everyday practices greener should carefully take into consideration the group-specific structuring of practice patterns. Different social groups have different degree of freedom when it comes to the voluntary performance of practices. Thus, appeals to environmental consciousness as well as the provision of information may in many cases be pointless and end in a responsibilization of individuals [83]. Instead, it would be worthwhile to consider the domain-specific logics of the performance of everyday life and try to identify the interlinkages and also missing links in the performances of specific practices [84,85]. A sustainable re-crafting of practice constellations will always be a complex, messy and open-ended undertaking but at least with this approach, maybe a more promising one.

Second, in terms of future research, it would be useful to extend the current findings by examining a broader range of everyday practices. Quantitatively exploring the space of practices, the bundling of the practices and the empirical prevalence of practice constellations on the basis of broader and more detailed data could shed further light on the complex structures of the performance of everyday life and its ecological implications. This would also be worthwhile, because it would complement the extensive body of qualitative research on the logics und functioning of specific everyday practices. Mixed methods approaches also hold a lot of promise, since they could be used to explore the prevalence of certain practice constellations in combination with an in-depth analysis of the factors that enable or disable the formation of different practice constellations. This would make it possible to identify factors that are relevant for the formation of specific practice constellations. An ambitious methodical avenue for future research in this regard would be to combine directly measured data on the performance of practices with both an assessment of their ecological impact and an in-depth analysis of these performances based on participant observations and semi-structured interviews. Thus, a comprehensive and empirically grounded picture of the association between practice constellations and their inherent logics on the one hand and their ecological impact on the other hand could be gained.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A

Table 11
Comparison between sociodemographic characteristics of the unweighted survey sample and the populations.

		Stuttgart		Muenster	
		Micro census 2018	Sample (unweighted)	Micro census 2018	Sample (unweighted)
Gender	Male	50.2%	49.2%	47.3%	46.8%
	Female	49.8%	50.8%	52.7%	53.2%
Age	18 to 19	2.2%	2.6%	2.9%	3.2%
	20 to 29	19.0%	16.4%	23.5%	23.8%
	30 to 39	20.1%	17.8%	17.2%	16.5%
	40 to 49	15.8%	16.8%	13.6%	13.7%
	50 to 59	15.9%	16.9%	16.3%	16.2%
	60 to 69	11.0%	12.2%	11.7%	12.0%
	70 and over	16.1%	17.2%	14.9%	14.8%
Household size	1 Person	52.3%	50.5%	54.0%	52.3%
	2 Persons	26.7%	27.5%	27.8%	28.6%
	3 Persons	9.8%	9.7%	8.0%	8.7%
	4 Persons and over	11.2%	12.3%	10.2%	10.4%

Note: The respective micro census data for Stuttgart and Muenster were provided by the statistical offices of the German states Baden-Wuerttemberg and North Rhine-Westphalia on request; $n_{Stuttgart} = 1003$, $n_{Muenster} = 1002$.

Table 12
Contribution of variable categories to the space of practices.

Categories	Axis 1	Axis 2	Axis 3
Meat consumption + (everyday/several times per week)	0.469	0.002	**6.930**
Meat consumption = (several times per month)	0.785	0.067	0.228
Meat consumption – (seldom/never)	0.011	0.335	**30.528**
Organic food consumption + (always/often)	0.029	0.055	**17.693**
Organic food consumption – (seldom/never)	0.050	0.054	**23.864**
Energy saving + (always/often)	0.123	**19.068**	0.099
Energy saving – (seldom/never)	0.178	**30.685**	0.162
Product avoidance + (always/often)	0.513	**15.881**	0.002
Product avoidance – (seldom/never)	1.006	**29.299**	0.026
Green electricity consumption yes	0.241	0.332	**11.105**
Green electricity consumption no	0.049	0.073	3.194
Bicycle use + (daily/several days per week)	**13.212**	0.123	1.289
Bicycle use = (few days per month/less than once a month)	**9.694**	0.127	0.000
Bicycle use – (never/almost never)	1.857	0.039	1.897
Public transport use + (daily/several days per week)	**11.058**	0.310	0.646
Public transport use = (few days per month/less than once a month)	1.994	0.258	0.984
Public transport use – (never/almost never)	**15.939**	0.094	0.000
Car use + (daily/several days per week)	**14.343**	0.751	0.139
Car use = (few days per month/less than once a month)	**14.970**	0.985	0.246
Car use – (never/almost never)	**11.590**	0.675	0.243
Private flight(s) last year yes	1.205	0.566	0.438
Private flight(s) last year no	0.683	0.221	0.287

Note: Contributions over mean of 4.545 are printed bold; weighted sample.

Table 13
Sociodemographic variables and their relative frequencies in the sample.

Variable	Categories	%
Party preference	Buendnis 90/Die Gruenen	19.7
	AfD/Alternative für Deutschland	5.3
	CDU/CSU	21.2
	FDP	4.4
	Die Linke	3.8
	SPD	9.7
	Other party	3.8
	Nonvoter/not entitled to vote	21.0
	Missing	11.0
Children under 11 years living in household	No	91.4
	Yes	8.6
	Missing	0.0
Education	Lower secondary school-leaving certificate (*Haupt/− oder Volksschule*)/intermediate school-leaving certificate (*Mittlere Reife*)	63.7
	Higher education entrance qualification (*Abitur*)	23.0
	University	9.1
	Missing	4.2
Age	≥ 70	16.1
	60–69	11.3
	50–59	16.1

(*continued on next page*)

Table 13 (*continued*)

Variable	Categories	%
	40–49	15.6
	30–39	19.4
	18–29	21.5
	Missing	0.0
Occupation	Retired/unable to work	25.6
	Part-time work	6.6
	Full-time work	47.2
	Unemployed	3.2
	Homemaker (incl. Parental leave)	4.5
	Student/apprentice/voluntary service	10.9
	Missing	3.5
Household income	≥ €4000	6.5
	€3000-4000	12.8
	€2000-3000	24.9
	€1500-2000	12.1
	€1000-1500	14.7
	≤€1000	9.1
	Missing	19.9
Gender	Male	49.3
	Female	50.7
	Missing	0.0
City	Stuttgart	67.0
	Muenster	33.0
	Missing	0.0

Note: Percentages may not total 100 due to rounding; weighted sample.

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