Abstract
In this article we discuss freedom of choice in action and its relationship with the concepts of fit and effectiveness from a managerial point of view and using a designing perspective. We have give our perspectives on fit as a construction, on freedom of choice and on dynamics. We regard the traditional interpretation of fit as static and deterministic and continued ideas of Thompson, Donaldson en Gresov & Drazin. The Systems Theory of Control does offer ways to gain more insight into theories about fit. A new dynamic concept does offer a conceptual framework for determining whether the actions at $t_1$ and $t_2$ may lead to results at $t_3$. The levels of aggregation were introduced for analytical purposes mainly. This advances the discussion about freedom of choice in action and fit and effectiveness by a small step.

Keywords
contingency theory
fit
effectiveness
equifinality
functional equivalence
structural equivalence
management
organization design
Systems Theory
Systems Theory of Control
Introduction

‘Goodness of fit’ is one of the core concepts of the contingency approach (Donaldson, 1996b). In general ‘fit’ refers to a relationship of a special nature between phenomena. The contingency approach relates the organizational structure to contingencies such as technology and environment. When the organizational structure is in accordance with the contingencies, fit is said to exist. This carries the value judgment that things go better if there is a fit: fit is better than misfit.

Various authors described the concept of ‘fit’ from various perspectives. Sometimes fit is interpreted as a deterministic relationship between two or more variables, for example: the structure of the organization is or should be determined by the technology or the environment. Usually the concept of fit is regarded statically, at only one point in time.

From a managerial perspective however deterministic and static conceptions are not very relevant. A managerial perspective implies after all that fit is something that is strived for in a dynamical process at various levels of aggregation in order to advance effectiveness. Managerial actors have some freedom of choice. The actions performed by managers provoke responses, which create an interaction.

Especially from a dynamical point of view analytical and empirical questions remain such as: What is fit exactly? How can it empirically be tested? How does fit come into existence? What is the relation between the fit concept and management?

In this article we intend to contribute to a managerial concept of fit. We shall refrain from a deterministic and static perspective on fit by using the Systems Theory of Control in conjunction with a new dynamic concept usable at various levels of aggregation. If we adopt a management perspective, we may ask the question which actions lead to fit and which do not. Or, in other words, which actions are judicious and which are not? And how may these actions be considered from a temporal perspective?

We first will discuss the traditional interpretation of the concept of ‘fit’ as described in the literature, as well as the construction and operational definitions of the concept (section 2). Thereafter we shall give attention to newer ideas about fit of Donaldson and Gresov & Drazin. We will discuss their ideas related to (a) managerial choice, (b) fit as a dynamic process and (c) a designing perspective of a manager (section 3). Then we will examine fit from the perspective of the Systems Theory of
Control and will provide a modern dynamical concept of fit at various levels of aggregation and using freedom of choice (section 4 and 5). In section 5, we end with a case of a supermarket manager, to show the dynamics of fit and the managerial choice related to fit.

The traditional interpretation of fit
It seems appropriate to us to start the discussion with a simple analogy. The traditional idea of fit might first be explained by a well known proverb in circles of hikers: There does not exist bad weather but only bad clothing. Clothing and other equipment must be suited to the hiking aims, to properties of the terrain and to the weather. Of course this must be suited to the person itself too. Now the idea of fit is simple: for specific circumstances specific clothing and equipment is suitable (fit) or not (misfit). It is evident that the case of fit creates more chances to reach the goal. This everyday idea of fit is recognizable not only by walking but, in a variety of forms, with almost every human activity such as choosing the appropriate tools for a task. So one simple idea of fit is: suitable with respect to the aims and the context. We note that our example deals with an individual. However, within the traditional interpretation of fit we would describe an organization, for example a group of hikers dealing with contingencies such as the weather. We argue that it is important to distinguish between various levels of aggregation in order to help a manager to disentangle the concept of fit. In our search into the concept of fit we encountered two other idea’s from one of the founders of contingency theory J.D. Thompson (1967) who introduced fitness for the future as a criterion for the assessment and who introduced a voluntaristic approach. “For the organization as a totality, the important question is not what it has accomplished but its fitness for future action” (Thompson, 1967: 88). This idea adds a dynamical flavour to the idea of fit and is interestingly enough tied to everyday conceptions too: fitness means that someone's condition meets the future. Fitness means also: he can take a bit of a jolt again. Thompson thinks also that there's freedom of choice: “it must be clear that such factors as technology and task environment seldom completely determine how organizations act. When the immutable facts of organizational life have been faced and the contingencies spelled out, organizations have choices” (1967: 99). This opinion
adds a voluntaristic element to the idea of fit. Fitness means that it is also possible to adapt the contingencies. In his work Thompson described the organization level (1967: 3-98) as well as the level of the individual (1967: 99-163). We note that Thompson did not use the concept of fit for the individual level. However, he did describe what “organizations do and what they seek to do”, and continued that “they do nothing except as individual members within them act”. He added that “we must therefore consider behaviour of people in and around organizations if we are to understand the behaviour of organizations”. It is therefore remarkable that his work and the concept of fit were not extended to the individual level by other authors later. The concept of fit was merely applied to the level of the organization. Thompson's perspective is hereby interesting in our search into the concept of fit. So, according to Thompson we must unravel the behaviour of individuals in order to understand the organization; for our modern dynamic concept of fit we will follow the advice of Thompson later in section 3, 4 and 5.

**Scientific concepts of fit: the construction of fit**

The classical idea ‘goodness of fit’ in the contingency approach of course adjoins the ideas of suitability to circumstances, mostly called contingencies in relation with an organization. The contingency approach relates the organizational structure to contingencies such as technology and the environment. When the organizational structure is in accordance with the contingencies, fit is said to exist. All contingency factors together are referred to as the context.

Van de Ven & Drazin (1985: 335) list three approaches to the concept of ‘fit’.

1. **The selection approach**: “Fit is an assumed premise underlying causal organization context-structure models.” This means that the organizational structure should be appropriate to the context to achieve fit. Schoonhoven (1981) calls this the ‘contingency relations as interactions’, by which she means that when two variables (like organizational structure and context) predict a third (fit), the possibility of an interaction between the first two variables is overlooked. The selection approach does not leave room for an interaction between the variables. This perspective on fit is static and deterministic. Actors do not have freedom of choice, and changes over time are not explained.

2. **The interaction approach**: “Fit is the interaction of pairs of organizational context-structure factors on performance.” This approach assumes that
the fit is influenced by a bivariate interaction between the organizational structure and the context. It assumes that there are just two variables, but it does try to incorporate interaction and dynamics into the concept. (3) The systems approach: “Fit is the internal consistency of multiple contingencies, structural, and performance characteristics.” Fit is influenced by the internal consistency of the organizational structure and the context as a whole. Van de Ven & Drazin (1985: 353) assume that there are various ideal types, which results in equifinality and leaves room for some freedom of choice. They refer to ideal types such as the configurations described by Mintzberg (1979)¹. According to Van de Ven & Drazin, this approach allows the actor freedom of choice. We are of the opinion, however, that referring to ideal types does not shed sufficient light on the freedom of choice and the processes. Mintzberg’s approach is more in the nature of an empirical theory than a design approach. His interpretation of ‘fit’ does not apply to the actions of individual actors. This systems approach is therefore inadequate for managers.

Various publications by Venkatraman (Venkatraman & Camillus, 1984; Venkatraman, 1989), like those of Van de Ven & Drazin, also show that the concept of ‘goodness of fit’ is being developed further. Venkatraman (1989: 441) nevertheless states that a dynamic interpretation of the concept of fit has not been developed as yet.

To sum up, we have seen that the concept of fit has been developed further. More attention is paid to dynamics and freedom of choice. However, the concept is still essentially static, deterministic, and mainly directed at the organization level and less adequate in the use for managers. In this respect, it is remarkable that Thompson's original ideas of dynamics and freedom of choice, as far as we know, were only partly continued by his successors.

Fit and effectiveness the operation of fit

Within the contingency approach ‘goodness of fit’ is usually closely linked with effectiveness. Under certain conditions improvement of the fit is considered to lead to increased effectiveness. The assumption here is that the operational definition of fit equals effectiveness: effectiveness points to (is an important indicator of) fit. This way of reasoning however is not without problems. Put into the hiking analogy: Does the reaching of the goal really mean by definition that clothing and equipment was suitable? If the goal is not reached does that mean that clothing and equipment were
not fitting circumstances? The answer to these questions is of course: no. Baring good clothes and having fitting equipment is of great help but does not guarantee that one succeeds. It even is perfectly possible that successful hikers reaching their goals utter the sigh that next time they will change equipment. After all it appeared not to be fitting in every respect. Put into a more scientific frame one knows that the empirical knowledge is of a nature: Comparing successful hiking groups with not successful ones it can be demonstrated empirically (1) that there is a systematical difference in clothing and equipment, (2) that there is similarity between clothes and equipment of the successful groups, (3) that these latter are in accordance to regular Hiker’s ‘contingency theories’ about fitting clothes and equipment, (4) that the variable clothes and equipment interact with other variables like training and cooperation in the hiking groups and (5) that the interaction between all these variables promote success. Methodologically one can safely argue that the success depends upon a lot of variables among them contingency variables that are given (like the weather) and the contingency variables that can be chosen by the hikers (such as clothing and equipment). This also can be put into the phrase: Hikers that bear fit clothing and equipment are more likely to reach the goal even if the weather is bad. Thus, fit and effectiveness are closely related concepts. The question is how effectiveness is formulated and defined in operational terms. What is effectiveness really?

Many criteria for determining the effectiveness of organizations have been mentioned in the literature (Miles, 1980: 355-359). Campbell (1977: 36-39) mentions no fewer than 30 criteria. Mahoney & Weitzel (1969: 358) list 24 dimensions of effectiveness. These dimensions are based on 114 variables that have been reduced to 24 relatively independent dimensions through factor analysis. Seashore & Yuchtman (1967: 383) mention 10 performance factors with various indicators for each factor. These indicators are intended for use in an analysis for comparing the effectiveness of organizations, and, in addition, for comparing the effectiveness between organizations of different industries. They are not intended for an analysis that may help managers of individual companies to increase effectiveness. Therefore, the traditional operational definition of fit is less useful for managers. We assume that managers would benefit more from an instrument with which to assess whether their organization is effective or not.
Newer ideas of fit
As we have said before there is a move towards more dynamical, voluntaristic and sophisticated conceptions of fit that deserve attention before laying down a systems based one. We choose for Donaldson’s idea’s and those of Gresov & Drazin because they are of great importance for newer managerial conceptions of fit.

Donaldson: The SARFIT theory and managerial choice
Donaldson (1996a,b) is one of the most fervent defenders of contingency approaches against attacks from many sides among them accusations being deterministic and static. For our aim two elements of his plea are very relevant: (1) his SARFIT theory that dynamises contingency theory and (2) his view that the critics to contingency theory of not incorporating managerial strategic choice are not valid, because managers do not have much room for choice. This view apparently denies managerial choice and thus is apparently conflicting with our aim to contribute to a managerial idea of fit. We will not go into this debate deeply, but will only use his elegant solution of the apparent contradiction of contingency theory and managerial choice.

The SARFIT theory, according to Donaldson (1996b), underlies current contingency approaches. In this theory (Structural Adaptation to Regain FIT) fit is not seen as a static state but as the cyclical and dynamic idea of adaptation, fit, contingency change, misfit, structural adaptation, new fit and so on. Donaldson starts arguing that there is no (empirical) evidence for strategic choice. In a chapter “For determinism: Against Strategic Choice” (Donaldson, 1996a), he eloquently argues that organizational structure mainly is driven by the contingencies and not by strategic choice. In the next chapter, however, he states nevertheless that managers make choices with respect to structure. The determination of structure by the contingencies does not occur automatically. In his view this fit is produced by choosing managers that of course behave in accordance to knowledge about appropriate structures. His view probably can best be expressed by citing: “This is not a negative view of the role of management. It says that they typically select the right structure or move towards it over time. Managers add value to the organization by choosing the structure which is dictated by the contingencies” (Donaldson, 1996a: 51-52). In the hiker’s analogy: nobody would claim that hikers have no room for choice in the case that empirically is shown that
their clothes and equipment resemble a lot. On the contrary: precisely the smart
behaviour of hikers results in a predictive relation between circumstances and clothes
and equipment. It is not difficult to find other examples: automobiles bare many
similarities because of the simple fact that a lot of research and experimentation is done
in the automobile industry about the optimal properties of cars with respect to certain
conditions. Together with his SARFIT theory we so have a reasonable idea of how the
fit idea is related to managerial roles.

Though Donaldson does not couple his solution explicitly to the level of
aggregation, he switches from the traditional level of the organization to the level of the
individual in order to make the use of fit more dynamic and voluntaristic. He described
the effect of the managerial activities of the individual for the organization. We believe
that the explicit coupling of the level of aggregation, would even further improve his
elegant treatment of the apparent contradiction. The contingency predictions apply to
a higher level of aggregation where the managerial behaviour at a lower level of
aggregation is not visible but only from the eventual results in terms of structural
properties, effectiveness and so on. So predictability of structural properties of
successful organizations at a higher level of aggregation can perfectly be reconciled
with the idea of intelligent managers choosing in accordance with what they think
about fit. So acting managers use common knowledge when they make decisions. Fit
seems to be deterministic when they decide the same. At a high level of aggregation we
can distinguish a pattern in acting and the mutual adjustment of managers. At a lower
level there is an actor who makes voluntaristic choices. This point of view refutes the
argument of the critics that the contingency approach and the concept of fit are
deterministic.

*Fit and design*

From a contingency perspective designing organizations is striving for fit. But who is
creating the fit: the individual manager, several managers of an organization, or the
organization as a whole? Within the traditional conception of fit the organization would
create fit and before, in a more modern approach, Donaldson argued that the activities
of a manager or managers would create fit for an organization. Here we could argue
that a part of the activity of managerial actors might be seen as design. We therefore
wish to go into some aspects of design. We will discuss four aspects: (1) designing
deals with common knowledge, (2) designing is improvisation, (3) designing deals with function and form and (4) designing deals with a broad definition of structure.

(1) Contingency theory can be seen of as an empirical theory or as an aid for organization designers. Even the formulations of contingency statements are ambiguous: organizational structure is or should be fitting with contingencies. The solution of this mystery lies in Donaldson’s argument. In the hiking analogy: of course the clothing of those reaching the top can be predicted and of course hikers are choosing and designers try to improve equipment. Of course a lot of properties of automobiles can be predicted (e.g. modern strive for low air resistance in wind tunnels result in resembling forms of the body of cars). Automobile designers make use of the results and of course their decisions can be predicted because they will be in accordance with the knowledge. At a high level of aggregation fit seems to be deterministic and all managers act in the same way, while at a low level of aggregation fit is voluntaristic and managers make choices. The design they choose is in accordance with common knowledge.

(2) How far the idea of organization design is really a realistic one? Of course organizations are not designed in the same way as automobiles. But they are designed nevertheless. Let us confine ourselves to some critical views. Offenders of organization design hold that in reality circumstances never are of a kind that design as a free choice is possible: there are no alternatives etc. Besides the argument we stated before we take Weick’s brilliant view as a counter argument. Weick (1993) compares organization design with bricolage and improvisation. Organization designers do not create and realise ideal blue prints. They try to continuously improve by making use of the possibilities they have. Designing is bricolage. In a way the reasoning is not: What is the image of an effective organization? What elements I need?... but: How can I make use of present possibilities in order to move into the direction of an effective organization. Weick’s idea of designing can, as he shows, perfectly go hand in hand with interpretative perspectives at organizational change. As we will see Grasov & Drazin’s contribution elegantly deals with the idea of constraints in organization design. So in our opinion designing is bricolage and improvisation, which means that someone, for example a manager, has to make decisions and that there is freedom of choice.

(3) The fundamental model of classical contingency theory is totally equivalent
with a definition of design. We only shall give a very short account of this aspect. In the foregoing we already have linked the idea of contingency and fit to deliberate and intelligent behaviour of actors such as hikers and automobile designers. Part of the managerial role is designing indeed. The link with design might be strengthened by simply looking to the literature about engineering design such as Pahl & Beitz (1992) and Dym (1994). Therein designing is described (and prescribed) as a process of rational choice for a model of a system that meets conditions. Elsewhere (De Leeuw, 1996) we defined design as the creation of a model of a future system in an environment within constraints that will perform according to goals. This definition can easily be seen as an abstract version of the contingency idea: designing an organization is creating a model of the organization in the future that is in accordance to environmental contingencies. From engineering design it is self evident that an appropriate system must be designed reckoning with: (1) the environment in which it must operate, (2) the function that it must perform, (3) the performance criteria that will be set and (4) design constraints. In engineering design a fundamental idea is the distinction between function and form: precisely the fact that the same function can often be realised by more and different forms make design a choice activity too. Different forms can be said to be functional equivalent. The function is more important than the form, and there's freedom of choice in the form. That means that the forms cannot be discerned in terms of performance as assessed with the criteria that apply. We shall see that this idea is also fundamental to the theory of Gresov & Drazin.

(4) It is said that managers design organization structure. In engineering design however one speaks of the form. Designing is judicious choosing of all available variables.; also of variables like the contingency factors itself. Managers can design the technology and equipment at t1. Later on at t2 it might reduce the choices, but when they invest at t1 they do have managerial choice. The same can be said about another traditional contingency factor: the environment. Managers can design the environment by takeovers, joint ventures, mergers, etc. They also can make technological, organizational and product innovations which change the environment. So one must use a broad idea of structure. It especially is wrong to think about structure as formal relations. (De Leeuw, 1994).

*Gresov & Drazin: Functional equivalence and types of fit*
Gresov & Drazin (1997) remark that the idea of equifinality from systems theory in organization theory gradually has got the meaning of functional equivalence. It is a peculiar thing in our view because functional equivalence could easily have been developed from the science of design as referring to structures that perform equally. This is not the same as the original concept of equifinality that refers to the idea that a system can develop along different lines and nevertheless can reach the same state at the end. The original concept of equifinality supposes the possibility of different processes in reaching the same form, while the systems theory supposes different processes and different forms in reaching the same function. If one wants to tie this to strategic and managerial choice one has two related but different arguments: (1) there are several structures that perform equally well (structural equivalence) and (2) there are different ways such a structure can be reached. So there is choice among equivalent structures and among lines of development that are equivalent as compared to the end state. The idea of equifinality is perfectly combinable with Donaldson’s version of managerial choice and Weick’s improvisational bricolage version of design. In Donaldson’s version managers at the lower level make decisions about the same function. In Weick’s version managers design improvisational in different processes, and using different forms. So we do not follow Gresov & Drazin (and others) that equate equifinality with functional equivalence for the distinction produces useful insights. We distinguish equifinality (which are different ways in reaching fit), structural equivalence (which are the different forms in reaching fit) and functional equivalence (which are the different solutions in reaching fit).

The elaboration of equifinality of Gresov & Drazin that from now we will call functional equivalence however is very useful for revealing the choice situation of managers and the fundamental mechanisms behind contingency theory. So, up to now we are still on the aggregation level of the individual manager seeking for fit. We shall follow Gresov & Drazin’s lines of thought with some changes and additions. Central to their argument is the classification of four situations out of two dimensions (figure 1). The first dimension is the amount that a design situation is characterised by the degree of conflict in functional demands. In a simple case all functional requirements flowing from the contingencies are compatible. In a complex situation they conflict. The second dimension is the degree of structural flexibility or latitude available to the
organizational designer. There may be a situation of little constraints (high flexibility, high latitude) or much constraints (low flexibility, little latitude). Gresov & Drazin argue that the choice situation and consequently the organizational (re)action differs for the four cells.

For cell 1: Ideal profiles we have little room for choice and compatible functional requirements. The designer than has no choice. They argue that structural equivalence is not expected. However this seems to be correct, there are two failures in this argument. There may indeed be only one structure that meets the demands but there can be nevertheless different ways for reaching this state. So one must discern between situations that there is equifinality or not. In the case of equifinality there remains choice. This of course is relevant if one looks at fit from a dynamical perspective. The second failure has to do with levels of aggregation: it may be that for every specific organization in the population there is little latitude but the constraints may differ for
different organizations. At the higher level of aggregation where in most contingency studies data are collected there will appear different structures that in a way are dictated by the different set of constraints of the different organizations. This even becomes more clear if one recognizes that the constraints partly flow from earlier design activities that are so to speak memorized in the actual structure and thereby constrain future development. Even with the same and low degree of flexibility one thus may encounter different solutions for the end state (functional equivalence) as well for the routes to this end state (equifinality).

In cell 2: Suboptimal functional equivalence we have conflicting demands from the contingencies and much design constraints. Here it is evident that a design solution will force for a choice for some demands above others. This means reconstructing the context or by renegotiating performance criteria. We here have a type of functional equivalence in the form of trade off’s between conflicting functions. Organizations must choose or fail. One cannot fulfill by definition conflicting demands. It may be expected that different organizations face with the same situation make different choices which is the main reason of variety. This idea is not new in a way. Discussing contingency idea’s in a management seminar, a psychiatrist who acted as a manager told a famous simplified example for one of the causes of schizophrenia. A mother unintendedly reacted to the colour of the sweater of her child. Had the child chosen for the red one, she complained about not having chosen the green one and vice versa. The child loving his mother could not resolve this problem and finally became seriously ill. There however seems to be another possibility: decomposing the organization according to the conflicting demands and fitting the structure to each of them. This of course is possible to the extent that the situation (e.g. the environment) is decomposable. So in this cell one also can expect differentiation.

In cell 3: Trade off functional equivalence we meet a low degree of conflict in functional demands and little design constraints. Here we have real functional equivalence: as a result of the choosing managers a variety of structures may be chosen from the set of functional equivalent ones. Compared to cell 1 the variety that could be shown by a single organization is greater. At the aggregation level we might expect variation resulting from the equifinality we can have in cell 1, from differences in the constraints for different organizations and finally, characteristic for the situation in cell 3 variation flowing from the functional equivalence among the different structures
available to the designer. As different organization must be expected to be at different stages of adaptation it does not appear easy to discern the different origins of the variation. Nevertheless it is reasonable to expect more variation in cell 3 as compared to cell 1.

In cell 4: Structural equivalence we have conflicting demands and little constraints. Recall that we choose not to follow the authors in the using of equifinality and equivalence as synonymous. Gresov & Drazin call this cell: Configurational equifinality. Gresov and Drazin argue that a combination of cells 2 and 3 might be expected: a trade off between functions (different organizations will choose different functions to optimize at the cost of others) and for the chosen priorities we will have functional equivalence. Also in this cell one might expect differentiation to the extent to which the context is decomposable. So at the higher level of aggregation we have (above the variation from factors that are present in cell 1) variation resulting from different choice as to the conflicting demands and resulting from different choices from the functional equivalent set of structures available.

It will be clear that the conception of a designer confronted with the different design situations is fitting Weick’s realistic idea of designing as bricolage and Donaldson's version of managerial choice. We stress that we are still on the aggregation level of the individual manager here. In the next paragraph we shall build upon these views especially by developing a systems-based idea of the dynamical mechanisms of striving for fit by managers. We will discuss the problems of a manager who is designing the organization (in a broad way of meaning) and wants to reach a fit. We will use the ideas of structural equivalence in the discussion about freedom of choice. We will also use the idea of equifinality in the discussion about dynamics in the designing process.

**Fit in the Systems Theory of Control**

We have shown that a traditional interpretation of fit, both in an analytical and an empirical sense, is useful as an abstract tool on the aggregation level of organizations. However, this interpretation is difficult and perhaps not even useful for individual managers. Before developing our contribution to a modern approach to fit, we will discuss the contributions of *Systems Theory* and the *Systems Theory of Control* (Ashby
1956, Beer 1979, 1985, Jackson 1991, De Leeuw 1974, 1982). These theories develop further the previously mentioned systems approach to fit by Van de Ven & Drazin (“Fit is the internal consistency of multiple contingencies, structural, and performance characteristics”). From Gresov & Drazin’s analysis we take the idea of the amount of constraint in the design situation as an important variable and therefore develop a picture of the set of control measures the actor has: the control mix. The fit concept relates to the Requirements for Effective Control.
Control mix

The actions performed by the actor may be described as a control mix. A control mix is a selected set of control measures. The Systems Theory of Control distinguishes six internal and external control measures: internal routine control, internal adaptive control, internal goals control, external routine control, external adaptive control, and external strategic control. We will begin by explaining internal control. Internal control refers to clever manipulation of the control variables at hand. The structure of the system, the environment and the goal are taken as constant and invariable. Internal adaptive control refers to changes in the structure. Internal goals control refers to changes in the goals. These three types of control measures are closely linked. The Systems Theory of Control assumes that the environment may be influenced. Three types of external control are distinguished. External routine control refers to the influence on the environment at routine level; the structure and goals of the environment remain intact. External adaptive control refers to the influence on the environment by influencing the structure of that environment. External strategic control refers to the influence on the environment by influencing the goals of that environment. (See also the case at the end of this article. The case shows examples of the internal and external measures).

Requirements for Effective Control

From the management point of view, the central issue of the Systems Theory of Control is the actor. Although the Systems Theory of Control does not mention the concept of fit explicitly, there is a close connection since this theory has much to say about the way in which control should be exerted if effectiveness is the goal. We may see this particularly clearly in Requirements for Effective Control. These requirements fundamentally go back to Ashby’s famous Law of the Requisite Variety (Ashby, 1956) and are further developed by cyberneticians like Ashby (1958), Beer (1979, 1985) especially with his Viable System Model (Espejo & Harnden, 1989; Harnden and Leonard, 1994), Asby’s student Conant (1976) and Conant & Ashby (1970). In this approach, effectiveness is deemed to exist if actions are carried out judiciously. The actor in the Systems Theory of Control is considered to be a controlling organ (CO). The CO controls the target system (TS) and the environment (E) and pursues system effectiveness.
De Leeuw (1990, 1994) takes all requirements together in the Requirements for Effective Control. The Systems Theory of Control states that there are five Requirements for Effective Control: (1) The goal as evaluation mechanism. If this were lacking, the influence could not be targeted. Incidentally, the goals need not be complete or explicit, or constant either. It is sufficient for there to be an evaluation mechanism and that the goals can be evaluated on a regular basis. (2) A model of the target system. This enables the prediction of the effect of a control measure. (3) Information about the environment and the state of the system. (4) Sufficient control measures with which to control all kinds of disturbances. (5) Sufficient data handling capacity, which enables the use of the information required for taking control measures (De Leeuw, 1982).

The control measures are directed towards the effectiveness of the system. Fairly recently, the concept of effectiveness has been linked to the definition formulated by Checkland & Scholes (1990), in which control is regarded as effective if the goal has been attained (De Leeuw, 1994). We here have the type of problem already encountered with the hiker’s analogy. When the goal has been attained it is not always easy to determine if this really was wholly or partly the result of the control. If the goal has not been attained, this does not mean that the control has not been operative, and if the goal has been attained, the question remains whether this occurred in spite of or because of the control. De Leeuw thus establishes a relationship between the goals and the degree to which the control is effective.

This interpretation of the concept of effectiveness is interesting for management science. Effectiveness is linked to the preferences and perceptions of the CO. Control enables one to deduce whether the actions (control mix) will lead to a fit (effectiveness) or not. We regard the concept of effective control as an option for empirically defining the concept of fit: fit as compliance with the demands posed by the Systems Theory of Control.
Constraints and functional equivalence: the bandwidth

We have already shown that the Systems Theory of Control connects the internal and external actions. We assume that the internal and external actions (control mix) leading to a fit fall within a particular bandwidth, since the Systems Theory of Control does not assume that there is only one solution either. The bandwidth indicates the limits of functional equivalence (there might be several equally performing solutions), structural equivalence (there might be several forms) and equifinality (each of these might be reached by different ways). We define fit as actions of the manager that fall within the fit bandwidth that are supposed to be effective. Actions falling outside the bandwidth are not. Thus, an improvement of the fit leads to increased effectiveness.

But which actions are effective? What does the Systems Theory of Control have to say about acting judiciously? Part of the question is answered by the Requirements for Effective Control. One of the five requirements for effective control is that there should be sufficient control measures. The control measures are linked to the environmental conditions and the goal. Thus it is ascertained whether a control measure brings the goal any closer. This kind of reasoning takes us one stage further, but is in principle empirically void. It provides an instrument based on one’s own analytical framework with which to deduce whether the selected control mix comprises judicious actions or not. In our opinion, the terminology of internal routine control to external goals control provides no more than a classification of actions, although it does make the actions quite transparent (Rogier, 1995). At any rate, this approach clearly shows that there may be a misfit between, for example, the formulated goal and the control measures employed. It does not indicate, however, which control measures fall within the bandwidth and thus lead to effectiveness and which control measures do not. To determine the existence of a misfit, the researcher must define a bandwidth. Misfits are situations outside the bandwidth. We will discuss this in more detail in the next section.

A systems based concept of fit and effectiveness

In this section we will give a dynamic and voluntaristic interpretation of the concept of fit, from the perspective of the actor. We will begin by explaining our perspective on fit as a construct; then we will discuss the definition of freedom of choice, as well
as judicious and injudicious actions. By making this distinction, we attempt to make the ‘problem area’ of the bandwidth clearer. Judicious actions fall within the bandwidth and are directed at functional equivalent situations along functional equifinal lines of development in which the effectiveness satisfies the goal. The situation within the bandwidth is a situation in which there is fit. Next, we will discuss the levels of aggregation which could be used in the conception of fit. We will describe four levels leading to fit: the individual actions of a manager, a set of actions of a manager, sets of actions of managers, and sets of actions of the organization. Finally, joining Thompson’s ideas and Donaldson’s SARFIT theory we will provide a dynamic interpretation of fit. We will offer a new perspective on fit by distinguishing three points in time: fit in thought, fit between thought and action, and fit between action and the result of action.

Construction
From the perspective of the manager (the actor) the interaction between organization and environment is crucial for the effectiveness of the company. This is consistent with the traditional approach to fit, which usually distinguishes an internal and an external variable that influence the fit. The question is: which are these variables? In our approach the organizational structure, the primary process, and the culture are regarded as internal variables, whereas the parties in the market—for example suppliers, competitors and clients—are regarded as external variables (Mobach & Rogier, 1995). The manager has freedom of choice, and an interaction may exist between all elements of the construction (figure 2). Simply put, the manager is attempting to achieve a (certain level of) profit and wants an organization with the best possible design to achieve this.
Freedom of choice

Our starting-point is obligatory action and voluntaristic action, for example, of one manager with one action aiming for a goal: to move a system from state A to state B (figure 3). The voluntaristic action reflect the freedom of choice. Freedom of choice offers several alternatives for action, one or more of which may be selected. *Injudicious action* is inconsistent action. *Judicious action* is consistent action, and may be divided into sensible and non-sensible alternatives for action. The *sensible* action is expected to provide the manager with a more direct route to his goals. *Non-sensible action* does not have an immediate effect on the goals pursued. It is not effective and therefore is really wasted effort, but it does fall within the bandwidth; it is not injudicious. The sensible action is only sensible if it is also feasible. *Feasible action* is possible from both the technological and the economic point of view.
The distinction between the action alternatives can only be deduced logically, since judicious and injudicious actions can only be distinguished on the basis of deduced consistency. The actions thus become linked to the intended goal and to the question of whether the intended action brings that goal any closer or not. The definition of the bandwidth thus becomes linked to the strategy of the organization.

Levels of aggregation

Within this discussion some questions rise: Are we discussing individual actions or sets of actions? Who is performing these deliberate actions: the individual manager, managers, or even the organization? We stress that all levels do matter with respect to the conception of fit. We would argue that the individual action of an individual manager could result in a fit, as well as the actions of a complete organization. Before, we saw that the classical conception of fit was related to the level of the organization mainly. Later, we introduced Donaldson to describe the actions of managers in relation
with the organizational fit. In the organization-design discussion and the presented work of Gresov & Drazin it was added that the individual manager could achieve fitness for the organization. Here, we argue that it would helpful to distinguish some levels of aggregation for analytical purposes. Firstly, we have the individual manager performing an individual action in the real world. Within this perspective a fit would be achieved if this action is judicious and sensible, aimed at functional equivalence. Secondly, we have the individual manager performing a set of actions in the real world. Consequently, a fit could be achieved if the set of actions is judicious and sensible, aimed at functional equivalence in order to reach a certain goal. The same goes for several managers and the level of the organization. However, we do recognize that there is a problem here. When do we achieve a fit with a set of actions? For instance, if we perform a set of ten actions out of which four are judicious and sensible and six are not, then how would we value the fit of the set of actions? The four performed actions might as well be the most important ones. In addition, Handy (1994) argued that consistency will be easier to achieve with rather vague and broad defined goals. He added that inconsistency at \( t_i \) could as well lead to consistency with the future goals of \( t_e \). The world might not be the same place at \( t_e \) which in turn could affect the sensibility of actions at \( t_i \). So, later we would value the actions sensible, whilst they seem insensible at this moment. We do not solve this problem here; we have to wait and see what would happen if the four actions were performed. So, we are in need of a dynamical concept.

**Dynamics**
To begin with, we should state that the researcher defines the bandwidth at a certain moment in time on the basis of the adopted analytical framework and the strategy pursued by the manager. On the basis of this framework and the strategy it may be deduced which actions are obligatory in nature, which are injudicious and which are judicious. However, the definition of this bandwidth is not only related to the strategy of the organization, but also to the concept of time.

**Equifinality** may be regarded as the result of actions that lead to a desired final situation or functional equivalent states. Before the final situation occurs, it will only be possible to deduce whether a particular set of actions will probably or certainly have the desired
result. Various sets of actions are regarded as *equifinal* if each set is consistent. The set may contain both sensible and non-sensible actions, but may be called judicious in its entirety. It comprises all actions that at this point in time cannot rationally be expected to be injudicious in terms of the goal. The bandwidth defines the limits of the equifinal situations, in which the effectiveness satisfies the defined goal.

We have already stated that we distinguish points in time where the fit is determined and the result of the actions is noticeable. Joining the SARFIT idea we visualize the dynamics of fit with a time line, on which we mark three points of fit: \( t_1, t_2, \) and \( t_3 \) (figure 4). This series is always followed by a new series, but the new series may partially run parallel to the previous series or previous sets of series. We will only discuss the ‘basic series’ here.

*Fit at \( t_1, \) fit in thought.*

It is impossible to guarantee that fit will occur prior to an action being performed. The market changes constantly and the situation cannot be studied ceteris paribus. Moreover, managers will not be able to obtain all the information they may want to have. They will therefore not be able to predict all the consequences of their actions.
This means that we can only deduce in advance which actions seem to be judicious and seem to result in situations of functional equivalence. In this sense, the bandwidth is closely linked to the concept of time, i.e. the points in time at which the actions are conceived, performed and evaluated. We define the fit at \( t_1 \) as a set of actions assessed to be judicious and consistent (control mix) which the actor intends to perform. The manager assumes the sets of actions deduced in this way to be equifinal. The fit at \( t_1 \) is the *fit in thought*. The conceived control measures are consistent in the view of the goal prevalent at the time of their conception.

**Fit at \( t_2 \): ‘fit’ between thought and action.**

We assume that the actions of the manager will be more effective the more that the previously conceived actions match the actions actually performed. In general, the actions will then be well thought-out and less intuitive. We regard this as the ‘fit’ between thought and action.

To a considerable degree, the ‘fit’ in the manager between thought and action may be traced back to differences in the way in which reality is experienced and the way in which this reality is created by day-to-day action. In this context, Argyris (1992) refers to the ‘espoused theory’ and the ‘theory in use’. Such theories, which Argyris sometimes refers to as theories of action, are regarded as the design of and selection from the repertory of actions available in a unique situation. Argyris states that research shows that people do not act according to this espoused theory. Actual behaviour is consistent with the theory in use. This theory in use cannot be discovered by interviewing the actors; it has to be deduced from behaviour instead. The theory in use is not consistent with the espoused theory, although in many cases people are not conscious of the difference. Mintzberg’s distinction between ‘intended strategy’ and ‘realized strategy’ (1988) may be mentioned in this context. Mintzberg states that “intentions can be fully realized (deliberate strategy), not realized (unrealized strategy) and a realized pattern which was not expressly intended (emergent strategy)” (Quinn et al. 1988: 15). If the concept of fit is applied to this statement, it may be assumed that Mintzberg also implicitly uses the concept of bandwidth, although this is not worked out in detail. In connection with the bandwidth Mintzberg states “No consistency means no strategy, or at least unrealized strategy” (Quinn et al. 1988: 15) by which he mainly refers to consistency of behaviour in relation to patterns of activities, intentional
or otherwise. However, he does not mention anything about the effectiveness of the realized strategy in this context. This shows that the concept of ‘fit’ is often still implicit and ambiguous.

We find that research may be hindered if a misfit is deemed to exist. Managers often do not realize that there is a difference between the things they believe and the things they actually do. Another problem which is related to the concept of ‘time’ may also be identified. Essentially, Mintzberg indicates that there are differences between the managers’ intentions and the things that are actually realized. From a research point of view this may mean that it is not a problem if there is a difference between the managers’ intentions and the realization. It may be that the manager is aware of the direction he should be taking, but has not yet had sufficient time to do so. The aspect of time appears to play a crucial role in the differences identified by Mintzberg. In addition, the direction also appears to be important. When does the divergence between the espoused control mix and the employed control mix really become too great? The only thing we can determine is that the relationship between t₁ and t₂ has to do with consistency. If consistency ultimately exists at t₁ and t₂ this will have a positive influence on the result. This does not mean to say that this result can then be accurately described.

*Fit at t₃: functional equivalence*

The fit at t₃ (‘final’ situation in this ‘basic series’) is important because it appears to be the goal of the entire exercise; t₁ and t₂ seem to be resources, as it were, for achieving the result. An entrepreneur of a profit-making company, for example, has to realize some profit to assure the continuity of his company. If the goal pursued at t₁ (profit) is indeed attained at t₃, then there is a fit between intentions or goals and the result at t₃ (profit). This does not mean that the relationship between the success of the realization and the actions performed at t₂ has been established. In other words, judicious actions or actions performed in accordance with the goal at t₁ do not automatically and naturally lead to fit. After all, the situation cannot be changed ceteris paribus, and some of the changes pursued may simply be impossible to realize now or even in the future. Neither does it mean that injudicious actions may not lead to a fit. For various reasons, such as a change in the environment, seemingly injudicious actions at t₁ and/or t₂ may still prove to be judicious and lead to a fit at t₃. It is just that we do not always possess
sufficient knowledge in retrospect to assess this. Nevertheless, we believe that the bandwidth within which the judicious actions fall provides limits for evaluating effectiveness. In accordance with the Systems Theory of Control, we therefore state that effective control at $t_i$ exists if purposeful influencing occurs. This control need not by definition lead to the desired result, but it should fall within the bandwidth. Moving only slightly in the right direction is sometimes already a good result. The fit at $t_i$ is also an observation that may influence new actions, such as a fit at later points in time, for example at $t_\infty$. It is important to note that the different situations Gresov & Drazin discern give rise to at least four different types of fit at $t_i$.

Case: The supermarket manager

In the following example we will describe the case of a supermarket (system) with a manager (Central Organ, CO) who controls his staff and the primary process (Target System, TS). The environment consists of customers, competitors and suppliers (Environment, E). This supermarket manager values the customer orientation of his organization highly. He feels the concept of ‘customer satisfaction’ mainly resides in the time they have to wait in the queue at the checkouts. Research has shown that his customers currently experience these queues as highly irritating and sometimes even consider shopping at his competitor further up the road.

Control mix

In this situation the manager can exert control in various ways. First, he employs internal routine control. He makes a better staff time plan. A measurement of the checkout waiting times has shown that the peak pressure occurs when employees are having their lunch breaks. The manager therefore changes the times for these breaks (figure 5). He also lays down a limit for the number of waiting customers. If this limit is exceeded, employees who are having their break are to interrupt it and help out. This does not appear to remedy the problem, however. He then attempts to solve it through internal adaptive control; the structure of the system is altered. He changes the rules of the game in such a way that when there is a queue of three customers, the third customer does not have to pay. This does not address the problem sufficiently either, he feels, so he decides to change his goals. He opts for internal goals control. He decides not to try and reduce the queues even further but attempts to make the wait more pleasant. He accepts the queues as a given and adjusts his aspirations. Each checkout is equipped with a television set so that customers no longer feel they have to wait for a long time. The manager may also use external routine control to achieve increased customer satisfaction. He has agreed with several former employees that they will occasionally help out for an hour or so at the checkouts or filling shelves during the lunch breaks. These former employees are available on demand. A form of external adaptive control is the Early Birds Discount. On Saturday afternoons in particular, peak pressure at the checkouts is extremely high. The manager therefore attempts to encourage his customers to shop earlier. He tries to influence their behaviour by offering everyone who shops before 10 a.m. on Saturdays a 5 percent
discount. The manager decides to do more and starts to advertise in the widely read local paper. This control measure is an example of external goals control. In his ads, the manager mentions the short checkout queues. He also points out that other supermarkets cannot match this. In this way he attempts to attract new consumers to his supermarket. Of course, the control measures mentioned here can be combined into a mix: the control mix. What can we now say about the control mix of this supermarket manager in the light of the customer orientation he wishes to pursue? Which of his actions are within and which are outside the bandwidth? Or, in other words, which actions are judicious and which are not?

IR altered lunch breaks for checkout staff
IA third customer in the queue does not have to pay
IG making checkout waiting times more fun by installing TV sets
ER former employees available on demand
EA Early Birds Discount on Saturday mornings
EG ads in the local paper

**Figure 5** The control mix of the supermarket manager

*Freedom of choice and the dynamics of fit*

To begin with, the actions performed by this supermarket manager are a form of freedom of choice. The manager could have decided not to respond to the developments. In principle, either a selection may be made from the actions in the control mix or all of them may be performed. This is the latitude the manager has. It may be possible, incidentally, for the desired goal to be attained with just one of these actions. The only clearly injudicious action is the internal adaptive action, i.e. the freedom-of-payment offer for every third customer. It is injudicious in view of the pursuit of maximum profit and shorter waiting times. The offer will make all customers move over to one queue, since the fourth and fifth customers will obviously not have to pay either. The measure is not consistent as it creates a long queue, something the manager is trying to avoid in the first place. This could have been deduced in advance at t₁; in addition, giving products away for free will not lead to the desired maximum profit. Installing TV sets at the checkouts may be a judicious decision at t₂, if at the same time the lunch breaks are to be changed. In retrospect it might appear at t₃ that the TV sets are not a sensible idea, if it were to appear that the altered lunch breaks have a sufficient effect of their own. In this example a fit at t₁ between the manager’s dissatisfaction with the checkout queues and the control measures employed seems to be lacking. The manager performs actions that are aimed at shorter queues. It becomes more difficult if ‘fit’ is lacking; there appears to be no connection between the dissatisfaction with the checkout queues and the control measures employed. If we were to ask the manager at t₁ what he feels to be important for the internal control, his answer would be customer orientation (espoused theory). If subsequently he were asked at t₂ what activities he is actually carrying out, these activities may appear to be primarily aimed at the quality of the product knowledge, for example. Since an increase in product knowledge at this supermarket does not relate to the checkout queues, there is a misfit between the assumed problem (‘thought’) and the control measures employed (‘action’). Often these differences are not so clearly recognizable, however. In many cases it appears difficult to ‘catch’ these differences between thought and action in the empirical

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situation. People are often unaware of these differences. In our example, the supermarket manager pursues a combined goal in order to satisfy his customers by reducing the waiting times at the checkouts. It may appear at $t_1$ that the waiting times have been reduced. This means the first goal has been attained, but it is not possible to say if this has influenced customer satisfaction. The action seems judicious and sensible since the reduction of the queues is unlikely to be judged negatively by the customers. In addition, it appears from a survey held by the manager that the customers have become more satisfied at $t_2$. The survey shows that 45 percent of the customers experience the checkout queues as the most annoying factor, whereas this used to be 75 percent. The goal to increase customer satisfaction has thus been attained reasonably well. The actions at $t_1$ appear to have been judicious and sensible. Nevertheless, this observation may lead to the formulation of a new goal for the fit at $t_3$, for example a maximum of 25 percent of the customers in a survey should mention the checkout queue as the main irritative factor. It should be noted that this example involves only a small partial process in the supermarket. In reality, several of these processes will occur in parallel and in sequence. It should also be noted that the situation obviously need not remain the same (ceteris paribus); the market may also show new developments.

Conclusion

In this article we have discussed freedom of choice in action and its relationship with the concepts of fit and effectiveness from a managerial point of view and using a designing perspective. We have given our perspectives on fit as a construction, on freedom of choice and on dynamics. We regard the traditional interpretation of fit as static and deterministic and continued ideas of Thompson, Donaldson en Gresov & Drazin. The Systems Theory of Control does offer ways to gain more insight into theories about fit. At least this approach explains that there might be a misfit, for example between the formulated goal and the control measures employed. It does not, however, indicate which control measures fall within the bandwidth and therefore may lead to effectiveness, and which control measures do not. In contrast, the new dynamic concept does offer a conceptual framework for determining whether the actions at $t_1$ and $t_2$ may lead to results at $t_3$. The levels of aggregation were introduced for analytical purposes mainly. This advances the discussion about freedom of choice in action and fit and effectiveness by a small step. In addition, we intended to have contributed to unravel the concept of fit for managers by using the Systems Theory of Control. Our method of reasoning distinguishes between judicious and injudicious actions on the basis of logic and consistence; this enables the bandwidth to be determined. In the case about a supermarket manager, we used this analytical framework and showed how we
can use the framework in the empiricism. The conceptual framework described in this article may help to advance the discussion about fit.
Notes

1 The systems approach of Van de Ven and the configuration hypothesis of Mintzberg correspond. “Most recently, the systems approach has begun to incorporate the general systems theory concept of equifinality by interpreting fit as feasible sets of equally effective alternative designs, with each design internally consistent in its structural pattern and with each set matched to a configuration of contingencies facing the organization” (Drazin & Van de Ven, 1985: 520). Later in this text Drazin & Van de Ven describe ‘the ideal type’, and, in addition, earlier in the text (Van de Ven & Drazin, 1985: 348) the connection was explicitly described. “Systems theorists conceive of organizations as holistic entities [...] In organization theory these elements have been referred to as ideal types. [...] Mintzberg (1979), and others have all identified basic patterns of organizing that are coherently designed to yield a systematic configuration to the components and that affect performance.”
Literature
1 These flows mainly from three points: the distinction between functional equivalence and equifinality, from the distinction between different levels of aggregation and from the distinction between decomposability and uncertainty as two different dimensions of contextual complexity (De Leeuw, 1994).

2 "Gresov (1989) provided an example of such a situation in the design of work units. He argued that work units can face inconsistent demands in terms of two contingencies: task uncertainty and horizontal dependence (interactions with peer-related work units)" (Gresov & Drazin, 1997: 413). The example drawn from research from Gresov however is false. The argument is that work units that at one hand have to meet low task uncertainty and high horizontal dependence meet conflicting demands as low task uncertainty asks for mechanistic structures while high dependencies ask for organic relations in order to handle external relations. This false reasoning flows from the (inter)mingling of two different dimensions of contextual complexity that is not seldom in contingency studies: uncertainty and decomposability (the reverse of dependencies) are different contingencies that ask for separate organizational answers. The work unit confronted with low uncertainty and high interdependencies will show a mechanistic structure and a lot of mechanistic coordinative mechanisms (De Leeuw, 1994). Though the example is false this does happily not harm the main argument.

3 Here we see another example why it is useful to discern between the different complexity variables uncertainty and decomposability (see note 1).