WORK AND THE DIVISION OF LABOR

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The paper is an attempt to conceptualize the division of labor in terms of work. This perspective leads to a necessary distinction between work and workers, and its implications. Among the main considerations discussed are actor, accountability, division of rights versus division of labor, work patterns and interactional styles, rapidly changing organizations and industries in relation to their divisions of labor, and reciprocal macro and micro impacts. Some research implications are also discussed.

This paper is designed to fill a gap in studies of the division of labor by conceptualizing the division of labor in terms of close scrutiny of work itself, and especially the work of given projects that entail extensive sequences of tasks for their accomplishment.¹

The aim of this conceptualization is to stimulate research into the nature of work itself and the organizations where it takes place. My approach is interactionist, though as there are several quite different varieties of interactionism, perhaps it might be classified as structural or Pragmatist (i.e., Dewey or Mead) interactionism (cf. Glaser and Strauss, 1968; Strauss, 1977; Strauss et al., 1985; Gerson, 1982; Gerson and Star, 1983).

A word about the analytic style of this paper should be useful. The several concepts discussed here are “grounded” insofar as they rest on data collected over many years (Glaser and Strauss, 1965; Glaser and Strauss, 1968; Fagerhaugh and Strauss, 1978) and were developed further during an intensive field observational study of medical work in acute care hospitals (Strauss et al., 1985). The concepts may apply more directly to rapidly changing industries and organizations, like health and high tech; but perhaps also, in part at least, to more slowly changing ones. Properly utilized, the concepts are instruments to guide research, not merely descriptive tags: to use them so would be useless. The analytic style in discussing them is not so usual perhaps in sociology, since readers are accustomed either to considerable data presentation or to abstractly couched theoretical essays. In this article, relatively few illustrations will be given since readers should easily, from their own research and lives, be able to supply those. For indeed, much of what is in this paper will be recognizable in the sense that one has either experienced or seen the phenomena. It is a conceptualization, however exploratory, that I am aiming at here, along with drawing attention to the need for something like it when studying work in

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relation to the division of labor. (Readers interested in the data underpinning can find this in *The Organization of Medical Work* [Strauss et al., 1985].)

A summary of the conceptualization is as follows: Projects involve a course of action which entails a division of labor—meaning not only of actors but of actions. It is useful to keep those analytic distinctions separate. In “work” terms, the project action is made up of many tasks done over time, and divided up according to various criteria among the actors (persons, classes of persons, departments or other organizational units). The totality of tasks we shall term “the arc of work”—the central concept in this paper. The implications of this concept involve the asking of many questions, and direct research into aspects of the division of labor. Some of those aspects have been studied previously, hence are discussed here. The related concepts include actor accountability and accountability systems, which have bearing on the carrying out of types of work and their implicated tasks. Since the plurality of tasks making up their totality, as well as the relations of actors to tasks, are not automatically articulated, actors must do that too, and often in complex ways. We call the work of doing this “articulation work”—a supra-type of work. Of course, such work involves also the accountability actions. I have made a distinction also between the division of work and the division of rights—rights that actors can claim, impose, assume, manipulate for, negotiate over, concerning various tasks and types of work constituting the total arc of work. I shall touch on this distinction only because in the literature on division of labor the two phenomena are sometimes confused although we found it useful in our research to make the distinctions clearly. Another potentially useful concept is the collective styles of interaction, which evolve among workers when carrying out their respective tasks: examples being the collaborative and the harshly conflictual. Interactional styles seem not only to affect the precise dividing up of work—what and who—but how that is put into operation; including in relation to accountability and to the necessary articulation of tasks. Organizational and supra-organizational conditions also affect the arc of work, and some of these are discussed, again in relation to rapidly changing situations. Some of these conditions pertain to organization, occupation and market—three bases of allocation of actors to jobs which have been extensively discussed in the literature dealing with the division of labor. It seems probable that the cumulative effect of numerous, even countless, projects would have some effect on the organizations and industries themselves: this is suggested near the paper’s end, as are some possible directions for future research.

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Paradoxically and perhaps a bit ironically, however, neither traditional nor contemporary writing on the division of labor has been much concerned with the work done in the division of labor. Attention has been not on the tasks entailed in the work but on issues pertaining to differential distribution of rewards to classes of individuals (sex, class, race, occupation etc.) and perhaps especially the dividing up of work by the various occupations and professions. Distribution is where the emphasis has been, and “labor” in both senses of the word—(wo)manpower and work—has meant largely the former.

Indeed, mirroring this has been the intense focus by the sociologists of occupations-professions and work on the first part of this combined term: work being quite subordinate to that focus. In contrast, the approach taken in this paper leads to a three fold distinction: (1) tasks to task, (2) person to task, and (3) person to person. All three are aspects of the
division of labor. The first two will be of chief interest here. Keeping those conceptual distinctions clear will help to clarify and deepen this central sociological concept, at least in its participle (working, laboring) aspects. And if it makes sense to make those distinctions, then it also follows that there is still another type of work, that of coordinating and organizing the task to task and person to task relationships.

Eliot Freidson (1976) reviewed the recent literature on division of labor (Clements, 1972; Kemper, 1972; Labovitz and Gibbs, 1964) and offered some suggestions for conceptualizing this important phenomenon in terms of work. Aside from his own contributions which I will touch on below, his review suggested that, at least in the last decades, there are three basic approaches to the relations of social organization and the division of labor: (1) occupational, (2) organizational, and (3) market. All of these approaches are principally addressed to the allocation of work, especially the bases of allocation, rather than to work processes themselves. Who gets to do what, when, and how, how much, is determined or affected by occupational position, organizational principle and market factors etc. Behind the allocation, as Freidson notes, there certainly are ideological conceptions, “theories,” of how work should be distributed among and within occupations and organizations, and of how the accomplishments of workers should be rewarded; and of course how the market should be organized so as to distribute and reward workers’ labor. These deeply political and value laden conceptions embody moral and operational principles for evaluating performances in accordance with criteria (whether they are specified clearly or not), and cover the “rights” of classes of workers to tasks and rewards.

All of those kinds of social science concerns are addressed primarily to the allocative issues of the division of labor—but though those are multiple and interesting of course, they are unduly restrictive, as Freidson correctly notes, of a larger range of potential issues. For that reason Freidson began to address the division of labor in terms of the work engaged in by the workers themselves, arguing that the occupation-organization-market principles “are in a sense separate from the work activities these purport to order.” Why is this? Because “They are diffused when translated into work. In and of themselves, the concrete work activities of the division of labor are interactive and emergent in character.” Freidson’s approach embodied both the traditional interactionist themes of “emergence” and of “conspiracy, evasion, negotiation and conflict” (cf. Dalton, 1959), as well as an older sociological theme of how formal organization does not entirely constrain workers to act as they see fit.

However that is where Freidson has left the matter: his interest really was to focus attention of division-of-labor theorists and researchers on work itself. He did not actually carry out any further the examination of work in relation to division of labor issues, but his calling attention to the centrality of work in connection with the division of labor did point to a redirection of theorizing about the latter.

In this paper, my intent is to take up where Freidson left off. Its central foci will be the following:

- Attention both to work as sets of tasks and to workers as the latter relate to the work
- A language for handling those relationships—for analyzing in general any division of labor
- An emphasis on division of labor as related to phases of doing the work of any project over time
A consideration of the articulation work that is involved in organizing both the tasks and relationships to them of the people who perform them

A contrast of the division of labor involved in carrying out a project (an "arc of work") as compared with that involved in a "line of work" which encompasses many projects

A brief discussion of the division of rights as contrasted and related to the division of labor

An emphasis on changing as well as stable divisions of labor as those relate to macro structural conditions

A suggestion about how cumulative projects might in turn affect macro structural conditions

PROJECT, ARC OF WORK, AND TYPES OF WORK

In carrying out any project—inventing a new model of computer, building a house, getting a voluntary organization off the ground, etc.—a multitude of tasks, sequentially and simultaneously must be carried out (Becker, 1982). Recently, while studying a special type of project ("an illness trajectory" that pertained to the work of staff who were involved in managing the illness of any hospitalized patient), we developed the conception of arc of work. (Strauss et al., 1984) An arc for any given trajectory—or project—consists of the totality of tasks arrayed both sequentially and simultaneously along the course of the trajectory or project. At least some of the arc is planned for, designed, forseen; but almost inevitably there are unexpected contingencies which alter the tasks, the clusters of tasks, and much of the overall task organization. Hence the arc cannot be known in all its details—except in very standard, contingency-minimal projects—until and if the actors look back and review the entire course which they have traversed.

In the hospital research, we also developed a conceptualization pertaining to types of work that are implicated in an arc. Thus illness trajectory management includes a bundle of work types, including: clinical safety, technological (equipment, drug, procedural), error, psychological, information, and articulation work. Of course both the types and their combinations will vary by different arcs: in (say) a physics research project, there would be neither clinical safety nor comfort work, much error work (though its dimensions would be different), but also other types of work probably missing from clinical medical management. The arc concept—with its implicated phases, types of work, clusters of tasks, and articulation of tasks—can be central for a deeper analysis of medical work in relation to division of labor issues, and possibly for work in other settings.

These different projects or trajectories with their implicated arcs of work entail different divisions of workers (persons or classes of persons or units of organization) in order to get the constituent tasks done. Insofar as the mix and articulation of tasks and work types vary, so will the distributions of persons at work. The implications of that in turn include the following.

A. The division of work among classes of persons may therefore be different during different phases of the project or trajectory, each successive one perhaps necessitating
new classes with particular skills or relying on different skills of the same workers. It is the skills and actions which are the essential elements then, not simply the class of worker as such. (The detailed description by Kidder [1982] of a team project for building a new model of computer is an excellent illustration of these points. In the final phases of this project, for example, certain engineers turned out to be best at debugging the model's errors, especially during the last and most difficult steps; and these men in fact choose themselves to do those tasks after others had failed at them.)

B. The division of labor called for may vary considerably by the component type of work—with its constituent tasks—being performed as part of the total project work. Thus in medical work, different workers (or the same worker employing different skills) may be called on to handle clinical safety work, error work, and comfort work. But in the safety work, for instance, also different skills, possibly involving different personnel, are utilized for discerning a safety error—calling for its rectification, rectifying it, and monitoring the rectification. So, again, it is the variation in work, not merely the class of worker, that is the essential ingredient for getting tasks accomplished.

C. Analysis of the division of labor also requires detailed scrutiny of how a cluster of tasks performed by workers, simultaneously and/or sequentially, are related to each other. For instance, when a cardiac patient is brought into the surgical recovery room, an observer can note that the immediate tasks consist of making a multitude (perhaps ten or twenty) connections between the patient's bodily parts or apertures and various machines. Two or three nurses or technicians will be busy making the connections at which they are skilled—one, two, or more of them—while a physician will be making others; meanwhile perhaps four other technicians and nurses will be standing at the foot of the bed awaiting their turns to make their respective connections. Notable in this particular division of labor is how tasks are done both sequentially and simultaneously, but involve only a single worker performing one task at a time; that is, in this cluster of tasks, no task is likely to engage the cooperative effort of two or more workers. In later phases of working on the same patient two or more physicians or nurses, or nurses and technicians, may work together on a common basis. Of course, the particular illustration reflects a relatively non-problematic handling and sharing of tasks by different specialists. If either the tasks or the specialty sharing were to be problematic, then there would be a question of who shall do them. Or if the division of labor is contestable, then there will certainly be debate and perhaps struggle over the outcome. (This kind of issue is touched on later in the section on division of rights.)

D. None of this arc of work is called into play automatically. Some actor—person or other acting unit—must be "responsible" for deciding and planning that: (1) a project is necessary or desirable; (2) then the same or other actor must be responsible for deciding on and possibly planning the totality or segments of the arc, including the major tasks structures; (3) also there must be actors responsible for articulating the various tasks and clusters of tasks making up the arc. As will be remarked on below (see "division of rights" and "accountability"), responsibility involves not simply what actor is willing to be assigned responsibility but questions of rights.

**ACTION AND ACTOR**

The distinction between tasks and actors who carry them out needs to be taken with the utmost analytic seriousness, because they do represent different issues. (at any rate the
distinction is central to the analysis in this paper.) The specific questions about tasks of
course include: what, where, when, how, for how long, how complex, how well defined
are their boundaries, how attainable are they under current working conditions, how
precisely are they defined in their operational details, and what is the expected level of
performance.2 (Which of those are the most salient dimensions depends on the organiza-
tional-work context under study, and we cannot emphasize too much that it is the re-
searcher who must discover these saliences.) Two other important questions are: how they
are put together in task clusters, and linked together in an organization of tasks. “Work”
which constitutes the total arc, or some portion of it, is then “decomposed” (Gerson,
1983), even perhaps in some arcs down to detailed mini-tasks—the most minute of tasks
(such is epitomized, say, by the staggering number and minuteness of mini-tasks entailed
in getting the space mission to and from the moon).

What about the carrying out of tasks by an actor? And what is an actor? An actor can be
a unit of any size: a person, team, department, sub-division, division, organization,
coalition of organizations. Actors can vary in a number of attributes: for instance, experi-
ence, skill, knowledge, training, occupation or other social world from which they come.
Or as teams or units they may have worked together before or somewhat or not at all, and
in various sub-combinations or numbers, skills etc. Actors in the total division of labor
can of course act separately, having different tasks to perform, or may share some or all of
the tasks. And of course they may work in close proximity or distantly, so their respective
work is visible or not visible to the other. We shall address the issue of actors as such in
some detail later.

Let us move first to how tasks are actually distributed among actors. There are a
number of possibilities: tasks can be imposed; they can be requested; also they can just be
assumed without request or command; but they can also be delegated or proffered, and
accepted or rejected. Often they are negotiated (see Bucher and Schatzman, 1964). And of
course actors can manipulate openly or covertly to get tasks, or even have entire kinds of
work allocated to themselves. Presumably there are other modes of allocation, but these
will suffice for our discussion here. Elihu Gerson has noted (1983) that:

The precise manner in which people are assigned to tasks (and vice versa) is itself a
task. . . . Thus, a given allocation is never fixed and certain, but is always subject to
revision. The revision process takes the form of more-or-less continuous negotiations
between people over the allocation of tasks; the conduct of tasks raises problems for
people (in other task contexts) which in turn leads to renegotiation of re-allocation, etc.

Gerson also points to the political and evaluative aspects of much allocation—suggested
by most of the modes noted above—which means that the allocation frequently cannot be
fully rationalized if at all, whatever the rationales offered.

Then there is the issue of whether actors agree or disagree with the allocation. They can
reject the allocation of course. To complicate matters, they may reject it but not reveal
their rejection (a common strategy!). Or they may reject it and act on that basis, but in fact
their action may be invisible to others, or at least to important others. The same is true of
misunderstandings between and among workers—those disagreements only later perhaps
becoming evident, or perhaps kept secret by one or the other who understands the
misunderstanding but does not say so. As analysts it will be useful to lay out the condi-
tions for such alternatives. Given all those phenomena, perhaps one should think of a four
fold matrix of agreement-disagreement over either or both the tasks themselves and their
distribution among actors.
Agreement  Disagreement

Task
Actor

This matrix can be made much more complex by building in the modes of allocation and also the modes of acceptance/rejection, misunderstanding and closed/open awareness (secrecy, openness). Furthermore, still other dimensions may be salient for particular sites and settings; if so, they should also be handled analytically: for instance, the situational and interactional bases of agreement, the enforceability of the agreement by one or other party, its potential irreversibility, or the criteria for its revision. The matrix suggests other questions also, like those about conditions affecting the rejection of an agreement. Thus, one not only would have to take into account the mode of allocation but the type of work rejected (we are perhaps here in the realm of dirty work, or less valued work). But there are also the issues of pacing and style or degree of rejection, as well as the counter reactions of those who wish the agreements to be instituted or maintained. So, those are only a few of the additional complexities suggested by the matrix which would need to be studied to fill out this segment of our understanding of these important phenomena which pertain to both the distinctions and relationships between action and actor.

**ACTOR ACCOUNTABILITY**

Turning again to the actors themselves: they have in common parlance, the “responsibility” for doing their assigned, assumed, etc., portions of the arc of work. Converting the term responsibility into sociological terminology, workers or units of workers are rendered accountable for accomplishing those tasks according to certain criteria: when, where, how, how soon, level of quality. There can be agreement/disagreement and understanding/misunderstanding on those items too. But to whom are actors accountable other than to their own consciences? Clearly the accountability will be upward, to higher levels of authority, if any (like to superordinates or superior divisions); but it can also be lateral (to other units on the same level, like parallel departments), but just as surely the unit can be accountable downward to people or other units for whom this unit is responsible.

It is also useful to think of an “accountability ladder” since moving up the hierarchy in any organization brings more accountability—whether backed or enforced by law, custom, organizational rule, mandate, or some other mode. More accountability generally seems to mean expanded scope of authority over a larger portion of the arc of work or over the total arc itself; therefore accountability for all work and actions of workers below; often too for a greater range of types of work that are carried out below, as well as a greater range of workers doing their tasks, although with the descending levels having decreasingly smaller portions of the arc under their aegis. However, accountability over a wider portion of the arc versus over a longer chain of hierarchy is analytically distinguishable since—to give an example—office secretaries are constantly being asked or forced into taking up increasing portions of arcs without expanding their authorities over anyone else. Presumably that occurs at other levels of hierarchy also.

Further accountability requires the work of reporting accountability: tasks involving to whom the actor reports, when, where, how, how much, and even perhaps the necessity of proving that the tasks were done because the acts of carrying them out were invisible to the reportee. Of course this reporting can be in some degree inaccurate, and for deliberate
or unintentional reasons; as well as understood or believed, or not, in some degree. There
may be the question of closely monitoring for accuracy of reporting, including: who,
what, how, how extensive, how intensive, and which should be the strategies for getting
behind and around the suspected inaccuracy (as occurs in monitoring the accuracy, and
falsity too, of internal reports; as well as in monitoring "external" reports, say of hired
spies by the CIA or of companies contracted with for specific work by federal agencies).
In addition since accountability involves accountability systems, there are chains of
reporting—meaning multiple units, multiple reportings, multiple criteria for assessing
accuracy, and the like. Said another way, organizations often set up quite formal systems
of reporting, which in turn are themselves sometimes monitored, evaluated, and peri-
dicularly revised at least in part. (Hospital wards invariably have complex accounting
systems, for example, involving elaborate and detailed written as well as verbal reports.)
All of this reporting is a crucial condition for further interaction—and work—among
actors in the total division of labor.

In sum: built into any division of labor is a system of accountability which has direct
bearing on the carrying out of types of work and their implicated tasks. As researchers, it
is up to us to track down the specific consequences for particular systems of accountability
in the substantive areas under study, since we cannot otherwise know those consequences.
Among the major questions undoubtedly are who has chief responsibility for defining the
total project; and how does a given unit (person, department, etc.) get the right to do that
defining, as well as gain the power to get the definition accepted or operationalized? (See
the discussion later on the "division of rights.")

**ARTICULATION WORK BY ACTORS**

Articulation work is also involved as a kind of supra-type of work in any division of labor,
done by the various actors (themselves accountable to others). Articulation work amounts
to the following. First, the meshing of the often numerous tasks, clusters of tasks, and
segments of the total arc. Second, the meshing of efforts of various unit-workers (indi-
viduals, departments, etc.). Third, the meshing of actors with their various types of work
and implicated tasks. (The term "coordination" is sometimes used to catch features of
this articulation work, but the term has other connotations so it will not be used here.) All
of this articulation work goes on within and usually among organizational units and sub-
units.

All workers articulate something (in accord with their positions on the accountability
ladder); whether tasks, task clusters, smaller or larger segments of the arc. Understand-
ably, articulation work will vary with various properties of the tasks, task clusters and arc
segments and phases. All of those are assuredly relevant to how the articulation of tasks
will be done, also how difficult it will be to do it more or less successfully, how much
resource must be put into doing it successfully etc. That may certainly also vary by the
size of the task unit: task, cluster, segment.

Paradoxically, articulation tasks themselves also require a higher degree of work, with
the very highest levels of authority—assigned, requested, claimed, imposed, etc.—doing
the highest order of integrating. Like other tasks, articulation ones are carried out both
simultaneously and sequentially for different portions of the arc by different workers, each
with some measure of authority over tasks and perhaps over other workers, as well as
associated accountability to superordinates and subordinates. Note also that only at the
very bottom reaches of the accountability ladder would a worker do no articulation, except that which was involved in doing a given task itself. At any higher level, there would be some allocation of articulation tasks involving what, who, how, where, when etc. And so each worker is accountable at least upward, while needing to articulate some tasks—and usually some actors' efforts—downward.

However, the related concepts of arc and types of work imply a potentially greater complexity of articulation work itself. First of all, each arc usually involves several types of work, all of which need continuous and careful articulating even when there are no disturbing contingencies, or impreciseness of task boundaries, to complicate matters further. Second, each sub-unit of any organization is likely to have relationships with one or more others, in order to accomplish its projects; and that enhances the complexity of articulation work—perhaps even leading to a different order of tasks. Third, the same point holds for relationships of an organization, or any of its internal units, to external organizations which are involved in some larger division of labor. Fourth, within the sub-unit itself, a number of projects will often simultaneously be underway. (Again, in hospitals there is the need to mesh, say, careful machine work with clinical safety work: often this involves relationships with one or more hospital departments like Radiology, also with companies outside the hospital; and of course there are many carefully worked routines and variously arrived at arrangements and relationships within the ward itself.) So there is the additional problem of articulating all of them and their associated arcs of work. That articulation is of course affected by the relative importance of each project in relationship to their respective phrasings, one receiving more organizational priority than another at a given phase. That articulation is also affected by other conditions like project scheduling, visibility, and priority of the project itself within any unit's total enterprise. (This phenomena of multiple projects leads to a topic touched on later, namely "lines of work.") In short, articulation work involves both temporal and organizational-level dimensions. (Gerson, 1983) The articulation is also affected, as Gerson has commented by the fact that "articulation work is always up 'a level' of evaluation from work that involves problematic or disputable allocation of workers to the tasks." It has at least "two different ways of blowing up and going wrong—via foulups in the task structure (overload, part failure, etc.) and in upshift (in argument) because someone doesn’t like the person-task allocation."

**DIVISION OF RIGHTS AND DIVISION OF LABOR**

Indeed, it is important to make a distinction between the division of labor and the division of rights. By the latter, we mean the "rights" that actors can claim, impose, assume, manipulate for, argue and negotiate over various types of work and portions of arcs. This involves rights agreed to or enforceable, given the necessary resources—legal, financial, manpower etc.—for ensuring their institution or maintenance. A salient dimension here, it should be evident, is the relative looseness or tightness of linkage of task and rights, which is surely an issue to be examined, for any given context under study, by the researcher (Hughes, 1971: 287–88, 376).

Workers and classes of workers or organizational units, it is commonly understood, not only are accountable for tasks but have rights in the performance of those tasks, as well as rights to articulate them. Like the allocation in the division of labor tasks, the modes of this allocation of rights can vary; and also in some measure be rejected/accepted, under-
stood/misunderstood, and agreement or disagreement openly revealed or concealed. Allocation of rights presumably might rest on different bases than the allocation of specific tasks. Both rights and accountability, of course, carry strong and often urgent moral overtones. In the instance of rights and moral indignation, assertions, denials—including over issues like justice, equity, decency and the nature of "things"—the focus can be either on a whole area of action or some task pertaining to an area.

Division of those rights is generally what is meant when, in the sociological literature on occupations and professions and in the legal literature, there is discussion of claimed or mandated jurisdiction and conflicts over jurisdictional boundaries. This writing is often quite rich in data and analysis of the occupational aspects of those phenomena, but sparse in its inspection of the actual work—the task organization—involved in the playing out of the jurisdictional dramas, including those of small scope as in families or small groups. And, in fact, in a recent excellent monograph (Gritzer and Arluck, 1984) which demonstrates the force of market factors in affecting the realignments of jurisdictional boundaries for a group of related health specialties, it is precisely the work aspects that are lacking, for supplying the important micro-elements that motored these realignments in contrast to the more macro-market ones. In this paper, however, we shall not emphasize division of rights issues much, except to note that it crosscuts all of the division of labor concepts: sometimes as conditions, sometimes as consequences, and strategies as well. (But the entire subject deserves a separate paper for its full development.)

**WORK PATTERNS, INTERACTIONAL STYLES AND DIVISION OF LABOR**

There are work patterns and styles of interaction which together can profoundly affect how work is carried out when utilizing any given division of labor. Two types of work patterns, among many—polar types along the same dimensions—which we all recognize are the closely collaborative and the harshly conflictful. Either may be equally efficient for getting certain kinds of work done; nothing is being asserted here about efficiency. In fact, much successful work is performed without much consensus. Looking at these types, it is clear that each rests on different sets of basic interactions. For instance, the collaborative requires actors who are sensitively attuned to each others' actions, moods, rhythms, pacings; also a full commitment to the common enterprise, trust in one another, relative openness in communicating, often a degree of mutual psychological work, a considerable capacity to negotiate, and so on. The total gestalt of interaction could be termed "the interactional style" of the working teams. In fact, specific styles might be evinced by the same type of work pattern—for instance, a person might have rather different combinations of interactions with different collaborators on different research projects, yet these will simply amount to variations of the more basic interactional patterns that form the conditions of a collaborative division of labor (Corbin and Strauss, forthcoming). The specific interactions will be similar while yet the basic interactional patterns in collaborative work may well be approximately the same for different projects. Whether that is true or not, is a matter of empirical research.

What should also be evident is that the work patterns, collaborative or conflictful, can also vary over portions of the total arc. Some of its phases then will be more or less collaborative or conflictful, the interactions varying accordingly. If more consensus seems desirable, then additional work will be needed to restore the more concensual pattern or to
maintain it when it shows signs of deteriorating. Of course the interactional styles and
work patterns can be related to varying modes of interaction: verbal, non-verbal, writing,
overt action.

To speak of such work patterns (whether conflictful, collaborative or other) then is
really equivalent to speaking of different patterns of carrying out the work, including its
articulation, that involves the total arc or portions or phases of it. Hence the analyst might
with profit begin to look at such work patterns in terms also of the varying bases of
agreement for the combined divisions of tasks and actors, as well as the accountability,
the articulation, and the division of rights issues.

**FURTHER CONSIDERATIONS ABOUT THE ARC OF WORK**

The division of labor is responsive and potentially flexible not only because of micro-
situational conditions but also because of larger organizational and supra-organizational
conditions. The discussion below will center around certain conditions which seem impor-
tant, stemming from my research on work in hospitals. Readers will surely wish to add
more for the particular organizations which they are studying. Here are a few of those
conditions and their implications for aspects of the division of labor. (As mentioned in the
early pages of this paper, these conditions would include both market and occupational
bases of allocation as well as skills and ideologies brought to the work itself; at least
within fast changing organizations.)

[Integrations of Workers and Their Social Worlds]

Accomplishment of arcs of work or portions of them involves intersections of represen-
tatives from different social worlds or subworlds (Strauss, 1977). For instance, the work-
ers may variously represent the communities of nursing, medicine, bioengineers, machine
industry, and given medical specialities. Each of those representatives is trained or experi-
enced in salient activities characteristic of his or her respective occupational worlds, and
brings that training and experience into the arc of work. Whether the work goes smoothly
or conflictfully is not just because personalities conflict or are in harmony, but first and
foremost because the divergent lines of work characteristic of those different social worlds
mix harmoniously or only with great tension and discord. The greater a discrepancy in
social world perspective and activity, the more obviously will there be a need for explicit
negotiation among workers to get the joint or collective tasks accomplished with any
efficiency. If the workers have labored together previously and are now accustomed to
working together, then they will have done the negotiative work previously; so, only new
contingencies will bring about any awareness among them that negotiative work is again
necessary.

**Flexibility in the Division of Labor**

This will vary by different types of work entailed in the arc. Certain types of work are
formulated more distinctly, even spelled out in legal or other official documents. Only
lawyers argue cases in court; in hospitals, only surgeons open and close the body. But
some aspects of the total arc involve types of work not spelled out so clearly in terms of
who shall do them—or who only may do them. In terms of probability, nurses will
certainly engage much more in comfort work than physicians, social workers, or respira-
tory therapists; on the other hand, none of the staff ever know when they will get drawn into, or feel they should do, some bit of comfort work for a patient. Different categories of staff are involved with different safety tasks, yet realistically there can be much overlap in their actual safety work. Psychological work is so implicit in the total arc that everyone may engage in one or another subtype of it; albeit nurses are most likely to engage in some and physicians in others. What is true of medical work may not be so different in many other lines of work, especially in fast changing organizations and industries.

**Invisibility and Non-Accountability**

The relative invisibility or non-accountability of tasks can affect the official or customary division of labor. In hospitals, the performing of tasks by staff, patients and kin can be invisible, either because not actually observed by others or not reported to non-present co-workers or supervisors. The phenomenon of invisibility implies not so much a blurring of the official division of workers as the non-accountability of certain tasks. It also implies that a task may get done by someone who is dissatisfied with how somebody else did it; or who realizes the task has not been done at all, but should be done. Most often in this ad-hoc division of labor, no official report is made of work accomplished or by whom. Sometimes that information is actually withheld, as when nursing aides make reprisals against their superiors in the nursing staff for not adequately respecting their efforts. Sometimes it is not reported—at least officially, because it is illegal or against organizational rules (Dalton, 1959). In all lines of work, it seems probable that those types of sub-work which are less clearly spelled out or generally have lower priority will be less accountable. Hence there will be less clarity, more flexibility in, the division of the laborers.

**New And/Or Less Standardized Arcs**

When tasks are performed under new or somewhat uncustomary conditions, or when they are new tasks, then the division of workers along usual lines may not obtain. Under the first condition, various persons may do the task, depending on “circumstance”: whoever just happens to be there, or is less tired, or is more willing to do the work, and so on. When a task is quite new, certain persons may be allocated to it because of such factors as convenience, willingness to undertake the new challenging or the dirty work, or because they seem to have the most transferable skill or previous experience. Considerable debate and negotiation ensues around the new task structures, therefore before the division of labor settles into some semblance of regularity and relative permanence. Even then, there may be much latitude for persons to argue about, manipulate around and negotiate the boundaries—expanding or contracting them—to fit their own desires, aspirations, energies and goals (Kidder, 1982).

**Rate of Task Structure Change**

Task structures change at different rates of speed, so that some may rest on stable divisions of labor while others may be changing sufficiently fast as to open up and make more flexible the division of laborers. For instance, in the history of the evolution of intensive-care units in hospitals, there has been and is now in many hospitals a transition period, during which respiratory therapists seek to convince nurses and physicians that
their own skills are actually greater than, and their responsibility equal to, the nurses for many specific tasks pertaining to respiratory care. During the transition period, both cadres of workers are engaged in those tasks; but the respiratory therapists do not invade other parts of the nurses’ job territory. As the transition period begins to close, the division of labor among workers, and their respective departments with respect to these tasks, becomes less blurred, less overlapping. Examples aside, there is also the phenomenon that the more segments of the total arc which are in flux, then correspondingly the more task structures there will be which entail a fluid division of labor.

Rapidly Changing Organizations and Industries

In those, a high proportion of task structures are changing continuously, even explosively. This means a greater proportion, than in more stable industries and organizations, of projects and their associated arcs of work are unpredictable, subject to unforeseen contingencies, more difficult to standardize—standardize either the task structures or who are to do the tasks. There is the usual movement, of course, of work that travels from a novel, somewhat ambiguous and fluid condition into a more standard, relatively rationalized and routinized condition. Even standard operational procedure (SOP), however, can have its contingent—hence standard division of labor shattering, if only temporary—moments. So it is characteristic of rapidly changing industries and organizations to have a more apparent mix of SOP and novel arcs of work, with divisions of labor to match.

Specializations

Fast-changing industries also produce new specializations, new segments of their total work forces—produced from within the industries but also drawn into them—which both disturb the previous divisions among laborers and more importantly expand them. Expansion, too, contributes to the fluidity of the total division of labor, bringing about uncertainties concerning who should be performing given tasks. This brings us back to the realm of jurisdictional debates, fights, negotiations, ideologies of legitimacy and efficiency and the like.

New Customer Requirements and Demands

Rapidly changing industries are also subject to those. For instance, social movements (feminist, holistic medicine, environmentalism) impinge upon definitions of work and component tasks; affecting not only how they should be done but who will do them. The arenas for debates multiply, and the arguments/negotiations within those arenas of course affect the arrangements of divisions of labor—so much so that they may not only vary in different work organizations but within the same organization.

Intra-Industry Impacts

The sources of structural impacts on division of labor come also from within the industry in the form of ideational, technological, organizational and other intra-industry changes. All contribute to ambiguities, uncertain ties, overlapping terrains, and ad hoc task fulfillments in the total divisions of labor. Intra-organizational changes of course profoundly affect changes of these divisions of labor within an organization.
Given this array of conditions for fluidity in the division of labor, it is easy to see why certain industries, like the health or computer industries, look so different than the more stable ones, including the instabilities of their divisions of labor, both in the industries themselves and within individual firms. In more stable industries, the task structures change slowly even if the specific persons doing the tasks change relatively rapidly—so that the division of workers is affected by turnover, death, rotation, vacations, new recruitment, training, re-retraining, and the like. More rapidly changing industries, or firms or sections of firms, look different even to the naked eye. To the researcher examining their work, they can look different in still different ways. One is in the ambiguity of their divisions of labor.

**ARC OF WORK AND LINE OF WORK**

In emphasizing the primacy of work for conceptualization of division of labor issues, our focus has been on projects and their associated arcs of work. It should be apparent however that when referring to the work characteristics of organizations and larger units like industries, then we need to concentrate on bundles of projects which make up a “line of work” (Gerson, 1983). Thus, a factory produces one or more types of goods, each involving many entire projects; or a department or other sub-unit even may be working on multiple projects associated with several different lines of work. In a later paper we shall explore some implications of this distinction between lines and arcs of work. Sufficient here to suggest that division of labor specialists would need to develop adequate theory and analytic means for studying both lines and arcs of work, if one accepts the distinction between them. While some of the analytic terms developed for arcs in this paper will fit lines of work, undoubtedly the latter entail a considerably different approach because of their sheer magnitude as enterprises, their increased importance to the organizational units involved, and their inclusion of several or very many ongoing projects, each with its own arc. (We have in mind, for example, the work of the typical radiological department which is organized to service the diagnostic needs of many wards and whose overall line of work is also immensely important for financing the hospital itself.) The articulations among arcs and lines of work also would then need special attention from analysts.

All of this points to an embarrassing, related issue; namely, that there is probably an undue focus in social theory on organizations (including on their “environments”) as over against attention to units as important as industries—except by economists and business historians—with their internal and external division of labor relationships. Again, these need to be thought of not only in terms of occupations but the work involved in them too.

**MICRO TO MACRO?**

The emphasis in the previous section has been on macro conditions which affect arcs of work and their divisions of labor. What about the reverse: micro conditions which affect larger structural units? Presumably that can happen, especially because of the cumulative impact of numerous projects. Our examination of medical organizations (Strauss et al., 1985) suggests something about the mechanisms of how that might occur. Intensive care
units (ICUs) were developed in the early 1960s for giving more effective care to severely ill patients. Over the decades the countless ‘projects’—i.e., care of particular patients—had many structural consequences, although undoubtedly in combination with other conditions. The proven effectiveness of this type of ward led gradually to: (1) an explosion of ICUs all over the country; (2) a gradual proliferation of speciality ICUs (cardiac, neurological, etc.); (3) a proliferation also of related wards—intensive, intermediate, ambulatory; (4) a great impetus to physicians’, nurses’, and technicians’ knowledge which in turn was allied to a related development, the great explosion of types of specialists and technicians—the latter with their own hospital departments—working in new relationships on the ICUs; but also (5) ICUs became a visible symbol for the general public because of patients’ experiences and considerable media exposure, so that in some larger sense it can be said that the ICU movement gave rise to both positive and negative images (‘‘dehumanized medicine’’) of contemporary medical care, which presumably are still impacting on the health industry and its organizations. (In my university hospital recently the ICU, under the initiative of the ICU nursing staff, has greatly relaxed rules on kin visiting, making the ICU relatively ‘‘open.’’) In general, is it not possible that similar innovations, stemming from new types of projects within many different industries and types of organizations, might also influence those larger units? Only careful research of course will answer that question.

However, as this example reflects, it is unlikely that even cumulative projects directly affect organizational structure and other larger structural conditions. They will affect them through the intermediary step of successive projects giving rise to systematically carried out lines of work. It is the production of products or services that surely influences the producing organization, its customer-market relationships, and perhaps the industry itself. And with ICUs, it is equally their specific lines of work—principally care of severe cardiac, and initially stroke and neurological cases, that influenced organizational and industry changes. However, it is not difficult to imagine single “breakthrough” projects—whether in science, industry, architecture—which directly influence (“revolutionize”) existing practices, perspectives, technologies and lines of work, and through the latter, quite visibly, their encompassing organizations.

**RESEARCH IMPLICATIONS**

Scattered through the foregoing pages are throw-away lines about potentially useful research directions. A few additional suggestions may be worth thinking about, the most obvious being the issue of how useful this conceptual elaboration might be for fast changing industries, other than the health industry used as illustration here. Researchers would need to satisfy much more precisely where and how different types of industries and organizations varied in their dominant arcs of work. The implications of that variance would have to be specified too. The same is also true for slowly or moderately changing organizations and industries. We need research also to see how negotiation, coercion, manipulation, argument and debate and persuasion, as well as institutional rules combine to affect divisions of labor and their related work, regardless of how slowly or rapidly changing is the organization.

In any event, if the concepts offered in this paper prove useful, they would surely have to be supplemented with additional concepts, developed both from the specific studies and the relevant literature. Traditional types of research on occupations, occupational differ-
entiation, and occupational careers might profit from this conceptualization too, judging from my experience in scrutinizing the health scene. Also, the traditional macroscopic approaches to the division of labor, from my perspective, need supplementation by research into their linkages (to and from) work itself as it goes on within organizations: and for different types of organizations. And to reiterate an earlier point: the arc of work is rather different than a line of work (production of a product, as in producing for the market an IMB personal computer rather than developing a model for later production). The implication of that distinction is that research concerning divisions of labor with respect to differential lines of work in various organizations/industries should be pursued. Eventually a sociology of work organization should seek to relate both arc and line of work with respect to their characteristic divisions of labor.

It is quite possible that such researches would be relevant to pressing policy issues such as efficiency, cost, quality, regulation and licensing. Again, this is most evident perhaps in fast moving industries, like the health industry where one can observe how certain types of project work have eventually led to regulation and action, as well as to improved quality of work and increases or decreases in cost. Examples of this include project use and development of procedures (as with by-pass cardiac surgery), drugs and medical equipment (as with safety regulation over nuclear materials used in equipment).

SUMMARY AND IMPLICATIONS

What has this paper done? Principally it has offered a series of concepts and some potentially salient dimensions for each. These are not entirely untested since the principal ones came from my own researches and inspection of those of others. But how do the concepts hang together? The most general answer is suggested by the following a series of questions. They all pertain to "labor"—an ambiguous term was noted earlier in this paper, which can refer variously to work, workers, or both. The division of labor pertains then to "dividing up" work, and workers, and presumably also refers to the relationships both within and between those divisions. In this paper, the focus has been on the division of labor in projects, and principally those carried out in rapidly changing organizations and industries. Now to the questions:

1. What is to be done (which entails work—i.e., a project)?
2. Who defines the necessity for that project?
3. Then who will define the project's horizons (perhaps "project-projection" is the appropriate term for that)? (See, Strauss [1985] for use of the term "trajectory projection."")
4. Who then will define overall what arc of work is entailed in carrying out the projection as projected?
5. Who will define more specifically concerning the segments of arc or types of work, or levels of task clusters, tasks, and mini-tasks? (This will entail operational detail at all those levels including, what, how, when, etc.)
6. And who will actually carry them out, how, when, etc.?
7. Then concerning the supra type of work, articulation, and also the accountability:
who defines various levels of these particular types of work and who carries them out and how? (This includes the systems of accountability and articulation embedded in carrying out any project as projected.)

Basically, the elements pointed to by these questions and those concepts and their dimensions as touched on in this paper, are involved in the so called division of labor. This is so even for the simplest project, where certain levels of complexity may be missing or the arc segments are very short or few in number. Variations in all and any of those phenomena relate to macro-structural, organizational, situational and interactional conditions, as well as to the varied dimensions of each concept.

To list various dimensions and concepts, and to suggest some of their relationships, does not of course make for adequately grounded theory about division of labor; it is only the beginning step toward a dense analysis which traces out connections among concepts and relevant dimensions and would include a specification of them as conditions, interactions, strategies, processes and consequences. Readers will have glimpsed some of those throughout the skeleton analysis given here. What is needed now is a series of studies following through on all or portions of this approach to the division of labor.

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NOTES

1. A later paper will take up the relationships of the division of labor within projects to that within more encompassing "lines of work." See below for those distinctions.

2. See Cherns and Clark (1976: 170–171) for a discussion of the "task analysis" approach to how tasks and "task structures" may affect organizational structure, as well as a criticism in terms of too much focus on internal organizational variables to the relative exclusion of macro influence on organizations. See also Hunt (1976) for an excellent summary of the organizational theory literature on such matters as task effects on organizations, the nature of tasks, task structure, task models, and tasks under stable versus unstable conditions. Relevant to our purpose, he notes that

   task phenomena have not been ignored in organizational studies; but ... their handling in the modern organizational literature has mostly been global or macroscopic in character. Attempts at the identification and theoretical specifications of the forms and mechanisms of their actual or prospective relations with organizational process and structure has not been frequent among present-day scholars.

In this task-analysis literature, there is not much addressed to the division of labor in microscopic work terms; however, Naylor and Dickinson (1969), according to Hunt in a passing reference to the division of labor (p.
discriminate between task and work structure, the former pertaining to tasks as such and the latter to "organizational distribution—the division of labor."

3. The issue of accountability has been discussed in the literature in a variety of ways; e.g., Stelling and Bucher (1972), Hughes (1971), Durkheim (1933), and Tausky (1970) focus, in relation to the division of labor, on matters such as hospital hierarchy, negotiation, moral order, and consequences of organizational structure for workers. Those affect, rather obviously, not merely accountability but phenomena resembling the articulation of work. Insofar as the division of rights is also related to the division of labor, the writings of Durkheim and Hughs are especially relevant to the moral aspects of work—and those aspects are always implicit to the extent that the work is divided up among actors. An additional comment will be made concerning this in the section on the division of rights.

4. A reviewer of this article has suggested that Durkheim’s non-contractual elements of contracts relates to this discussion.

5. Rice (1963) asserts that project teams are usually transitory, breaking up when the project is completed; however, he does not take into account that many or all team members may be reassembled for sequentially related projects, as in science engineering or transplant surgery, and some teams may do projects that are not even related to each other, although they were completed one after the other because of the combination of the worker’s skills and their proven ability to work together.

6. Apropos of this example of ICUs and their highly specialized medical work, it should be clear that here, as in most of the work referred to in this article, work has technological aspects. Sometimes the implicated technology is "hard," sometimes "soft." Also, sometimes the technology is so obvious that actors refer to it by those terms, but sometimes—as with the more informal strategies of physicians and nurses for dealing with each other, patients, and the hospital departments—a silent technology has to be learned, and even passed along in the operative group or occupation (Strauss et al., 1985). There are, of course, many other properties (other than technological) affecting the organization of specific kinds of work: relevant literature in the area of "organizational theory," includes Woodward (1956, 1965), Perrow (1967, 1970), and Thompson (1967).

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