
**Impacts of teleworking on transport
behaviour and activity spaces**
**(a secondary analysis as
an explorative study)**

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The construction of the lecture:

- a) The introduction of the examination method
- b) The three thesis about the consequences of home teleworking on traffic behaviour:
 - deduction of the hypothesis and
 - empirical results

➤ **Survey form: *a panel***

Premise: Only with a panel survey direct changes in behaviour can be seen. Different characteristics of the respondents stay between the elevation waves constant (place of job and residence...).

➤ **Data resource: *a secondary analysis***

Panel survey were imposed from the Institute for Streets and Transport at Stuttgart University, in cooperation with the Psychological Institute at Tübingen University, January 1998 und 1999

➤ **The examination aim: *an explorative study***

- The intention of this study is the testing of the relevance of the hypothesis for following quantity examinations.
- Also the testing of the validity of the variables was an aim of this analysis.

Common criteria of the nine samples:

- The practise of telework was exclusively during the second wave of the survey and not during the first wave.
- To get a homogeneous group only alternating home teleworkers were selected.
- The analysis of the data was exclusively carried out for the time period of working days during the two elevation weeks. A routinised traffic behaviour is expected only for these days.*
- Non of the persons neither moved nor change the place of job between the two waves of survey. So the potential activity space stays constant.
- All the case studies were tested with regard to their statistical coherences, so the consistency of the data is injured.

* PARKES, THRIFT (1980), GIDDENS (1992)

The three central thesis about the consequences of home teleworking on traffic behaviour:

I. The substitution thesis

II. The induction thesis

III. The contraction thesis

Thesis I

The substitution thesis concerning telework assumes, that rush hour traffic will be substituted by the utilization of information & communication technologies (e.g. Internet, E-Mail).

Consequence:

⇒ reduction of professional trips

The operationalization of the dependent variables:

- Number of professional intended trips
- Traffic performance for professional intended trips

The first hypotheses:

Telework leads to a reduction of the professionally intended trips because the trip to the office is replaced through virtual communication.

Empiric results:

The substitution thesis with the number of professional intended trips:

Number of tele-working days	19

=> expected removal of the professional trips	-19

Watched substitution of the professional trips	-16

The second hypotheses:

Telecommuting leads to a reduction of traffic performance caused by office trips.

Empiric results:

The substitution thesis with the traffic performance for professional trips:

Number of tele-working days x professional trip **347 km**

=> Removal of the traffic performance to be expected **-347 Pkm**

Watched substitution of the traffic performance for professional trips **-275 Pkm**

Thesis II

The induction thesis contains two central assumptions concerning purchase as well as leisure activities:

- **After starting telework at home former couples activities must be carried out separately. Approximate 50 % of professional intended trips are combined with trips for buying or leisure activities.**
- **The saving (of time) by the loss of professional trips is followed by an increasing of the traffic volume for non-professional purposes because time and/or financial resources could be invested in private trips.**

Consequence:

⇒ Increasing of non-professional traffic

The operationalization of the dependent variables:

- Number of non-professional intended trips
- Traffic performance for non-professional intended trips

The operationalization of the non-professional intended trips:

- Trips for private purposes like purchases
- Trips for leisure activities, for example to make visits

The third hypotheses :

The starting of telework leads to an increasing number of non-professional intended trips.

Empiric results:	Number of trips
<hr/>	
Number of ...	
... non-professional intended trips (totally) t_1	53
... non-professional intended trips (totally) t_2	35
Difference	-18
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Number of trips for ...	
... private purposes like purchases t_1	27
... private purposes like purchases t_2	21
Difference	-6
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Number of trips for ...	
... leisure activities, for example to make visits t_1	26
... leisure activities, for example to make visits t_2	14
Difference	-12
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The fourth hypotheses:

The starting of telework leads to an increase of the traffic performance for non-professional intended trips.

Empiric results:	Pkm	%
Traffic performance (in Pkm) for ...		
... non-professional intended trips (totally) t_1	475	100
... non-professional intended trips (totally) t_2	446	94
Difference	-29	-6
Traffic performance (in Pkm) for ...		
... private purposes like purchases t_1	232	100
... private purposes like purchases t_2	128	55
Difference	-104	-45
Traffic performance (in Pkm) for ...		
... leisure activities, for example to make visits t_1	243	100
... leisure activities, for example to make visits t_2	318	131
Difference	+75	+31

Thesis III

The contraction thesis states that teleworkers concentrate their activity range behaviour much more strongly on their place of residence and for example choose aims for shopping, social contacts and leisure activities spatially closer to their homes.

Consequence:

⇒ A contraction of the activity range for non-professionally intended aims around the place of residence

The fifth hypotheses:

An spatial approach of the activity range towards the living location follows the starting of telework.

The sixth hypotheses:

A decrease of the activity space follows the starting of telework.

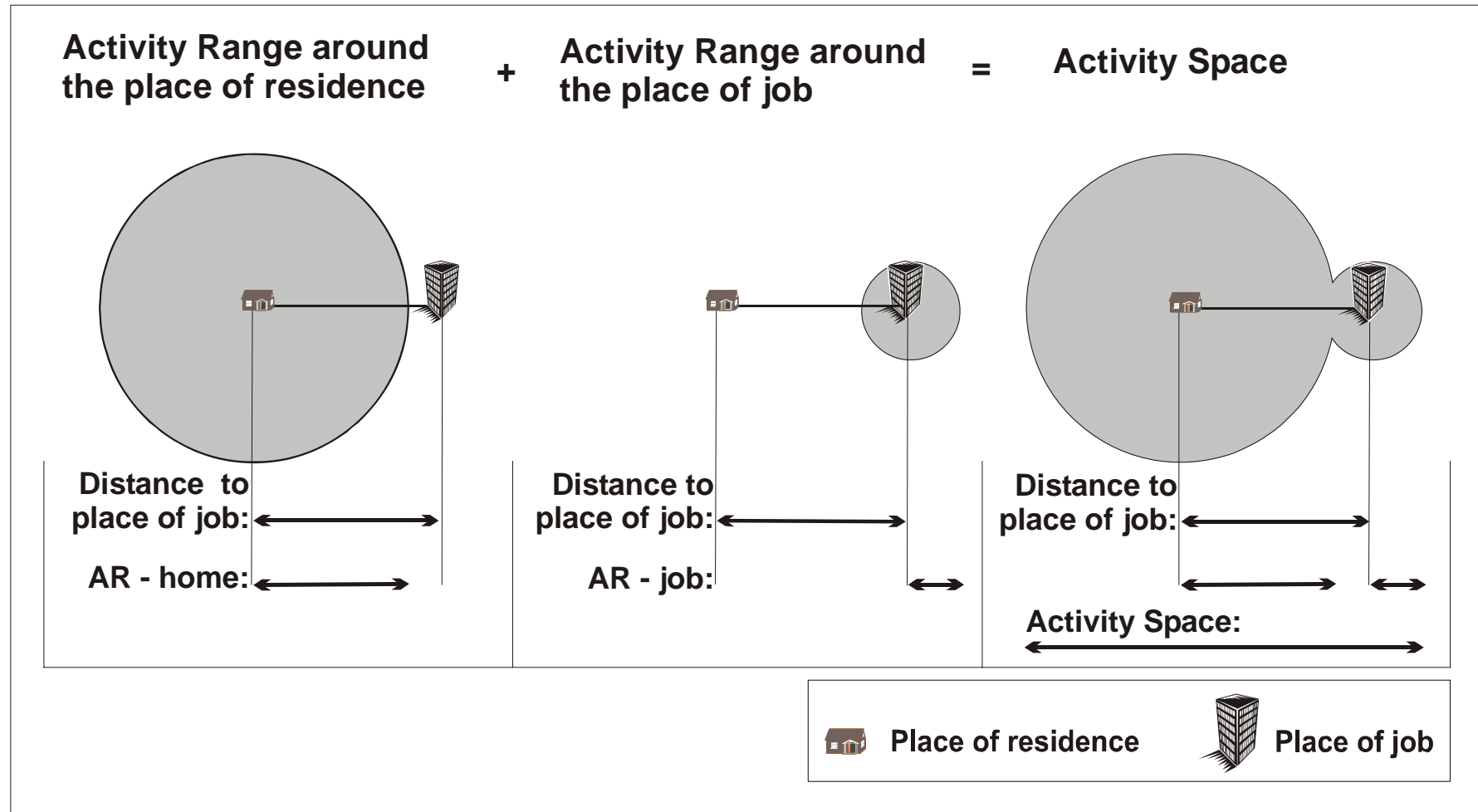
The operationalization of the dependent variables:

- The distance of the chosen aims for non-professionally intended aims between a) the place of residence and b) the place of the job.

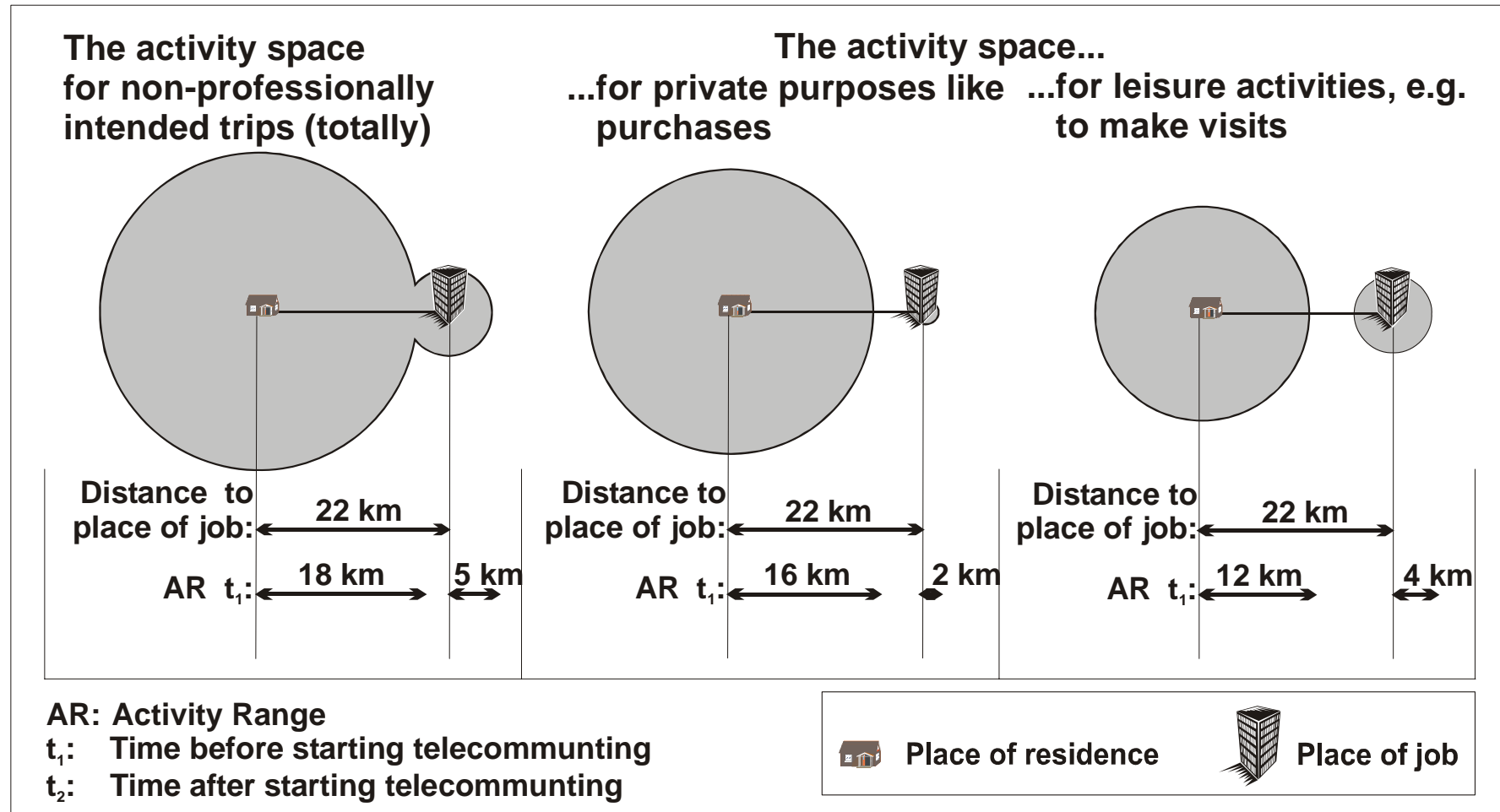
The operationalization of the non-professional intended trips:

- Trips for private purposes like purchases
- Trips for leisure activities, for example to make visits

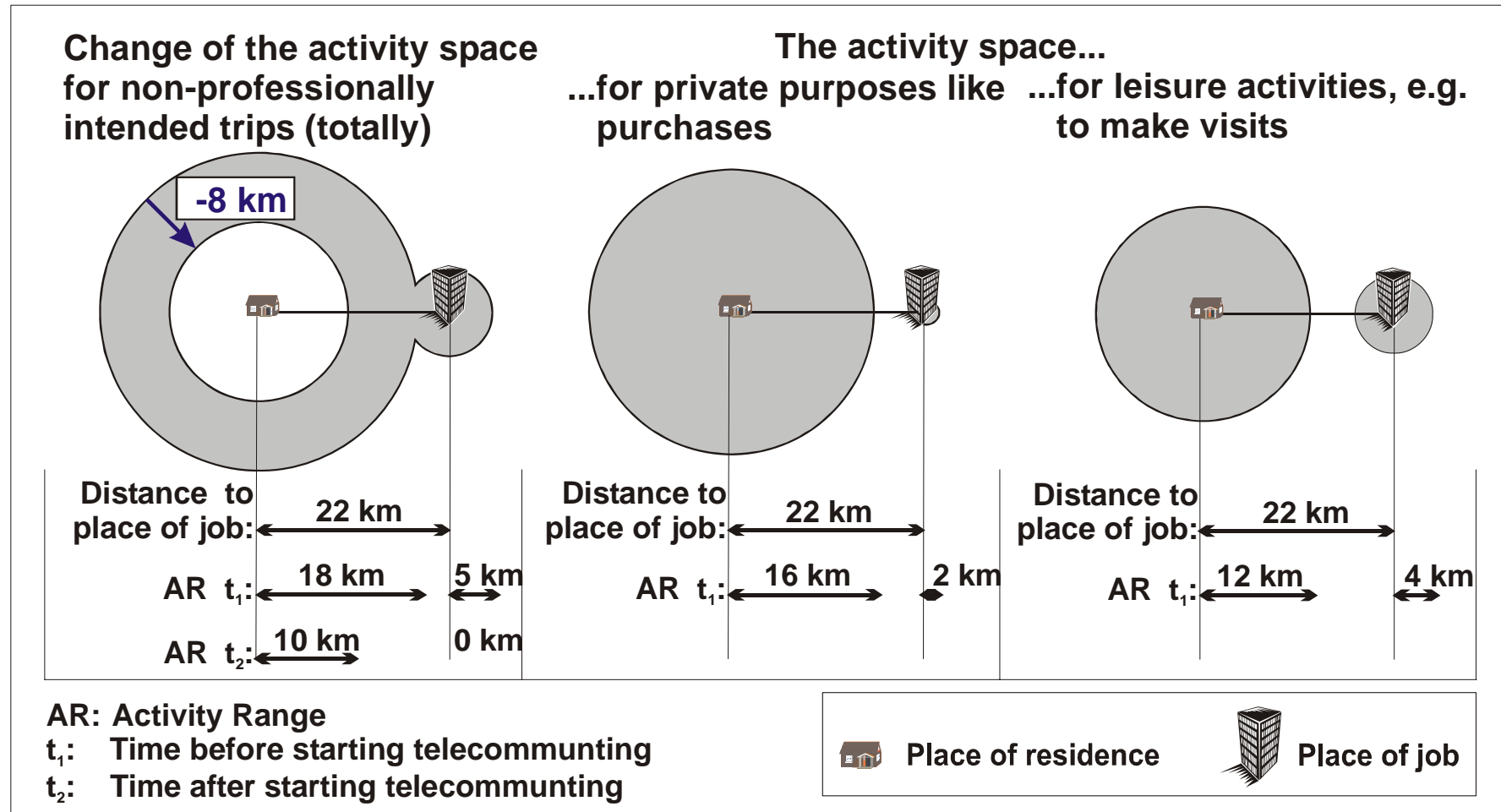
The construction of an Activity Space Model on the basis of Activity Ranges



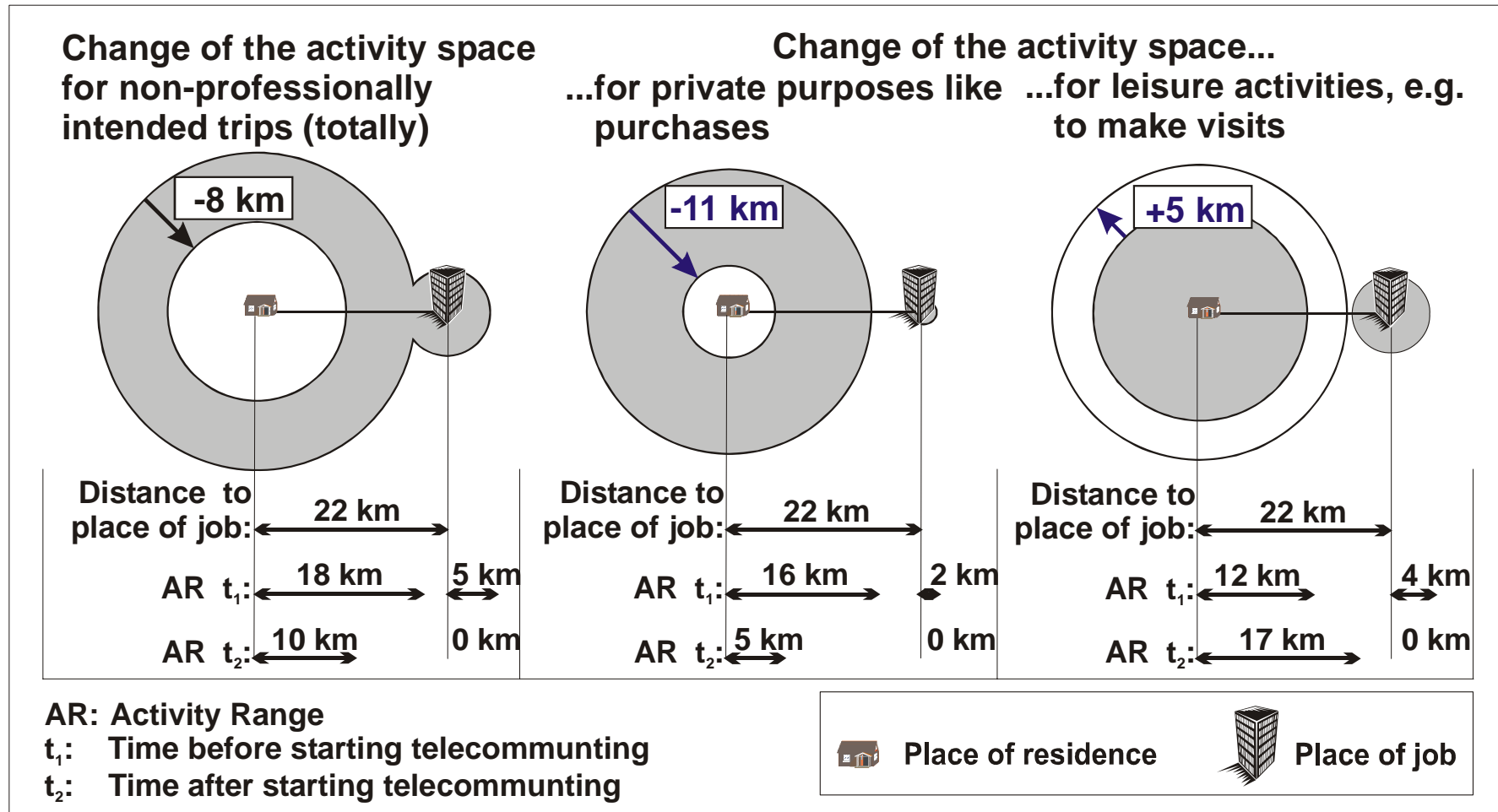
The Activity Ranges and Activity 'Spaces' of the home teleworkers during the time *before* starting telework



The Activity Ranges and Activity Spaces of the home teleworkers during the time after starting telework



The Activity Ranges and Activity Spaces of the home teleworkers during the time after starting telework



	Number of trips	Traffic performance
The substitution thesis...		
... concerning professional trips	✓	✓
The induction thesis		
... concerning non-professional intended trips	↓	↓
... concerning private purposes	↓	↓
... concerning leisure activities	↓	✓
	Activity Range around the place of residence	Activity Range around the place of job
The contraction thesis ...		
... concerning non-professional intended trips	✓	✓
... concerning private purposes	✓	✓
... concerning leisure activities	↓	✓

Thank you for your attention !