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The Fourth Dimension

A Personal Note on Landau's "December Paper"

Abstract: My "note" is closely related to David Landau's paper on the names of the months linguistically corresponding to "December" (this volume). It considers the onomastic status of time phrases by investigating the concepts of time and space in their interrelation. The contribution supplies reasoning that proves the existence of time as a fourth spatial dimension. Therefore the general statement that reality exists in space and time must be qualified. If time is a fourth spatial dimension, then the month's name "December" can be compared with a place name like "Leipzig". I suggest that there is no dichotomy between describing "Leipzig" as an onym, but "December" as an appellative only. "Leipzig" and "December" enjoy a familiar onomastic partnership.

Zusammenfassung: Meine „Anmerkung“ bezieht sich auf David Landaus Artikel zu Monatsnamen, die sprachhistorisch mit „December“ korrespondieren (in diesem Band). Sie erörtert den onomastischen Status von Zeitausdrücken, indem sie das Verhältnis von Zeit und Raum in ihrer Wechselbeziehung untersucht. Der Beitrag legt eine Beweisführung dar, die die Existenz von Zeit als vierte Dimension des Raumes versteht. Daher muss die allgemeine Feststellung, dass die Realität in Zeit und Raum existiert, präzisiert werden. Wenn Zeit eine vierte räumliche Dimension darstellt, dann ist der Monatsname „December“ mit einem Ortsnamen wie „Leipzig“ vergleichbar. Ich schlage daher vor, die Dichotomie zwischen der Beschreibung von „Leipzig“ als Onym, aber „December“ nur als Appellativum, aufzuheben. So können sich „Leipzig“ und „December“ einer vertrauten onomastischen Partnerschaft erfreuen.

David Landau's article *The Jubilees Calendar in Practice* (this volume) makes quite an interesting contribution to his explanation of names corresponding to "December". When reading it I could easily follow his clear argumentation. David Landau allows us to "dive into the mystics" of a name. He does not only discover that, as he puts it in his summary, the "names of the months corresponding to December in the Gothic language calendar ..., in the English calendar ... and in the Old Icelandic ... calendar are cognates"; Landau also tells us the unique story of a unique month in its cultural and historical background. This uniqueness may – from an intuitive point of view – qualify "December" as a proper name already.

But the topic of treating time phrases (short for: "language expressions of time") in general is disputed as far as its onomastic status is concerned,

e. g., cf. Gerhard BAUER (1985, 26 ff.) or Gerhard KOß (2002, 55 ff.). Are expressions of time (the names of months, e. g.) to be considered “proper names/onyms” (German: “Eigennamen/Onyme”), or are they “appellatives” (German: “Gattungsnamen/Appellative”)? At its best, a month’s name can be seen as a phenomenon at the periphery of onomastics.

My personal note is – metaphorically used – a “throw-in”. In its literal meaning it is the action of a player in a soccer match who throws the ball from the touch-line back to the playground. You pass the ball to your co-player to get closer to the goal or even score a goal. My throwing in and passing the ball is to be considered a co-operative action. From the touch-line I want to put my co-player David LANDAU in a more comfortable position to “sell” his December names as an onomastic entity. Can my throw-in in this match influence the onym/proper name (“Eigennamen”) vs. appellative (“Gattungsnamen”) discussion to the advantage of Landau’s linguistic “December” description?

When I asked one of my friends and former colleagues to give me an example of the name of a month as a proper name, he immediately mentioned the well-known title of Axel HACKE’s book (1999) *Der kleine König Dezember*. This is, however, not a counterexample of the view mentioned above (cf. BAUER 1985; KOß 2002) since *Dezember* will be interpreted here as an appellative used as an onym, i. e. the “conversion” of an appellative into a proper name.

What I have in mind is rather to consider the status of time phrases **in general**. Could the status of a month’s name like “December” be viewed differently if one perceives the relation between space and time itself differently? If the relation between space and time (and thus between phrases expressing space and time) is more complicated and more complex than we might assume at first sight, could evidence of this have consequences with regard to the onomastic/linguistic treatment of time phrases?

Let us take two simple examples in order to illustrate this.

In the famous crime novel *Das zweite Leben des Herrn Roos* by Håkan NESSER (2009) one of the main characters, Ante Valdemar Roos, reflected on a specific aspect of time. It is the time that is recurring again and again. Roos describes this time as slow and tough in its character, sometimes as even standing still, and he compares this feeling with that of a car driver in front of a crossing who has to stop since the traffic lights are red, and he finds himself in position 17 waiting:

Mit der anderen Zeit, der immer wiederkehrenden, war es etwas anderes. Sie war langsam und zäh von ihrem Charakter her, manchmal geradezu stillstehend, ...; wie ... wenn man als Siebzehnter vor einer roten Ampel an der Kreuzung Fabrikatsgatan-Ringvägen steht und wartet. (2009, 11)

The important point here is that Roos perceives this aspect of time primarily as a position, as a place, and as changes of positions/places (from 17 to 16, to 15, etc.). Strictly speaking, the car driver describes a place which determines his considerations, and time retreats, sets the background which he does not explicitly experience.

Nesser's character continues his meditations by philosophizing about "rests". They are, he thinks, rests between events which are perceived as places, for example, while a lake in a November night ices over, he – poetically spoken – feels at home:

Die Pausen, dachte er häufig, es sind die Pausen zwischen den Ereignissen – und während sich das Eis in einer Novembarnacht über den See legt, wenn man ein wenig poetisch sein möchte –, in denen ich mich zu Hause fühle. (2009, 12)

Here again, time is primarily perceived as place, "where one is at home". The second illustration is taken from Richard Wagner's opera *Parsifal* (1882). At the end of Scene 1 in Act 1 Gurnemanz, eldest Knight of the Grail, invites the son of Gamuret, a knight killed in battle, to observe the Grail ritual. The youth does not know what the Grail is, but remarks, as they walk, that he seems scarcely to move, yet seems to travel far. And Gurnemanz says that time converses into space here:

Zum Raum wird hier die Zeit.

The quotations given here are impressions only – impressions experienced and described by the characters in a story and in an opera. I am well aware that these are fictitious presentations from the world of literature and sound composing. Nevertheless we know that there is something "in it". Experiencing and perceiving time as (a) place is an event that may occur every day.

These facts made me look for a way to investigate what we perceive intuitively on a serious, i. e. scientific and philosophical background.

In this context I was reminded of works that investigate the specific relations between space and time. I had recently read a book published by Elmar SCHENKEL¹ (*Englisches Leipzig*, 2010). Some of the ideas developed in it might shed new light upon the matter under discussion. It was especially the paper *Zeitreise. Eine Geschichte der ZEIT.REISE nach Leipzig*, written by Kati VOIGT² in SCHENKEL'S book (2010, 288–296) which caught my attention. In her article, VOIGT had a closer look at people who came from Leipzig or were influenced by English-speaking people whose interests were relations between space and time. Kati Voigt sits in an imaginary class and enacts the roles of students and their professor by questioning and answering. At the beginning of this “class” the students and their professor travel through time and space. One of the students characterizes Henry G. WELLS' (1895) *Time Machine* (Voigt's presentation is slightly modified by W. T., cf. *The Time Machine* sub References). A narrator tells the story of a Time Traveller who uses a tabletop machine to travel to the future, then to travel to the past and then to return to the “real” time. The narrator recounts what the Traveller tells about the journey in his lectures to his weekly dinner guests, i. e. what the Traveller has seen and experienced. He comes to the conclusion that there is a fourth dimension, and this dimension is time. He believes in some kind of an unimaginable “interspace” (German: “Zwischenraum”) that allows us to travel in time just as we would like.

Starting from the realm of science fiction, Voigt then pursues investigations dealing with the serious scientific background of this idea. She finds

1 Elmar Schenkel, professor at the University of Leipzig, is an expert in English literature, but also in history, culture and arts in general. The book *Englisches Leipzig* (2010), which he edited, is a compilation of articles written by Leipzig Anglistics students who sat in his academic seminar on this topic. The students investigated the interrelations between English and Leipzig in its widest sense. This includes people or institutions in Leipzig who have/had specific connections with or influences on English-speaking countries or people/institutions in English-speaking countries who have/had specific connections with or influences on Leipzig. One of Schenkel's manifold specific interests is the investigation of fictitious and non-fictitious “time” in literature and relations between “space and time”. I had the chance to interview Schenkel on these questions and also owe him very valuable bibliographic recommendations. I do not list them in detail here, but thank him very much for his generous help in general.

2 I could “exploit” Kati Voigt's didactively well-prepared explanations whenever this seemed helpful for my own argumentation.

out that the fourth dimension has many "fathers", whose works Wells probably didn't know.

One of the "fathers" supplies background knowledge on WELLS' *Time Machine* in the imaginary class. It is the British mathematician Charles Hinton (1853–1907) who investigated the fourth dimension as a four-dimensional space (1883), but did not propose time as a fourth dimension explicitly. I mention him since a number of his methods have been used by scientists who are relevant with regard to my arguments.

VOIGT's "professor" (cf. 2010, 292–294) then points out that it was the Leipzig physicist Gustav Theodor Fechner (1809–1887) who was the first scientist considering "time" as the fourth **spatial** dimension. His writings are in part published under the pseudonym "Dr. Mises". In *Der Raum hat vier Dimensionen* (1846) Fechner/Dr. Mises, like Hinton (1883), uses analogies to explain the fourth dimension. He puts the observer in the position of a little many-coloured matchstick man (German: "eines kleinen bunten Männchens") who lives on a piece of paper and thus exists in two dimensions only. This little man wouldn't know anything about a third dimension. But one could imagine that the paper on which the little man lives is moved by a/the third dimension. Fechner speculates on the way in which this movement is "perceived" by our little matchstick man. Fechner argues that he will "experience" this (the changes of the light, the re-structuring/ordering and colouring of the rays of light) by means of the third dimension. The man will perceive these phenomena not as occurring simultaneously, but step by step. He could, for example, look red and smooth at the beginning of his way, and pale and wrinkled at the end. Since the little many-coloured man will not perceive these changes as a whole, he will interpret them as phases of time which bring them about. He does not understand that he has **walked through a third spatial dimension**. Human beings, unlike our little matchstick man, live in a world of three dimensions and recognize this third spatial dimension. Human beings then move – this is the conclusion which Fechner draws – in a four-dimensional space. What we consider as time is, in analogy to the experience of the little matchstick man, another spatial dimension, that is, a **fourth spatial dimension**. This means **Time is Space**.

The examples taken from Håkan Nesser (2009) and Richard Wagner (1882) above were intuitively perceived by the acting characters as a spatial dimension. Its scientific foundation outlined here goes beyond a subjective interpretation. It supplies scientific reasoning that proves the

existence of time as a fourth spatial dimension. This provides sufficient evidence for my proposal to reconsider the onomastic view of concrete time expressions. I cannot judge whether this may hold for all time expressions in general, but Landau's "December contribution" is a case in point.

The evidence given here is sufficient as far as my argumentation is concerned. Much more sophisticated and elaborated scientific studies published in the 20th century are more or less in line with my basic ideas. In Einstein's Special Theory of Relativity, time is often called the fourth dimension, since time behaves like the three spatial dimensions. The fourth dimension requires a direction which is not covered by the third dimension. Therefore time and space are a four-dimensional "space-time".

Other recent dimensional studies do not cover space-time relations, but follow theoretical and applied ideas that do not primarily consider the concept of "time" at all and sometimes even suggest more than four dimensions. See, for example, the development of computer graphics.³ These presentations often follow or build on basic assumptions like the Hypercube of Charles Hinton (1884).

For the application of the fourth dimension in modern art see Henderson (1984). It should be noted that viewing paintings of modern artists, for example Salvador Dalí's (1904–1989) paintings which include the fourth dimension, also involves a "quasi-temporal" aspect. It refers to the temporal process of viewing the pictures which is originally a spatial reception.

Conclusion

The statement "Reality exists in time and space" must be qualified. The quintessence of my philosophizing about and investigating the relation between space and time is that time can be interpreted as a fourth spatial dimension.

If this is true, then language units expressing places and time spans are more closely related than one may assume. The month "December" can be compared with a place like "Leipzig". Therefore I suggest there is no dichotomy between describing "Leipzig" as an onym/proper name, but "December" as an appellative only, and not a proper name.

3 The internet provides detailed and comprehensive facts sub such entries as "Time as the Fourth Dimension of Space", "Spatial Dimensions" or "Hypercube".

Selected lexemes (including "December, November, October" etc.) are in principle both, proper names and appellatives.

My postulate is that „Leipzig“ and „December“ enjoy a familiar **partnership**. Shedding this new, brighter light on language units expressing time will enrich, and beneficially influence, discussion in onomastics.

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