Dismantling the dwelling - A systematic approach to investigating the meaning of the dwelling

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Abstract:
The meaning of the dwelling consists of multiple layers, which makes it a complex concept. Therefore it should be dismantled (ref. Rapoport, 2001). This paper presents a conceptual framework in which settings, activities and values are systematically related. The data is derived from a telephone survey among 659 respondents in the Netherlands. This data offers insight into how different places in the dwelling are used, the way in which these different places are related to one another and which values people attach to activities in the dwelling. As such it reveals some of the patterns that constitute the meaning of the dwelling. The data show that: 1) The dwelling is a place to be together with family and friends; 2) The dwelling is a place to relax; and 3) The dwelling is a place to retreat from the outside world. Besides common patterns, the conceptual framework can also be applied to reveal differences in use and meaning between groups of people. For example, the meaning of the dwelling for people who live in a one or two person household emphasizes on the dwelling as a centre for leisure activities. This is reflected in values such as creativity and keeping busy. For people who live in a three or more person household, values like sense of safety and having time for one another are more prominent. As such the conceptual framework proves to be useful in dismantling the meaning of the dwelling.

1. Introduction

People seek to fulfill certain values in life, such as security, happiness and togetherness. These values guide people's activities (Lindberg et al., 1992; Mulder, 1993). For example, a person who finds togetherness important will probably undertake many social activities like meeting friends. As values guide activities, also the built environment – which is understood as a system of settings – guides activities through the user options it provide. In other words, the system of setting allows certain use. For example, the local pub provides a good setting for meeting friends. Within the relation between the system of setting and people's activities the meaning of the built environment can be found (cf. Chemero, 2003). Meaning is relational, because it is always tied to the individual. Not only the values a person seeks to fulfill, but also his personal characteristics like age, income or level of education, can affect whether or not that person recognizes a possible user option of the environment. Many different relations can occur because on the one hand, the built environment consists of innumerable settings, providing innumerable user options. On the other hand there are many different people. These different relations can have a large variety of meanings.

Various disciplines have substantial literature on the meaning of the built environment, and specifically the dwelling. This is mainly referred to as 'the meaning of home'. Examples of studies that focus on 'the meaning of home' are Blunt and Dowling (2006), presenting a critical geography of home which addresses the materiality, politics and power geometries of home. They understand home as the relation between the material and imaginative realm. In contrast, Rapoport (1995) - being an architect - states that home is already meaning. He advocates that object and its meaning should be separated for a proper understanding of the meaning of the built environment. In housing studies the focus is often on the economic aspect of the dwelling, in particular the meaning of home ownership (e.g. Clapham, 2005; Ronald, 2008). Furthermore there are studies which focus on 'the meaning of home' for particular groups of people such as homeless women (Tomas and Dittmar, 1995) or older women in congregate housing (Leith, 2006). Finally, various authors provide good overviews of the whole range of meanings attached to the dwelling (Després, 1991; Moore, 2000; Mallett, 2004; Easthope, 2004). As these overviews show, even though studies differ in their focus and approaches, there is a considerable overlap in meanings. It seems that research into 'the meaning of home' works as a black box; the outcome – the meaning of the built environment – is clear, but in what way it comes about often remains fuzzy. A possible explanation might be that the meaning of the dwelling has different layers. Meanings can be related to the physical structure, like providing shelter. But also to the social processes and activities that take place in and around the dwelling, such as being together with family or friends. The dwelling can be an indicator of one's position in society. Or people regard it as an economic investment. All these different aspects contribute in their own, unique way to the complexity of the meaning of the dwelling. To improve our understanding of this complexity, one needs to dismantle its different layers (Moore, 2000; Rapport, 2001).

This paper aims to contribute to dismantling the meaning of the built environment by presenting a conceptual framework in which the relation between objects and its meanings are systematically investigated. This paper focuses on the meaning of one particular system of settings, the dwelling. It can be regarded as the centre of people's everyday lives. Put differently, the dwelling is the primary anchor from where people explore the world (Rapoport, 1995). Rapoport (1990) defines the dwelling as 'a system of settings in which systems of activities take place'. Meaning can be considered as the linking mechanism behind people-environment relations. He even states that meaning is one of the most important functions of the environment (Rapoport, 1982). So, to investigate the meaning of the dwelling

three elements should be taken into account; 1) the system of setting (this paper focuses on the dwelling), 2) the activities performed in it and 3) the values assigned to either the setting or activities. In this paper *meaning of the dwelling* refers to the outcome of the relation between people, settings, activities and values. If meaning lies in the relation between settings and people's activities, in what way do these linkages occur and how can we understand them? More specific, what is the meaning of these linkages? These are the questions Rapoport poses in his paper: Theory, Culture and Housing (Rapoport, 2001). To answer these questions he proposes that one should dismantle culture. Dismantling can be understood as to investigate how activity systems are distributed in systems of settings and vary among groups. Rapoport considers culture as the specific context in which people – environment relations take place. Investigating the direct effect of culture on the built environment is not feasible, but through investigating the social expressions of culture - like household structure and institutions – and values or activities the effect of culture on the built environment and its meaning can be measured.

The following example shows the effect of household structure and values on the built environment. There is an increasing preference for living in suburban and rural areas in Western countries (Rapoport, 2001; Heins, 2002; Dowling, 2008). These areas have attributes like a high share of single family dwellings with a garden and a quiet, green neighbourhood. These attributes reflect values like peace and quiet and safety. Many people find these values important, especially people with children (Rapoport, 2001; Van Dam et al, 2002). Rapoport discusses all elements (like values and household structure) separately, but does not specify in what way these could be linked together in empirical research. That is the step this paper tries to make. Therefore the aim of this paper is to contribute to dismantling the meaning of the dwelling as proposed by Rapoport (2001). In order to do so, it presents a conceptual framework which systematically relates settings, activities and values. This conceptual framework allows for analyses at a general level (defining general dimensions of the meaning of the dwelling) as well as a specific level (investigating differences in the meaning of the dwelling between various groups of people).

The structure of the remainder of the paper is as follows: The second section reflects upon some of the most common meanings assigned to the dwelling and its relation to a broader set of universal values. It also puts forward a conceptual framework which specifies people-environment relations. The third section briefly describes the research design and methods of analysis. The fourth section presents the results of a survey on the meaning of the dwelling among 659 Dutch households. It presents a meta-analysis of the most mentioned values of activities in the dwelling, which gives insight into the meaning of the dwelling at a general level. Then it compares the meaning of the dwelling between two groups of people with a different household composition. The fifth section summarizes the main research findings by defining three dimensions of the meaning of the dwelling and reflects on the contribution of the conceptual framework in dismantling the meaning of the dwelling.

2. Dismantling the meaning of the dwelling

To dismantle the meaning of the dwelling, the relation between settings and activities is looked at. As stated above, meaning is assumed to lie in this relation. But, in what way does this meaningful relation come about? This section presents the conceptual framework for dismantling the meaning of the dwelling. First, we briefly discuss the setting, in this case the dwelling. Second, we discus in what way people's activities and values are related. Then we discuss in-depth the link between universal value types and general categories of 'the meaning of home'.

The dwelling consists of different elements. Its built form can be considered as a fixed feature; the walls of a dwelling are not easily removed or modified. Therefore, fixed feature elements are rather directive in the user options they provide for people. This is different for semi-fixed features of the dwelling. These are for example furniture and decorative elements like plants and photo frames. People can relatively easy modify semi-fixed features and as such can change it for their own particular use and preference. Finally, the adaptation to one's own preference is most easy with non-fixed features. Examples of non-fixed features are the people, their clothing and behavior. Through these non-fixed elements people can make the dwelling really their own (Rapoport, 1988; Deprés, 1991). All three elements are part of the dwelling in which meaningful relations come about. However, through semi-fixed and non-fixed elements people can relatively easy affect the dwelling. These elements reveal how people like their dwelling to be. For example, through placing a photo frame with a picture of beloved friends or family in the living room, it contributes to the living room as a place to be together with family or friends. So even though these elements seem insignificant; they are important for the understanding of the meaning the dwelling has for people.

People's activities, or their behavior, can be considered as non-fixed elements in the dwelling. Many studies assume that behavior is goal-directed and value-oriented (Bettman, 1979; Rokeach, 1973). As a result, people are more likely to act in a certain way if they believe it will help them reach their goals (Lindberg et al, 1992). Therefore, for a better understanding of why people choose to behave in a certain setting as they do, it can be useful to know more about people's value structures. Individuals organize and structure their values so that they are in a position to choose among alternative objectives and actions and are able to resolve potential conflicts. Such a configuration of values is called a value structure. These value structures are relatively stable, although they can evolve over time as social conditions are transformed (Schwartz, 2006).
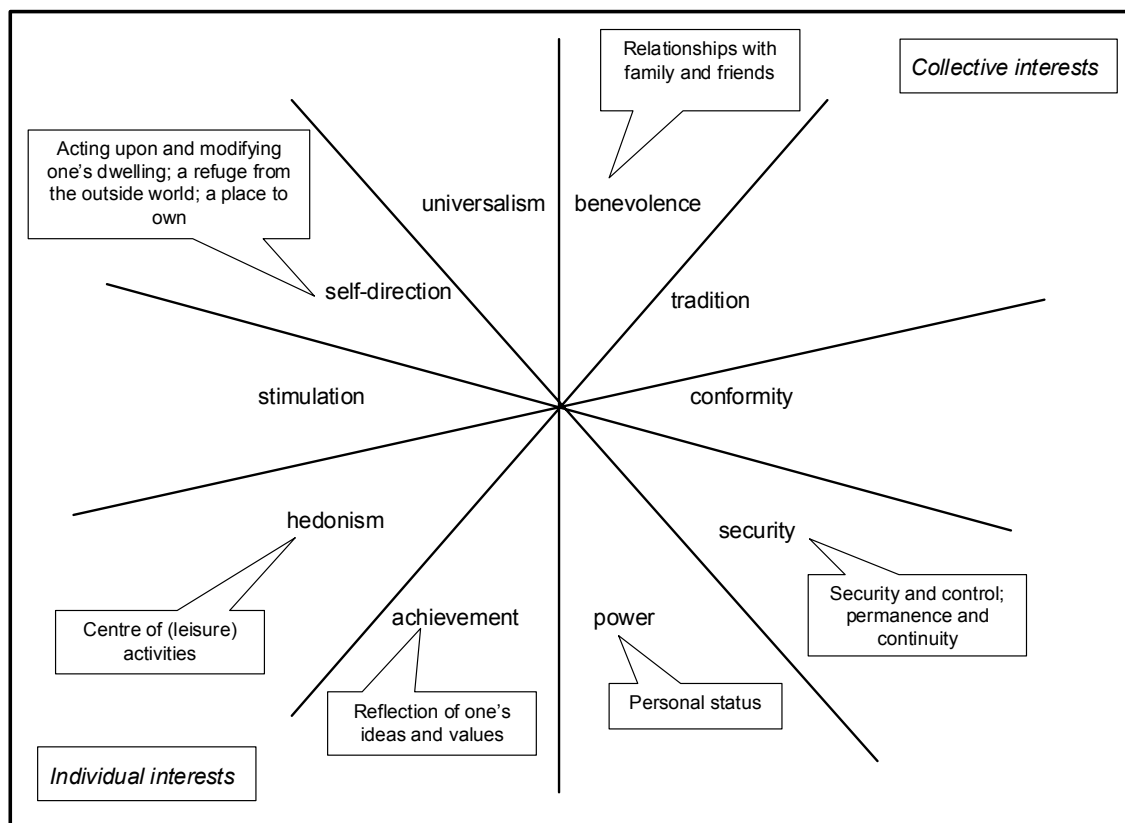
2.1   Universal value types and general categories of 'the meaning of home'

Based on cross cultural research Schwartz defined ten universal value types. A value type is a collection of diverse values. All the values people can have will fit into one of these universal value types. Figure 1 shows the ten value types. Self-direction, stimulation, hedonism, achievement and power are value types that serve the individual interest and are situated on the left side of the circle. Benevolence, tradition and conformity serve the collective interest. These value types lie opposite the value types that serve individual interests. Universalism and security serve both types of interests and form a border in the circle at the transition of individual and collective interests. In this way the compatible types are adjacent and the conflicting value types are situated opposite to each other in the circle. An example of two compatible value types is power and achievement. Values that have been mentioned in these categories are authority and influence. An example of two conflicting value types is self-direction and conformity. Values that have been mentioned in these categories are

independence and obedience. The ten motivational, universal value types are listed in appendix 1 (Schwartz, 1992; Schwartz, 2006).

Universal value types can be applied to any aspect of life, so also to people-environment relations. The dwelling is the domain where many people – environment relations take place. Based on an extensive literature review, Després (1991) defined ten general categories of 'the meaning of home', meaning as it is assigned by its occupants. These vary from 'home as a material structure', which refers to the concrete physical dimension of the dwelling to 'home as relationships with family and friends', which refers to the dwelling as a place to be together people one cares for.

Figure 1:   Universal value types and general categories of 'the meaning of home'
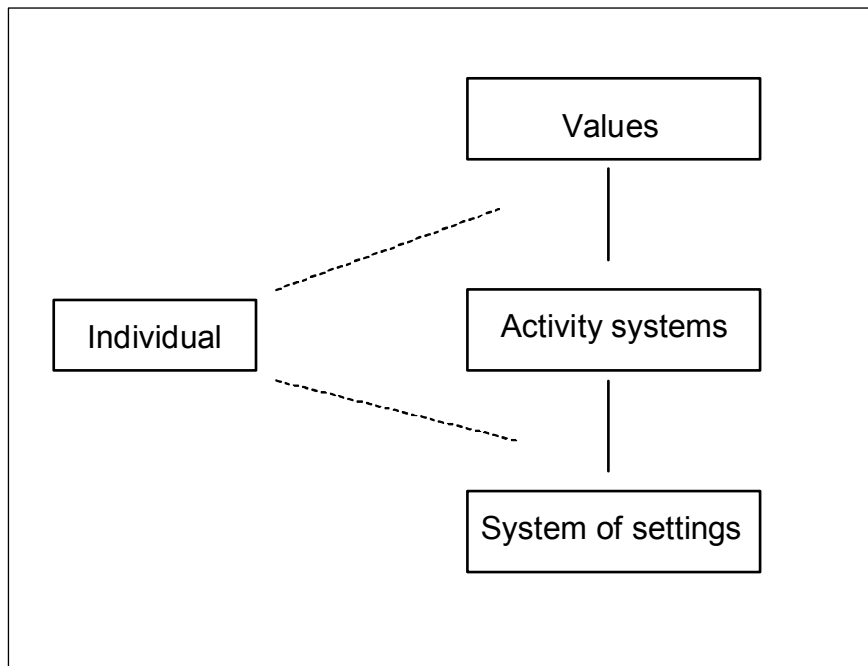

Based on Després, 1991 and Schwartz, 1992

These general categories of 'the meaning of home' can be understood as a more specific manifestation of the universal value types. Combining the universal value types and categories of 'the meaning of home' gives an interesting picture, which is represented in figure 1. It shows that the general categories of 'the meaning of home' are represented both in value types serving the individual interest and in value types serving the collective interest. For example, home as relationships with family and friends is part of the value type benevolence. Benevolence is clearly a value type that serves the collective interest. In contrast, home as an indicator of personal status is part of the value type power. Power is a value type serving the individual interest. Home as material structure falls outside the universal value types; it is not directly related to a particular value type. Still, indirectly it could be related to the universal value type power. For example, people feel that a large dwelling positively contributes to personal status. The general categories of 'the meaning of home' contain many different values. Therefore each general category can belong to various

universal value types. For example, watching TV belongs to the dwelling as a centre for leisure activities. It can make people feel relaxed, which belongs to the value type hedonism, as indicated in figure 1. But people can also experience watching TV as a break from work, which belongs to the value type stimulation. In order to keep figure 1 clear, we only connected each general category to one universal value type, the one that is closest connected to the description of the general category. But, one should keep in mind that even though the general categories of home are closely related to one particular universal value type, there are some exceptions where one general category can belong to several universal value types. The general categories of 'the meaning of home' are rather equally divided over the value types. This indicates that the meaning of the dwelling is both an individual and collective affair.

2.2 Conceptual framework
After discussing the different elements of the dwelling and its meaning, we now try to link these elements together. The conceptual framework consists of three elements: settings, activities and values. The most important assumptions for the conceptual framework are: the environment is regarded as a system of settings in which systems of activities take place (Rapoport, 1995). People pursue certain values in life, which guide people's activities (Bettman, 1979; Rokeach, 1973). Within the relation between settings and people's activities lie meaning (Chemero, 2003). Together these three elements form the conceptual framework for dismantling the meaning of the dwelling (see figure 2). Values are an important element in the conceptual framework as they help understand the shape and use of the built environment. That is, objects in the environment have a value for people in terms of the possibilities they offer for actions, intentions, goals and values. Therefore meaning is the linking mechanism in people-environment relations. Everyday meanings are important in understanding the meaning of the dwelling. For example, entertaining guests in the living room fulfils the need for social contacts, or watching TV in the bedroom makes people feel relaxed. The dotted line in the conceptual framework indicates the relativity of people-environment relations. Meaning only exists in the relation between an object and a person. Consequently, an object may have different meanings for different people, or it may have different meanings for the same person in different situations. For example, small children can ride their bike in the garden, whereas an adult can not due to the size of the garden or the spatial arrangement of plants, trees and other objects.

Figure 2:   Conceptual framework for the meaning of the dwelling[1]

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│                             │   Values    │                   │
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│      │ Individual │- - - - -│ Activity systems │              │
│      └────────────┘         └──────┬───────────┘              │
│                    - - - - -       │                          │
│                             ┌──────┴───────────┐              │
│                             │ System of settings│             │
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This conceptual framework resembles the Means End Theory, which relates people's choice behavior to underlying values. It states that people choose a certain attribute. Using that attribute has a consequence, which helps fulfilling certain values. The relation between attribute, consequence and value is called a Means End Chain (Reynolds and Gutman, 1988). The laddering technique is used to reveal this Means End Chain (Gutman, 1982) and has been successfully applied to investigate the meaning of dwelling features (Coolen and Hoekstra, 2001). The Means End Chain theory assumes a strict hierarchy between attributes, consequences and values. However, Coolen and Hoekstra (2001) found a broad scale of consequences and values, which were often not hierarchically related. Their study showed that for some people the garden would mean freedom (directly relating an attribute and value, without intervention of a consequence) and for others the garden would offer a place to sit in the sun (a link between attribute and consequence, with no further value attached to it). Also other studies (e.g. Cohen and Warlop, 2001; Van Rekom and Wieringa, 2007) rejected the hierarchy assumption of the Means End Chain theory. The conceptual framework does not have the hierarchy assumption between systems of settings, activity systems and values. Instead, people-environment relations are considered to be flexible. The meaning of the dwelling becomes apparent through either activity systems, values or both.

The entry point of the Means End Chain is the attribute, using the laddering technique it is built up bottom-up. Instead one could also focus the consequences. To get insight into the underlying values of a certain behavior, Pieters et al (1995) adapted the Means End Chain and developed the goal structure approach. This approach starts at the consequence level, focusing on what people want to achieve. Then the laddering technique is used to see how people think they can achieve this goal (indicating an attribute) and why they want to achieve it (revealing the underlying value of behavior). The goal structure can be understood as a middle-out

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[1] This conceptual framework is derived from the conceptual framework as presented in Coolen (2006) and Coolen (2008).

approach; its starting point is the activity. Because we regard the dwelling as a centre of activities, we use this middle-out approach. The sequence of activity – setting and activity – value is called a meaning structure. The section below explains in what why these meaning structures are created.

Firstly, people were asked to mention some activities (four to eight) they performed in and around their dwelling that were important for them. The interviewer asked this in an open manner and could select the corresponding closed answering categories on the computer screen. This process is called field coding. Secondly, respondents were asked to relate the activities to the setting. The interviewer asked: 'Where do you mainly perform that activity?' Finally people were asked why these activities are important to them. The following example describes the creation of a meaning structure. If the respondent had mentioned watching TV as an important activity the interviewer asks the respondent: 'Where do you mostly watch TV?' The respondent answers: 'I watch TV in the living room.' Then the interviewer asks: 'Why is watching TV important for you?' The respondent might answer: 'When I watch TV I can relax.' Figure 3 represents this meaning structure.

Figure 3:   Creating a meaning structure
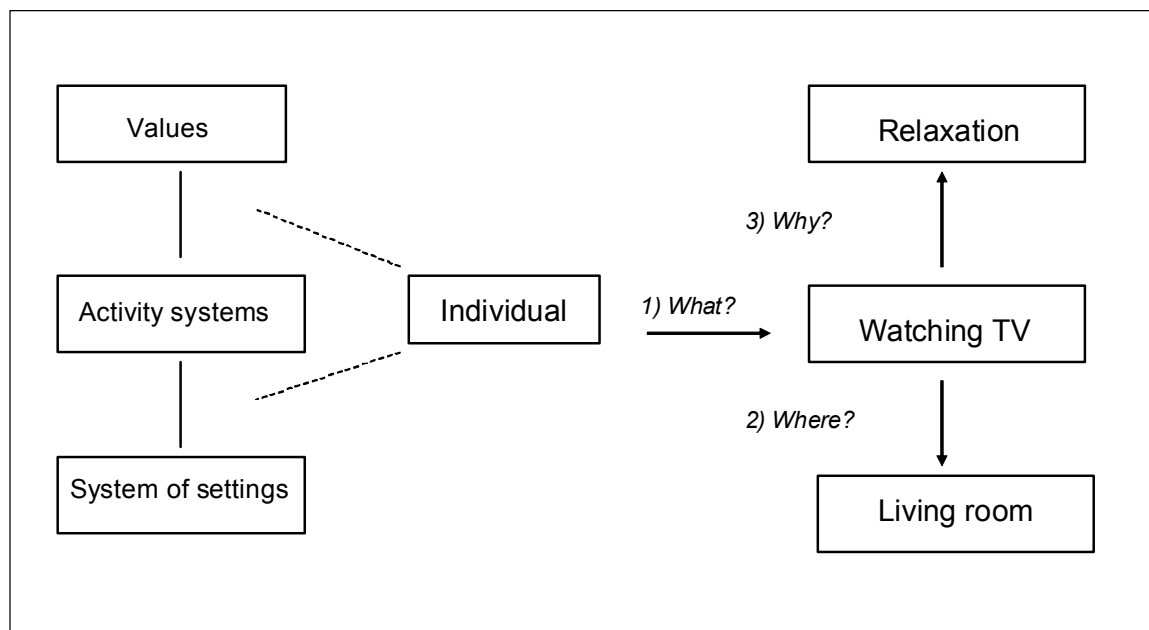
The next section describes some key features of respondents and the methods used to analyze and represent the meaning structures.

3. Data and method
3.1 Sample
The survey used in this paper is a follow-up on a Housing Preference Survey in the Netherlands about the current and preferred dwelling situation of (potential) owner-occupiers. Approximately 2,000 respondents participated in this Housing Preference Survey (further mentioned as HPS). Only households with an income of at least 1,600 euro after tax per month have been selected for this survey. (This is the average household income after tax in 2005 according to the Dutch Budget Institute, NIBUD.) It is assumed that people with an above average household income have some choice in the housing market. Using this selection means that approximately two third of the Dutch households fall within this group.

This survey was a telephone survey (which took place in September 2006), making it possible to interview many respondents throughout the Netherlands. Respondents have been asked whether they wanted to participate in a follow-up study about the meaning of the dwelling. Of all respondents, 96% wanted to participate in the follow-up. A total number of 659 respondents participated in the survey.

The questionnaire was administered to just as many men as women. It is assumed that there is a relation between income, age, household composition and level of education. First, many young people will have just started their professional career, and consequently they will have a relatively low income. Secondly, since young people relatively often live alone or in a small household, they are more likely to live in a one- or two-person household. Thirdly, there is a positive relation between income and level of education: the higher the level of education, the more likely people are to have a high income (Clark and Dieleman, 1996). Only respondents with an above-average income took part in the HPS. As a result, young people (aged 18-29) and one-person households are under-represented in this sample. On the other hand, both the share of people aged over 55 and the share of people with a high level of education are relatively large. Most respondents live in a single family dwelling, with a garden, 4-5 rooms and a living room of 30-45 m^2. This profile reflects the Dutch standard for most single-family dwelling in a row; it's a dwelling with four or five rooms, a living room of 33 square meters and a garden (Boumeester et al, 2006). A large majority of the respondents owns their dwelling. Because of the income criteria, relatively many people have a high income. People with a higher income are more likely to be an owner-occupier (Boumeester, 2004). Appendix 2 summarizes these key features of the respondents.

Figure 4:   Urban, suburban and rural areas in the Netherlands

The Netherlands is one of the most densely populated and urbanized countries in the world. In 2000 it had 466 inhabitants/km^2. In comparison, the United Kingdom has 241 inhabitants/km^2, Germany 230 and the United States 28. In order to enhance the quality of life, the Dutch government adheres to compact city policy and a restrictive building policy for open areas (Van der Valk, 2002). Even though the map of the Netherlands is dominantly green, still of all Dutch households, 60% lives in urban or suburban type of residential environments. Especially the western southern and central parts of the Netherlands are highly urbanized. Distances

Urban (1.92 million households)
Suburban (2.34 million households)
Rural (2.87 million households)
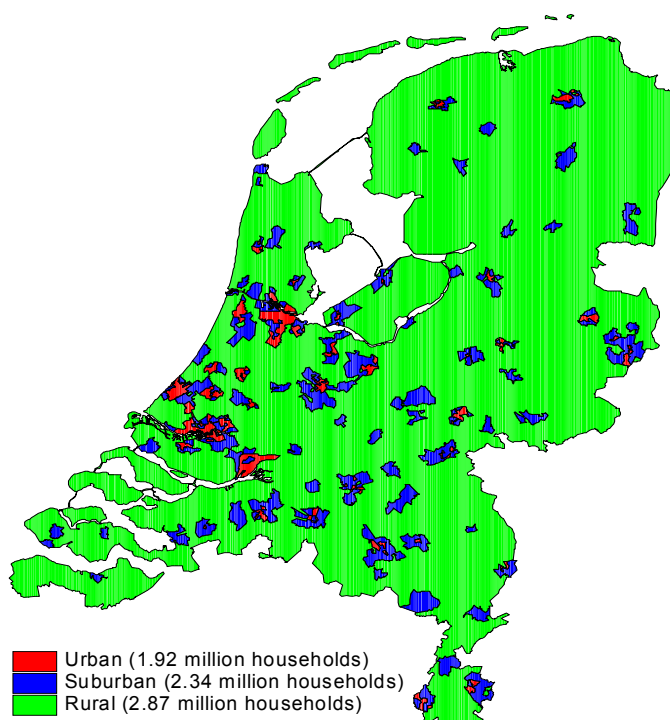
between the different urban areas are small. One could even regard this zone as an urban field (Van der Valk, 2002). In the city centers the most common dwelling type are multifamily dwellings. In rural areas there are more detached single family dwellings, but the most common form in the Netherlands is the single dwelling in a row. Having a house (preferably detached or semi-detached) with a garden is something many people aspire (Boumeester et al, 2008).

3.2 Analyzing meaning structures

For each respondent several meaning structures were compiled. Adding up the meaning structures of all respondents results in a so-called adjacency matrix; this matrix contains all the relations between activities and values that the respondents have mentioned. The adjacency matrix is valued. The more respondents mentioned a certain link (for example, watching TV makes them relax), the higher the frequency will be. The graphical representation of an adjacency matrix is called a meaning network. In the network literature these types of networks are referred to as affiliation networks (Wasserman and Faust, 1994) or two-mode networks (Borgatti and Everett, 1997) because they consist of two distinct sets of entities, which in our case are a set of activities and a set of values. Each point in the network is called a node. The link between activities and values is directed; respondents gave a reason why a certain activity is important to them. Directed links are represented as arrows. The thickness of the arrows indicates the frequency of the link. The higher the frequency of the link, the thicker the line will be. The network representations were generated with UCINET (Borgatti, Everett and Freeman, 2002). This program uses an algorithm to visualize valued two-mode networks in such a way that the most central node is placed at the centre of the network. In contrast, peripheral nodes are placed near the edge of the figure.

Each meaning network contains much information. To make the network representation easier to read, two simplifications are made. First a certain cut-off level is chosen, so that only links that have been mentioned a minimal number of times are taken into account. Each network has a different size, so the cut-off level is determined for each network separately (Bagozzi and Dabholkar, 2000). Second, each value is assigned one of Schwartz's ten value types. All unique values remain in the network representation; still, looking only at the value types reduces the total amount of information. Appendix 1 shows the list with abbreviations for each value type used in the networks.

4. Results

In this section the meaning structure for the dwelling is built up by connecting the main rooms in a dwelling, to the activities performed in those rooms and the values people attach to them. But first the relations between activities and the rooms in the dwelling are considered.

4.1 Use of the dwelling

All rooms in the dwelling hold several activities, so the activities and rooms are well connected. Of all rooms in the dwelling, the living room and private outdoor space contain the largest number of different activities. Both can be considered as multi-functional rooms. However, the frequencies of the activities in the living room are considerably higher than those in the private outdoor space. Also the kitchen contains many activities. However, only cooking was mentioned many times; the other activities performed there have a much lower frequency. So, the living room can be regarded as the locus of activity in the dwelling. Figure 5 shows the main relations between activities and rooms in the dwelling (see appendix 3 for the data matrix of the use of the dwelling).

Figure 5:   The use of the dwelling (cut-off level >10)
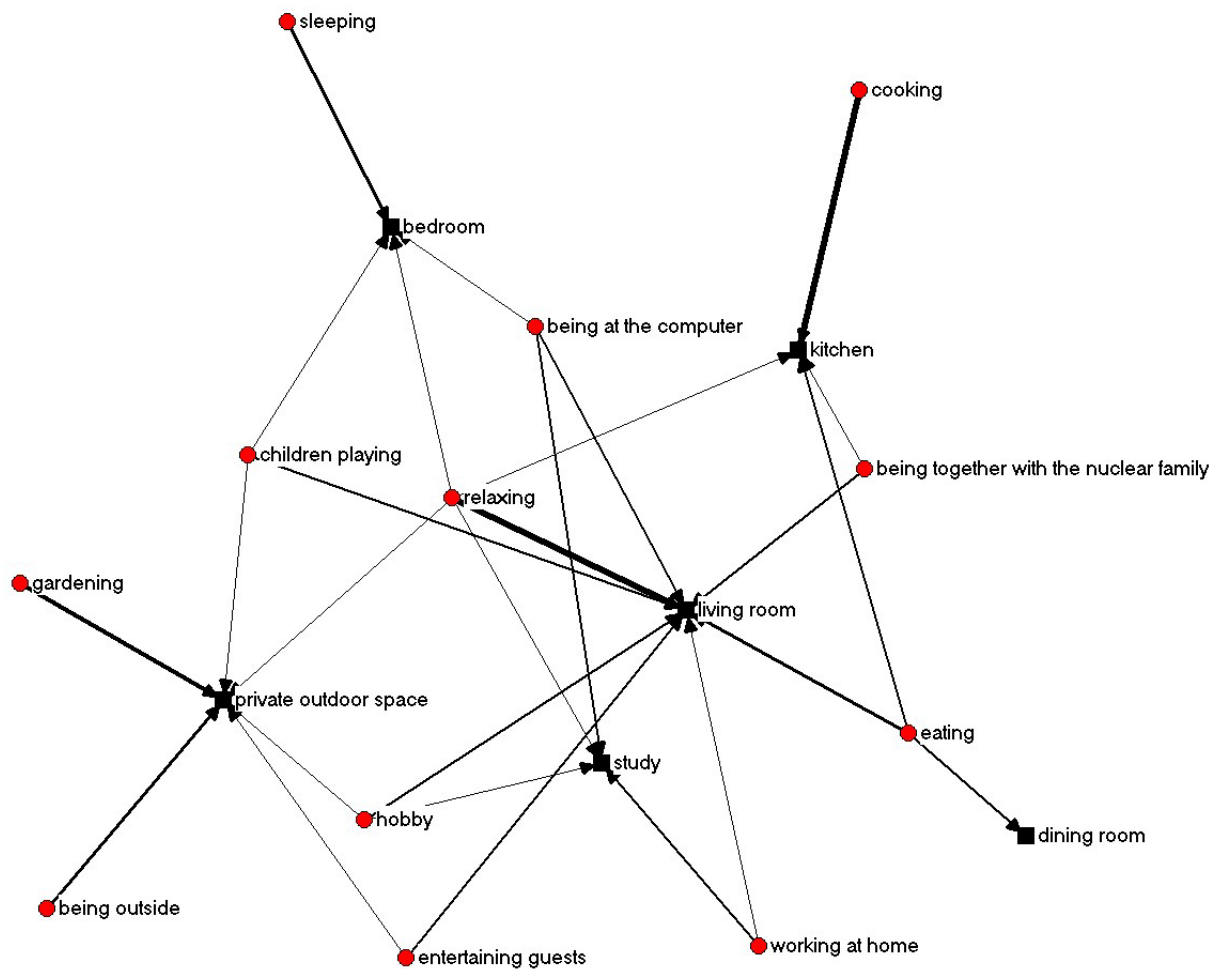
The activities that are connected to one room only are called isolates. In the network of the use of the dwelling, there are four isolates: cooking, being outside, gardening and sleeping. Because these activities are connected to only one room, the frequency of the link is relatively high. For example, the most frequently mentioned link in the network is cooking in the kitchen (n=372). Gardening in the private outdoor space (n=261) is also mentioned many times. Both links are represented by a thick line; indicating that these activities are often linked to resp. the kitchen and the private outdoor space. These four isolates can be considered room-specific activities, they are performed in one particular kind of room. For example, people will not do their gardening in the kitchen or sleep in the garden. So the relation between these activities and rooms is rather rigid. One might assume that no matter in what kind of dwelling a person lives, he will perform that specific activity in that specific room. In contrast to the room-specific activities, relaxing, hobby, being together with the nuclear family, eating and children playing are connected to many different rooms. These activities are not specific. For example, people can eat in the kitchen, the living room or the dining room. This indicates that other factors, for example the number of rooms in a dwelling or household composition, might influence the use of the dwelling. In fact, people who live in a dwelling with four or more rooms have assigned more often activities to a dining room, compared to people who have three rooms or less (see appendix 4 for the use of the dwelling subdivided by number rooms). This suggests that people, who live in a dwelling with more rooms, have relatively more 'specialized' rooms such as a dining room or guest room.
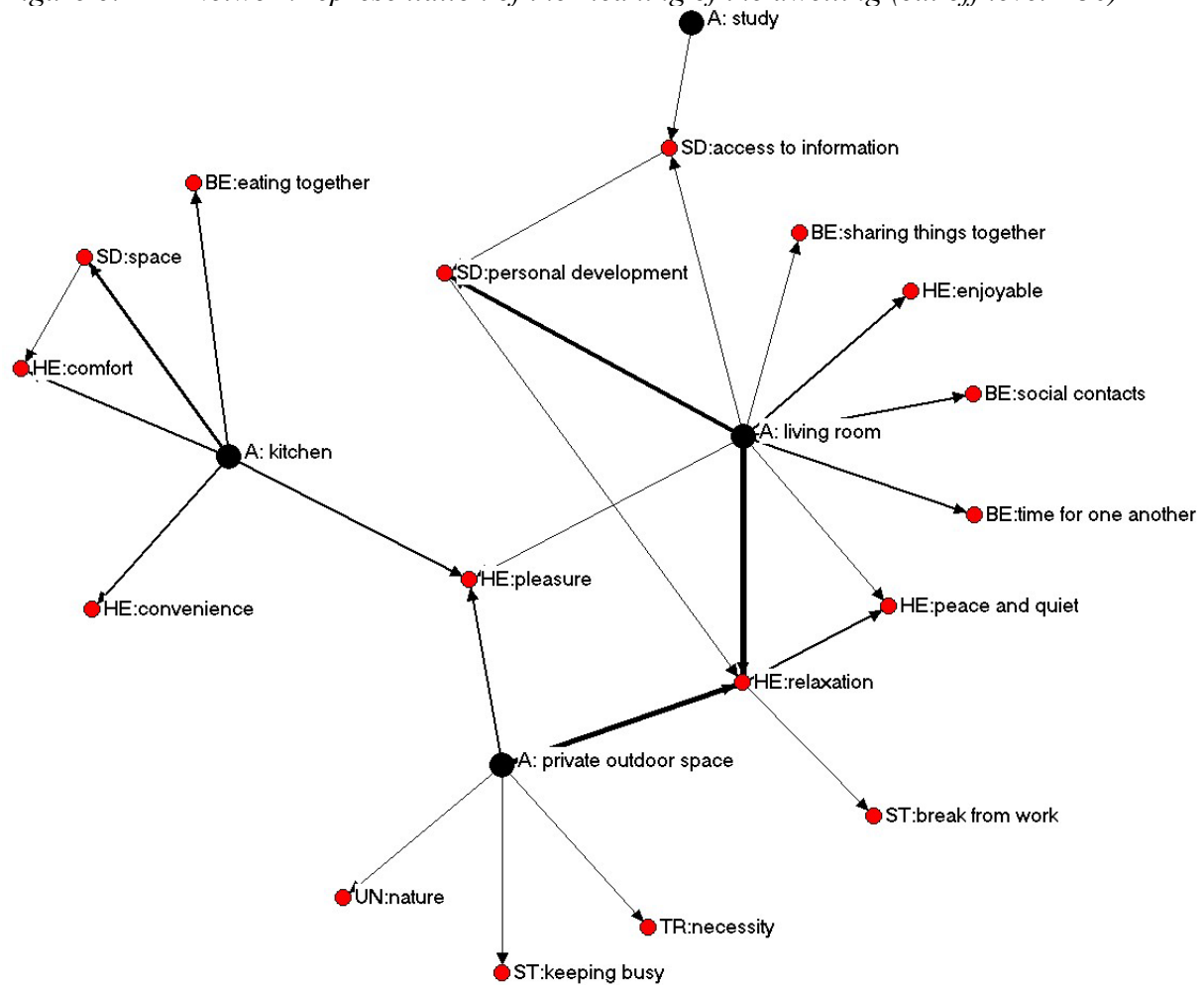
4.2 The meaning of the dwelling
This section looks at the most frequently mentioned values for activities in the dwelling as a whole. The dwelling consists of different rooms and the meaning structures were compiled for each room, i.e. the living room, the kitchen, the private outdoor space etc. The overall meaning structure of activities in the dwelling is created in two steps. First, the rows representing all activities in a room have been added up into one row; e.g. all activities in the living room (represented in the network by *A: living room*). This procedure was repeated for all rooms in the dwelling. In the second step, all columns presenting the values connected to the rooms were added up. For example relaxation (value type hedonism) attached to an activity in the garden was added up with relaxation attached to an activity in the living room into one row: relaxation (represented in the network by *HE: relaxation*). So in the meaning network there is a link running from A: living room to HE: relaxation, and a link from A: private outdoor space to HE: relaxation. Figure 6 shows the meaning network which contains the most mentioned values of activities in different rooms in the dwelling.

Like figure 5, the use of the dwelling, figure 6 clearly shows that the living room is a very central place in the dwelling and contains many diverse values. To a lesser extent this is also true for the private outdoor space. The kitchen and the study occupy a more isolated position. Both sub-settings are rather specific in their use and values attached to the activities. So, the living room is a centre of activities with a diverse meaning. Benevolence is an important value type for the living room. Values that fall under the value type benevolence – such as social contacts, sharing things together, having time for one another – have been mentioned many times. These values clearly reveal that it is through social interaction with the nuclear family, friends or family members that the living room becomes a meaningful place. Besides benevolence, hedonism and self-direction are also important value types for activities in the living room. The living room is a place to relax and enjoy the good company of friends. And, by using the computer or watching TV, people have access to information which allows them to keep up with the world news and learn new things. Because of its large variety of activities and values, the living room can be characterized as an all-purpose living area (Busch, 1999). This might be related to the popularity of the open floor plan. From the 1960's onwards many Dutch houses were built with an open plan ground floor, in which the kitchen, living and dining area are combined together (Cieraad, 2002).

The private outdoor space is a place to relax, enjoy nature and, through the activity gardening, keep busy. Even though gardening is a hobby for many, some people also experience it as a necessity. For the study, mostly used for working at home or performing a hobby, the value type self-direction is important. It is a place where the individual is in control and can be on his own. Finally, the kitchen holds many different values, but it takes a rather separate position in the network: only through the value pleasure is it connected to the rest of the network. The practical aspects of having enough space to cook, convenience and the comfort of a modern kitchen are important. Besides the practical aspects, the value type benevolence is also important; one can eat with family or friends in the kitchen. Through the increase of pre-cooked and pre-prepared foods, the primary role of the kitchen might shift from a center for food preparation to a sociable space (Bush, 1999).

Figure 6:   Network representation of the meaning of the dwelling (cut off level >30)

The meta-analysis brings to light three important dimensions of the meaning of the dwelling. First, the dwelling is clearly a place for relationships with family and friends (value type benevolence); for example, eating together with family or friends is mentioned many times. All rooms except the study are used to be together with family or friends. Spending time together, talking over the school day with the children or just catching up with friends (whether it be on the internet, on the phone, in the living room or the private outdoor space) are all activities that people do on a daily basis in their dwelling. Second, the dwelling is a place for leisure activities. Many people mentioned that they watch TV, read, and listen to music in their dwelling. Relaxation is the most frequently mentioned value for the dwelling, so it is a place where people can relax, find peace and quiet and forget about work (value type hedonism). Third, the dwelling is a refuge from the outside world and a place where people can do (to some extent) whatever they want (value types self-direction and stimulation). This is related to the dwelling as a centre of leisure activities; people don't need to justify to others what they do in their dwelling. They can do what they want, forget about work, read what they find interesting etc. These three dimension of the meaning of the dwelling touch upon both private and public interest, shown by the value types that vary from benevolence and security (collective interest) to self-direction and hedonism (individual interest).

**4.3 The effect of household composition of the meaning of the dwelling**
The network representation of the meaning of the dwelling (figure 6) gives a compact overview of the most mentioned values for activities in the dwelling. However, it does not

include information on people's personal characteristics. As the conceptual framework shows, meaning is relational. That means that an object has a value in terms of the possibilities it offers a person. So, one object can have different meanings for different people. According to Rapoport (2001) household structure is an expression of culture. In western counties the (married) couple with children is still one of the dominant household types, even though the number of single person households is rapidly increasing (Ogden and Hall, 2000). Much literature states that in Western countries many people with children prefer living in a single family dwelling with a garden in a quiet neighborhood (e.g., Karsten et al, 2006; Rapoport, 2001). The garden would provide a safe place for the children to play and each child could have its own private room. Also smaller household often prefer a single family dwelling. However, relatively more often small households prefer to live in an apartment, compared to families with children. Especially for older people having a balcony instead of a garden frees them from the duty of maintaining the garden. Furthermore, having no stairs in the dwelling provides comfort (Zwarts and Coolen, 2006). The section below investigates to what extent household composition affects the meaning of the dwelling.

First we consider to what extent activities in the dwelling vary between different household types. The correspondence analysis solution in figure 7 indicates the similarities and differences in activities in the dwelling among one-, two- and three- or more person households. Dimension one separates one and two person households on the left side of dimension one, from three and more person households on the right side. All activities that lie close to the centroid of the solution (0.0) do not differentiate among these groups. So, regardless of people's household situation everyone cooks, cleans, relax and eats in the dwelling (see figure 7). The activities hobby, work at home and entertaining guests are associated with people who live in a one and two person household. And, as one might expect, the activities being together with the nuclear family and children playing are associated with people who live in a three or more person household.

Figure 7:   Correspondence solution for activities in the dwelling and household composition
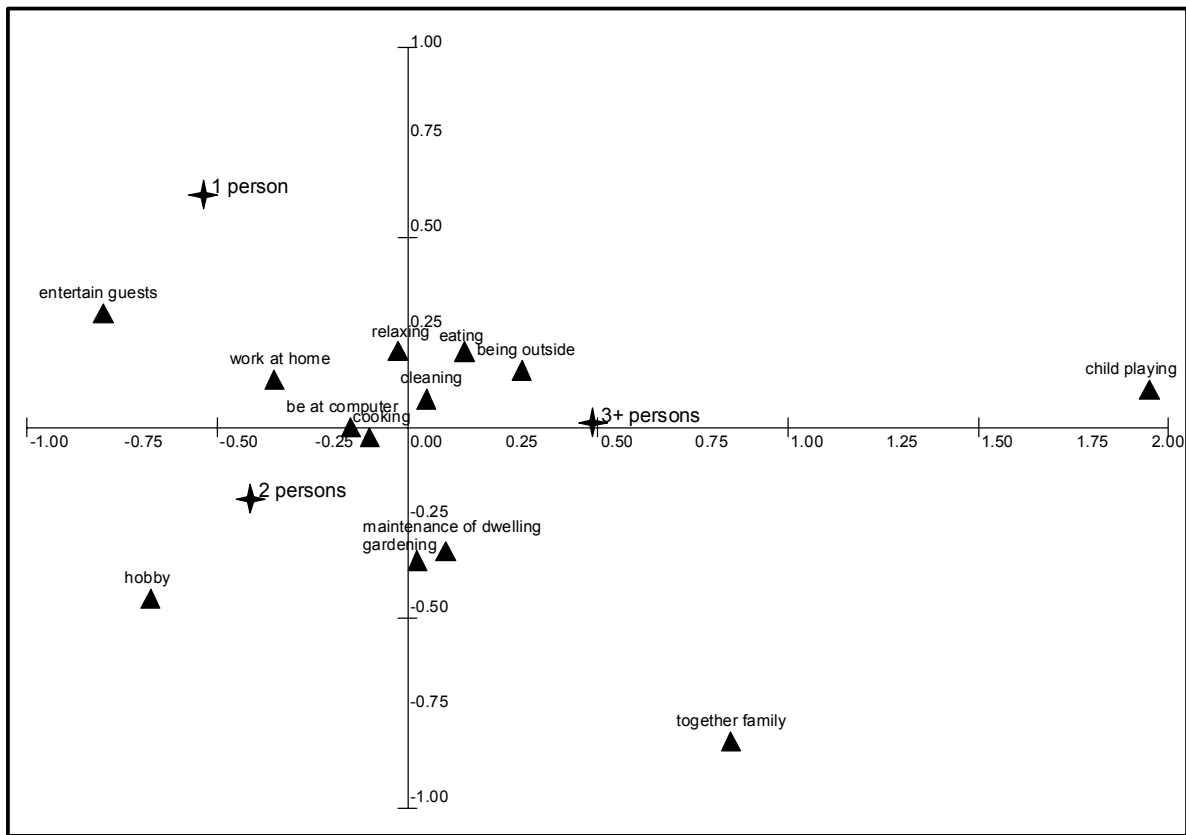
Because the activity systems mostly differ with respect to leisure (entertaining guests and performing a hobby) and family life activities one might also expect that the meaning of the dwelling will differ in values related to leisure and family life. Figure 8 represents the meaning network of the dwelling for people who live in a one or two person household. Figure 9 represents the same, but for people who live in a three or more person household. People who live in a one or two person household have mentioned more often work at home (which is linked to access to information) and hobby (which is linked to creativity). These are important activities for the study. People who live in a one or two person household have more often assigned activities and values to the study; that is why this sub-setting of the dwelling is present in the meaning network for small households and not in the one for larger households. One line of reasoning involves the system of activities; one might argue that people without children have more free time to perform a hobby. Another possible explanation might consider the system of settings. An important value for the dwelling concerns number of rooms. In the Western world it is widely accepted that each member of the household has its own (bed)room. So, if a household has more members, there will be fewer rooms left over for other purposes. That means that people living in larger households still perform hobbies or work at home, but do this in the living room or bedroom, instead of a specially assigned study. (This is actually also shown by appendix 4.) So, both the system of setting and the system of activities affect the meaning of the dwelling.

Also the private outdoor space shows a remarkable difference. People who live in a one or two person household have assigned to it the value keeping busy. This value is related to the activity gardening. This clearly indicates that people see gardening as a leisure pursuit. In contrast, people who live in a three or more person household have assigned the value

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necessity to gardening, which indicates that they see gardening as a chore. From an activity point of view, one might argue that families with children need to divide their time over work and childcare, leaving less time for other activities (Arnold and Lang, 2007). As they might like the garden to enjoy being out of doors, they do experience gardening a necessity that just needs to be done, whereas people who might not have so much care duties, experience gardening as a pleasurable leisure past time. Finally, the living room seems to take a more central position in the meaning network for three and more person households. It holds many activities and values. It differs from the meaning network for one and two person households – as one might expect – in the values personal development of the child, sense of safety and time for one another. All these values belong to the home as a place to be together with meaningful others. So, where people in one and two person households also have this dimension, it is more present in the network representation for people living in a three or more person household.

Figure 8:   *Network representation of the meaning of the dwelling, for one and two person households (cut-off level >15)*
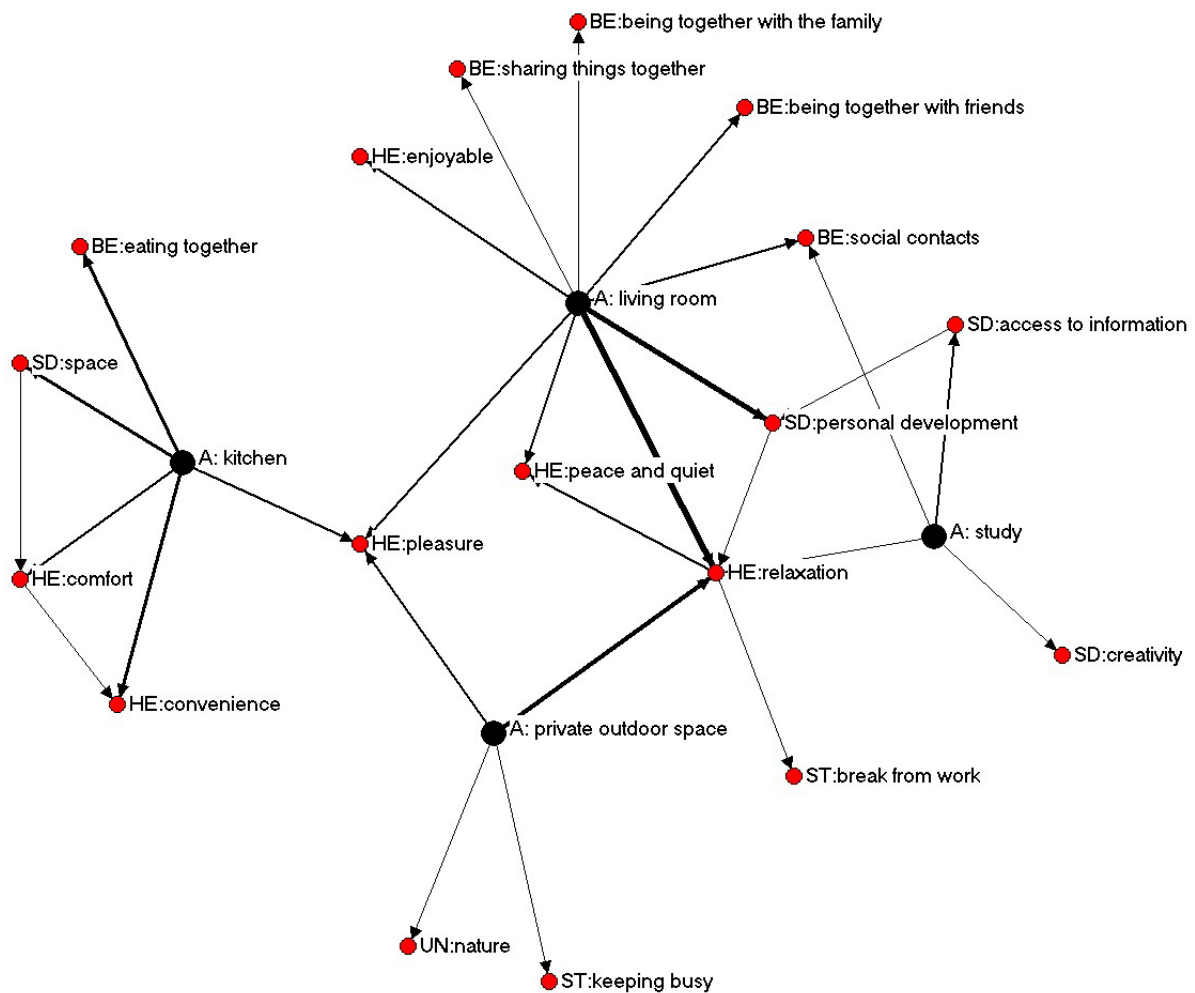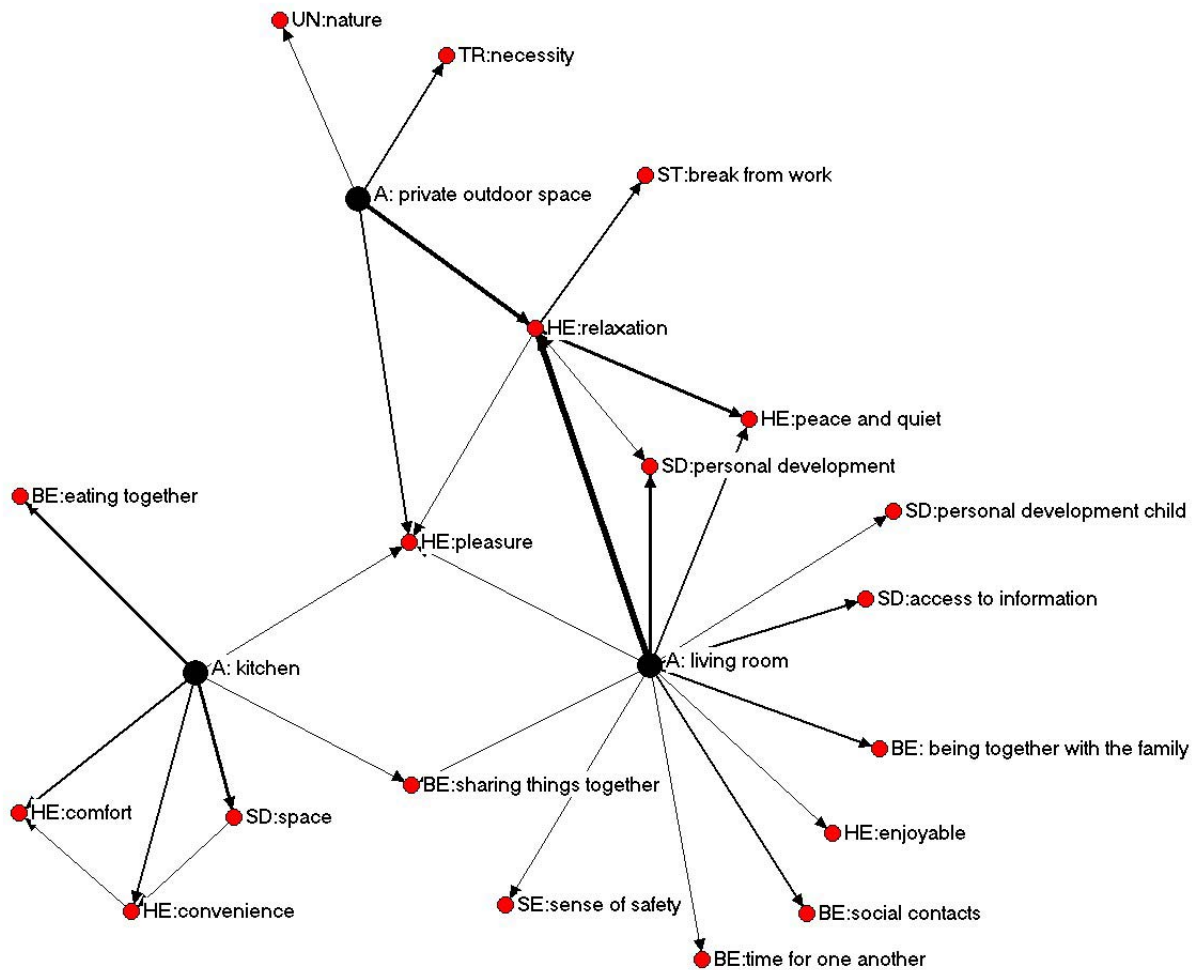
Figure 9:   *Network representation of the meaning of the dwelling, for three and more person households (cut-off level >15)*

5. Conclusion and discussion

The meaning structures offer clear insight into the relation among settings, activities and values. This insight refers to both the content (what does the dwelling mean to people) and the structure (how settings, activities and values are related to each other). In other words, by applying a meaning structures approach, the people-environment relations are made specific and as such it contributes to dismantling the meaning of the dwelling.

On the one hand, the meaning structure approach allows a high level of aggregation, identifying patterns of environment – behavior relations. The data showed that for activities in the dwelling there are three general dimensions of meaning. The dwelling is a social place, where one can be together with family and friends. The dwelling is also a centre of activities, for which relaxation is an important value. Many people work outside the dwelling and when they return there, they want to relax. Finally the dwelling is a place to retreat from the outside world; a place where the individual is in control. Focusing on activities does not reveal the whole range of general categories of 'the meaning of home'. For example, the dwelling as a material structure did not occur. However, the conceptual framework allows focusing either on activities or settings. Other research showed that both approaches are complementary (Meesters and Coolen, 2008).

On the other hand, the meaning structure approach allows for a low level of aggregation and as such it offers insight into the meaning of the dwelling. The living room proved to be the locus of activity in the dwelling. The living room holds a large variety of activities and values. This might be explained by the popularity of the open floor plan. From the 1960's and onwards many Dutch dwellings were built with an open floor plan (Cieraad, 2002). Also in suburban areas in other Western countries, like Australia and the US, the open floor plan prevails. Open floor plan makes the ground floor into one large homely domain, providing an informal living area in which the kitchen, living and dining area are combined together (Dowling, 2008). Consequently, in one area many different activities come together; it is an all-purpose living area (Busch, 1999). These are not only activities concerning the members of the household, like children playing and eating together. But also activities where people from outside the household are invited over, showed by the activity entertaining guests. So, the living room holds activities and values that serve both the individual and collective interest. That means that the dwelling is not only private, but also involves public life. As such, it reflects Rapoport's (1995) statement that the dwelling is the primary anchor from where people explore the world. Furthermore, similar settings can have different meanings among different groups of people. The subdivided meaning structures of the dwelling show that for people who live in one and two person households the dwelling is a place for leisure activities, reflected by values such as creativity and keeping, as well as having a separate room to work at home. For people who live in a three and more person household, values such as sense of safety, having time for one another and personal development of the child occur more. As such it reflects the dwelling as a place to be together with the family. So, even though the meaning of the dwelling is similar for the two household groups, the emphasis in values does differ.

Concluding, the conceptual framework proved to be useful in dismantling the meaning of the dwelling. It visualizes the interdependency of structure and its use. Not only does it allow for aggregation, identifying important dimensions of the meaning of the dwelling, but also for investigating specific relations like the relation between household composition, the use and values of the dwelling. Thereby, it might narrow the gap between supply and demand. A possible way to improve the accuracy of the meaning structures would be to define the setting in more detail. That would require not only taking the room into account, but also looking at its characteristics – for example the size or shape of the room. An effort to specify shape, and thereby the relations among shape, use and meaning, would allow the designers to get closer to the dwellers preferences. Besides, the specification exercise might offer designers an opportunity to engage in discussion with the dwellers. It could visualize how changing a setting could impact activities and values. Or conversely, it could show the consequences for the setting if activities were added. A second approach might use this method to examine the meaning of the dwelling for specific groups in greater depth. Few one-person households participated in the present study and as the data show, household composition does affect the meaning of the dwelling. Since the number of people living in one-person households is growing, the housing market will have to take this group into account. Knowledge of their specific use and meaning of the dwelling would be important information for both policy-makers and designers.

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Appendix 1: Universal value types by Schwartz

1. Self-direction (SD): the need to be independent in thought and action (e.g. creativity, freedom, choosing your own goals, curiosity, independence)
2. Stimulation (ST): the need for variety and stimulation (e.g. variety, enterprising, excitement, novelty, challenge)
3. Hedonism (HE): the need to experience pleasure (e.g. pleasure, enjoying life, happiness)
4. Achievement (AC): the need to experience personal success through demonstrating competence according to social standards (e.g. ambition, intelligence, obtain social approval)
5. Power (PO): the need for status differentiation by attaining or preserving a dominant position (e.g. authority, wealth)
6. Security (SE): the need for safety, harmony and stability of society, relationships and the self (e.g. sense of security, good health, cleanliness, sense of belonging)
7. Conformity (CO): the need not to harm others or violate social expectations or norms (e.g. obedience, politeness, honoring parents)
8. Tradition (TR); the need to respect and commit to shared experiences and fate (e.g. religion, humility, respect, commitment)
9. Benevolence (BE); the concern for the welfare of close others in everyday life (e.g. true friendship, honesty, helpfulness, loyalty)
10. Universalism (UN); the concern for the welfare of all people and for nature (e.g. social justice, nature) (Schwartz, 1992; Schwartz, 2006).

Appendix 2: Key features of the respondents

	Total
	(N=659)
Sex	
Man	345 (52.3%)
Woman	314 (47.7%)
Age	
18-29 years	24 (3.6%)
30-39 years	119 (18.1%)
40-54 years	249 (37.8%)
55+ years	267 (40.5%)
Household composition	
One person	70 (10.6%)
Two persons	292 (44.3%)
Three or more persons	297 (45.1%)
Income	
Low (1- 1.5 times average)	180 (27.3%)
Middle (1.5-2 times average)	199 (30.2%)
High (> 2 times average)	219 (33.2%)
Unknown	61 (9.3%)
Level of education	
Low	100 (15.2%)
Intermediate	201 (30.5%)
High	232 (35.2%)
University	108 (16.4%)
Unknown	18 (2.7%)
Dwelling type	
Single-family dwelling	486 (73.7%)
Multi-family dwelling	173 (26.3%)
Garden	
Yes	477 (72.4%)
No	182 (27.6%)
Number of rooms	
1-3 rooms	112 (17.0%)
4-5 rooms	369 (56.0%)
6 or more rooms	178 (27.0%)
Size of living room	
Less than 30 m^2	142 (21.5%)
30-45 m^2	334 (50.7%)
46 m^2 or more	183 (27.8%)
Tenure	
Buying	526 (79.8%)
Renting	133 (20.2%)
Neighborhood	
Silent	92 (14.0%)
Quiet	310 (47.0%)
Lively	187 (28.4%)
Busy	64 (9.7%)
Unknown	6 (0.9%)
Architecture	
Traditional	469 (71.1%)
Modern	157 (23.8%)
Experimental	16 (2.4%)
Other	17 (2.6%)

Appendix 3: Activities per dwelling feature

Activity\dwelling feature	Kitchen	Living room	Dining room	Bedroom	Study	Outside	Other	Total
Cooking	372	0	0	0	0	0	0	372
Eating	61	136	49	0	0	7	7	260
Being together with the nuclear family*	13	61	6	0	0	7	7	94
Working at home	0	37	0	4	72	0	8	121
Children playing*	7	64	0	27	0	33	14	145
Hobby	5	53	0	4	45	12	33	152
Relaxing	11	349	0	21	16	17	8	422
Entertaining guests*	7	112	0	0	3	36	1	159
Being at the computer	4	88	1	13	105	0	25	236
Being outside	0	0	0	0	0	146	0	146
Gardening	0	0	0	0	0	261	0	261
Sleeping	0	0	0	143	0	0	0	143
Total	*480*	*900*	*56*	*212*	*241*	*519*	*103*	

* More than one answer possible.
The category "other" consists of the garage, backroom, basement and attic.

Appendix 4: The use of the dwelling, subdivided by number of rooms in the dwelling

1-3 rooms (N=112 (17%)

Activity\dwelling feature	Kitchen	Living room	Dining room	Bedroom	Study	Outside	Other	Total
Cooking	65							65
Eating	7	40	5				1	53
Being together with the nuclear family*	1	8					3	12
Working at home		12			8		1	21
Children playing*		5		1				6
Hobby	2	12			7	1	2	24
Relaxing	1	64		5	2	4		76
Entertaining guests*		23				7		30
Being at the computer		14		2	26		2	54
Being outside						20		20
Gardening						19		19
Sleeping				29				29
Total	*76*	*178*	*5*	*37*	*53*	*51*	*9*	*409*

4-5 room (N=369 (56%)

Activity\dwelling feature	Kitchen	Living room	Dining room	Bedroom	Study	Outside	Other	Total
Cooking	207						1	208
Eating	32	77	21			6	1	137
Being together with the nuclear family*	4	26	3			5	3	41
Working at home		18		4	37		2	61
Children playing*	4	37		13		23	8	85
Hobby	2	29		3	24	8	17	83
Relaxing	6	210		7	10	10	3	246
Entertaining guests*	5	65			2	19		91
Being at the computer	3	56		10	45		17	131
Being outside						94		94
Gardening						162		162
Sleeping				80				80
Total	*263*	*518*	*24*	*117*	*118*	*327*	*52*	*1419*

6+ rooms (N=178 (27%)

Activity\dwelling feature	Kitchen	Living room	Dining room	Bedroom	Study	Outside	Other	Total
Cooking	98							98
Eating	22	19	23			5	1	70
Being together with the nuclear family*	8	27	3			2	1	41
Working at home		7			27		5	39
Children playing*	3	22		13		10	6	54
Hobby	1	12	1		14	3	14	45
Relaxing	4	75	9		4	3	5	100
Entertaining guests*	2	24			1	10	1	38
Being at the computer	1	18		1	34		6	60
Being outside						32		32
Gardening						80		80
Sleeping								34
Total	*139*	*204*	*26*	*58*	*80*	*145*	*39*	*691*