Two Dualities- an Anthropology of a Mathematical Result

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My proposed talk traces the emergence of a new mathematical object – a certain ‘duality transform’ – in the social-mathematical space. The object’s “biography” is based on an ethnographic observation of the research conducted by two leading mathematicians at Tel Aviv University. Through this presentation, I argue for the feasibility and necessity of such “laboratory studies” of mathematical knowledge.

The account makes use of two conceptual frameworks: Rheinberger’s ‘Experimental System’ and Latour’s ‘Network’. Following Rheinberger, the talk traces the construction of the new mathematical object in a system in which it functions as an ‘epistemic thing’. Latour’s framework allows explaining the object’s coming into being as a process of becoming an ‘immutable mobile’, through its ‘translation’ to various forms, and through the association of various actants to the emerging web of translations.

The research shows that the process of production of the new mathematical object is neither “purely” mathematic, nor “purely” social. It is a combination of factors, that are not easily classified to this category or the other, factors that together shaped the new transform: The social ties of the mathematicians facilitated certain mathematical ties rather than others; The disciplinary-institutional structure inside which the object evolved directed its character in a certain way; Surprising behavior of formulae and mathematical examples made the human actants act differently than they had originally intended. Moreover, as part of the process, not only the mathematical structure has changed, but also the human actants and the relations between them. In place of the traditional classification into social elements and natural elements, a story is suggested, which follows the study-objects wherever they go, disregarding categorical-boundaries.