Personal Relationships, **15** (2008), 465–478. Printed in the United States of America.

Changes in older Dutch adults' role networks after moving

BRIGITTE A. BLOEM, THEO G. VAN TILBURG, AND FLEUR THOMÉSE
VU University Amsterdam

Abstract

Using the convoy model (R. L. Kahn & T. C. Antonucci, 1980), this study examined the differential impact of relocation, depending on the distance moved, on the size of 3 types of role networks. A total of 890 Dutch nonmovers and 445 movers (aged 55–86 years) were selected from the Longitudinal Aging Study Amsterdam. Results of analyses of variance showed that the neighbor networks changed most after relocation. Long-distance movers discontinued the largest number of relationships with fellow club members. As expected, moving did not affect coworker networks. The findings show that, consistent with the convoy model, role networks proved to be unstable. Older adults, however, restored their partial networks at the second observation by starting new relationships.

Social networks change over the life course. According to the convoy model (Kahn & Antonucci, 1980), a social network consists of a variety of accompanying and supporting individuals who surround people from childhood to old age. Given that needs and circumstances change as people move through the life course, the composition of the convoy changes as well, for example, when people move. Knowledge about how moving changes the social networks of older adults is limited. We do not know of any empirical studies on network changes using the convoy model. Most studies that used the model in relation to older adults have examined patterns of social support (Antonucci & Akiyama, 1987; Hogan & Eggebeen, 1995) or have studied the effects of other life events such as health changes (Stoller & Pugliesi, 1991; Van Tilburg & Broese van Groenou, 2002) or widowhood (Guiaux, Van Tilburg, & Broese van Groenou, 2007) on network changes. One study focused on changes in relationships after several life events including moving, but not specifically among older adults (Wellman, Wong, Tindall, & Nazer, 1997). Another study devoted attention to relocation, related to changes in relationships, but studied close relationships and found that moving hardly changed old friendships (Shea, Thompson, & Blieszner, 1988). Klein Ikkink and Van Tilburg (1999) showed that relationships that were less emotionally close were more susceptible to change. The present study focuses on changes in emotionally distant relationships in a population of older adults after moving. There was no indication of a specific trajectory of moves associated with consecutive life events in late adulthood (Bloem, Van Tilburg, & Thomése, 2008). This makes it easier to attribute changes in relationships to the move itself than in a younger population.

Moving draws a distinct line in time; social networks before and after a move are clearly different. In many cases, moving decreases the

Brigitte A. Bloem, Theo G. van Tilburg, and Fleur Thomése, Department of Sociology, VU University Amsterdam. Brigitte A. Bloem is now at the Department IPOL, Netherlands Police Agency Zoetermeer.

This study is based on data collected in the context of the "Longitudinal Aging Study Amsterdam," a program conducted at VU University Amsterdam and largely funded by the Ministry of Health, Welfare and Sports.

Correspondence should be addressed to Brigitte A. Bloem or Theo G. Van Tilburg, VU University Amsterdam, Department of Sociology, De Boelelaan 1081c, 1081 HV Amsterdam, The Netherlands, e-mail: ba.bloem@fsw.vu.nl (BAB) and tg.van.tilburg@fsw.vu.nl (TGVT).

size of the social network because people lose contact with relationships connected to their former living environment. A decreased number of relationships may, however, coincide with gains. A new living environment challenges people to make new commitments and new relationships compensate for old ones that have ended. In addition to loss, we study whether older adults succeed in rebuilding their social network and address the extent to which new relationships take the place of the lost old ones. We used a Dutch longitudinal sample in which older adults described their personal networks. Using a longitudinal design enabled us to study networks before and after moving and compare them to changes in the networks of nonmovers.

The convoy differentiates the core from the role network. The core network consists of relationships close to the focal person and the role network of more distant relationships, usually linked to specific settings such as the neighborhood or workplace. Network members interact with the focal person via the exchange of support. We use the concept of support exchange to describe the greater vulnerability of some relationships to discontinuation. The underlying principle of exchange is that individuals give and receive benefits on the basis of reciprocity. If people give help, they generally expect comparable compensation relatively soon (Mills & Clark, 1982). Compensation therefore keeps the relationship in balance. It follows that when individuals fail to reciprocate, relationships become imbalanced and are more likely to be discontinued (Thomése, van Tilburg, & Knipscheer, 2003).

Discontinuation depends, however, on the type of relationship (Wellman & Wortley, 1990). Mills and Clark (1982) draw a distinction between communal and exchange relationships. In communal relationships, exchange stems from a sense of concern and responsibility, and in exchange relationships, exchange creates an obligation to return a comparable benefit. These two forms seem to be two ends of one continuum. As Blumstein and Kollock (1988) noted, the two types of relationships only differ in their accounting systems. In exchange relationships, the accounting system is fine-grained and it needs to be in continuous balance; otherwise, there is a risk of discontinuation. In communal relationships, where the accounting is coarser, imbalance for lengthier periods of time is not a barrier to continuation. This division in types of exchange and balancing applies to core and role relationships. In the core network, strict balancing is less of an issue than in the role network.

Core relationships are typically with a spouse, relatives, and close friends. Kahn and Antonucci (1980) noted that core relationships are based on attachment or emotional closeness and go beyond the boundaries of roles. Attachment makes the core network relatively stable. Emotional closeness or an intimate bond can sometimes differentiate close relationships from more formal or peripheral ones such as many role relationships. But neither the presence of intense emotions nor their positive nature is a sure sign that a relationship is close or stable. Some close relationships are rather negative or lack intimacy (Blumstein & Kollock, 1988). Blumstein and Kollock (1988) defined a close relationship as one with a large amount of interdependence and one that lasts a considerable length of time.

The convoy model assumes role relationships to be more subject to change than core relationships. In role relationships, behavior between individuals follows role demands (Auhagen & Hinde, 1997). People interact as interchangeable players of social roles. Successful participation in role relationships requires knowledge of institutionalized roles and their interrelationships but does not require information unique to the individuals playing the roles (Blumstein & Kollock, 1988). Role relationships serve a purpose. In other words, people begin and maintain relationships to exchange practical benefits, usually mutual assistance, and to perform joint activities. Role relationships are less likely to continue without reciprocal exchange, which makes role networks generally unstable and susceptible to changes. Role relationships are consequently not as long lasting as core relationships.

Core relationships, however, vary in stability (Martire, Schulz, Mittelmark, & Newsom, 1999; Wellman et al., 1997), and not all role

relationships are equally vulnerable to the effects of moving. In this study, we elaborate upon the convoy model with our own definitions and distinguish role relationships with neighbors, fellow club members, and coworkers. We define the susceptibility to change on the basis of three characteristics: to what extent the relationships are linked to the neighborhood, whether the relationships begin more or less voluntarily, and whether the exchange in the relationships is more or less instrumental.

Role relationships with neighbors are most closely connected to the neighborhood, are rather inevitable, and begin more or less involuntarily. Relationships result from the shared place of residence and the common needs and interests that arise from living there (Thomése et al., 2003). In addition to friendliness and respect for privacy, the exchange of short-term practical help is at the heart of relationships between neighbors (Wenger, 1990). Although contact between neighbors begins involuntarily, they exchange help more or less voluntarily with reciprocity as prerequisite (Klein Ikkink & van Tilburg, 1998). The exchange of practical help is easiest if people live nearby (Magdol & Bessel, 2003). Neighbor relationships will thus change when people move. If they move outside the neighborhood, many neighbor relationships are apt to end. We first hypothesize that the longer the distance moved, the more probable it is for neighbor relationships to end. If people only move a few blocks away or to an adjoining neighborhood, they are apt to continue their contact with a number of their former neighbors. Their relationships with former neighbors, however, are lost if they move farther away.

Role relationships with fellow club members are not necessarily connected to the neighborhood. An important reason for joining a club is to have contact with others (Dykstra, 1995). For the purpose of contact, the location of the club is of minor importance, although we can assume that people primarily look for a club in the neighborhood. In addition to the exchange of practical help, contact among fellow club members includes the exchange of information, skills, and support, as found in a study of volunteer involvement (Prestby, Wandersman, Florin, Rich, & Chavis, 1990). The exchange of support in relationships with fellow members thus seems less instrumental than in relationships with neighbors. Reciprocity may be less important as well, as Searle (1989) concluded in a study of relationships in clubs. As in neighbor relationships, we expect more changes to accompany a greater moving distance. Our second hypothesis is that the longer the distance moved, the more likely the relationships with fellow club members are to end. Compared to the first hypothesis on neighbor relationships, we expect fewer changes in relationships with fellow club members than with neighbors. Given that relationships with fellow club members begin voluntarily and participation itself is intrinsically rewarding (Auld & Case, 1997), we assume older adults to have a stronger motivation after moving to continue them than to continue relationships with neighbors.

Role relationships with coworkers are least linked to the neighborhood. For contact purposes, it is not important whether the workplace is in the immediate neighborhood or farther away. This limited dependency on location means that work-related relationships resemble the contact with fellow club members. They also resemble neighbor relationships because the contact begins involuntarily as a result of sharing a work setting, and continues more voluntarily. Interaction with coworkers varies from an exchange of support with regard to work-related matters to working on friendly footing. People talk about work-related issues, help each other with work-related tasks (Flynn & Brockner, 2003), or discuss personal matters. Not infrequently, contact with former coworkers continues after retirement (van Tilburg, 2003). Knowledge about the mechanisms of continuation and change in relationships with former coworkers is limited (Moen, Fields, Quick, & Hofmeister, 2000). Retirees' contact with former coworkers might rely on a shared history. The shared role becomes a shared past, making this type of relationship even less sensitive to changes in role setting or location. Our third hypothesis is that regardless of the distance, a move does not change relationships with coworkers and former coworkers.

Last, moving not only decreases the number of relationships, it can also increase it.

Unless people move to an isolated area, a new neighborhood inevitably provides opportunities for contact with new network members. As Fischer (1982) noted in an adult sample, long-distance movers are particularly apt to develop a network by making contact with new neighbors. Older adults who discontinue relationships with fellow club members after moving may develop new relationships after joining another club at their new location. According to continuity theory (Atchley, 1989), individuals seek to maintain role stability throughout the life course. Although individuals experience changes that might occasionally be disruptive, they try to preserve behavior, attitude, and preference continuity throughout their life course (Utz, Carr, Nesse, & Wortman, 2002). In terms of this study, we expect older adults to restore their network structure by starting new relationships to compensate for the lost ones. Accordingly, our fourth hypothesis is that a discontinuation of former role relationships accompanies replacement with new ones.

To summarize, after moving, we expect the least continuation in the network of neighbor relationships, more in the network of fellow club members, and the most in the network of coworkers. The longer the distance moved, the higher the number of discontinued relationships will be. Furthermore, we expect older adults to develop new relationships to compensate for the lost ones. Given that relationship changes also occur in the natural course of life, we compare a group of movers with a group of nonmovers to determine whether the move is the driving force behind the changes.

Finally, two typically Dutch characteristics may play a role in the interpretation of our results. The Netherlands is one of the smallest and most densely populated countries in the world. The distance from the Dutch west coast to the eastern border is about 150 km, which takes about an hour and a half by car. With a total population of 16 million people, the country has a population density of 483 people per square kilometer (National Institute for Health and the Environment, 2007), compared to 80 in the United States (U.S. Census Bureau, n.d.). In addition, low mobility characterizes the Dutch housing market. The annual percentage of movers is around 10% of all the households in 2000–2005 (Statistics Netherlands, 2007), as compared to about 14% in the United States (U.S. Census Bureau, 2006). Among adults older than 50 years, these percentages are about two thirds lower in both countries.

Method

Respondents

In 1992 (T0), interviewers questioned 3,805 respondents as part of the Living Arrangements and Social Networks of Older Adults research program (Knipscheer, de Jong Gierveld, van Tilburg, & Dykstra, 1995), which used a stratified random sample of men and women born between 1908 and 1937. The oldest individuals, particularly the oldest men, were overrepresented in the sample, which resulted in approximately equal numbers of males ($n = 1{,}859$) and females ($n = 1{,}946$). The majority was married (63%), 6% never married, 5% divorced, and 25% widowed. The sample was drawn from population registers of 11 municipalities: the city of Amsterdam and two rural communities in the west of the Netherlands, one city and two rural communities in the south, and one city and four rural communities in the east. These regions represented the differences in religion and urbanization in the Netherlands at the time. Of the 6,107 eligible individuals in the sample, 2,302 (38%) refused to cooperate due to a lack of interest or time and another 734 were ineligible because they were deceased or too ill or cognitively impaired to be interviewed. In 1992–1993 (T1, $N = 3{,}107$), 1995–1996 (T2, $N = 2{,}545$), 1998–1999 (T3, $N = 2{,}076$), and 2001–2002 (T4, $N = 1{,}691$, 44% of the T0 respondents), follow-ups were performed in the context of the Longitudinal Aging Study Amsterdam (LASA; Deeg, Beekman, Kriegsman, & Westendorp-de Serière, 1998). Between T0 and T4, 38% of the respondents died, 4% were unable to participate in the study because of severe physical or mental health problems, 13% refused to have another interview, and 2%

moved to another country or to an unknown address. In each wave, the interviewers received a 4-day training course and the LASA fieldwork manager supervised them intensively. The interviewer tape-recorded the interviews to monitor and enhance the quality of the data obtained. The interviews took between 1.5 and 2 hr.

In the first step, we selected a sample of movers ($N = 736$) from the observations T2–T4; we excluded 213 respondents who moved to a care facility and 4 respondents who moved abroad from the sample, because our focus was not on this type of moving. Longitudinal data on the personal network were missing for 74 respondents, and we excluded them from the analyses. We matched each of the 445 movers to 2 nonmovers to enhance the study of changes in partial networks after moving. We considered matching nonmovers successful only if the respondents did not move during the observations, they had the same gender as the mover, and the age difference between them and the movers was no more than 5 years. The sample for the analyses consisted of 445 movers and 890 nonmovers. A total of 159 of the movers moved within the neighborhood, 157 moved outside of the neighborhood, but in the same town, and 129 moved outside of the town. Movers and nonmovers lived independently at baseline and were between the ages of 55 and 86 years ($M = 69.8$, $SD = 7.9$).

Measurements

Moves. At each observation, we examined the respondent's address to see whether he or she had moved in the preceding 3 years. For multiple movers ($n = 107$), we took the observation after the first move into account along with the previous observation. We categorized moves according to the distance, which was determined on the basis of the postal code as well as on town boundaries; using only one would give a biased view, given that both vary in size. We based the number of kilometers on this information. We subsequently distinguished moves within the neighborhood, or local moves, from moves outside the neighborhood but in the same town (an average distance of 2.5 km between the centers of the neighborhoods) and from moves outside the town but in the country, or long-distance moves (an average of 42.3 km to a maximum of 244 km).

Personal network. To obtain adequate information on the personal networks of the older adults, they were asked to provide detailed information on their relationships and identify their network members by name. The main objective was to identify a network that reflects the socially active relationships of the older adults in the core as well as the outer layers of the larger network (van Tilburg, 1995). Respondents identified network members in seven domains: household members (including the spouse, if there is one), children and their spouses, other relatives, neighbors, coworkers, fellow club members (athletic, church, or political clubs), and others (friends and acquaintances). With respect to the domains, respondents could "name the people (e.g., in your neighborhood) you have frequent contact with and who are important to you." People could only be named once, so a person first named as a relative could not reappear as a neighbor. In using this procedure to elicit descriptions of networks, our focus was on personal relationships in general, including potential providers of support. Only people above the age of 18 years could be named. Interviewers gathered information on all the network members with regard to the type of the relationship with the respondent. The type of network member—for example, neighbor, fellow club member, or coworker—pertained to three mutually exclusive partial networks. We defined neighbors as people who live nearby and who are identified as neighbors or as people known from the neighborhood; fellow club members include people known via various kinds of voluntary clubs; coworkers include not only people known via jobs or former jobs but also the spouse of a coworker or former coworker. For detecting changes in the network composition, we compared the names of all the network members in the various observations and linked them where possible.

Control variables. Given that changes in the partial network size could be associated with characteristics other than moving, we controlled for several variables after we controlled for moving. First, we controlled for network size because older adults with a larger network have larger partial networks. We computed network size as the number of individuals identified, not including the spouse (range = 0–61, $M = 14.0$, $SD = 8.5$). Second, we included having a spouse because people with a spouse have different networks than people without a spouse; in the analyzed sample, 63% were married. Third, we measured functional capacities with six questions about the activities of daily living, such as "Can you walk up and down stairs?" The five possible answers were *not at all*, *only with help*, *with a great deal of difficulty*, *with some difficulty*, and *without difficulty*. We summed the item scores to obtain a scale score (range = 6–30, $M = 27.0$, $SD = 4.5$). Fourth, respondents could be involved in clubs (e.g., sports, cultural, or senior citizens') or voluntary organizations (e.g., union or church). We summarize the variety of activities as involvement in clubs, which we assessed by a question about a list of 13 types of clubs: "Can you tell me if you are in one or more of these clubs? I mean that you are a member or put effort into one or more of these clubs." The large majority (76%) was in one or more clubs, usually church related. Fifth, paid employment was assessed. Part-time jobs were as important as full-time jobs because they both give access to relationships with coworkers; before moving, 9% of the respondents had paid employment, and 4% were retired during the period between the time of measurement before they moved and the time of measurement after they moved. Sixth, we measured the level of urbanization in five ordinal classes, ranging from *not urban* (less than 500 addresses per square kilometer) to *very urban* (more than 2,500 addresses; $M = 3.1$, $SD = 1.4$). We derived these data from a database provided by Statistics Netherlands (Den Dulk, Van de Stadt, & Vliegen, 1992). Last, we assessed the number of years living in the neighborhood. Older adults had lived in the neighborhood for an average of 25 years before they moved, and this ranged from less than 1 year to 82 years ($M = 24.6$ years, $SD = 16.4$). We also included gender, age, and educational level, which are time independent. Educational level was measured in years and ranges from 5 to 18 ($M = 9.1$, $SD = 3.3$). We extended the equations with a variable on the length of time between the observations before and after moving, ranging from 2.1 to 4.0 years ($M = 3.0$, $SD = 0.2$).

Procedure

In accordance with the hypotheses, we examined whether older adults continued, lost, or gained relationships. We formulated four hypotheses, which we divided according to the types of partial networks, that is, neighbors, fellow club members, and coworkers, and the acquisition of new relationships. Continuation and loss of relationships pertained to the first, second, and third hypotheses and new relationships to the fourth. We examined continuation to determine whether relationships actually remained in the network. A person could continue a relationship after moving in the same form, for example, with a fellow club member, or as an acquaintance or friend, as is also possible with neighbors. In the analyses, the continuation of the contacts was examined and the form is of minor importance. A person could also lose relationships. We defined lost relationships as those identified before but not after moving. To compensate for discontinued relationships, older adults might start new ones. New relationships were defined as those identified after but not before moving.

To facilitate comparison, we converted the absolute numbers of relationships into percentages: Continued, lost, and new relationships were calculated as percentages of the partial network. The latter was computed as the number of unique network members identified at the observations before and after moving. Consequently, the analyses pertained only to those who had identified relationships with neighbors, fellow club members, and coworkers. We conducted nine analyses of variance with the percentages of continued, lost, and new relationships for the three partial networks as dependent variables and moving distance that included a category of nonmovers as

independent variable. The control variables were included as covariates. In a second analysis, we calculated mean sizes of the partial networks for all the respondents and compared before and after moving. Given that mean sizes indicate the direction of change, we were also able to test the fourth hypothesis; a positive change implied that older adults predominantly gained new relationships after moving.

Results

In the first hypothesis, we expected less continuation of neighbor relationships with a larger moving distance. A total of 991 of the respondents (74%, $N = 1{,}335$) had neighbor relationships before or after moving. Table 1 highlights the extent of change in detail, and the percentages sum up to 100 for each respondent. As Table 1 reveals, we observed the greatest instability in older adults' neighbor networks after moving. With a greater moving distance, fewer neighbor relationships continued. In general, the percentages of continuation in the neighbor network were small; over time, nonmovers continued slightly more than one third of their relationships with neighbors, and movers continued one fifth or considerably less. After moving, older adults classified most continued relationships as former neighbor relationships. Of the 190 neighbors named before the move, only 34 continued in the friendship form after the move.

It follows that nonmovers and movers have different partial network sizes after moving, and the differences depend on the moving distance. The longer the distance of the move was, the higher the percentage of discontinuation. The highest percentages of relationships lost came after a move in the town, which differs from our expectation. Table 2 shows the effects of the control variables. For all the partial networks, movers and nonmovers with a large network after moving had a higher percentage of continued and new relationships and a lower percentage of lost relationships. This is an artifact of the analysis: People with a larger network after moving have the highest likelihood of an increase in their network size. An additional finding is related to urbanization, which affects lost neighbor relationships: People in urban areas lost fewer relationships (8%) than people in

Table 1. *Analysis of variance in the stability of partial networks after moving*

Partial networks	Did not move M^a	In neighborhood M^a	In town M^a	Outside town M^a	F
Neighbors					
N	665	113	113	98	
Continued	38	21	16	12	30.41***
Lost	31	38	53	41	12.11***
New	31	42	31	47	7.58***
Fellow club members					
N	408	78	68	46	
Continued	23	24	17	10	2.94*
Lost	36	36	44	53	3.02*
New	41	40	39	37	0.17
Coworkers					
N	266	40	51	51	
Continued	31	31	34	28	0.23
Lost	36	32	38	40	0.27
New	33	37	28	32	0.39

[a]Mean percentages, controlled for network size, spouse, functional capacities, club membership, employment, level of urbanization, number of years living in the neighborhood, gender, age, educational level, and time.
*$p < .05$. ***$p < .001$.

Table 2. *Analysis of variance in the stability of partial networks*: *Unstandardized effects of control variables after moving (significant effects only)*

Partial networks	Network size (range 0–61) *B*	Time (2–4 years) *B*	Spouse (no–yes) *B*	Functional capacities (6–30) *B*	Urbanization (1–5) *B*	Gender (female) *B*	Employed (no–yes) *B*
Neighbors							
Continued	0.52***	12.68*					
Lost	−1.13***				−2.07*		
New	0.61***						
Fellow club members							
Continued				0.88**		2.67*	
Lost	−0.73***						
New	0.76***		−8.12*	−0.94*			
Coworkers							
Continued	0.45*						
Lost	−1.02***						
New	0.56**						14.41*

Note. Of the control variables, club membership, number of years living in the neighborhood, age, and educational level show no significant effects and are therefore left out of the table.
*$p < .05$. **$p < .01$. ***$p < .001$.

rural areas. To summarize, we can confirm the first hypothesis for continued relationships but not for lost relationships.

As to the partial network of relationships with fellow club members, the longer the distance of the move, the less continuation we expected. As we noted above, older adults are more likely to continue these relationships because club membership starts voluntarily and generally continues for this same reason, and we therefore expected fewer changes in this partial network than in the neighbor network. A total of 600 of the respondents (45%) had relationships with fellow club members before or after moving. It is apparent from Table 1 that the instability in this partial network was smaller than that in the neighbor network. There was a significant effect of moving distance on continued and lost relationships. The longer the distance of the move, the fewer the relationships that continued, but the difference between nonmovers and movers was not as large as in the neighbor network. The percentage of lost relationships increased with the distance of the move. A closer look reveals that older adults are most likely to be active in clubs located in the neighborhood, such as senior, athletic, or political clubs (not in the table). Of the control variables, spouse status had an effect given that people with a spouse initiated fewer relationships than people without one (Table 2). Health status after moving was associated with continued and new relationships. Compared to older adults in poor health, older adults who were in good health continued more relationships and started fewer new ones. Last, older women were more likely to continue relationships with fellow club members than men. The findings support the second hypothesis for lost and continued relationships.

Our third hypothesis was that a move does not change the partial network of relationships with coworkers and former coworkers. A total of 409 of the respondents (31%) had relationships of these types before or after moving. There was no significant effect of moving distance. Changes in the partial networks of movers did not differ from those of nonmovers. These results thus provide evidence for the third hypothesis. Obviously,

employed people initiated more relationships with coworkers than unemployed people.

Our fourth hypothesis was that the discontinuation of former role relationships coincides with the start of new role relationships. In the first three hypotheses, we expected variability in changes depending on the type of partial network. Accordingly, we expected more new relationships in the neighbor network and fewer in the coworker network. The results meet this expectation regarding the networks of neighbors and coworkers but are less obvious with regard to fellow club members. On average, the sizes of the partial networks of local and long-distance movers in the neighbor network were larger after moving (Table 3).

The change in the neighbor network was largest for long-distance movers; the number of new relationships was considerably larger than the number of losses (Table 1). The neighbor networks of local as well as long-distance movers before moving, however, were already smaller than those of nonmovers. The results for movers in town were less conclusive, given that the percentage of new neighbor relationships was smaller than that of lost ones. As a result, the mean network size was smaller after this type of move. In the networks of club members and coworkers alike, movers started as many new relationships as nonmovers, and the mean change was close to zero (Table 3). We can interpret the latter result as support for the continuity theory. As regards the effects of moves, however, our findings do not support the fourth hypothesis.

Discussion

In this longitudinal study, the aim was to examine the role networks of older Dutch adults before and after moving. Based on the convoy model, we formulated expectations about changes in the size of partial networks of relationships with neighbors, fellow club members, and coworkers. The longer the distance moved, the greater the expected losses, with the extent of loss depending on the type of relationship. We expected the most losses in the neighbor network and the fewest in the coworker network. Furthermore, we expected older adults to start new relationships to compensate for the lost ones. We used data on social networks and relocation from a representative study among older Dutch adults. We

Table 3. *Analysis of variance on change in mean partial network size before and after moving (*N = *1,333)*

Partial networks	Did not move *M*	In neighborhood *M*	In town *M*	Outside town *M*	*F*
N	888	159	157	129	
Neighbors					
Before	1.8	1.4	1.7	1.4	3.18*
After	1.8	1.6	1.2	1.7	4.14**
Change	0.0	0.2	−0.5	0.3	4.35**
Fellow club members					
Before	1.1	1.3	1.2	1.0	0.82
After	1.1	1.0	1.1	0.7	1.73
Change	0.0	−0.3	−0.1	−0.3	2.04
Coworkers					
Before	0.6	0.5	0.6	0.7	0.66
After	0.5	0.5	0.5	0.7	0.54
Change	−0.1	0.0	−0.1	−0.0	0.26

Note. Controlled for network size, spouse, functional capacities, club membership, employment, level of urbanization, number of years living in the neighborhood, gender, age, educational level, and time.
*$p < .05$. **$p < .01$

compared changes in the partial networks of 445 movers with those of 890 nonmovers. The interval between the observations was an average of 2–4 years. In the discussion, we focus on the results in the neighbor network, as it is the one most affected by moving.

In accordance with the first hypothesis, the longer the distance moved, the fewer relationships continued in the neighbor network. It is conceivable that what few contacts are left continue in the form of friendship; neighbors who have known each other for years may become friends. It is, however, more likely that the frequency of contact will decline and stop altogether. Wenger (1990) noted that when neighbors move away, even in the same town, older adults often expect the contact to stop or to occur only by chance. Contact between neighbors is linked to the neighborhood, and even local moves cause relationships to end because there is no longer adequate geographic proximity. Our method of network delineation enabled us to see whether older adults continue neighbor relationships in another form or end them altogether. Although nonmovers also discontinued many neighbor relationships, a considerably higher percentage ended after moving.

The neighbor networks of long-distance and local movers after moving were of approximately the same size as those of nonmovers at the time. Prior to moving, however, their networks were smaller than those of other movers and nonmovers, and this may be in anticipation of the upcoming move. Obviously, long-distance movers are aware of having fewer opportunities to meet with former neighbors after the move. It follows that they subsequently develop new relationships near their new home.

Fredrickson and Carstensen's (1990) social emotional selectivity theory provides an explanation for this process. They state that relationship selectivity is responsive to situational constraints, in particular constraints associated with anticipated social endings. They noted that anticipated social endings—people had to imagine moving across the country—influenced relationship selection. People apparently prefer to spend social time prior to moving with emotionally meaningful contacts, such as relatives and long-time friends, rather than to instrumental contacts such as new acquaintances. Alternatively, as Fredrickson and Carstensen go on to state, if anticipated endings are not an issue, individuals develop new relationships. Investments in new relationships are valuable and, as they argue, yield long-term benefits, as is characteristic of exchange relationships.

This leads us to conclude in the present study that before local and long-distance movers move, they select specific relationships to end and thus reduce their network. Kahn and Antonucci (1980) hold that at the network level, the convoy changes at the expense of role relationships. At the relationship level, these changes fit in with notions of exchange and reciprocity characteristic of role relationships. As we noted above, reciprocal balance is necessary, particularly for the continuation of neighbor relationships. At the time of the move, relationships no longer benefit from reciprocal exchanges and older adults consequently withdraw from them.

After moving, older adults actively develop new relationships for the future without an anticipated ending. In particular, for local and long-distance movers, the neighbor network was unexpectedly larger after the move and more neighbor relationships were gained than lost. A larger network after a move is not uncommon; Starker, Morgan, and March (1993) observed a small network size growth in the first 2 years after a move as a result of the addition of new network members. This is not surprising given that newcomers need their neighbors to help them become acquainted with the neighborhood. It confirms that neighbor relationships begin involuntarily, as we noted in the introduction. At first, the contact is not in balance, as newcomers need their neighbors, but the reverse is not true. As our respondents moved up to a maximum of 4 years before the interview, this newcomer effect cannot fully explain the observed growth of the neighbor network. It seems plausible that people have a greater preference for local relationships in a new living environment. They have probably chosen the new neighborhood voluntarily, and if poor health or having to work all day is no restriction,

a new neighborhood can be excellent breeding grounds for many new relationships that eventually become long term.

These results pertained to local and long-distance movers but surprisingly not to older adults who moved outside their neighborhood but to somewhere within the same town. These movers do not compensate completely for the loss of neighbor relationships by developing new ones. Their neighbor network thus remains smaller after moving than the networks of other movers and nonmovers at the time. We cannot consider them as newcomers as they stay in relatively familiar surroundings. They thus do not need their neighbors as much as they get to know the new neighborhood, and it may be less necessary to develop new relationships. Furthermore, these middle-distance movers relocate over a relatively short distance and may intend to keep in touch with their former neighbors. They nevertheless lose contact with many of their old neighbors, which means that even a relatively short distance becomes an obstacle. It again confirms the idea that the continuation of neighbor relationships is highly dependent on geographic proximity.

This argument may not seem as important in the Dutch context, which is a small country, but instead close proximity appears to be all the more important. Travel distance restrains relationship maintenance significantly in the Netherlands (Klein Ikkink & van Tilburg, 1999) as is found in any other study. The Dutch, however, may experience any distance, long or short, as far away because they are not used to traveling long distances. But even long-distance moves are relatively short in the Netherlands, and differences between short- and long-distance movers may be smaller compared to those in larger countries such as the United States, Canada, or the United Kingdom.

In the first instance, the findings on the partial relationship networks of fellow club members were not consistent with our expectations. Older adults discontinued many of their relationships with fellow club members when they moved a longer distance. A closer look reveals that older adults' favorite clubs are generally located in the neighborhood. A long-distance move probably makes it difficult to keep attending a club. Older adults are thus less likely to continue their membership and contact with other club members. It appears that the continuation of this contact depends more on geographic proximity and less on motivation than we originally assumed. The extent of loss and replacement by new relationships among movers was as large as that among nonmovers.

We also observed that older women continued more relationships with fellow club members than older men. Studies generally show that men have higher rates of club membership than women (Dykstra, 1995; Moore, 1990). For older women, who are more frequently church members (Dykstra, 1995), church is an important avenue of social participation. Women acquire relationships not only by attending services but also by joining the choir or doing church volunteer work. Given that these activities are often locally based, in future research it would be interesting to explore whether church membership prevents older women from moving and, if they move, how they adapt afterward. The findings showed that relationships with fellow members are generally susceptible to changes.

A move did not affect relationships with coworkers and former coworkers, as we expected. The changes in this partial network were as large among movers as among nonmovers, indicating that moving does not account for the changes. This supports our hypothesis. We should note, however, that most of our sample already left the workforce at baseline. This means the partial network we identified mainly consisted of relationships not directly linked to the workplace. Work status as a control variable did not affect the loss or continuation of work-related relationships. This is in keeping with our assumption that the mechanism underlying effects of moving is similar for present and former work relationships. We have not tested this assumption, however, and with the high number of retired respondents in our sample, care should be taken in generalizing this finding to younger populations more active in the workforce.

It might be more plausible in retrospect to assume that the continuation of a work relationship after retirement unlinks it from the

role context and brings it closer to core relationships, which rely more on intrinsic characteristics such as a shared history. About one third of the former coworkers disappear from the network after retirement, and about one third of the work-related contacts end for other reasons (van Tilburg, 2003). Our research shows that the work-related relationships that do continue are not particularly affected by a major life event such as a move. It is unclear whether this kind of effect is typical of our older sample, where the motivation to maintain contact with former coworkers after retirement may be stronger than if new jobs generate opportunities for new work-related relationships. Future research could draw a more direct comparison between the mechanisms of maintaining work-related relationships among people who have and have not left their work settings.

To conclude, our findings grant insight into whether and how moving changes the partial role networks of older Dutch adults. The effects of specific life events such as moving have rarely been the subject of longitudinal research (Thomése, van Tilburg, Broese van Groenou, & Knipscheer, 2005). In this respect, our study has a powerful design. Although we did not measure the exact timing of the moves, the interval between the observations, 2–4 years, is sufficient to document major changes in partial networks. Moreover, by comparing movers to nonmovers, changes in partial networks more solidly indicate moving as the dominant process.

As expected, relationships with neighbors were the most susceptible to effects resulting from moving, followed by those with fellow club members. Not only did the role networks of movers show considerable change, nonmovers also exhibited ample turnover in their networks. The instability of the composition might reflect the natural circulation in the membership of role networks (Starker et al., 1993; van Tilburg, 1998). In terms of the convoy model, moving is one of many life course changes that elicit changes in the role network. Limitations in our design and the complexity of our current model made it impossible to analyze other life events in greater detail, such as retirement, the last child leaving home, or health changes.

Our findings also demonstrated that movers and nonmovers alike usually compensate for a loss of relationships. They seem to easily accommodate in a new environment and thus keep a form of continuity in their network. It confirms the general assumption of the continuity theory that, as noted in the introduction, people continue old habits in new lives (Atchley, 1989). Among the nonmovers as well, the main tendency was to replace lost relationships with new ones. Practical implications of these findings point to the resilience of older adults. Moving does not seem as disruptive as is usually taken for granted. Even though neighbor networks contract in anticipation of moving, older adults generally develop new relationships near their new residence without any help. Similarly, interventions aimed at decreasing feelings of loneliness among older adults do not always have effect, and people not involved in an intervention initiate new relationships in a natural way (Fokkema & van Tilburg, 2007). Rather than targeting older adults directly, it may make sense to focus on supporting older adults' own initiatives and resilience by providing opportunities to meet people, such as meeting places in public space and recreational or educational activities.

Older adults generally replaced lost by new relationships. We were, however, unable to relate this pattern of continuity specifically to neighbor relationships after moving, where different types of moves yield a diverse pattern of losses and gains. In its reliance on personal needs and opportunities, the convoy model offers better instruments to define and map circumstances that contribute to the development of a social network after moving. The process of adjusting to a new environment and the ease with which older adults acquire network members are issues for future research. The convoy model can help define areas of continuity and discontinuity in greater detail.

The convoy model enables us to specify how and why moving affects specific parts of the personal network. The perspective is not totally new, but it represents a rare effort to link network change theoretically to personal change and structural societal conditions

(Thomése et al., 2005), as we did by adopting a role perspective. It may be argued that a role perspective does not do justice to the role of networks in the 21st-century society. Personal relationships are becoming more personal, less determined by role requirements, and more individualized (Allan, 2001), and the link between roles and relationships is increasingly diffuse. Instead of an anomaly, the special role of former coworkers in the network might be an indication of changes in how personal networks are connected to the wider social context. It does not, however, negate the relevance of the role perspective. Roles and role settings continue to be an important context for personal relationships that differ from the closer core relationships (Wellman, 1979). This could be more the case for older than younger adults. Societal roles structure the lives of older adults more than those of younger adults, and former roles determine more of their peripheral networks. Older adults are, for example, more likely to join voluntary clubs than younger adults (Curtis, Grab, & Baer, 1992).

Although the convoy model is an elegant framework for modeling the process of network change, we cannot ignore the impact of the media on relationship maintenance. The data in this study did not include the answers to questions about the use of computer technology to communicate with network members, but its penetration among older adults was very low throughout most of our observation period. The use of computer technology might change the impact of moving (Hampton & Wellman, 2001) by creating new relational options. The effects we observed among neighbors and fellow club members corroborate the importance of location for maintaining these role-based relationships. This will, however, inevitably change as future older adults increasingly rely on the Internet and e-mail. Modern communication media allow for intense long-distance exchanges between more people. This observation is related to our previous suggestion that the impact of life events on network composition is embedded in a historical context. More importantly, when viewing the links between personal and network change and societal conditions in the convoy model, we need to remember that societal conditions are also changing.

References

Allan, G. (2001). Personal relationships in late modernity. *Personal Relationships*, *8*, 325–339.

Antonucci, T. C., & Akiyama, H. (1987). Social networks in adult life and a preliminary examination of the convoy model. *Journal of Gerontology*, *42*, 519–527.

Atchley, R. C. (1989). A continuity theory of normal aging. *The Gerontologist*, *29*, 183–190.

Auhagen, A. E., & Hinde, R. A. (1997). Individual characteristics and personal relationships. *Personal Relationships*, *4*, 63–84.

Auld, C. J., & Case, A. J. (1997). Social exchange processes in leisure and non-leisure settings: A review and exploratory investigation. *Journal of Leisure Research*, *29*, 183–200.

Bloem, B. A., van Tilburg, T. G., & Thomése, G. C. F. (2008). Residential mobility in older Dutch adults: Influence of later life events. *International Journal of Aging in Later Life*, *3*(1), 21–44.

Blumstein, P. B., & Kollock, P. (1988). Personal relationships. *Annual Review of Sociology*, *14*, 467–490.

Curtis, J. E., Grab, E. G., & Baer, D. E. (1992). Voluntary association membership in fifteen countries: A comparative analysis. *American Sociological Review*, *57*, 139–152.

Deeg, D. J. H., Beekman, A. T. F., Kriegsman, D. M. W., & Westendorp-de Serière, M.. (Eds.). (1998). *Autonomy and well-being in the aging population II: Report from the Longitudinal Aging Study Amsterdam 1992–1996*. Amsterdam: VU University Press.

Den Dulk, C. J., Van de Stadt, H., & Vliegen, J. M. (1992). Een nieuwe maatstaf voor stedelijkheid: De omgevingsadressendichtheid [A new measure for degree of urbanization: The address density of the surrounding area]. *Maandstatistiek van de Bevolking*, *40*, 14–27.

Dykstra, P. A. (1995). Age differences in social participation: The importance of restrictions. In C. P. M Knipscheer, J. de Jong Gierveld, T. G. van Tilburg, & P. A. Dykstra (Eds.), *Living arrangements and social networks of older adults* (pp. 59–82). Amsterdam: VU University Press.

Fischer, C. S. (1982). *To dwell among friends: Personal networks in town and city*. Chicago: University of Chicago Press.

Flynn, F. J., & Brockner, J. (2003). It's different to give than to receive: Predictors of givers' and receivers' reactions to favor exchange. *Journal of Applied Psychology*, *85*, 1034–1045.

Fokkema, T., & van Tilburg, T. G. (2007). Zin en onzin van eenzaamheidsinterventies bij ouderen [Loneliness interventions among older adults: Sense or nonsense?]. *Tijdschrift voor Gerontologie en Geriatrie*, *38*, 185–203.

Fredrickson, B. L., & Carstensen, L. L. (1990). Choosing social partners: How old age and anticipated endings make people more selective. *Psychology and Aging*, *5*, 335–347.

Guiaux, M., van Tilburg, T. G., & Broese van Groenou, M. (2007). Changes in contact and support exchange in personal networks after widowhood. *Personal Relationships*, *14*, 457–473.

Hampton, K. N., & Wellman, B. (2001). The not so global village of Netville. In B. Wellman &

C. Haythornthwaite (Eds.), *The Internet and everyday life* (pp. 345–371). Oxford, England: Blackwell.

Hogan, D. P., & Eggebeen, D. J. (1995). Sources of emergency help and routine assistance in old age. *Social Forces*, *73*, 917–936.

Kahn, R. L., & Antonucci, T. C. (1980). Convoys over the life course: Attachment, roles and social support. In P. B. Baltes & O. Brim (Eds.), *Life-span development and behaviour* (pp. 253–286). New York: Academic.

Klein Ikkink, C. E., & van Tilburg, T. G. (1998). Do older adults' network members continue to provide instrumental support in unbalanced relationships? *Journal of Social and Personal Relationships*, *15*, 59–75.

Klein Ikkink, C. E., & van Tilburg, T. G. (1999). Broken ties: Reciprocity and other factors affecting the termination of older adults' relationships. *Social Networks*, *2*, 131–146.

Knipscheer, C. P. M., de Jong Gierveld, J., van Tilburg, T. G., & Dykstra, P. A. (Eds.). (1995). *Living arrangements and social networks of older adults*. Amsterdam: VU University Press.

Magdol, L., & Bessel, D. R. (2003). Social capital, social currency, and portable assets: The impact of residential mobility on exchanges of social support. *Personal Relationships*, *10*, 149–169.

Martire, L. M., Schulz, R., Mittelmark, M. B., & Newsom, J. T. (1999). Stability and change in older adults' social contact and social support: The Cardiovascular Health Study. *Journal of Gerontology*, *54B*, 302–311.

Mills, J., & Clark, M. (1982). Exchange and communal relationships. In L. Wheeler (Ed.), *Review of personality and social psychology* (Vol. 3, pp. 121–144). Beverly Hills, CA: Sage.

Moen, P., Fields, V., Quick, E., & Hofmeister, H. (2000). A life-course approach to retirement and social integration. In K. Pillemer, P. Moen, E. Wethington, & N. Glasgow (Eds.), *Social integration in the second half of life* (pp. 75–107). Baltimore: The Johns Hopkins University Press.

Moore, G. (1990). Structural determinants of men's and women's personal networks. *American Sociological Review*, *55*, 726–735.

National Institute for Health and the Environment. (2007, July). *Bevolkingsdichtheid 1 januari 2005 per gemeente* [Population density January 1, 2005, per municipality]. Retrieved September 21, 2007, from http://www.rivm.nl/vtv/object_map/o1472n21782.html

Prestby, J. E., Wandersman, A., Florin, P., Rich, R., & Chavis, D. (1990). Benefits, costs, incentive management and participation in voluntary organizations: A means to understanding and promoting empowerment. *American Journal of Community Psychology*, *18*, 117–149.

Searle, M. S. (1989). Testing the reciprocity norm in a recreation management setting. *Leisure Sciences*, *11*, 353–365.

Shea, L., Thompson, L., & Blieszner, R. (1988). Resources in older adults' old and new friendships. *Journal of Social and Personal Relationships*, *5*, 83–96.

Starker, J. E., Morgan, D. L., & March, S. (1993). Analyzing change in networks of personal relationships. *Advances in Personal Relationships*, *4*, 229–260.

Statistics Netherlands. (2007). *Binnen- en tussen gemeenten verhuisde personen: Regionaal* [Persons moved within and between municipalities according to region]. Voorburg, Netherlands: CBS.

Stoller, E. P., & Pugliesi, K. L. (1991). Size and effectiveness of informal helping networks: A panel study of older people in the community. *Journal of Health and Social Behavior*, *32*, 180–191.

Thomése, F., van Tilburg, T. G., Broese van Groenou, M., & Knipscheer, C. P. M. (2005). Network dynamics in later life. In M. L. Johnson, V. L. Bengston, P. G. Coleman, & T. B. L. Kirkwood (Eds.), *The Cambridge handbook of age and ageing* (pp. 463–468). Cambridge, England: Cambridge University Press.

Thomése, F., van Tilburg, T. G., & Knipscheer, C. P. M. (2003). Continuation of exchange with neighbors in later life: The importance of the neighborhood context. *Personal Relationships*, *10*, 535–550.

van Tilburg, T. G. (1995). Delineation of the social network and differences in network size. In C. P. M. Knipscheer, J. de Jong Gierveld, T. G. van Tilburg, & P. A. Dykstra (Eds.), *Living arrangements and social networks of older adults* (pp. 83–96). Amsterdam: VU University Press.

van Tilburg, T. G. (1998). Losing and gaining in old age: Changes in personal network size and social support in a four-year longitudinal study. *Journal of Gerontology*, *53B*, 313–323.

van Tilburg, T. G. (2003). Consequences of men's retirement for the continuation of work-related personal relationships. *Ageing International*, *4*, 345–358.

van Tilburg, T. G., & Broese van Groenou, M. (2002). Network and health changes among older Dutch adults. *Journal of Social Issues*, *58*, 697–713.

U. S. Census Bureau. (n.d.). *United States—States; and Puerto Rico, GCT-PH1. Population, housing units, area, and density: 2000*. Data Set: Census 2000 Summary File 1 (SF 1) 100–Percent Data. Retrieved September 21, 2007, from http://factfinder.census.gov/servlet/GCTTable?_bm=y&-ds_name=DEC_2000_SF1_U&-CONTEXT=gct&-mt_name=DEC_2000_SF1_U_GCTPH1_US9&-redoLog=false&-_caller=geoselect&-geo_id=&-format=US-9|US-9S&-_lang=en

U. S. Census Bureau. (2006). *Table 1. General mobility, by region, sex, and age: 2004-2005*. Retrieved, June 22, 2007, from http://www.census.gov/population/www/socdemo/migrate/cps2005.html

Utz, R. L., Carr, D., Nesse, R., & Wortman, C. B. (2002). The effect of widowhood on older adults' social participation: An evaluation of activity, disengagement, and continuity theories. *The Gerontologist*, *42*, 522–533.

Wellman, B. (1979). The community question: The intimate networks of East Yorkers. *American Journal of Sociology*, *84*, 1201–1231.

Wellman, B., Wong, R. Y., Tindall, D., & Nazer, N. A. (1997). A decade of network change: Turnover, persistence and stability in personal communities. *Social Networks*, *19*, 27–50.

Wellman, B., & Wortley, S. (1990). Different strokes from different folks. *American Journal of Sociology*, *96*, 558–588.

Wenger, G. C. (1990). The special role of friends and neighbors. *Journal of Aging Studies*, *4*, 149–169.