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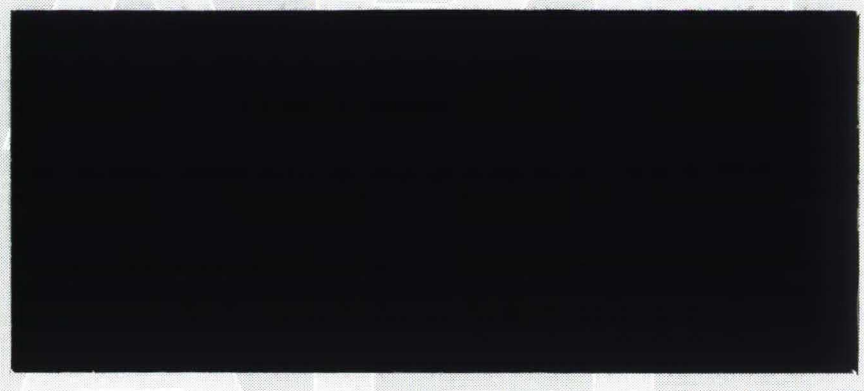

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PAPER

The Sociology of Workstress and Wellbeing. An Environmental Riskapproach

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1. Introduction

The study of stress in new occupations presupposes a general framework. Such a framework will guide us in our research: among other things it will tell us what to look at, what questions to ask and how to answer them. Like all frameworks it will involve:
1. conceptual matters: what do we mean by workstress, mental and emotional workload, new occupations and so on?
2. theoretical matters: what are the causes and causal mechanisms at work in the process of stress?
3. explanatory strategies: how do we discover these causes and causal mechanisms?
As we all know, a lot of causes are at work in the process of stress. Because we are both embodied, personal and social beings (Harré), these causes can broadly be classified as biological, psychic and social causes. Within these broad classes, a lot of further causes can be distinguished. Each singular cause can have a diversity of effects and each singular effect can have a diversity of causes. Let's call this **the problem of the multiplicity of causes**. This poses a serious problem for all regularity accounts of causal laws and causal explanation. At the one hand these regularities are too difficult to find in the real world: too much causes are at work there (that's why we produce these regularities in experiments). And at the other hand these regularities are too easy to find: given enough mathematical apparatus, we will always be able to find 'regularities' (the socalled trivialization problem, see Humphreys, 1989). As far as I can see this regularity account of causal explanation is still dominant in stressresearch. I hope to show why we need an alternative, to be able to give causal explanations.
A second problem relates to the fact that these causes can interact. Let's call this **the interaction problem**. Dominant in the stress literature are socalled interaction definitions of stress. They are supposed to be superior to stimulus or response based definitions of stress. I hope to show the conceptual confusions, inherent in this definition. I will concentrate on the concept of interaction and on the concepts of the objective and subjective factors that are supposed to interact.
Both the regularity account of causal explanation and the interaction definition of stress lead us to a notion of good or true explanations as complete explanations: only the knowledge of all causal factors will enable us to separate correct from incorrect explanations. Such a notion needs theories that represent all the possible causes at work in the process of stress. Let's call this **the problem of complexity**. Dominant in the stress literature is the view that theories are to be considered as mirrors that have to represent the process of stress in all its complexity. Working with such a view, we start with global models that contain a broad classification of all the causes at work in the process of stress. All these models start with 'objective' stressors, then formulate mediating and moderating causes and end with mental illhealth. Note that these process models are based on conceptual necessities: stress presupposes stressors, strain presupposes stress, mental illhealth presupposes strain and the process itself presupposes persons and their environment. As conceptual necessities, these global models are not based on empirical discoveries, but are meant to enable us to make empirical discoveries. The most common strategy then is to fill in this model with as much causal factors as we can. And then we look for regularities between those factors. The more factors we fill in, the more difficult it becomes to find regularities. Our model will soon reach

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unmanageable complexity and our explanations will become extremely individualistic.
In this paper I intend to follow a strategy of **complexity reduction**. This strategy is based on the notion that theories are neither to be considered as (positivistic) mirrors of, nor as (constructivistic) stories about the world. Theories are more like (realistic) maps that help us to find our way about in the world. Unlike mirrors, maps are based on a drastic simplification of the world. Like stories, these maps are created/constructed by us. But unlike stories, maps have to be true about the world to be able to help us to find our way. Just like you can tell different stories about the same topic, so you can make different maps of the same area. All these maps have to be true, but which map you are going to use will depend on the purpose at hand. You can put all these maps in one book, but you can not integrate them in one map. Such a map would be an unreadable one: there are no supermaps, like there are no superstories. Note that all interactionist models are intended as supermaps. It is a strategy that started with the Michigan model and was further expanded by Lazarus in Berkeley. In his opinion the Michigan map was not super enough: what we need are not static photo's but dynamic films of the stressprocess (Lazarus and Folkman, 1984, p.). Much of the research on stress, wether defined as emotional or as mental stress, still follows this super strategy. A healthy exception is the environmental, as against interaction model of Karasek.
I need such a strategy of complexity reduction to stake out an area for **sociological research**. Such research concentrates on the social, environmental causes of workstress. When sociologists want to explain something, they look at social structures. Social structures are not events, although a change of a social structure or a structural change of a social system can be an event. So, I prefer an ontology of structures above an ontology of events (both in sociology and in psychology), although the relation between structures and events (like actions) would need further elucidation. I treat causes as powers: they are structural properties of 'things' like social systems or jobs (or viruses and so on).
We need causal accounts to be able to do something about workstress. The discovery of social, environmental causes would enable us to develop preventive policies, aimed at the content and organization of work. The need for such policies can be considered as the social background of my topic and to this my paper will first turn.

2. Social background

All sectors of the dutch economy suffer from high rates of work incapacity due to temporary (absenteeism) or permanent disablement (invalidity). A high proportion of this temporary and permanent absence of work is commonly attributed to socalled psychosocial factors: these persons suffer from mental illhealth, caused by mental strain, emotional strain or burn-out. Absenteeism and invalidity carry high costs and this provides the government with strong motives to develop policies aimed at the reduction of these costs. These policies can take different forms (figure 1). Because costs are determined by price and volume, these policies can be price policies (aimed at a reduction of the level and duration of sickness benefit payments) and volume policies (aimed at a reduction of the number of sick and disabled persons). Volume policies can be reactive (aimed at a swift return or reintegration of disabled persons) and proactive or preventive (aimed at the prevention of physical and mental illhealth). And preventive policies can be aimed at the work and its risks and at persons and the way they handle or cope with these risks.

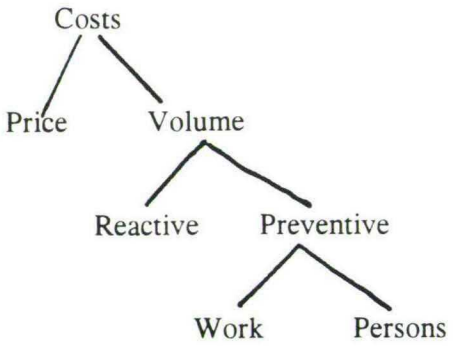

Figure 1 - Costreduction policies

The legal framework for the stimulation of preventive policies by workorganizations is provided by the new Law on Working Conditions.[2] It contains stipulations about safety, health and wellbeing. Inspired by the definition of health by the World Health Organization, a distinction is made between two aspects of wellbeing: negatively formulated, it refers to mental illhealth and its prevention and positively formulated it refers to skilling or learning and its enhancement (Christis, 1988). So, the prevention of risks of wellbeing is aimed (1) at the reduction of stressrisks of jobs and (2) at the enhancement of learningopportunities of jobs. Generally stated, the content and organization of work should be such, that no accidents can occur, people don't become physically or mentally ill and can learn from their work.

Note first the difference between jobs and occupations: the same occupation can be realised in different jobs, according to the organization where you are working. So, it makes a difference to ask yourselve: what is it to be a nurse or a teacher and: what is it to be a teacher in school X or Y? In this paper I am primarily interested in the stressrisks of jobs and the possibilities of jobredesign. With regard to occupations we normally don't speak of the redesign of occupations and in the transformation of occupations other processes will be involved.

Note secondly the double meaning of the concept of organization. We can speak of organizations in an institutional and in an instrumental sense of the word. In the institutional sense we speak of organizations as social systems we become members of by signing a labour contract, which in essence establishes an authority relationship.[3] This authority can be delegated to people who then become managers: they posses the delegated right to give orders. And it can be limitated by law or by bargaining. We can find such organizations in all sectors of our modern society. In that sense we live in an 'organizational society'. When these organizations are part of the economy, we call them enterprises. Now in all these organizations in the institutional sense, a lot of things have to be done, a diversity of activities or tasks have to be performed. This is the work to be done or the labour process. Organizations differ in the way they organize their work or labourprocess: they differ in their organization of work and we refer to this when we speak of organization in the instrumental sense of the word. So, all organizations in the institutional sense have to organize their work in the instrumental sense and so can differ in their organization of work or workorganization. If we want to explain why a job has taken a particular form, we need a theory on organizations in the instrumental sense. Such a theory tells us among other things how a

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[2] *Other Cabinet proposals concern measures (1) for a better reception and guidance of sick and disabled employees, (2) for reducing absenteeism due to sickness ('bonus-malus' systems) and (3) for restricting the (increasing) number of employees classified as disabled.*

[3] *March, Simon (1958, 90): In joining the organization he [sc. the individual] accepts an authority relation; i.e. he agrees that within some limits (...) he will accept as the premises of his behaviour orders and instructions supplied to him by the organization."*

particular organization of work affects individual jobs. And when we want to explain why an organization has organized its work in this particular way, we need a theory on organizations in the institutional sense. My paper will be on organization in the instrumental sense.

Now, accidents, physical and mental illhealth and learning are the results of complicated processes in which a lot of causal factors are involved. To identify risks of jobs, we need to be able to identify work related causes. From this, it follows that we are interested in accidents, physical and mental illhealth and learning **as far as** these are caused by the content and organization of work. In theoretical research we try to discover hitherto unknown causes. In practical research we try to identify the presence of known causes. We will take up this issue of environmental causal explanation in par. 4. First, however we will address a general problem of stressresearch: its obsession with person based moderators of stress.

3. Scientific background

For reasons of space we will restrict ourselves to the topic of stress.[4] Within this field , two different traditions with a totally different background are operating. One of them defines stress as mental stress. It is based on a (problematic) distinction between physical and mental work, effort, energy and fatigue. And it works with (implausible) information processing or computational models of the human mind. In this tradition extensive use is made of the experimental method. In the other tradition, stress is defined as emotional stress. Its central concept is anxiety. It doesn't look at work and the mental energy it costs, but at work and the threats it can confront us with. These threats could be classified according to what is at stake: our embodied being, our personal being or our social being. The experimental method is not dominant here. Of course, both forms of stress can be related: an emotional state like anxiety can disrupt energetical processes in different ways and mental fatigue or even exhaustion can be threatening.
Frese & Semner (1987, p.346) formulate the problem of stressresearch as follows: "The theoretical and empirical more satisfactionary models refer to the importance of coping-strategies, differences in the perception of situations, differences in expectations and so forth and so place stressresearch in a more and more complete individualistic context. This means at the other hand, that stressresearch more and more can only give the answer, that every thing depends on the specific individual at hand, which is of little practical relevance. But in this way, conclusions with respect to prevention, especially related to the design of the conditions of work and life, become more and more impossible." (Our translation) In our opinion this problem is caused by the dominance of interactionist approaches to stress, as exemplified by the person - environment fit model (also known as the Michigan model). This model is criticised by Lazarus and his coworkers as being too static. Although they also define stress in a relational way and in terms of a P-E fit, they have formulated an alternative, socalled transactional approach, that concentrates on individual processes of coping: "Since the 1960s there has been growing recognition that while stress is an inevitable aspect of the human condition, it is coping that makes the big difference in adaptational outcome." (Lazarus, Folkman, 1984, 6). Recently Karasek has developed an environmental demand - control model. The model is meant as a 'middle ground theory' that can be used in two directions. It provides a connection with a rich tradition of job redesign aimed at the reduction of environmental risks. And it can be used by stressresearchers to elucidate the nature of the risks, persons are supposed to cope with. According to Karasek, the Michigan model is much too complicated and the transactional approach much too person centred. An extended

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[4] *The topic of learning would involve a treatment of mentalistic conceptions of skill, definined as events, processes or things we do in our heads and Wittgensteinian conceptions of skills as capacities, defined in terms of the - visible, public - actions they enable us to do.*

review of the conceptual, theoretical and explanatory confusions of these approaches and a critical examination of the demand - control model is to be found in Christis (1993, forthcoming).[5]
As sociologists, we are interested in the social, environmental causes of stress and learning. Of course, all kinds of causes are involved in the stressprocess, for we are both 'social, personal and embodied beings' (Harré). However, we will defend the necessity and possibility of an independent identification of environmental causes. To do this, we will first give a realist account of the nature of causal explanations (par.4), show its consequences for a risk approach (par.5). After a critical intermezzo (par.6) we will make a distinction between different environmental causes (par.6). The rest of the paper will be devoted to the development of the concepts we need to enable us to identify stressrisks **as far as** they are caused by the content and organization of work. So, we reduce complexity in two steps. We first separate environmental from personal causes. We then separate the content and organization of work from other environmental causes. With respect to this particular cause we are going to build up complexity. Although our approach is an environmental one, the concepts we use are different from the demand-control model of Karasek.

4. Philosophical background: the nature of causal explanation[6]

4.1. Introduction

Most research, including research on stress, is still based on the socalled covering law model of scientific explanation, as developed by Popper, Hempel and Oppenheimer. As Popper writes: "To give a causal explanation of an event means to deduce a statement which describes it, using as the premises of the deduction one or more universal laws, together with certain singular statements, the initial conditions." (Popper, 1959, p.59) In this model, laws are interpreted as empirical regularities or constant conjunctions between events or states of affair. It sees explanations as arguments that have the same logical structure as predictions: when the deduced statement refers to future events, we are predicting and when it refers to past events we are explaining. In both cases, we show that the event was - logically - to be expected.
This model is supposed to give a correct formal semantic explication of the concept of explanation as used in the natural sciences. And it is offered to the social sciences (including psychology) as a standard they have to conform to. Now, as we all know, the social sciences are characterized by a total absence of such laws, we need to be able to explain. So, soon people appeared on the stage that make fun of those who are still looking for such laws. These people either want to replace causal explanation by interpretive understanding (hermeneutics, as in Winch, 1959) or by functional analysis (systems theory, as in Luhmann, 1964).[7] Empiricists tend to react in either two ways: they argue that the social world is much more complex than the natural world, more causal factors are at work there (interactionism) or they argue that the regularities that govern it can only be identified at a more basic level (reductionism).
To be honest, it is my impression that more is to be learned on the process of stress from hermeneutic accounts (like those of Benner) or system theoretic accounts (like those of Friczew-

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[5] *A discussion of an ecological network approach (Frickzewsky, 1985, 1988) and a hermeneutical approach (Benner, 1984, Benner, Wrubel, 1989) is also to be found in Christis (forthcoming).*

[6] *This paragraph is primarily based on the work of Bhaskar (1975, 1979, 1984). Important in this family of realist philosophers of science are also Humphreys (1989), Hacking (1984), Cartwright (1984, 1992) and Dupré (1992).*

[7] *Functional analysis should not be confused with functional explanation, as already was made clear by Hempel and abundantly so by Luhmann.*

ski). All parties in the debate however seem to agree on one thing: that the covering law model of causal explanation is correct as far as the natural sciences are concerned. Opinions differ only with respect to the possibility of its application in the social sciences. Now, the whole base of the debate can be turned upside down, when it can be shown that the covering law model is incorrect, even for the natural sciences. This is done by the realist philosophers of science. Their method is not formal semantic explication of concepts like explanation, as was done by Hempel and Oppenheimer. Instead they look at what scientists actually do when they experiment, construct theories and try to explain and what is presupposed in what they are doing. This enables them to bring causes back in into science, to distinguish between explanation and prediction, to reconcile explanation with the complex, messy and chanchy character of the world in general and with the conceptual aspects of the social world in particular. Among other things this leads to a clarification of explanatory strategies and to more concern for conceptual analysis in the social sciences. So, realists are trying to formulate an alternative for "a conceptually impoverished and deconceptualizing empiricism or a hermeneutics drained of causal import and impervious to empirical controls." (Bhaskar, 1979, p.16)

4.2. The ontology of causal explanation: realism vs empiricism

All causal explanations are confronted with the problem of 'the multiplicity, diversity and epistemic incompleteness of causes' (Humphreys, 1989). When we accept this as an unavoidable research condition, the consequence will be (1) that causal laws can not be interpreted as empirical regularities and (2) that causal explanations don't need to be complete to be correct.

Ad 1)
To start with, let us look at natural scientists and the use they make of the experimental method. Because of the multiplicity of causes the - natural - world will not show empirical regularities. That's why **we produce** these regularities in experiments. In an experiment we transform the world as an open system, in which all contributing and counteracting causal factors are at work, into an externally and internally closed one. By this closure, we produce otherwise nonexistent empirical regularities. If we now would interpret causal laws as empirical regularities we would come to the absurd conclusion that we produce causal laws in experiments and destroy them in the real world. That would also make the application of those laws in the open system of the world a most mysterious affair! In a realist - as opposed to a regularity - account, we produce empirical regularities in experiments. These regularities form the grounds or evidence for the existence of causes, interpreted as the causal powers and liabilities of 'things'. These causes are not produced by us. So there is an ontological gap between empirical regularities and causal laws. In the open system of the real world the regularities disappear, but causes retain their transfactually causal power. That's why we can make practical use of our knowledge of causes. In this sense, empirical regularities are neither the sufficient, nor the necessary conditions for the existence of causes or causal laws (Bhaskar, 1975, 1979). They are not sufficient because empirical regularities don't have to be causal. And they are not necessary because in the open system of the world causes can be operating, without showing themselves in empirical regularities. Note the method Bhaskar is using here. He wants to show the intelligibility of the experimental method by looking at the conditions of its possibility: if empirical regularities were there, we wouldn't need to produce them in experiments. And if causal laws would be empirical regularities, we couldn't apply them in the world: "For the non-invariance of conjunctions is a condition of an empirical science and the non-empirical nature of laws a condition of an applied one." (Bhaskar, 1979, p.13)

Ad 2)
If causal laws are interpreted as universal regularities, causal explanations should be complete to be correct. Only the inclusion of all causal factors would lead to universal regularities. This would

lead to the absurd conclusion, that in the explanation of an event the whole world should be involved and that hitherto science would not have produced correct causal explanations. A realist account enables us to distinguish between correct and complete explanations and between predictions (based on regularities) and explanations (based on causes).

4.3. The pragmatics of causal explanation: contrast spaces

To discover causes, we have to distinguish between 'evidence and explanation seeking why questions'. A why question like: why is it that p, can be the expression of disbelief. It is an evidence seeking why question. We then mean something like this: what makes you think that p, I don't believe that p, so show me the evidence for p. The same question can be posed when we believe that p. We then don't need evidence for p, but we want to know the causes of p. The same question then is an explanation seeking why question. We then mean something like this: i agree that p, but why, that is, what are the causes of p?
The difference can be elucidated with an example. We can answer the question: why is this a dangerous road by saying: because a lot of accidents happen to happen on this road. We then use these accidents as the evidence for the dangerousness of this road: we have interpreted the why question as an evidence seeking why question. Now we can ask: why do these accidents occur? We now accept accidents as evidence, but ask for its causes: we interpret the question as an explanation seeking why question. Accidents are now interpreted as consequences, outcomes or symptoms of the existence of causes. Broadley speaking, these causes can be environmental and then refer to properties of the road. And they can be personal and then refer to properties of persons that make use of this road. To discover environmental causes we have to **compare different roads**. We reformulate the question as a question with a specific contrast space: why do accidents happen on this and not on other roads?[8] The discovery of environmental causes has a number of consequences. First of all, we now can make use of a different definition of a dangerous road: this road is dangerous, not because of accidents, but because of certain causal properties of the road. In this definition we don't refer to outcomes, but to - causal - properties of the road.[9] These properties and not the outcomes, make this road a dangerous one. With the help of this causal knowledge we can secondly investigate other roads and come to the conclusion that they are dangerous, although only a few or no accidents did occur there till now: they have the same properties that make it a dangerous road. So, on this road no accidents occur, although it is a dangerous road. And thirdly, we can use this causal knowledge in the design of future roads. Note that we use accidents in the discovery of yet unknown environmental causes in theoretical research, but not in the identification of known causal properties of dangerous roads in practical research!
To discover personal causes, we have to **compare different persons** that make use of the same road. The research question now becomes: why do these and not those persons cause accidents? In this way we detect the personal causes of dangerous traffic behaviour. If this is the case, it is not the road that is dangerous, but the traffic behaviour of some of the persons that make use of the road. Of course, both causes can be present. Accidents are then overdetermined: each cause is sufficient to produce a certain outcome. And we can also investigate the environmental causes of dangerous driving, f.e. some people tend to drive dangerously on safe roads. A safe road (in the second, causal sense) is then made dangerous (in the first, evidential sense) by dangerous driving, caused among other things by the safeness of the road, because some people tend to drive

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[8] *On the use of contrast spaces to give explanation seeking why question a specific and thereby researchable content, see Garfinkel (1981).*

[9] *The distinction is the same as the one made by Wittgenstein between definitions based on symptoms and on - causal - criteria.*

dangerously on safe roads.

What we have said thusfar can be summarised as follows. If we ask ourselves: why did this or these accidents occur, we have formulated a why question that lacks contrast space. As a consequence, an explanation will involve the whole world (as in interactionist and transactional models of stress): everything that could have prevented the accident should count as a causal factor. By introducing contrast spaces this infinite complexity is reduced to a manageable complexity: we now know what to investigate and above all, what we don't need to investigate to be able to answer these questions. Depending on the nature of the question we either discover environmental or personal causes. Knowledge of environmental causes enables us to formulate an environmental risk approach.

5. An environmental risk approach

In an environmental risk approach, a distinction is made between environments and their risks, persons and their behaviour and outcomes that are interpreted as symptoms of causes. Applied to safety, health and wellbeing the following picture arises (figure 2):

Environment	Persons	Outcomes
Criteria		Symptoms
Safety risks	Safetybehaviour	Accidents
Health risks	Healthbehaviour	Illhealth: fysical
Stress risks	Copingbehaviour	Illhealth: mental
Learning opportunities	Learningbehaviour	Learning

Figure 2 - Safety, health and wellbeing

On the basis of figure 2 and the account given in the preceding paragraph, the following conclusions can be drawn:

1. Symptoms can never be used as criteria for the identification of risks: risks can be present without outcomes (if we behave adequate nothing will happen) and outcomes can be produced by personal in stead of environmental causes. So, symptoms are neither the sufficient nor the necessary conditions for the presence of risks (although we use them in discovering causes).
2. Criteria that we use for the identification of risks refer to causal properties of the environment. As all causal powers they can be present but unexercised, exercised but unrealised and realised but unperceived or undetected.[10]
3. Without such a concept of risk we couldn't make sense of prevention: we want to do something in order to prevent outcomes to occur. We don't have to wait for accidents to know that nuclear energy plants are high risk systems!
4. Efficient preventive policies always start with the elimination or reduction of environmental risks. Only when this is not possible for technical, financial or other reasons, do we direct our attention to persons and the way they handle these risks.

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[10] *They can be real, actual and empirical (Bhaskar).*

5. Training in risk (not risky) behaviour presupposes detailed knowledge of environmental risks.
6. When risks are absent and outcomes occur, we know for sure that person oriented policies are needed. However: when persons behave risky, environmental risks can be present! If so, then an environmental policy is needed (see conclusion 4).

Note that we don't say that environmental causes are always the most important causally contributing factors. That will vary from case to case and level to level. What we do say is first, that we try to discover hitherto unknown causes in theoretical research and that we use this knowledge in practical research to identify the presence of - combinations of - causes. Theoretical research terminates in the formulation of criteria, we subsequently apply in practical research. Secondly we say that an efficient preventive policy always starts with environmental risks, not because they are the most important, but because this is the only **efficient order** of doing things. And thirdly, as sociologists we are of course primarily interested in social, environmental causes (including the social causes of personal behaviour). That is what we as sociologists are supposed to be experts in. We consider this to be the contribution, the sociology of work should make to the investigation of the causes of work stress.

6. A critical intermezzo

6.1. Relational definitions of stress and interactionist approaches

Most stressresearchers would agree with the following critique of stimulus and response based definitions of stress: "In short, all stimulus-response approaches are circular and beg the crucial questions of what it is about the stimulus that produces a particular stressresponse, and what it is about the response that indicates a particular stressor. It is the observed stimulus-response relationship, not stimulus or response, that defines stress." (Lazarus, Folkman, 1984, p.15)[11] **As a definition** this is confused. Stress is just a state of an individual and when we speak of emotional stress (as against mental stress) this is mostly a state of anxiety. Sometimes we make use of something like a relational definition, f.e. when we want to distinguish different forms of stress such as workstress and family stress. Workstress is then defined as stress that is caused by work, just as saddle pain is pain that is caused by a saddle and shell shock is shock caused by shell explosion. We then use a causal criterion in a global sense: stress that isn't caused by work isn't workstress, like pain that isn't caused by a saddle isn't saddle pain and so on. Of course, what looks like workstress can be something else.
As an approach the whole thing looks selfevident: like all individual states, stress has both internal/personal and external/environmental/ situational causes. This is not an empirical discovery, but a conceptual necessity. Workstress presupposes persons, for without persons there can be no stress and it presupposes work, for without work their can be no workstress. Of course this tells us nothing about what it is about work and persons that causes workstress. This has to be empirically discovered. Now, especially when - personal - appraisal and coping are introduced, a logical question seems to be: how much has it to do with my work and how much with me? Interactionist approaches seem to be aimed at determining the relative weight of personal and environmental factors in the process of stress. Although this question seems to make sense I want to make you sceptical by way of an example.
Imagine yourselve the following situation. In a meeting of a taskgroup (sociotechnically designed) certain tasks or rewards are distributed in an unjust way (environment or social situation). One person stands up and protests angrily against this distribution (behaviour). However, we know of

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[11] *Frese and Semner: "In der Psychologie hat sich die Rahmenkonzeption von Lazarus weitgehend durchgesetzt." (1987, p.342)*

this person that it is an envious person (personal character or trait). So, we have an event, the protestbehaviour, that is related both to the environment and to the person. What determines or explains this angry protest behaviour? When we answer: the social situation, we will call this behaviour an expression of justified indignation. And when we answer: the person, we will call this behaviour an expression of objectionable envy. Interactionists tend to answer: both explain the behaviour, that is to be considered as a mixture of justified indignation and objectionable envy, the person and the environment interact in producing the behaviour. They now want to assess the relative weight of personal and environmental causes: how much can be explained by the unjustness of the situation and how much by the enviousness of the person? We could pose the same question to the person himself: why did you behave like that, out of indignation or out of enviousness? If this person would follow the advice of the interactionists, he would be trapped in an endless, bottomless inner quest. He knows that both are true, but in what mixture? He could also negate the advice and answer: **both are true, but not in a mixture and in interaction but both for 100%. For why could an envious person, what honestly speaking, I am indeed, not be rightly indignant?**
My advice would be to follow this answer. Obviously their was something wrong with the original question. What we do is actually this. First of all we look at the same behaviour from two different perspectives and so discover different causes that can be both true (just like an envious person can be rightly indignant).[12] When we relate it to the social situation, we discover social causes and call the behaviour an expression of justified indignation. And when we relate it to the person, we discover personal causes and call the behaviour an expression of objectionable enviousness. For me this is the difference between sociological and psychological explanations: the one explains with the help of social causes and the other with psychic causes. Those explanations **can not compete or mix**. They just explain other things with other means. Of course we can try to give a sociological explanation of the enviousness of this person. Again, this could never compete or mix with a psychological explanation. Both can be true for 100%
Secondly, when we want to know wether the indignation was justified, we have to appraise the justness or unjustness of the situation with criteria that are **independent** of the enviousness of the protesting person: his enviousness tells us nothing about the unjustness of the situation. And if we want to know wether this person is an envious one or want to make this clear to him, this situation would not be a good starting point. We need his behaviour in other situations to ascribe enviousness to him.
And lastly, the distinction between the two kinds of questions is a perfectly normal one. We do not normally confuse questions like: why do people in some situations almost always fight and: why do some people almost always fight, whatever the situation? These questions need different contrast spaces and will lead to the discovery of different causes. Sometimes both causes are present. Then we need to do something about both and that's all there is.

6.2. The objective subjective distinction

I don't make use of the objective - subjective distinction. Because this distinction has to many different meanings it introduces only confusions. I will list these meanings as short as possible.
1. "Objective and subjective factors interact." This means: environmental and personal factors interact: everything that belongs to the person (the subject) is subjective and everything that belongs to the environment is objective. I prefer environmental and personal causes for terminology.
2. "The same job can be stressfull for one person and challenging for another, so stress has an unavoidable subjective aspect." Compare this with the complexity of a sonata: the same sonata can

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[12] *Often we need envious persons to point out to us cases of unjustness we would otherwise not notice, see on this and generally on the role played by our passions the fascinating book by Unger, 1984.*

be complex/difficult for one person and simple/easy for another. The distinction we are now dealing with is that between objective and subjective meanings (Schütz). With this distinction we answer different questions: what is something or what are you doing (objective meanings) and: what is something for you or why are you doing this (subjective meanings or intentions)? So, if we want to know the complexity of a sonata (objective meaning), we compare different sonatas, without looking at who plays them. This enables us to assess their complexity. We then use criteria that refer to properties of the sonatas in question, not to the players. We need such an assessment to be able to teach pianoplaying: we normally start with the easy peaces and then move on to the more complex ones. And a simple sonata does not become complex when it is played by a novice! When we want to know wether this sonata is complex for me (subjective meaning) we have to assess my playing skills. We now don't compare different sonatas, but different persons that play the same sonata. In this sense the same sonata is complex for a novice and simple for an expert player. Note that we don't use 'average persons' when we are assessing the "objective" complexity of sonatas (as is proposed by Hacker, Volpert and Frese and Kasl). This is a nonsensical notion.
I prefer social and personal meanings for terminology. And I want to know the social meaning of the concept of a stressfull job. Note that social meanings are prior. When we want to know what for us are embarrassing situations, we first need to know what we mean by that. We then can come to the conclusion that we distinguish in the same way between embarrassing and shameful situations, the one referring to morally objectionable behaviour and the other to inept behaviour. We then agree on the social (not average) meaning of these concepts. But within this agreement it is perfectly possible, that the same situation is embarrassing for one and not for another person. They then disagree not on the meaning of embarrassing situations, but f.e. on the meaning of inept behaviour.
3. "We need more objective instruments in stress research." Now we are using the objective - subjective distinction in the epistemic sense. It refers to the distinction between what something is and what we think it is. In science an instrument is objective when it produces the same results when used by different users. It cuts across the former distinctions and in this sense we need objective measurements both of "objective and subjective factors" and of "objective and subjective meanings".
4. "What looks like a stressjob doesn't need to be one." We are now talking about the difference between what something is and what it seems to be. This is also known as the distinction between reality and appearance. The distinction is either a trivial one (the famous stick in the water) or a conceptually confusing one: we live in a world of appearances and will never be able to know reality as it really is. In stresstheory we meet this confusion in the distinction between objective and subjective environments or stressors. Simple: if I see a sad face, is this face then in my objective or subjective environment?

6.3. The complexity of the interactionist approach

[Remember the Frese/Semner complaint: the more causal factors are involved the more complex and individualistic our explanations will become. This is an old problem as stated by Russel: "As soon as the antecedents have been given sufficiently fully to enable the consequent to be calculated with some exactitude, the antecedents have become so complicated that it is very unlikely they will ever recur." (cited in Humphreys, 1982, p.130)]

6.4. P - E fit and what is wrong with it
7. Different environmental causes

Up until now, we have reduced complexity by restricting ourselves to environmental causes and risks. We will reduce complexity one step further by distinguishing between different environmen-

tal causes and by restricting ourselves to the treatment of one of them. In this way we can, in a last step, build up complexity by developing criteria for the identification of this special environmental cause.

Risks of wellbeing can be caused by:

1. **the nature of our occupation**. Every occupation can be characterised by risks and challenges that are inherent to the occupation in question. To discover occupational causes we need concepts that enable us to describe, not occupations in general, but what it is to be a nurse, teacher and so on.[13]
2. **the content and organization of our work.** Organizations (in the institutional sense) do organize their work or labour process in different ways. To discover organizational causes (in the instrumental sense) we need concepts that enable us to describe and compare the different ways organizations can organize their work or labour process.
3. **the way our employer treats us.** We become members of an organization (in the institutional sense) by signing a labour contract, which in essence establishes an authority relationship.[14] Employers differ in the way they fill in the terms of this employmentrelationship. To discover this kind of causes we need concepts that enable us to describe and compare the different forms an employmentrelation can take.
4. **the way our coworkers behave to us.** Their behaviour can be discriminating (sexist, racist) or competitive instead of solidaristic and supportive. To discover this kind of causes we need concepts that enable us to describe and compare interpersonal or face to face relationships and the forms they can take.
5. **the combination of our work with what we do in other spheres of life** as f.e. in our families. Standard examples are working mothers (Becker-Schmidt, 1980) and people doing shift work.

For the discovery of all these causes (and their interrelationships) we need different concepts and theories. And to influence these causes, different courses of action have to be taken or different kinds of policies have to be developed. We need, in other words, different maps, both in theory and in practice. Note that the causes do not refer to events. You could say that structural properties of respectively occupations, labour processes, employmentrelationships and interpersonal relationships explain (but not predict) the occurrence of particular events. We will restrict ourselves in this paper to risks of wellbeing, that is, the presence of stressrisks and the absence of learning opportunities **as far as they are caused by the content and organization of work.** So, we won't be developing maps for the other causes and we won't go into the different ways these maps can be used together, according to the purpose at hand. The map we are going to construct to develop criteria for the presence of risks of wellbeing will be based on modern sociotechnical systemstheory. We consider this to be the best theory at hand on organization in the instrumental sense or on the division of labour, in short: on the labour process.[15] With the help of such a theory you can explain why a job has a particular form and what you have to do to change it. So, it is a theory on the design and redesign of the labour process and the jobs it is composed of. This

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[13] *For an impressive account for nursing, of which a lot can be learned both conceptually and in methodology, see Benner (1984). Such person independent, public descriptions constitute the necessary conditions for individual and collective education and training!*

[14] *March, Simon (1958, 90): In joining the organization he [sc. the individual] accepts an authority relation; i.e. he agrees that within some limits (...) he will accept as the premises of his behaviour orders and instructions supplied to him by the organization."*

[15] *But it should not be confused with the socalled labour process approach, the main subject (and problem) of which consists in the explanation of developments in work with a theory on the capitalist nature of society, see Christis (1993).*

theory is generally applicable wether to jobs in old or in new occupations. Such a theory will be of no help when you want to explain why an organization has organized its work in this particular way. For that you need a theory on organizations in the institutional sense.

7. Modern sociotechnology

7.1. Introduction

As our theoretical starting point, we take modern sociotechnology, as developed by de Sitter and his coworkers and we will make extended use of de Sitter (1989) in this and the next paragraphs. According to de Sitter, old sociotechnology was radical in its practice: "For the first time in the history of applied social science the intervention was directed to the very heart of a production system: **the structure of the division of labour**. This was in the conventional context of partialized social-science applications with respect to personnel selection, leadership training, industrial relations, work satisfaction, etc., an absolute novelty."(p.3) Sociotechnical intervention is not aimed at the adaption of people to degraded work, but at the upgrading of work by radically changing tayloristic structures of the division of labour. But, old sociotechnology was seriously hampered by shortcomings in both theory and design methodology. Organizations indeed do have social and technical (and a lot of other!) aspects or processes that can interfere with each other and so produce negative results, both with respect to the quality of the organization (in terms of efficiency, flexibility and innovative capacity) and the quality of work. As social systems however, organizations do have only social subsystems. Its elements are neither people nor technology but - performance and control - operations. Its structure is a selection out of all the possible ways these elements can be grouped and coupled. So, technology is an aspect or attribute of **all the organizational elements** and as such can never be grouped into a subsystem. For analytical purposes they can be grouped as aspectsystems. But the real problem of sociotechnical redesign is not to organize (group) these aspects into subsystems (that is what bureaucratic organizations try to do), but to design organizational structures in such a way that interferences between aspects are minimised.
As a **theoretical** science, modern sociotechnical systems theory offers a detailed set of concepts that can be used in the study of the structure, architecture or configuration of the division of labour and its consequences for the quality of the organization, of work and of internal workrelations (in terms of cooperation and conflict). These qualities (and further ones could be added like the quality of the physical environment) can be called external functions. These functions can conflict and so lead to discussions about priorities: should we give priority to efficiency or to quality of work and so on. According to de Sitter this is a wrong approach. It would be better to look for organizational structures that optimise all functions at the same time: "The theoretical problem is not to formulate a plea for a reshuffling of priorities, but to acquire insight in the manner in which network-structures [the division of labour or organizational structure] impede or foster the balance between a differentiated set of functions to be performed. (...) Modern sociotechnology can only open new perspectives by fulfilling a truly comprehensive function with respect to the question how sets of differentiated functions can be grouped and coupled into an organizational structure in such a manner that they mutually sustain and reinforce each other."(p.9) So, as an **applied** science, sociotechnology formulates principles that can be used to design production systems or the division of labour in such a way, that all three qualities are optimised at the same time. This is the only proper meaning of the term: integral (re)design (figure 3):

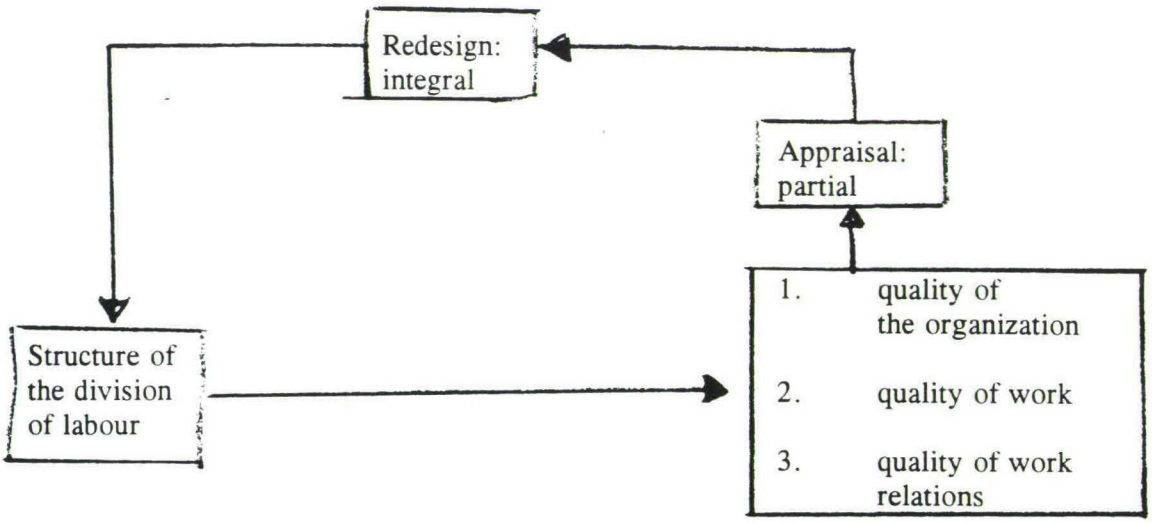

Figure 3 - Partial appraisal and integral redesign

7.2. A general framework

[On the difference between tayloristic, fordistic and sociotechnical ways of organizing work]

7.3. The logic of control

Sociotechnology applies the logic of control (Ashbys law of requisite variability) to organizations: organizations have to control external and internal varieties. To do so, organizations have to reduce varieties (to decreases the probabilities of disturbances) and to enhance controllability (to decrease the sensitivity for disturbances). External variety can be reduced by the parallellization of heterogeneous productflows into relatively homogeneous subflows. Internal variety can be reduced by selective clustering of performance functions within these flows into segments with a minimum of external and a maximum of internal, mutual interdependence. Preparation and support functions can now also be segmented (figure 4):

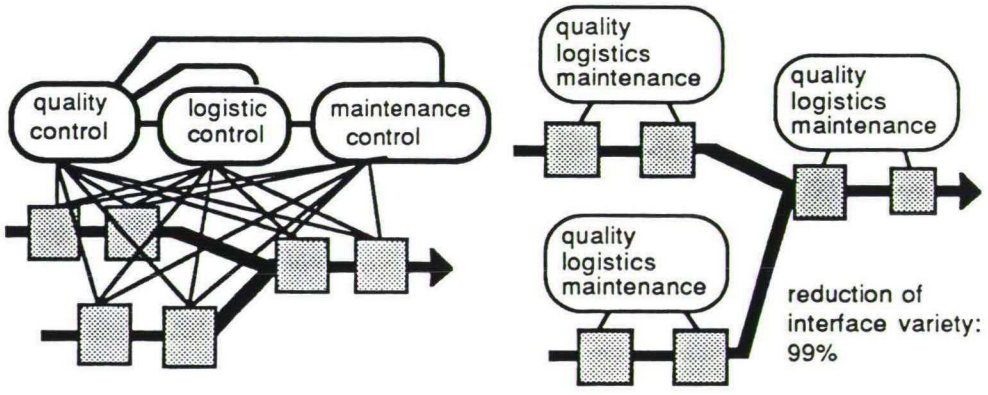

Figure 4 - Parallellization and segmentation

After this reduction of the complexity of the production structure, controllability can now be enhanced by allocating control functions bottom up to whole taskgroups and by delegating preparation and support functions the task group. Note that parallellization and segmentation are

necessary conditions for the possibility of whole taskgroups. It now becomes possible to integrate basic performance functions (preparation, execution/production and support) with basic control functions and to assign them to task groups. In this situation, taskgroups perform a lot of different performance and control operations on a restricted and relatively homogeneous set of products or parts of products (division of orders). In this way complex organizations with simple jobs are transformed in simple organizations with complex jobs. In fordistic line structures and tayloristic functional structures workers perform one or a few operations on a multitude of heterogeneous products (division of labour in stead of orders). This is the result of the separation of performance and control and the differentiation, specialization and fragmentation within both performance and control functions. So, the distinction is that between minimal and maximal division of labour. Minimal division of labour presupposes parallellization and segmentation. In that sense, flexible organizations do not only require flexible technology and flexible people, but above all a flexible production and control structure!
We want to end this paragraph with a cautionary note on the scope of sociotechnology. Sociotechnical systems theory is a theory on organizations in the instrumental, not in the institutional sense of the word. As such it is the best theory on the labour process that we know (and that is our quarrel with labour process theorists). But its topic is a restricted one (and that is our quarrel with lot of sociotechnologists). Sociotechnology as the application of this theory is about the redesign of the labourprocess not about intervention in organizations. A theory about intervening presupposes a theory on organizations in the institutional sense![16]

7. Stressrisks: controlproblems and control opportunities

Stressrisks are defined as a disbalance between controlproblems and controlopportunities: if you are often confronted with problems that you can not solve, strain will be the result. In the words of de Sitter (p.22,23): "An individual work process can be conceived as the smallest possible presentation of work organization. Therefore the logic of control theory applies to all levels of aggregation and quality of work is just a micro representation of the same problem: how to strike a balance between interfering problems (variation) from different input sectors with which you become confronted in the course of time and your ability to control the normative completion of a multitude of interaction cycles you are engaged in as a member of a social-economic network by exertion of control capacity. In this sense quality of work is a function of the problems you meet in the course of work and the means at your disposal to cope with them (de Sitter, 1970; Karasek, 1979)." So, problems as such don't cause strain. Problems in your work are partly unavoidable and partly they constitute important challenges of your work. Only unsolvable problems cause strain. Wether you can solve these problems will depend on your **personal** control capacities and on the **organizational** control opportunities at your disposal (your decision latitude). Capacities, like needs and values are personal characteristics and so tell us nothing about the work and its risks. There is a difference between the question: what is the nature of your work (difficult or easy) and the question: what is the nature of your work for you? It is like in music: a Beethoven sonate does not become easy because it is played by an expert or difficult because it is played by a novice. To determine degrees of difficulty, we compare different pieces of music. And to determine personal abilities, we compare different persons. In this way we are able to say that this

[16] *Of course, nothing prevents the development of such a theory in systems theoretical terms. In fact it exists already in the work of Luhmann.*

sonata is easy, but difficult for you.[17] The same logic applies to characteristics of your work and the meaning these characteristics have for you. Moreover, personal characteristics are, like the characteristics of work, dynamic: they change over time. That makes a Person-Environment fit impossible: you cannot 'fit' the speed of a conveyorbelt (a work characteristic) to the fatigue patterns of the people working on it (personal characteristics). These patterns vary from person to person and for the same person from day to day. But, by introducing buffers or round about systems we enable these persons to establish that 'fit' by themselves in their work and according to their own varying needs and local circumstances. So, we don't ask ourselves: what is the best P-E fit, but: "To what structural properties must my labourproces conform, in order that I can solve problems that vary in time, amount and nature.?" (de Sitter, 1980, 51) So, we don't look at persons and their problemsolving capacities, but at organizational structures and the control problems they cause and the control opportunities they offer.
With regard to control problems we start with the principle that every individual labour process contains the following elements:

* norms that tell you what to do (productspecifications), how to do it (processspecifications) and how much you should do (productionspecifications),
* materials on which operations are to be performed (like things in factories, people in schools and hospitals and information in research institutes),
* means with which operations are performed, like tools (that are manipulated by hands), machines (that have to be steered) and automated machines or systems (that are self steering and only have to de controlled and corrected),
* the operations themselves,
* the environment in which these operations take place and
* feed-back on the results of your operations (figure 5):

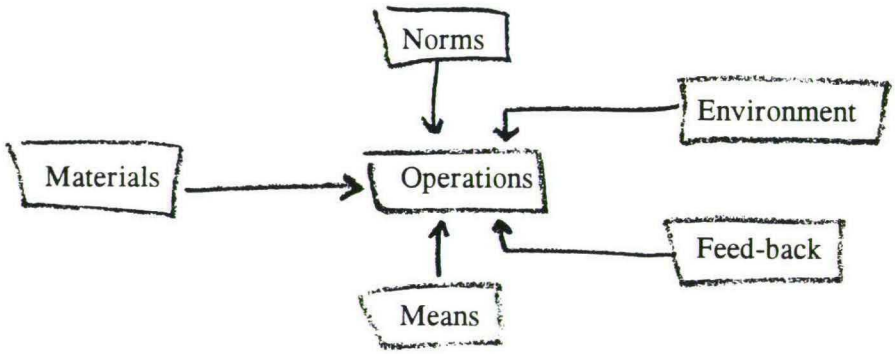

Figure 5 - The elements of an individual labourprocess

All these elements refer to possible partners in your interaction network and can be a source of disturbances or problems you have to solve: norms can be incomplete, contradictory, can come to late etc., materials can be of a bad quality, come to late etc., means can go out of order or can be badly designed etc., operations can cause problems of fatigue, concentration, motivation and expertise, the environment can be a hindrance (noise, light etc.) and feed-back can be late, unpractical, only on quantity etc..
If you are confronted with such problems you have to solve them. Organizational control opportunities can be internal: you can solve these problems on your own. And they can be

[17] *The difference is that between social meanings (what is this, what are you doing?) and personal meanings (what is this for you, why are you doing this?). The difference is the same as that between objective and subjective meanings in Schütz (1974).*

external: to solve these problems you need cooperation from other organizational members. Internal control refers to internal latitude or autonomy with regard to tempo, method and order of work. In this way you can solve problems of fatigue by varying your tempo, problems with materials by changing your method and problems with equipment by changing your order of work. External control or latitude can be continuous: whenever or as soon as a problem occurs you take contact with others to solve it. Either you get direct (not moral) support or assistance from your coworkers or you take up contacts with other departments to change the source of the problem: planning, materials, maintenance etc.. External control can also be periodical: at regular times you meet coworkers to discuss recurrent problems and try to find structural solutions for them (figure 6):

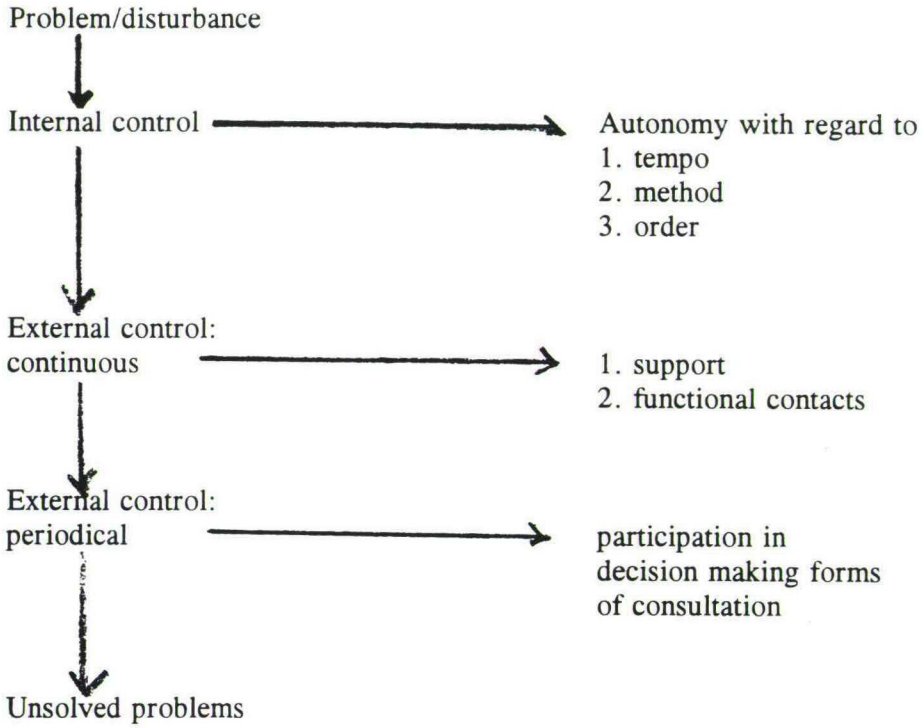

Figure 6 - Organizational control opportunities

This scheme fits well with the general idea behind the demand-control model of Karasek. We consider it to be a better conceptualization of the idea. And it fits well with two patterns that stressdynamics can take. According to Friczewsky (1985, 1988) we have to distinguish between situations in which people lack internal control opportunities (like in short-cycled, repetitive and monotonous work) and situations in which people do have internal control, but lack external control opportunities like in a lot of lower management jobs. Such a person does have a lot of autonomy in doing her managerial work. But a lot of disturbances can occur: rush orders that interfere with normal planning, equipment that goes out of order, materials that are of a bad quality or are not delivered in the right time and/or in the right amount, sickness absenteeism of subordinates etc.. If in such a case she cannot consult with the planning department to change the planning, with maintenance to repair equipment, with the materials department to change quality, quantity and delivery time of materials, with the personal department to get additional workers she will be in trouble. Her autonomy now becomes a burden: you are supposed to be able to handle all these problems, that's what your autonomy is for! In order to reach her departmental output norms, she will join the work to be done and she will put pressure on her subordinates. In the end

she will be exhausted and doubt her managerial capacities and she will be confronted with dissatisfied superiors (for not reaching output norms) and subordinates (for putting them constantly under pressure). Two lessons are to be learned from our manager. First her unhealthy coping behaviour is stimulated or even forced upon her by the nature of the situation: not her coping, but the situation she is in is the problem. Second the dissatisfaction of subordinates with their immediate superiors can have structural, organizational causes. In such a case leadership training would offer no help. That's why we say that preventive policies first look into the work and its risks. Only when these risks are absent or unavoidable do we look into persons and their coping behaviour.
When people are confronted with unsolved problems they will try to develop 'invisible' control or latitude: our manager will keep hidden stocks of materials and will use unrealistic capacity norms. Note that she needs invisible latitude only because she lacks external control opportunities. Invisible latitude is a strategy she needs for selfdefense and as such is a symptom of a wrong organizational structure. As a consequence, system losses will occur. When this is noted and reacted upon by tightening control and further division of labour, her unsolved problems will become unsolvable problems: even her invisible latitude will tend to disappear. As a consequence she will develop feelings of stress (because of unsolvable problems), an attitude of alienation (she will lose her involvement both in her work and in her organization) and because of both the risk of sicknessabsenteeism will increase (figure 7):

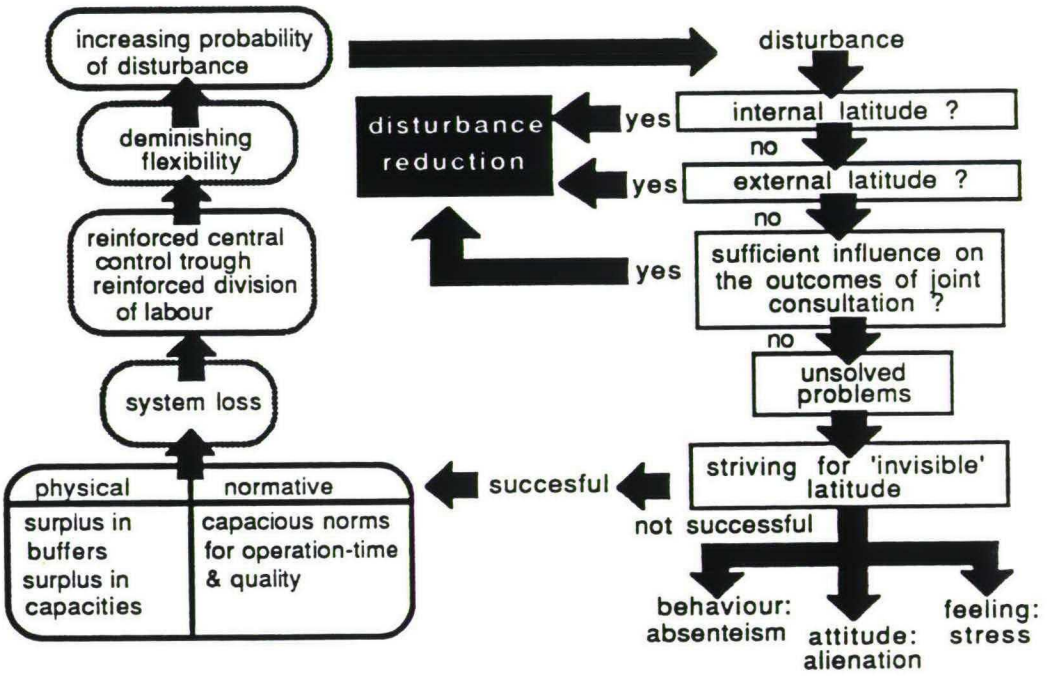

Figure 7. The organizational dynamics of stress. (de Sitter, 24)

8. Learning opportunities: completeness

To be able to work in an organization in the instrumental sense, we need skills of a diverse nature. Skills can only be described in terms of the actions they enable us to perform. A description of a skill is just a more detailed description of what it enables us to do. As a consequence, there are as many skills as there are different types of action, that is infinetly many. So, the problem of a theory on skills is first of all the problem of a suitable typology of actions. We distinguish among other things between occupational and organizational actions that require occupational and organizational skills.[18] Occupational skills enable us to perform the operations that belong to our profession. They are acquired in educational institutions and further developed during our actual work. Organizational skills enable us to participate in joint consultation and decision making on topics that transcend our individual job. Because we are part of a network of functional interdependecies our activities have to be coordinated. This coordination can be centralised, it can be formalised in rules and it can be delegated to forms of joint consultation. Joint consultation can be continuous (functional contacts: when the need occurs we coordinate our work) and it can be periodical: we meet on regular times to discuss the coordination of our work). So, joint consultation is the same as external control.
To develop criteria for the assessment of learning opportunities, we start from the principle that every job can, but is not always composed of performance (preparation, execution, support) and external control operations or tasks (continuous and periodic joint consultation).
Execution refers to the core of your job: teaching, drilling, maintenance, research et.
Preparation refers to all things you have to do before you start with execution. All the elements of your individual labour process may need preparation: materials, means, methods, order of work.
Support refers to all you have to do in order to maintain and to improve your execution. Again, all the elements of your individual labourprocess need maintenance and sometimes improvement.
Organization or coordination refers to all forms of joint consultation: together with other people you make decisions that are needed because what you do is part of a network of functional interdependancies (figure 8):

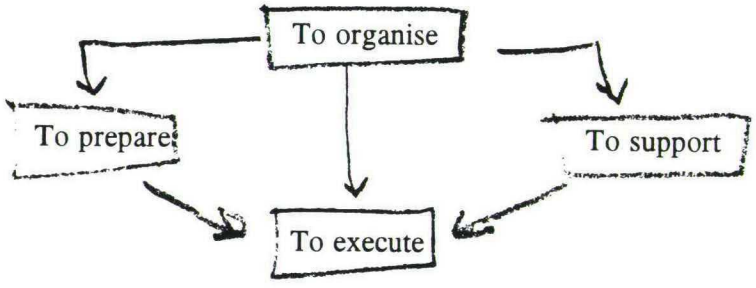

Figure 8 - Possible tasks as elements of a job

We learn only by doing the things we want to learn (reading only books on an occupation will not enable you to perform well in it). So, a job offers learning opportunities if it lets us do all these things, it has to be a complete or whole job.[19] A job is complete in an occupational sense when it is composed of a logically coherent whole of preparation, execution and support: if you can't prepare and support your own work, you won't learn much from it. Educational institutions are

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[18] *We also need strategic skills to defend our interests in the employment relationship and communicative skills to be able to participate in face to face relationships.*

[19] *We take the notion of completeness from Hacker ().*

supposed to teach us all these things. Organizations however tend to design only incomplete jobs. A job is complete in an organizational sense, when it also offers opportunities for a range of coordination tasks: if you are not allowed to participate in continuous and periodical forms of joint consultation you are not able to develop your organizational skills.
So far, we have applied sociotechnical distinctions to the level of individual jobs or labour processes. We now want to show the organizational dynamics of learning opportunities (just like we did for stressrisks). To do so we can apply the same distinctions to the level of the organization. Figure 8 then gives a presentation of the activities within an organization. Note that we distinguish activities by their function, not by their content. Organizations differ in the way they group, allocate and couple these performance and control activities. Bureaucratic organizations group executionary or production activities according to the nature of the operations: the same operations are grouped together. Workers then perform one operation on a magnitude of products. And they seperate preparation, support and control from production. The result will be complex organizations with simple, incomplete jobs (figure 9):

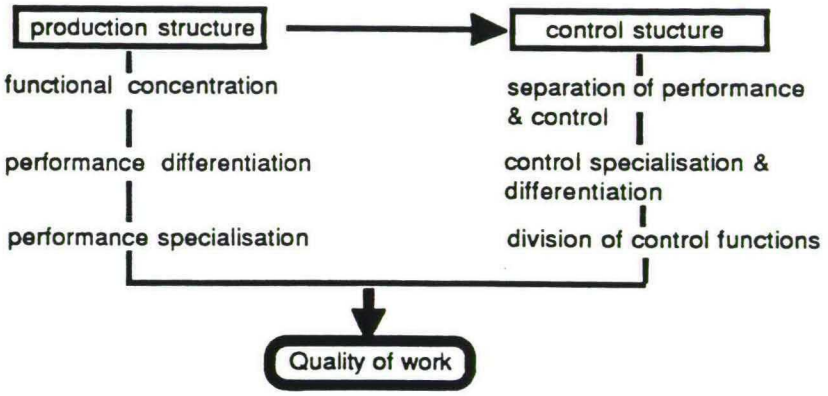

Figure 9 - Quality of work in bureaucratic organizations (de Sitter)

Organizations can also group production activities according to the product they belong to by parallellization in flows and segmentation within flows. Workers in a task group now perform a multitude of operations on a restricted set of similar orders. In the next step preparation, support and control can now be integrated within jobs. The result will be complex and complete jobs in simple organizations. Of such an organization task groups are the building elements.

9. Intermediate summery

Risks of wellbeing are assessed by looking at the balance between control problems and opportunities (stressrisks) and by looking at the completeness of jobs (learning opportunities). As will have become apparent, there exists an amount of overlap between the stressrelated and learningrelated dimensions of jobs. By increasing completeness you also increases internal and external control opportunities and so decreases stressrisks. And by increasing control opportunities you increases completeness and thereby learning opportunities. This overlap enables us to formulate five socalled quality questions. The answers to these questions tell you everything you need on the quality of work. These questions are:

1. Does this job consist of a logically coherent whole of preparation, execution and support?
   Stressrisks: if so, your work will be varying both in fysical as in mental respects. It will offer you also internal control opportunities (f.e. preparation of method and order of work).
   Learning opportunities: to be able to learn you need to be able to prepare and support your own work as much as possible.

2. Does this job consists of a range of organizational tasks?
   Stressrisks: external control opportunities.
   Learning opportunities: without these tasks how can not maintain and develop your organizational skills.
3. Does this job contain enough autonomy?
   Stressrisks: internal control capacity with regard to tempo, method and order of working.
   Learning opportunities: you will not learn much from your work, when detailed instructions tell you what to do when in what way.
4. Does this job contain enough opportunities for mutual support?
   Stressrisks: external control opportunities.
   Learning opportunities: learning above all takes place when coworkers help you in solving problems. That is the way the 'tricks of the trade' are handed down to you.
5. Does this job consists of an even distribution of complex and simple tasks?
   You will not learn much from only simple tasks and only complex tasks will cause strain.

10. A practical instrument

A practical instrument should enable its users to describe jobs in such a way that
1. such a description gives information about the presence of stressrisks and learning opportunities
2. such a description and assessment gives information on the redesign of organizational structures that is needed (figure 10):

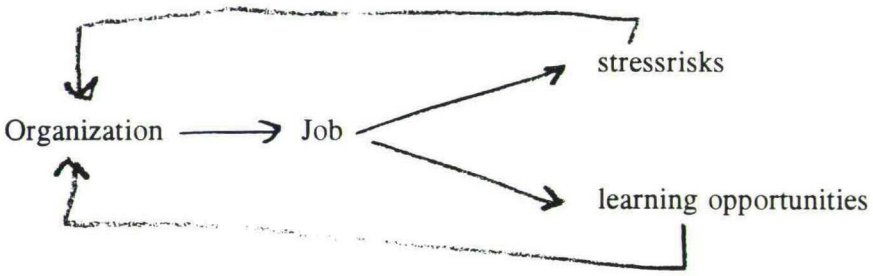

Figure 10 - Coherence of description, assessment and redesign

We have tried to reach such a coherence by making use of the concepts of sociotechnical systems theory. The instrument consists of a set of instructions that tell its users:
1. What information they need to be able to answer the 'quality questions': a description or inventory of tasks, problems and control opportunities. The global frameworks for such inventories as offered in this paper are logically complete. In the instrument itself, these frameworks are further elaborated in a stepwise manner. As such they give the user of the instrument both the detailed information they need for answering the "quality questions' and for redesigning the organization in order to reduce risks of wellbeing.
2. How to answer the 'quality questions'. The implication of this is that users not only have to understand the reasoning upon which the instrument is builded, but that they also have to agree with it. They have to say: this is a sensible way to assess risks of wellbeing as far as they are caused by the content and organization of work.
3. How to report in an effective and efficient way. Possible answers to the questions can be:
   * satisfactory: no measures are needed;
   * unsatisfactory: measures are immediately needed;
   * satisfactory in a limited way: attention is needed either because things could be better or because we need a specialised investigation on this topic.

4. What to do about risks of wellbeing. We distinguish between four kinds of measures that can be taken:
   Adaptational measures aim at a reduction of control problems. Problems that are a hindrance in the performance of work and in this sense make work complicated are eliminated.
   Improvement measures aim at more complete jobs with more control opportunities. By adding preparation, support and control, jobs are made more complex.
   Renewal measures have the same target. However, to reach this target it can be necessary to change in a fundamental way the manner in which operations are grouped, allocated and coupled. Parallellization and segmentation are no easy affair, partly because it involves the transformation of different departments.
   Accompanying measures are always needed when the content of jobs is changed: people have to be trained and jobs have to be reclassified with possible consequences for salaries.

The details of the instruments are described in Christis, Fortuin (1989) and in Projectgroep WEBA (1989). For an example of a practical application of the instrument within an organizational intervention, see Terra (1992).

Literature

Becker-Schmidt, R.
Widersprüchliche Realität und Ambivalenz: Arbeitserfahrungen von Frauen in Fabrik und Familie. In: Kölner Zeitschrift für Soziologie und Sozialpsychologie, 32, 681-704, 1980.

Benner, P.
From Novice to Expert. Menlo Park, Calfornia, 1984.

Benner, P. & Wrubel, J.
The primacy of caring. Stress and coping in health and illness. Menlo Park, California, 1989.

Bhaskar, R.
Scientific Realism. London, 1975.

Bhaskar, R.
The possibility of naturalism. London, 1979.

Christis, J.
Psychische arbeidsbelasting. In: Gedrag en Organisatie (1), 55-72, 1988.

Christis, J.
Arbeid en Stress. In: Psychologie en maatschappij (171, 31-47), 1993.

Christis, J.
Arbeid, organisatie en stress. Forthcoming.

Christis, J., Fortuin, R.J.
Het ASA-instrument. Amsterdam, 1989.

Frese, M. & Semmer, N.
Stress. In: Frei,D. & Greif, S. (Hg.) Sozialpsychologie. (2e, erw. Auflage). München - Weinheim, 1987.

Friczewski, F.
Entstehung und Prevention arbeitsbedingter Erkrankungen - ein ökologischer Ansatz. In: Naschold, F. (Hg), Arbeit und Politik, Frankfurt am Main/New York, 1985.

Firczewski, F.
Sozialökologie des Hartinzfarkts. Berlin: Edition Sigma, 1988.

Garfinkel, A.
Forms of explanation. New Haven and London, 1981.

Hacking
Representing and intervening. London, 1983.

Humphreys, P.
The chances of explanation. Causal explanation in the social, medical and physical sciences. New Jersey, 1989.

Karasek, R.
Job demands, job decision latitude and mental strain: Implications for job redesign. In: Administrative Science Quarterly, 24, 285-308, 1979.

Lazarus, R. & Folkman
Stress, Appraisal, and coping. New York, 1984.

Projectgroep WEBA.
Functieverbetering en organisatie van de arbeid. Den Haag, 1988.

Sitter, L.V. de
Leiderschapsvorming en leiderschapsgedrag in een organisatie. Alphen aan den Rijn: Samson, 1970.

Sitter, L.V. de
Kenmerken en functies van de kwaliteit van de arbeid. In: Dijk, J. van e.a. (red.) Kwaliteit van de Arbeid. Leiden, 1980.

Sitter, L.V. de
Modern sociotechnology. 's Hertogenbosch: Koers, 1989.

Terra, N.
Prevention of stress related symptoms by a redesign of jobs. Amsterdam, 1992.

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