Demonstrations in mathematics and in logic are commonly carried out in writing. Many of them are conveyed by academic journals. Others are given on blackboards, in the framework of research or teaching seminars in particular. However, writing is not the only means by which demonstrations are implemented. Other technologies are used to this effect, in particular in the fields of computer logic, artificial intelligence and applied mathematics. Such is the case with "demos," which have been more and more used in those fields in the recent past. What does the term "demo" refer to? It is an abbreviation of "demonstration," referring to one specific form of demonstration, whereas "demonstration" remains a generic term. A demo consists of exhibiting a technological device in action, such as a running robot or some computer software. The exhibition generally occurs in front of an invited audience, following a carefully scripted scenario. Often but not always, a demonstrator comments on the running of the technical device, linking its operation to general properties of a specific formalism or methodology. Demos are used to show the feasibility of a technological approach, the value or even correctness of a specific logic, or the proper running of a prototype or product.

Generally, a repertoire (or stabilized narrative) has been crafted in advance, its preparation commonly taking the demonstrators a long time. The corresponding exercise remains scripted in the sense that a scenario (script) is used.

When a demonstrator is present during a demo as speaker, he makes himself a representative of the system (sometimes a sales representative). Generally, a whole scene is set up. Extreme and spectacular circumstances for the working of the device are often created in order to impress the audience and in order to produce witnesses of the achievements shown on stage. The impact of the demo can then be extended, as the witnesses can testify orally in writing to the truth of the achievements to a wider circle of actors.

Like other forms of demonstration, demos mix technologies of proof and exhibition (or showing) practices. Properties of the formalisms and of the approaches at stake are exhibited to witnesses and shown as emanating from, but also detachable from their setting.


3 The following analysis is based on the results of a large research program I have developed in recent years on the sociology of forms of demonstration. For further details see
from the materiality and the specificity of the device.

The exhibition can be performed in vivo or tape-recorded and then turned into a video. Generally, the audience doesn’t appear on the video, nor does the demonstrator; only his voice is heard. A video of a demo obviates the need to carry cumbersome and fragile mechanisms in front of sponsors and saves time for the demonstrator. He knows his video is good, so he has eliminated the risk of failure involved in real-time demos.

Demos are used in front of academic peers, during a seminar or workshop or in a university office. Competitions between robots and between the formalisms and approaches used to control them are commonly carried out through demos at artificial intelligence (AI) conferences. This form of demonstration is becoming more and more common in many scientific arenas.

Demos are also used by researchers trying to obtain industrial contracts from managers. Demos are brought to the offices of possible sponsors, are shown at stands at conferences gathering academics, engineers and research managers. Demos are also performed during laboratory tours designed for company executives.

The recent rise in the use of demos offers a historical opportunity to explore why demonstrations should not be understood in the limited


6 The term “script” should not be understood here in the narrow sense of a written document. Accordingly, note that looking broadly at various types of scripts provides in general a more adequate and fruitful framework for the social studies of science and technology than focusing simply on writing and reading.
terms of an opposition between proof and persuasion (or *apodeixis* and *epideixis*). The ontology of demonstrations can't be reduced to proof and persuasion devices in general. Demo devices are sometimes products for sale. Indeed, high-technology prototypes are often already versions of products, due to the speed of development in those industries. Demos represent also a tool to manage and create social links and partnerships, for researchers as well as for engineers and consultants. They are used to communicate information but also to gain it from members of an audience by analyzing their reactions. The gain of information is sometimes used periodically by the demonstrators to shape the technologies and the corresponding formalisms in progress, to coordinate their action with others, to compete with them, to take control of the possible sponsors and customers and to create a market around the emerging objects.

In fact, demos are a key element in the processes that bind the making and the marketing of science and technology. Demos have a peculiar property: They can be used and therefore capitalized in many spaces. Some large institutions even use them as a solution to the complex problem of how to make scientific and technological results public.

In the recent past the European Commission has started using demos as a privileged tool to publicize the results of its research efforts, to manage difficult funding arbitrations between projects and to contribute to the definition of European policies and politics. A good illustration of this phenomenon is the case of the Advanced Communications Technology and Services (ACTS) program, which was run between 1994 and 1998 within the fourth framework program of the European Commission. One of the main purposes of ACTS was to help develop a very high-speed communication network in Europe, which would correspond to its equivalent in the US, the Internet project. ACTS was intended to contribute in particular to the development of a physical network, to multimedia applications and to experiments in telework within large firms.

How could the European Commission show ACTS results in a way that would make them clearly appear "tangible" to the public and to economic and political authorities such as European Parliament members?

Distributing masses of opaque academic publications would have been of little use to this end. A more effective tool, which was adopted by European Commission representatives, consisted of circulating documents such as reports containing lists of technical papers, project summaries and statistics on the projects. It also involved distributing CD-ROMs containing ACTS success stories and in building databases on ACTS projects accessible on the Internet.

But the most efficient tool by far relied on encouraging, planning and reporting on masses of technological demos of ACTS projects. Many demos in the ACTS program showed the working of high-speed exchanges of information, by displaying various forms of telework such as teleconferences. The organization of a teleconference involving economic and political authorities was a very focused and powerful way for the actors in charge of the ACTS program to demonstrate the results of the projects to the former actors.

The running of ACTS demos was systematically reported in writing for many of those who could not attend the performances. In a 1997 ACTS report, for example, each project's demos were presented in a row, and three columns were filled out with the following information: "Date of the Public Demonstration," "Nature of Demonstration," "Target Audience & Reaction". Some demos also served as a basis for video clips, which were distributed on CD-ROMs to ACTS participants, industrialists and political representatives.

In the case of ACTS, as in other cases, the setting up and performance of demos met the complementary interests of several types of interested observers and actors (scholars, engineers, firm executives, politicians, members of various governmental and private agencies) and constituted a rare opportunity for interaction, competition, coordination of action and building of partnerships. At a global level, demos serve as a privileged bridge between science, technology and society.

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