Time Geography: Its Past, Present, and Future

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Torsten Hägerstrand & Time Geography:

❑ This year is the 40th anniversary of the publication of Torsten Hägerstrand's 1970 seminal paper - How about people in regional science? *Papers of the Regional Science Association*, 24, 7-21.*

❑ We organize these two Time Geography: Its Past, Present, and Future sessions in honor of Torsten Hägerstrand.

(www.ethesis.net)

(* presented at the European Congress of the Regional Science Association in Copenhagen, Denmark, 1969.)

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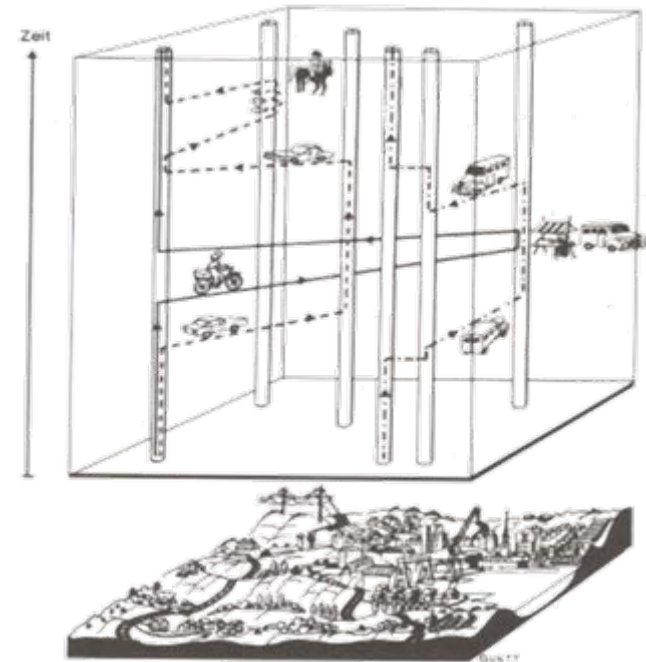
Torsten Hägerstrand:

❑ October 11, 1916 – May 3, 2004

❑ Began his academic career in the Department of Geography, Lunds University, Sweden in early 1930s.

❑ His early research focused on migration and innovation diffusion.

❑ The underlying ideas of time geography had been with Hägerstrand since the mid-1940s.

(www.e-geography.de)

(www.nhh.no)

(Source: Lenntorp, B., Törnqvist, G., Wärneryd, O. and Öberg, S., 2004. Torsten Hägerstrand 1916-2004, *Geographiska Annaler B*, 86, 325-326.)

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Publications by Torsten Hägerstrand:

❑ List of "Publications by Torsten Hägerstrand, 1938-2004" is available at the web site of Department of Social and Economic Geography, Lunds University - http://www.keg.lu.se/eng/html/torstenhagerstrand.aspx.

– This lists includes 268 publications in five different languages.

– Lenntorp, B. 1976. *Paths in Space-Time Environments: A Time-Geographic Study of Movement Possibilities of Individuals*. The Royal University of Lund, Sweden, CWK Gleerup.

- "Events and processes are described in a continuous multidimensional system that expresses sequential relations and spatial conditions. The passage of time and spatial or geographical states (space, position, distance relations) are simultaneously taken into account. For this reason it is generally known as the *time-geographic* model (Hägerstrand, 1970b). The first contributions towards this conceptualization were presented by Hägerstrand in the Sixties (e.g., Hägerstrand 1963, 1969 and 1970a)." (pp. 9-10)

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The Past:

❑ Selected publications:

– Hägerstrand, T. 1963. Geographic measurements of migration: Swedish data. In Sutter, J. (Ed.) *Human Displacements: Measurement Methodological Aspects*, 61-82.

– Hägerstrand, T. 1969. A socio-environmental web-model. In *Studier i planeringsmetodik*, 19-28.

– Hägerstrand, T. 1970a. How about people in regional science? *Papers of the Regional Science Association*, 24, 7-21.

– Hägerstrand, T. 1970b. Tidsanvändning och omgivningsstruktur. In *Urbaniseringen i Sverige,* Bilaga 4.

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Key Time Geography Concepts:

❑ Path/Trajectory:

– "The concept of path (or trajectory) was introduced in order to help us to appreciate the significance of continuity in the succession of situations." (Hägerstrand, 1982, p, 323)
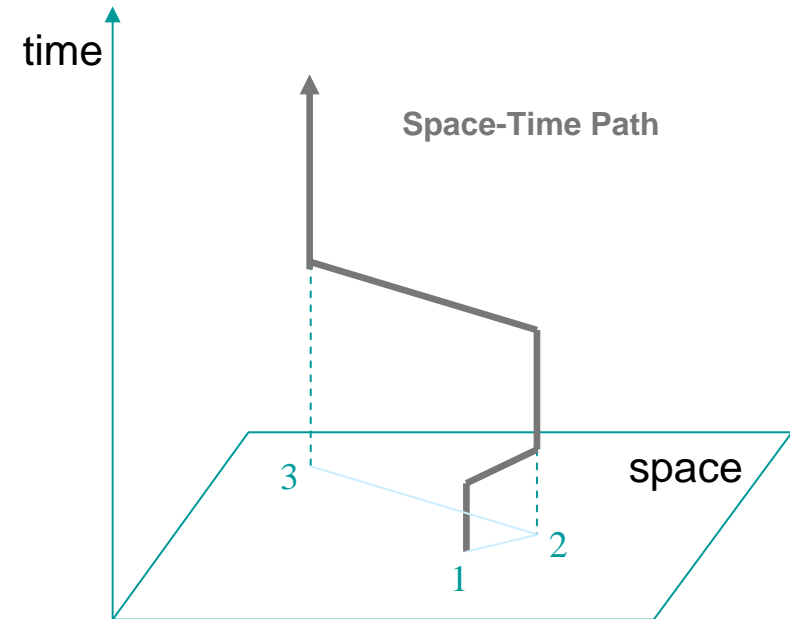
(Source: Hägerstrand, T. 1982. Diorama, path and project, *Tijdschrift voor Economische en Sociale Geografie*, 73, 323-329.)

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❑ Project:

– "People are not paths." (Hägerstrand, 1982, p, 324)

– "… concept of project was introduced in order to help us to do two things. We need to rise up from the flat map with its static patterns and think in terms of a world on the move … We need to have concepts which are able to relate events that happen to the strivings for purpose and meaning … The word project then, …, was meant to tie together into a whole all those 'cuts' in evolving situations that an actor must secure in order to reach a goal." (Hägerstrand, 1982, p, 324)

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❑ Constraints/Situations:

– Hägerstrand (1970) identifies three types of constraints:

  ▪ Capability constraints are "those which limit the activities of the individual because of his biological construction and/or the tools he can command." (p. 12)

  ▪ Coupling constraints "define where, when, and for how long, the individual has to join other individuals, tools, and materials in order to produce, consume, and transact." (p. 14)

  ▪ Authority constraints refer to "control areas" or "domains". A domain is a time-space entity within which things and events are under the control of a given individual or a given group. (p. 16)

– "… the word situation refers to "a position or condition at the moment" or "a position with regard to surroundings. … In a very wide and abstract sense, every somebody or something is in a situation with respect to everybody and everything else. … In a more limited and apprehensible sense, a situation takes shape as such only in relation to a defined direction of change or action." (Hägerstrand, 1982, p, 325)

– "... here we come across the reflexive relation between project and situation. … whether an initiator of a project can bring it to a desired end will depend on what events the subsequent situations permit from moment to moment." (Hägerstrand, 1982, p, 325)

❑ Thereness/Bundle:

– Hägerstrand (1982) indicates that the interplay between projects and situations is made possible because of "thereness". "Nothing can become part of a project or of a situation without first being *there* as an idea, a feeling, an organism or a thing." (p. 325)

– "Ideas and feelings are divisible in the sense that they can move on to receivers and still remain in the possession of the senders. Organisms and things … are indivisible – in other words, they are bound to be either here or there but cannot be in both places." (Hägerstrand, 1982, p, 325)

– Hägerstrand (1970) called "a grouping of several paths as a bundle." (p.14) "The bundles tend to be closely interdependent because individuals, materials, and bits of information have to move from one to the other in an orderly way." (p. 15)

– "A further kind of bundle deserves some passing comment. Telecommunication allows people to form bundles without (or nearly without) loss of time in transportation." (Hägerstrand, 1970, p, 15)

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❑ Prism:

  – "It is an axiom of time-
    geography that the
    movements of an individual
    are restricted by the location
    in time and space of fixed
    points which must be
    respected. The time-spaces
    left free are defined by more
    or less symmetrical double
    cones, called prisms."
    (Hägerstrand, 1982, p, 331)
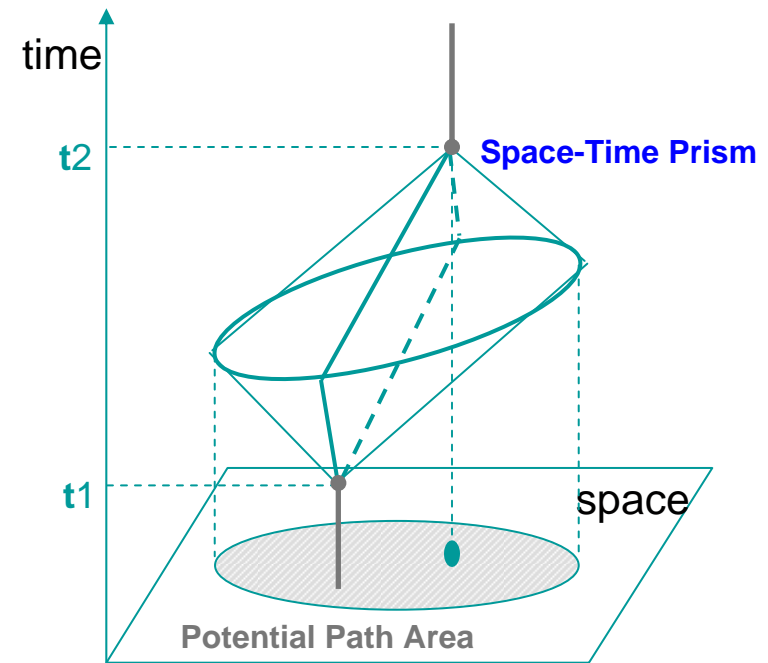
Two interesting publications:

❑ Thrift, N. and Pred, A. 1981. Time-geography: a new beginning, *Progress in Human Geography*, 5, 277-286.

   – It was written in response to the criticisms of time geography in Alan Baker's 1979 article – Historical geography: a new beginning? *Progress in Human Geography*, 3, 560-570.

   – "… time geography … is a discipline-transcending and still evolving perspective on everyday workings of society and the biographies of individuals." (p. 277)

– "Baker mistakenly perceives time-geography as a finished model rather than a philosophical perspective." (p. 277)

– "Many of the problems, …, arise from the fact that time-geography is a very young approach with a small number of practitioners …" (p. 283)

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– "Some see the graphs used in time-geography as just neat pieces of art but others, …, are able to internalize the perspective represented by the graphs and use the path and project language as a way of thinking about themselves and the world. This will we believe be *the lasting legacy of time-geography*." (p. 284)

❑ Lenntorp, B. 1999. Time-geography: at the end of its beginning, *GeoJournal*, 48, 155-158.

– "Time-geography is not a subject area per se, or a theory in its narrow sense, but rather an attempt to construct a broad structure of thought …" (p. 155)

– "Life as a drama" – "Every drama has three elements – namely actors, roles (expressed by behaviors, activities), and the scene." (p. 155)

– "The notation system is a very useful tool, but it is rather poor reflection of a rich world-view." (p. 156)

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– The 1970s:

- "The time-geography approach was accused of being too physical, mechanistic, and an exponent of social engineering. To many, the approach placed too much stress on the scene (the physical world) and the individual as object and not a thinking, experiencing person …" (p. 156)

- "But it is important to note that we (and Hägerstrand) had tried to establish a world-view, …, where time and space would not be looked upon as a composition of the two dimensions but as a frame for analysis." (p. 157)

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–   The 1980s and 1990s:

   ▪   "During the 1980s, … The 'conceptual landscape' of time-geography grew and was enriched by concepts of more integrative characters. … The landscape was almost fully developed during the 1980s …" (p. 157)

   ▪   "Time-geography is now (1999) more widely accepted as an approach integrating the three pillars of the drama … The view of time-geography as a mechanistic device for social engineering has almost disappeared. But the criticism remains that time-geography ignores the importance and the capacity of human agency … " (p. 158)

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- "In my opinion, time-geography should be seen as a foundation for theory-building; … a valuable basis for rephrasing old theories and formulating new ones …" (p. 158)

- "There are numerous research fields in many disciplines that could be strengthened by the time-geographic approach." (p. 158)

- "To me, time-geography seems to have matured. … now an established way of thinking or approach … That's why I consider time-geography to be at the end of its beginning …" (p. 158)

The Present:

❑ Why are we still excited about time geography?

- – It integrates space and time.
- – It treats activities as processes.
- – It considers the situations that influence activities.
- – It develops a notation system to represent some key concepts.
- – It is relevant to many applications.
- – It is simple!
- – …

What have changed?

❑ Location-aware Technologies:

– It's much easier and more affordable to collect individual tracking data over space and time.

– Data volumes can be huge (e.g., cell phone tracking data). Our sample size is very big!

– Exploring and uncovering aggregate as well as disaggregate patterns and behaviors becomes a very exciting topic.

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❑ GIS:

– GIS have made it easier to integrate the scenes (i.e., different GIS layers) with the actor.

– Space-time GIS have made it possible to better integrate space and time. We now also can integrate the roles (i.e., activities) into space-time GIS.

– But, we have not been very successful of capturing personal feelings, ideas, thoughts, etc. into analysis.

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❑ Information and Communication Technologies (ICT):

– Modern ICT, such as Internet and cell phones, have relaxed spatial and temporal constraints.

– People now can be at different places at the same time through telepresence.

– They have caused important changes to some classical time-geography concepts. For example,

  ▪ What is a "location" in virtual space?

  ▪ What is a "station" in virtual space?

  ▪ What is a "bundle" in virtual space?

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❑ New Applications:

– It appears that time geography is getting attention from a wide range of fields.

- Public health
- Social networks
- Transportation and logistics
- Population segregation/Social justice
- Intelligence/National security
- Location-based service (LBS)
- Marketing
- …

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The Future:

❑ We probably can anticipate that time geography will:

    – This is what I would like to have discussions from the presenters and the audience!

Thank you!

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