”Playing Market” in Oticon: Problems of Disaggregating Internal Organization

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Preliminary draft, 6 July, 2000

Abstract

At the beginning of the 1990s, Danish hearing aid producer, Oticon became world famous for its radical empowerment and delegation experiment, called the ”spaghetti organization.” Almost a decade later, most of the more radical elements of the spaghetti organization have been changed. This paper tells the story of the spaghetti organization and its subsequent transformation, and speculates on the causes of the transformation.

Introduction

The ongoing restructuring of organizational forms as a response to changes in fundamental drivers such as IT, measurement methods, internationalization and the increased emphasis on shareholder value has become a topic of strong academic as well as managerial interest. Thus, firms are argued to increasingly adopt ”network organization” (Miles and Snow 1992) and engage in ”corporate disaggregation” (Zenger and Hesterly 1997), so as to become ”information age organizations” (Mendelsson and Pillai 1999). Much of this discussion has been phrased as a matter of bringing principles that are characteristic of the market ¾ for example, high-powered incentives, open competition over resources, flexibility, etc ¾ into hierarchical organization (Jensen and Meckling 1992; Jensen and Wruck 1994), and of infusing market exchange with characteristics of the hierarchy, such as information exchange, relations of trust, etc. (e.g., Zenger and Hesterly 1997). An underlying message clearly is that the boundaries between markets and firms are fading into insignificance.

However, much of this discussion has neglected that it is far from unproblematic to mix principles that are characteristic of the market with principles that are characteristic of the hierarchy. To be sure, it can be done ¾ hybrid forms in a broad sense are clearly viable governance structures for some types of economic activities ¾ but at other times the respective principles collide. In particular, firms may often find it difficult to ”play market,” that is, introduce high-powered incentives, various bidding-schemes, self-organizing project groups, etc. into their internal organization. This is not only a matter of the well-known accounting difficulties associated with internal transfer prices. It is a more fundamental problem of trying to harmonize conflicting aims. This problem has many manifestations, chief among which are the problem of combining the centralized hierarchical authority which must in the nature of things always characterize a firm with the delegation of authority which accompanies the attempts of firms to mimic the market.

In the ensuing, these problems are discussed and illustrated with reference to decision-making processes and changes of organizational structures in the Danish electronics (primarily, hearing aids) company, Oticon (now William Demant Holding A/S). In the beginning of the 1990s, Oticon became world-famous for its radical decentralization and empowerment experiment ¾ appropriately marketed as the ”spaghetti organization” ¾, and for the speed and radicality with which then CEO, Lars Kolind managed to accomplish a major organizational turn-around, particularly in the corporate headquarters/development parts of the Oticon organization. It was taken as an outstanding exemplar of change management (being generously cited by Tom Peters 1992), business process re-engineering (Obolensky 1994), and visionary

leadership and strong corporate culture (Yamashita 1998).[1] Kolind's dramatic and symbol-laden way of implementing the Oticon spaghetti structure as well as the structure (or, perhaps, non-structure) itself are still being given extensive treatment in management textbooks (e.g., Boddy and Paton 1998).

In the present context, it is notable that the market metaphor was clearly involved, being used explicitly by Oticon insiders (e.g., Lyregaard 1993) ¾ and a market it seemingly was: Employees (particularly project leaders) were given very given many and wide decision-making rights; development projects could be initiated by any employee just like entrepreneurs in a market setting; project groups were self-organizing; the setting of salaries was decentralized to project leaders; most hierarchical levels were eliminated and formal titles done away with, etc. Thus, the intention was that the organization should mimic the market in such dimensions as flexibility, autonomy, flatness, etc. The decentralized market is made coherent ¾ that is, individual decisions and plans are coordinated ¾ by means of the price mechanism, various contractual institutions and norms and mores. In lieu of a distinct price mechanism, the market-like spaghetti organization was to be kept together by a shared set of values, the charismatic leadership of Lars Kolind, and by a committee, staffed by Kolind and three other managers, the primary purpose of which was to approve of or reject proposed projects.

Although the spaghetti organization continues to be widely cited in management books and newspaper articles alike, that particular mode of internal organization does not exist anymore in Oticon ¾ it has been superceded by something far more structured. The introduction of the spaghetti organization made tremendous media (cf. Morsing and Kristensen 2000) as well as academic impact. However, the fact that the organizational design has been drastically modified since its introduction in 1991 has, in contrast, not been generally noted, much less analyzed. The purpose of the ensuing is to take some steps towards an understanding of why the change happened and in the process learn something about the limits to decentralizing an organization when the CEO and other top-managers keep ultimate decision rights. Thus, the following is an attempt to address, using a concrete case and building on organizational economics insights, why organizational change, aimed at making an organization more decentralized, flexible and on the whole market-like, may be difficult to accomplish.

Simulating the Market in Oticon

Disaggregation as a Contemporary Business Practice

There is accumulating empirical evidence that firm sizes have been falling throughout the world during the last two decades (Zenger and Hesterly 1997), as firms have engaged in downsizing, spin-off and outsourcing exercises. Thus,

[1] The Oticon case is reported to be the best selling IMD case ever (Børsens Nyhedsmagasin 8. november 1999).

established firms have increasingly left activities to the ”market,” meaning other (often new) firms. Fundamental advances in IT and measurement technologies have facilitated these changes (Zenger and Hesterly 1997); equally fundamental developments in the organization and motives of capital markets as well as increasing internalization have made them necessary. Cutting size, spinning off business units, etc. reduce coordination costs, improve incentives and help to clarify the nature of the businesses the firm is in. Improvements in entrepreneurship as well a better ability to produce, share and re-produce knowledge often result (Day and Wendler 1998).

However, firms can reach these goals in a very different way ¾ namely by disaggregating internal organization (internal disaggregation) rather than disaggregating the corporation itself (external disaggregation). A number of contemporary management practices, notably TQM and knowledge management techniques, are basically internal disaggregation devices.[2] From a short-run perspective these may have the benefit of involving fewer lay-offs relative to external disaggregation. Moreover, spin-offs, carve-outs and the like are often legally quite complex operations, so internal disaggregation may be a quite attractive alternative in terms of ink costs expended on corporate lawyers. Add to this that management may have a sometimes quite justified fear that leaving too many activities in the hands of other firms may lead to a hollowing out of the corporation in the longer run. Finally, considerations of protecting valuable knowledge may enter the picture.

When presented in this way, one may wonder why firms should ever disaggregate externally: The two alternative means of disaggregation are very imperfect substitutes and external disaggregation appear to be both more painful (e.g., in terms of employee dissatisfaction), more costly (e.g., in terms of lawyer bills) and more risky (e.g., in terms of losing the firm’s ”crown jewels,” i.e., its strategic resources and capabilities). However, internal disaggregation also has its distinctive problems. The spaghetti experiment in Oticon illustrates some of these.[3]

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[2] The potentials and pitfalls of these practices and techniques must be understood in the light of the potentials and pitfalls of the general phenomenon of internal corporate disaggregation. Thus, the reasoning of this paper also applies to these practices.

[3] In terms of the distinction between external and internal corporate disaggregation (Zenger and Hesterly 1997), Oticon clearly put all the emphasis on internal disaggregation. The possibility of strengthening incentives and trimming the organization by relying on the *real* market ¾ that is to say, spinning off functions and departments ¾ never appears to have been seen as a serious alternative to internal disaggregation. In fact, the company remains strongly vertically integrated. For example, many of the machines used in the production plant in Thisted, DK, are actually produced in a special department in the headquarters in Hellerup. Although a number of potential suppliers are available, management questions their ability to deliver the right quality.

Oticon: Background[4]

Founded in 1904 and based mainly in Denmark, Oticon (now William Demant Holding A/S) is a world leader in the hearings aids industry.[5] For a number of years in the beginning to the mid-1990s, Oticon became one of the best-known and admired examples of radical organizational turnaround. The turnaround aimed at reaching the complementary goals of increasing employee empowerment and responsibility, reducing product develoment cycles, increasing contact to customers, mobilizing dispersed and "hidden" existing knowledge, and building new knowledge. Oticon CEO Lars Kolind, the architect of the "spaghetti organization" turnaround, became a favorite of the press. In many respects, the strong publicity received by the spaghetti experiment was completely justified.

First, the experiment embodied virtually all of those non-traditional management practices that were gaining currency at that time. Second, although other firms adopted similar decentralization and delegation exercises and had done so earlier, the turnaround in Oticon was remarkable for the quickness with which it took place. Finally, the spaghetti organization very quickly demonstrated its prowess by re-vitalizing important, but "forgotten" projects, that, when implemented in the production of new hearing aids, produced significant financial results, essentially saving the firm from a threathening bankruptcy. The background to all this was the following one.

From being the world leader in the late 1970s (at a 15 % market share in 1979), that position was lost in less than a decade (market share had fallen to 7% by 1987). The effects were to produce massive financial problems. Management had to realize that in an industry where the race to bring the next technologically sophisticated product to the market was fast becoming the competitive criterion, the competition, notably other Danish hearing aid companies (Danavox, Widex), had leapfrogged Oticon in terms of technological developments and in terms of reducing the time length of product development. Oticon was left behind. However, realizing this took time and was painful; acting on the realization was apparently even more painful.

On all accounts (Poulsen 1993; Morsing 1995; Foss and Hertz 2000), Oticon was locked into a competence-trap which was reinforced by strong groupthink, characterizing both the management team and the employees. A symptom of this was that around 1980, the dominant opionin among managers and people in development at Oticon was that the in-the-ear hearing aid would turn out to be a commercial fiasco. At any rate, in-the-ear hearing aids weren't Oticon turf. The self-image of the company clearly was one being an industrial company with

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[4] The material in this paper on Oticon builds primarily on Foss and Hertz (2000), and secondarily on Lyregaard (1993), Poulsen (1993), Morsing (1995), Eskerod (1998), and Morsing and Eiberg (1998).

[5] See Lotz (1998) for a careful analysis of the hearing aid industry, with particular emphasis on patterns of innovation.

massive production facilities specialized in mass-producing the behind-the-ear hearing aids and developing that technology incrementally. The dominant ethos in the company was one defined by engineering people, not by marketing people; technology, not customers, was central.

When problems began to accumulate, various attempts were made to change the situation; however, they were either too insignificant and incremental or didn't survive political jockeying inside Oticon.[6] The executive team had been in control of Oticon for just about thirty years. It was the same team who had taken the company to a number one position in the world market in the late nineteen-seventies. As a consequence of the mounting difficulties, the team collectively stepped down from their positions. The new CEO became Lars Kolind. Holding degrees in mathematics and management, an important part of his background was the international scout movement. It is telling that Kolind was particularly impressed by the ability of that movement to organize and coordinate efficiently, flexibly and rapidly large-scale gatherings (e.g., international jamborees), not as a result of detailed management but rather as a consequence of a strong and shared set of values.

Upon assuming his new job in 1990, Kolind basically concentrated all decision-making powers in his hands; for example, virtually all expenses, even trivial ones, had to be approved of by him. He used this centralization of power to cut costs dramatically. However, in a almost paradoxical way, he combined almost dictatorial concentration of power with a great open'ness and with great communicative skills. For example, the rather drastic cost-cutting measures were very openly communicated, and their necessity carefully explained. About a year after assuming his position, Kolind realized that the cost-cutting measures, which quickly improved the company's financial situation, had been fully exploited. Although the measures were necessary and yielded substantial financial results, they were only short-term measures. Something more radical was needed ¾ trying it was made possible by the accumulation of substantial slack resources which the cost-cutting exercise had produced.

Trying Spaghetti

That "something" was embodied in a 6 pages memo, presented to Oticon employees on April 18, 1990 under the heading, "Think the Unthinkable" (Kolind 1990). The objective of the vision was to create an increase in profitability by 30% over the next three years ("Project 330"). This required a change of corporate vision and mission: The company should be defined broadly as a first-class service firm with products developed and fitted individually for customers, rather than narrowly, as a manufacturing company producing traditional high-

[6] For example, the executive of the international division launched a campaign to renew Oticons image, called the" Partner Project." The idea was to create a close relationship with hearing care professionals all over the world, and to try to get a better idea of the customers' needs in this way. The project died when the three Oticon executives did not support it.

quality standard hearing aids. Customer orientation should be key. In order to meet these objectives, the document laid out a complete overhaul of the Oticon organization. Kolind named the new organization the "spaghetti organization,"in order to underscore the point that the new organization should be able to change rapidly, yet still possess coherence. It would be explicitly "knowledge-based" (Kolind 1990) and "anthropocentric," yet based on "free market forces" (Lyregaard 1993).

The aim was to build a new creative, innovative, knowledge-based, and completely flexible organization, primarily in the Oticon headquarters, although various aspects of the spaghetti-organization were also implemented in the production plant in Thisted (DK) and in various sales offices outside of Denmark. In order to symbolically underscore the fundamental transformation of Oticon, the company headquarters moved, at 8 am on 8 August 1991, to a completely new location. All of the furniture of the old headquarters was auctioned off. In the new building, all desks were placed in huge, open office spaces. Employees were not supposed to be permanently located at particular desks, but should move flexibly from desk to desk, bringing only a trolley with necessary paper with them. Inside a huge glass tube, placed in the lobby of the company headquarters, a steady stream of paper fell down, emphasizing the ambition to run the headquarters in a virtually paper-less way. Finally, all formal titles were done away with.

Although symbolism clearly loomed large, some of these innovations were also quite functional in their own right. Thus, the huge, open office landscape constituted the physical infrastructure of an almost completely flat organization that was supposed to work by means of principles that emulated the market. For example, rather than being assigned tasks, employees now had a choice to decide which projects they would join. All projects were to be announced on an electronic bulletin board, where employees who would like to join them could sign in. The "multi-job" principle meant that employees were not restricted in the number of projects they could; on average each Oticon employee in the headquartes participated in 1,5 projects. Each project would hold employees with different skills coming from development, marketing and the production units. Project managers were free to manage the project, as he or she preferred. The project tema was required to undertake all the tasks connected with product development until the product was successfully introduced in all markets.

To make it possible for project teams to rapidly combine the right competencies, the new organization was founded on four fundamental ideas.

First, the traditional department structure was eliminated. Instead, all activities were now supposed to be organized by projects. The philosophy behind this was not only to make it more easy to combine complementary skills on projects, but also to eliminate department-specific group-think, a problem that had plagued the old organization. Second, new information technology systems were designed and implemented to make it possible to coordinate plans and actions in such a decentralized organization. The aim was to create a firm-wide

information flow, increasing employee understanding of company activities and making it easier for project teams to form. Moreover, the information-dissemination policy also helped to break knowledge-monopolies left over from the old organization, although this does not appear to have been an explicit aim.

To obtain the end of creating a truly knowledge-based company, Kolind dictated a "no paper" policy. In principle, every document had to be scanned into a computer and filed there. Everybody was to have the same access to information. The goal was an elimination of 95% of all paper. Third, in a move called the "breakdown of the palace," the traditional office was abandoned. No one had private offices or fixed desks ¾ all employees were located in one large office. At each desk there was a workstation, including a cellular phone and a computer with access to all information on the Oticon network. The employees' physical locations changed according to the projects they worked on. Coffee bars were strategically located around the building to stimulate and encourage discussion, and a central spiral staircase that was wide enough to permit chance encounters and dialogue, replaced the elevators in the building. Finally, Kolind worked hard to develop and install a value base that stressed responsibility, personal development, freedom, understanding, growth, partnership and safety.

These fundamental organizing principles were backed up by other measures. For example, Kolind introduced an employee stock program, which was motivated by the need to raise needed additional money for the transformation. Kolind invested 26 millions DKK of his own funds in Oticon. Project managers throughout the organization received a considerable amount of decision making power. Wage negotiations were decentralized. The project managers ¾ that is, those managers who were supposed to possess the most intimate knowledge of employee skills and efforts ¾ received the right to negotiate salaries. Finally, although project teams were self-organizing and basically left to mind their own business once their projects were ratified, they were still to meet with a "Project and Product Committee" once every three months for ongoing project evaluation.

One of the things soon to be realized when the spaghetti organization became a reality was the Oticon actually already had almost fully developed the in-the-ear hearing aid back in 1979. As one employee said: "We had created a good structure with five people – each with their own area of responsibility I was responsible for the ear plug. But at that time the organization simply wasn't functioning. No-one really believed in it and there was no support." Yet another positive outcome of the spaghetti organization was that the development time of new products became half of what it used to be. Thus, typical time-to-market was reduced to three years. Customer orientation, another explicit aim of the spaghetti, also dramatically improved. In 1993, half of Oticon's sales stemmeed from products introduced in 1993, 1992 and 1991. A total of 15 new products had been introduced since the introduction of the new organization. Moreover, the ambition to broaden the business areas of Oticon was successful; it was characteristic of the new products that they were not just hearing-aid hardware, but complete integrated hearing solutions.

The Organizational Economics of the Spaghetti Organization

A major problem that besets centralized decision-making systems in large firms, as well as in centralized economies, is that they have difficulties efficiently mobilizing and utilizing the local knowledge, such as the precise characteristics of specific processes, employees, machines or customers. As Hayek (1945) clarified, the main problem is that much of this knowledge is costly to articulate and transfer to a (corporate) center. Group think may exacerbate these problems, that is, make it even more costly to transfer knowledge to those who are supposed to make decisions based on this knowledge (Janis 1983).

Markets are not plagued by these type problems, at least not to the same extent. Rather of involving a transfer of costly-to-transfer knowledge to those with decision rights, they tend to economize on the costs of transferring knowledge by instead moving decision rights to those who possess the relevant knowledge (Hayek 1945; Jensen and Meckling 1992; Jensen and Wruck 1994). In the process, markets ensure that, at least as a broad tendency, rights to make use of resources will move towards those who put the highest valuation on these rights. Moreover, because people interacting under market conditions are residual claimants on their own actions, effective use will be made of those rights.

The Oticon spaghetti organization was very much an attempt to mimic the market in these dimensions. Thus, a basic problem in the old organization had been that commercially important knowledge simply didn't reach the relevant decision makers. A reflection of this is the example, mentioned earlier, of Oticon employees already having invented the in-the-ear hearing aid, that invention basically being shelved and forgotten until the spaghetti organization recovered it. By giving project teams extensive decision rights, making ideas for projects public and encouraging the composition of teams to make sure that the necessary complementary skills, the spaghetti organization stimulated a *co-location* of decision rights with local knowledge. Those who held the relevant knowledge should also have the authority to decide over the use of company resources, at least within limits.

It is much the same co-location that places in a well-functioning market. Of course, the analogy is not complete. Oticon remained a firm. And firms confront a problem that markets confront to a smaller degree, namely that of making sure that decision rights are utilized efficiently, in other words, the problem of moral hazard. There was no *apriori* guarantee that project leaders and other employees would act in the interest of Oticon (and Oticon's owners). Several of the components of the spaghetti organization may be seen as responses to this fundamental agency problem.

It is convenient to break the right to allocate resources to a particular project down into groups of decision-making rights, namely rights to 1) initiate a project, 2) ratify projects, 3) implement projects, and 4) monitor and evaluate projects (cf. Fama and Jensen 1983). Decision-making processes in project-based firms involve the exercise and allocation of such rights.

Usually, firms don't concentrate these rights in the same hands; rather initiation and implementation rights may be controlled by one person (or team) while ratification and monitoring rights should be controlled by other persons, usually hierarchical superiors.[7] As we have seen this is exactly what took place in Oticon. Thus, anybody could make initiate a project, in the sense of sketching, making preliminary plans, doing the required calculations, making contacts, etc. However, projects had to be evaluated by the Products and Projects Committee (henceforth, the "PPC"), which was staffed by Kolind, the development manager, the marketing manager and the support manager. The PPC either rejected or approved of the project. Although the criteria for getting a project accepted by the PPC were not that harsh or encompassing ¾ projects basically only had to somehow relate to the business areas of Oticon and to yield a positive return over a three years period and with a discount rate of 30 % ¾ the PPC was the real holder of power in Oticon. Thus, projects were required to report to the PPC on a three months basis, and the PPC could at any time halt or close down projects. Thus, decision management (i.e., initiation and daily project management) was very strongly separated from decision control (i.e., project evalution and monitoring). In other words, the internal market was very much a managed one.

From an organizational economics perspective, another notable feature of the spaghetti organization is the extent to which it was characterized by *complementary* elements, that is, organizational practices that formed an interlocking system, feeding on each other (Milgrom and Roberts 1990; Baron and Kreps 1999). Thus, widespread delegation of rights was accompanied by making incentive systems and employee monitoring much more fine-grained than they had been under pre-spaghetti structure. Thus, much wider dispersal of wages were allowed for, employee stock ownership was strongly encouraged, and employees were monitored by an elaborate system of evaluation, where their performance in 3-8 different dimensions (depending on the type of employee) was examined (Poulsen 1993).

The fact that these organizational practices constituted a complementary system also helps accounting for the speed and roughness with which Kolind managed the transition from the old organization (also made up of complementary, yet different organizational practices) to the new system. It had to be in the "big bang" way; complementary systems simply are very hard to change efficiently in an incremental manner (Milgrom and Roberts 1990). In particular, vested interests, the efforts of rent-seekers who try hold to established priveleges, etc. may make transition hard. The change was clearly assisted by the symbolic acts undertaken by Kolind. More precisely, these helped to signal his commitment to the change. For example, Kolind's 26 million Dkr investment was such an act of commitment. Finally, his attempt infuse the organization with a strong set of shared values may also be seen as a an attempt to assist the

[7] Exceptions may occur when giving subordinates more extensive rights (e.g., a package of initiation, ratification and implementation rights) strengthens employee incentives (see Aghion and Tirole 1997 and Baker, Gibbons and Muphy for analyses of this).

coordination of multiple efforts in a decentralized setting while simultaneously keeping agency problems at bay (Miller 1992).

Thus, apparently Kolind did exactly what basic organizational economics reasoning would instruct him to do: He implemented changes in a big-bang fashion so as to effectively break old commitments, ensure coordination, make life hard for rent-seekers, and create new organizational expectations; he rightly separated decision-management (the project teams) from project control (the Product and Project Committee; he signaled his commitment to his vision and to the company by putting his own fortune at stake (Hermalin 1998); he worked hard to create a corporate culture that could keep opportunism at bay; and he made employees residual claimants through the employee stock schemes. Yet, today the spaghetti experiment is over. Although Oticon headquarters is still by any reasonable standard an organization characterized by substantial freedom, there has decidedly been a retreat from the spaghetti. What happened?

Spaghetti and Beyond: Some Problems of Bringing Markets into Hierarchies

Retreating From Spaghetti

The spaghetti organization is no longer a valid description of Oticon's organizational structure. Somewhere along the line (particularly after 1995), Oticon began to abandon the spaghetti. Lars Kolind's vision for Oticon was never fully implemented, and Kolind is no longer the CEO of Oticon, resigning in 1998, because he felt that his task of making Oticon profitable was accomplished.

Most notably, Oticon headquarters have essentially been divided into three business teams, Team Advanced, Team Technology and Team High Volume that serve as overall administrative units around the development projects ¾ marking a break with the idea that the necessary structure was to have temporary projects being managed by the PPC.[8] Each business team is managed by two team leaders, namely a technician and a person with marketing or human resource skills. In turn, the business teams refer to a "competence centre" which is staffed by the CEO and 9 managers. The competence centre is in charge of all projects and their financing and of an operational group controlling administration, IT, logistics, sales and exports. The competence centre is a successor to the PPC, but its style of managing the projects is very different. Moreover, it holds more formal authority than the PPC.

Most of the initiative with respect to starting new projects is taken by the competence centre, although the need for employees to provide inputs in the form of new project ideas is still strongly stressed. Many of the decision-making rights held earlier by project leaders have now been concentrated in the hands of the

[8] The division into the business teams actually happened before Kolind left Oticon. He acknowledged that the organization had evolved and seemed unmanageable.

competence centre or individual managers. For example, project leaders don't have the right to negotiate salaries anymore; this right has been concentrated in the hands of the HRM manager. Project leaders are appointed by the competence centre; the right to be a project leader is not something that one grabs, as under the spaghetti organization. Although multi-jobs / multi-tasking are still allowed, they are not directly encouraged, and their prevalence has been much reduced. The norm is to work on only one project at a time. The electronic job *bourse* where anybody in the old spaghetti organization could advertise projects and seek co-workers has been dropped. Thus, although Oticon remains in all relevant dimensions an unusually relaxed and "empowered" organization, many of the crucial elements of the spaghetti organization have been left. What happened?

Some Possible Causes of the Partial Failure of the Spaghetti Experiment

Note: This section of Foss's paper is what we will discuss in class, so it is not presented here, but it will be made available after class.

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