Chapter 9
Framing the Planning Game: A Cognitive Understanding of the Planner's Rationale in a Differentiated World

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Abstract "Framing the Planning Game" discusses four cognitive features—realism, relativism, relationalism and idealism—and their mutually supportive relationships. When taken together, these help understand a multitude of realities: a factual reality (realism), an agreed reality (relativism) and combinations of these two realities (relationalism) between the two extremes. An endless variety of combinations results in a differentiated reality, allowing the planner to consider every situation generically as well as specifically. We call this a *differentiated world view*. These various realities can be seen as a-temporal as well as directly related to desired futures (idealism), meaning that a differentiated understanding of the 'planning game' includes transformations caused by both time and non-linear processes. Such a flexible imaginative frame enhances the planner's vision, allowing them to embrace contemporary planning ideas while including a non-linear understanding of situations as inherently unstable and dynamic, a reality that all planners recognize but few integrate in planning.

9.1 Planning and Cognition

Contemporary planning considers realism and relativism to be the frames of our cognitive understanding. In this contribution we have strong reasons for expanding these two cognitive frames to include relationalism and idealism. In this chapter we elaborate on the consequences to the discipline of spatial planning if its world view were to relate to four rather than two cognitive frames. One of the consequences

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would be a fundamental transformation of planners' perspectives on their environment. Traditionally, the planner has a strong focus on the here and now. The planner either builds on the certainty of facts (the consequence of a realist perspective) or tackles uncertainty through agreements by consensus (framed by a relativist understanding). This has caused planners to have a dual perspective on reality: a factual reality and an agreed reality.

Introducing relationalism implies regarding reality as neither factual nor agreed, neither black nor white, zero or one, 'yes' or 'no.' Instead, relationalism would mean considering an infinitely variegated universe of realities between the factual and the agreed, introducing a differentiated world view. It is all a matter of degree, as we will see in this chapter. Realism, relativism and relationalism frame the world as it 'is,' a-temporally framing of our observations.

With the introduction of idealism, time becomes explicit: the world not as it 'is,' but as it is 'becoming.' Idealism frames the world beyond the here and now: it presents us with the world we can imagine and desire, a future world we might want to reach for. Thinking through the route towards this ideal future, we can no longer assume a clear, well defined and linear path, which is the implicit assumption of realism. With idealism and becoming explicit about framing the future, non-linearity cannot be ignored as a phenomenon. A non-linear perspective focuses on a world that is continuously becoming, full of uncertainties and with limited room for control. This world of becoming also generates possibilities, provided that the planner is able to identify them. While this might not be easy, it may well be more realistic than a dual reality built on either facts or agreements.

It should go without saying that expanding the planner's cognitive frames by also considering relationalism and idealism should not be a retrograde step. Instead, it should improve our capabilities in understanding reality and dealing with it. Introducing a differentiated world view encompassing non-linear behaviour could be a major step forward for the discipline of spatial planning.

We believe it opens up existing but previously undisclosed realities. Rather than getting lost in all these realities, we will explore alternative (if not better) understandings of the world we are part of. Our discussion concludes somewhat surprisingly with the idea that planning theory itself can be viewed as a *pattern* of idealist thought. As such, it behaves as an order parameter, a power law, an attractor and as a convention that we implicitly or explicitly acknowledge as being the way it should be, and act accordingly.

9.2 A Dual Understanding of Reality

Realism considers the world as 'out there,' full of objects with implicit, embodied meanings independent of our being conscious of them. Realism relates to the world that 'is'. In the early twentieth century it was thought that the world could be expressed 'objectively' with facts and figures (Nozick 2001). As such, an assumption was embraced that this world which 'is' could be fully comprehended,

given time, effort and capacity. This realism relates strongly to a Newtonian world view in which reality is ideally uniform and shows cohesion and order: Reality can be revealed in universal (orderly) laws to which the world conforms. A world working according to Newtonian reality would be full of direct causal relationships: mechanistic and functional.

Planners in the early twentieth century were strongly attracted to the concept of functionality (Faludi 1973; Meyerson and Banfield 1955; Tugwell 1932). In the fifties, sixties and seventies it became the cornerstone of their planning principles, in conjunction with concepts such as minimization, standardization and equality. This strictly functional perspective on the world was increasingly criticized in the late twentieth century as being 'emotionally hollow, aesthetically meaningless and spiritually empty' (Pirsig 1974). The rapid rise of critical realism can be seen as a response to this critique, which today is supported by most realists. Critical realism accepts that the world which 'is' is only partially perceived and socially constructed (Sayer 1984; Yeung 1997).

Relativism refers to worlds of meanings resulting from people developing, exchanging and incorporating mentally constructed values (Habermas 1995; Rorty 1991). While realism stresses a relationship between the subject and the object, the relationship between subjects is central to relativism. Relativism is about the world of subjects exchanging their mentally constructed ideas, values and opinions about the world of objects and how this world of objects should be interpreted. Intersubjectivity is therefore central to relativism: interacting subjects exchange their constructed values, opinions and stories, and attempt to make sense of these together, potentially leading to consensus on how to view the world (Lakoff and Johnson 1980; Nozick 2001). Relativism explains the emergence of culture and attitudes—both traits that are essentially shared by a group—and is key to understanding social behaviour and social values.

In the nineties, the planning discipline experienced a paradigm shift known as 'the communicative turn' (Dryzek 1990; Healey 1992). This turn is a shift in focus from an object-oriented type of planning to intersubjective interactions. It included the acceptance of a world which could no longer be regarded as fully certain: facts were no longer viewed as the only route to understanding reality. Reaching consensus became a valuable additional route to determining reality collectively, as it leads to agreements. Agreements became a welcomed concept to tackle uncertainty. Agreements about how to view the world are the result of shared ideas and consensus. Uncertainties can be transformed into certainties on the basis of agreements: not factual but agreed certainties. The consequence of this reasoning is fundamental: both factual reality and agreed reality matter!

As such, we have clarified why realism and relativism matter and are both parts of the planners' cognitive frame (De Roo 2003; De Roo et al. 2012). Both represent essential understandings of a reality produced by the human brain as an iterative, self-referential process of awareness relating the world of objects and the world of intersubjects, at once checking and balancing, reinforcing and debilitating, and

constructing, deconstructing and reconstructing processes of the self, the other and the environment. We will see in this chapter how this process of conjunction of the real and the relative supports spatial planning and decision-making processes.

To bridge a factual and an agreed reality with planning, decision-making and a proper or suitable institutional design, contemporary planning essentially builds on two rationales: technical and communicative. The technical rationale is framed by a realist perspective and neo-positivism, which incorporates the promise of certainty being within reach (Faludi 1973, Friedmann 1987). Decision-making processes within this realm focus closely on the facts available at the moment of decision. The *modus operandi* is that the effect of the decision can be known in advance and therefore taken into account. Accordingly, various steps of direct causal interactions will follow, ending in a situation or result that was expected to become real at the time the decision was made. Decision-making based on a communicative rationale aims for consensus between all the parties involved (Innes 1995). The communicative rationale is framed by a relativist perspective and by constructivism and all this incorporates. The parties involved are expected to have more or less equal vested interests they have in the matter, although the nature of the interests themselves will vary. An agreed reality transforms uncertainty into certainty and brings certainty back within reach. These two cognitive frames and their rationales seem mutually exclusive and are responsible for a dual attitude within spatial planning.

Within the contemporary planning debate there is an awareness of a realist and a relativist cognitive frame (Allmendinger 2009). A realist perspective offers planners a technical rationale through which to frame the world based on object orientation and the observation of facts: it is the planner's traditional rationale which is the technical rationale. Planning took a 'communicative turn' in the nineties. This communicative rationale emerged from and represents a relativist perspective: the world of intersubjective interactions and the exchange of values resulting in commonly agreed realities (Sager 1994). Both cognitive frames have been crucial to planning and its development. We argue that there is more.

We will continue the argument that relationalist and idealist perspectives are also relevant to the planning discipline (De Roo et al. 2012). A relationalist perspective enables us to see the world in degrees and allows us to differentiate situations in subsequent categories of planning issues (from small to large, from simple to very complex). An idealist perspective also refers to imagined worlds, worlds perhaps desired as statements of what is to be achieved, stressing the importance of becoming. We reason that these two cognitive frames support the planning discipline by considering a differentiated world view, both rooted in the here and now (relationalism) and with regard to time and imagined futures (idealism).

9.3 Facts and Stories

Are situations representations of a realist, factual world, or should these situations be regarded as relative, constructed facets of a world that is agreed upon? How should spatial situations be considered with regard to this duality? In practice, planners pragmatically combine both perspectives when observing, responding to and interacting with their spatial environment. A realist perspective dominates when the spatial situation is accompanied by implicit certainties and a common understanding of the situation at hand. A relativist perspective leads in situations which are fuzzy, fluid and vague, and where an implicit understanding among those involved is lacking. In such cases, a communicative process should unfold to facilitate the consensus required to proceed. This attitude of pragmatically combining the two worlds has been quite successful. It has resulted in the definition of a diverse set of recurring planning issues, to which a set of well-defined approaches, actions and planning behaviours relate.

This attitude is theoretically inspiring for us because it relates to *a differentiated world view* (De Roo 2003, 2010; Zuidema 2011). It recedes from the idea that the world we are part of 'is,' responding to universal rules through which the world can be 'fully' understood, if only we allow ourselves the time, money and energy necessary to become aware of all the essential facts. This certain, unalterable factual reality is no longer the 'single true world' that surrounds us. Nor is the communicative world of agreements—with all parties happily interacting to reach an attainable consensus—the only valid perspective. This agreed reality might be desirable for its capacity to satisfy the various interests at stake, but it could be a reality removed from what is actually happening. In contrast, a differentiated world view accepts that (1) situations are a mixture of certainties and uncertainties, and of facts and values, and (2) situations are individually perceived and perceptions differ between the parties involved. These individual perceptions and constructs can be shared to attain common understandings with others about how to understand situations and how to respond to them.

The framework for considering a diverse and differentiated world is a major step in our reasoning. Every one of us might be able to differentiate between clear and fuzzy situations, and in the realm of spatial planning the interaction with other subjects (parties or stakeholders) is crucial. Through mutual interaction we build grand ideas, discourses and paradigms about how to see the world and how to respond to it.

Consequently, we have now constituted various (if not endless) realities between two theoretical extremes, one that relates to a world in which 'certainty' prevails and in which a technical rationale can be followed to reach a desired 'end,' and a second extreme in which situations are made uncertain by the competing interest of numerous stakeholders and a fluid mix of functions and structures: In short, and a sense of the situation being 'fuzzy' (De Roo and Porter 2007). We argue that these two worlds which are seemingly opposite extremes of a continuum within which there are a diverse set of (real) situations and planning issues. By combining both

perspectives planners are better conceptually equipped to address situations in practice. We can frame these practices theoretically by positioning them on a spectrum between technical and communicative rationales. We call this the planners' *holy spectrum* (De Roo 2000, 2003).

One end of the spectrum is the technical rationale in its purest form. It is above all a theoretical position, not encountered in the empirical world. It is a crucial position nevertheless, enabling the understanding of situations which are themselves less clear and certain. On the technical rationale end of the spectrum there can only be one true world, clear and well defined in every possible way. This one true world is synonymous with perfect certainty. Collecting facts is imperative, as these are the building blocks of this certainty. From this realist perspective, the more facts we gather, the more complete the world will become, and the more certainty is gained, the better we understand reality.

From a governance perspective, this would mean that a single body of power is likely to oversee how its decisions develop at every level of implementation. This requires a coordinative government with a command-and-control approach, developing routine procedures and producing predefined outcomes (Faludi 1973). Moreover, planners in the 1950s and 1960s, having adopted the perspective of a certain world quite seriously, are eager to invest in collecting information to increase certainty. The result is a blueprint of the shortest route to an ideal outcome.

The other end of the spectrum is the communicative rationale, representing a world full of uncertainty. It is not a postmodern world in which we doubt all the information we encounter. Late-modernism is a better term for it (Harvey 1990; Jameson 1984). We consider late-modernism to be a perspective which accepts fundamental uncertainty, but which nevertheless can address it through intersubjective interactions. This correlates to relativism. Such interactions are meant to achieve joint agreements about the uncertainties which have to be dealt with.

Intersubjective interactions result in commonly accepted storylines. These storylines frame uncertainties, as they are carriers of proposals which overcome these uncertainties in support of further actions. Uncertainties are a trigger for groups to begin discussion and a leading reason for interactively reaching a common agreement which enhances a situation. The planner's task here is above all to bring people together, enabling them to share ideas and information, and understanding individual input as essential to reaching a common understanding of the situation at hand: the planner mediating between the various parties to help them develop then accept one storyline in common with which to frame and tackle the shared uncertainty in question.

While in a technical rational environment goal maximization is the ultimate task for attaining predefined 'ends,' at the communicative end of the spectrum the focus is on process optimization and agreement by consensus. Consensus is about defining the issue and sharing responsibilities in dealing with it. Shared governance is the *modus operandi* here, rather than command-and-control. In this mode, the government is no longer a coordinating body but rather a facilitating one. The focus is less on routine, such as a procedural protocol, than on the specifics of the situation and its contextual environment, and the stakeholders grouped around this

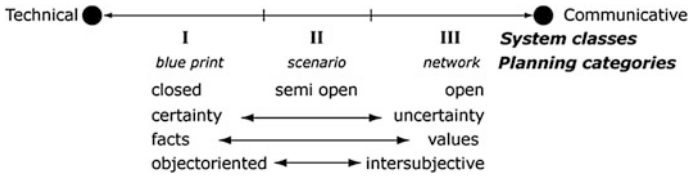

Fig. 9.1 The holy spectrum of spatial planning (De Roo 2010)

situation are likely to shoulder a major part of the responsibilities. Since the communicative turn in planning, uncertainty has been considered as real and as fundamental as certainty to the planning process. However, the communicative rationale is an extreme that cannot be found, in its purest form, in reality. But it remains vital; having a clear picture of this theoretical end of the spectrum can help us to work out how to address any situation between the two extremes (Fig. 9.1).

9.4 Along the 'holy spectrum'

If we take a closer look at the *holy spectrum* to think through what it represents, we discover that it offers a rather peculiar combination of rationales. These give expression to varying proportions of initial certainty and uncertainty. Technical rationale gives expression to the certainty-uncertainty ratio in a fundamentally different way than the communicative rationale does. The first is object-oriented, it builds on the world of facts. The second relates to intersubjective interactions and values the world as it is perceived. At first glance it seems these two rationales and the way they explain how to understand the world are separate and do not meet, as illustrated by Fig. 9.2a.

We believe the two rationales relate contingently to each other because the relationships between realism and relativism and between facts and value are contingent. To be more precise: we see a contingent relationship between object orientation (facts) and intersubjective orientation (values) in relation to reality. This contingency starts at a point where situations are perceived as undisputable factual

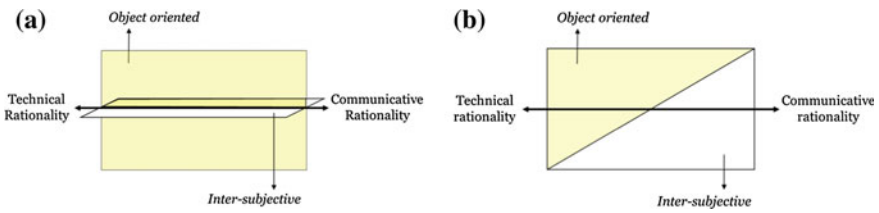

Fig. 9.2 Framing the duality of planning: crossing (**a**) and by ratio (**b**)

realities which do not require further clarification (or 'agreement') by inter-subjective interactions. Situations perceived with such certainty are positioned at the far left of the spectrum and are consequently strongly object-oriented. If we turn to situations which are increasingly uncertain, we observe a shift in attention: Object-oriented interest diminishes while inter-subjective interaction becomes increasingly relevant, as illustrated by Fig. 9.2b. Consequently, the spectrum between the two extremes of perceived certainty represents both the changing ratio between certainty and uncertainty along it and the existence of a continuum from object orientation to intersubjectivity.

A shift from left to right (which is a shift from certainty to uncertainty) on the spectrum also means that conditions expressed with a technical rationale become implicit while those expressed with a communicative rationale become increasingly explicit. However, a *contingent* relationship means that the two interwoven routes to becoming informed about the world—object orientation and intersubjectivity—do not just change proportionally with respect to which of the two routes is the most dominant: Both routes also change in character as they move along the spectrum.

The leading characteristics of the object-oriented perspective—direct causality, clear entity and a stable context not interfering—relate to the technical rationale (Fig. 9.3a). These qualify facts and a strictly factual world. In situations in which technical rationality prevails, only direct causal relationships are taken into consideration, making any movement or change predictable. Entities stand out clearly from their context, which becomes irrelevant as it in no way interferes with its factual identity. Yet in an uncertain world—in a diminishing technical rational environment—we are no longer able to see less clearly if at all direct causal relationships. Instead, we are confronted by relationships which exhibit remote causalities; entities are no longer explicit but fuzzy, fluid, vague and undefined, partially due to the difficulty in distinguishing them from their context which is itself unstable. Emery and Trist (1965) qualify this discontinuously situationally interfering context as 'turbulent fields' (Fig. 9.3b).

Although in sharp contrast with the logical-positivist reasoning of technical rationale and its promise of certainty, it is not hard to imagine the relevance of a fuzzy situation to its characteristics: It opens causality, entity and context to debate (see Fig. 9.4a). While a fact represents a clearly defined world, a debatable world

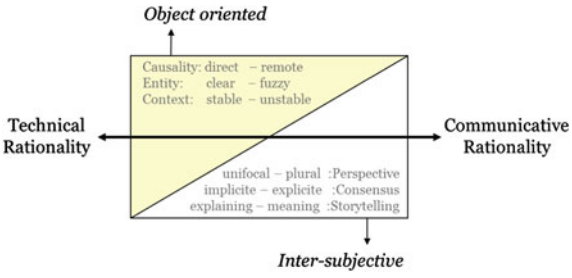

Fig. 9.3 The framing conditions of the real (object-oriented) and the relative (inter-subjective)

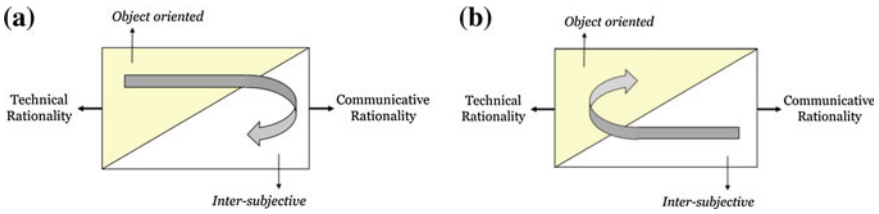

Fig. 9.4 The inevitable advance from one orientation domain to the other, with decreasing (**a**) and increasing (**b**) certainty

needs agreements to make it collectively comprehensible and equivalent about how to view the situation. According to a communicative rationale, the parties viewing a fuzzy situation will have varying perspectives and ideas about it. The resulting idea, storyline or discourse—held in common—colours the situation from various angles and connects facts and factors, values and actors.

Intersubjective interaction is central to reaching agreements, consensus and a shared storyline. Interacting actors (subjects) are characterized by a desire to find common ground—a shared value, opinion or meaning about a very complex world—which makes sense of situations multiple parties are facing. Such an agreed reality is based on three characteristics: each actor's individual starting perspective, a consensus achieved among them all, and a clear picture (story) of this shared understanding (Fig. 9.3a).

These characteristics change as the situation becomes simpler and more straightforward. This would mean, primarily, a shift from multiple or plural perspectives to a univocal view of the world. While a highly complex world needs explicit agreement among all parties on how the world can be understood collectively, the agreement becomes increasingly implicit as the situation becomes clearer. The story composed to enable all the parties to have a shared understanding and to give meaning to the situation increasingly speaks for itself as it is gradually regarded as what we consider a 'fact' (see Fig. 9.3b). Moreover, instead of giving meaning to the situation, it will become a base from which explaining the situation begins to make sense. Again, this means we have returned to a technical rational environment (Fig. 9.4b).

Stories are essential for us to understand reality: not all facts are fully comprehensible, nor are we in a position to collect all possible facts. Stories deal with this deficit; through stories, facts are contextualized and acquire meaning. Facts and stories are two sides of the same coin. Taking this further, from a communicative rationale perspective facts *are* stories, although a very particular type: stories expressed by the characteristics of a technical rationale. Facts and the technical rationale that frames them are essential to stories, as these represent the immediate connection with the world surrounding us. In other words, the relationship between facts and stories is fundamental.

9.5 'A Matter of …'

Facts and stories are both essential expressions of our reality. These expressions are valid under conditions which are very much part of both the technical and communicative rationales. The technical rationale connects with the object, entity, event or situation itself: the perceived material world. The communicative rationale is about what we think of these manifestations: the mentally valued world. Conversely, communicative rationale allows us to discuss the possibility of an external reality and technical rationale allows us to locate it, touch it and interact with it.

There is an interdependent relationship between the two rationales. If the conditions for a technical rationale are rendered hopeless by a situation of total fuzziness, agreements about how to view reality can facilitate a common understanding: a factual world is replaced or supplemented by an agreed reality after the agreement is reached. Under these circumstances, a communicative rationale would consider the technical rationale perspective and the consequence of a storyline representing a 'one true and certain world' framed by particular conditions.

We have discussed in depth the essence of both rationales, the two world views they represent and the conditions under which these rationales frame the world. We have also seen these conditions change according to the contingent relationship between the two rationales: across our *holy spectrum*, an object-oriented focus is replaced by intersubjective interaction as the situation becomes increasingly uncertain. With this replacement, a shift in conditions deduced from both the technical and communicative rationales must be taken into consideration. This is how our *holy spectrum* (see Fig. 9.1) gives expression (explanatory power and meaning) to the world as we perceive it.

We have introduced our *holy spectrum* as a representation of *a differentiated world view*. Our reasoning started with reference to realism and relativism, followed by a proposal to bridge the two. We have also been constructing a world of infinite realities between them. This allows us to consider every situation as unique and specific under clear, predefined and generic conditions which relate to both rationales (see Fig. 9.3). The two rationales and the sliding spectrum between them allow us to position any situation 'precisely' by category at a given point on the spectrum. As these clear, predefined and generic conditions produce a contingent relationship between a situation and the mix of rationales which relate best to it, a planning approach, the action to be taken and its result, will become clear a priori (from a meta perspective, clearly not in detail). Despite the situation's uniqueness, it is *relational* to the two extremes and to other situations allocated on the *holy spectrum*. Therefore, aside from the real and the relative, a situation can be expressed in relational terms (Boelens 2009; Emirbayer 1997; Hillier 2007). The relational is another cognitive route to understanding our reality: relationalism.

The planner's *holy spectrum*, framed by technical and communicative rationales, has strong links to the systems world view. Systems theory differentiates the world broadly into three major categories (Kauffman 1995; Langton 1992): closed,

circular and network systems. All three systems categories are relational to each other. However, each category introduces specific consequences. Closed systems, also known as Class I systems, represent a certain world of nodes and interactions. All nodes are specified, including how these nodes operate and relate to each other. Knowledge is based on knowing the nodes, their functions and their links to each other. Class II systems incorporate feedback mechanisms through which the projection of an assumed result or outcome of interacting nodes (i.e. a possible or likely future) can be tested, and adjusted as assumptions are proved wrong. Class II systems are also known in the world of planning as scenarios or projections. Open systems are Class III systems. These function as networks within a wider and interfering environment. While closed systems are considered as having no interaction whatsoever with their environment, network systems—or open systems—are in a continuous state of reacting to impulses, actions and information coming from outside their contextual boundaries. Instead of gaining knowledge by knowing the nodes' identity and behaviour or structure and function, knowledge in open network systems closely relates to processes of communication and interaction. These systems have an attitude best explained by a communicative rationale.

The system classes suggest a continuum from one extreme to the other, categorizing a world in between the two extremes (De Roo 2010). This world in between has its equal in planning: blueprint planning relates to a closed systems environment in which we assume certainty to be dominant. Scenario planning relates to circular systems with feedback mechanisms. At the time that scenario planning was introduced in the nineteen-seventies, it was not considered part of a spectrum. On the contrary, it was seen as an apology by planners for not being able to fulfil the promises of the technical rationale. Taken as a second best approach, its rationale was thought of as being constrained by time, money and energy: a bounded rationale. From today's standpoint, this 'verdict' belongs to a simplistic past. Instead, we are increasingly acknowledging scenario planning as a proper means to address a reality positioned between a certain and uncertain world. Open planning approaches relate to network systems, which became popular during the 'communicative turn in planning' in the early nineties.

Embracing the communicative rationale in planning, many felt the technical rationale would fall out of use, a relic of the past. This is doubtful, as there remain situations a planner would prefer to control in full, instead of including them in a communicative process aimed at reaching consensus. The introduction of the *holy spectrum* clarifies that the technical rationale is neither dated nor outdated, but rather situation specific. In situations which are stable, certain and straightforward, a technical rationale is preferable. Situations which are uncertain, fuzzy and located in an environment which continuously interferes favour a communicative approach. Most issues exist between these two positions.

The consequence of this reasoning is that we can easily identify three categories on the *holy spectrum*: simple, complex and highly complex situations (see Fig. 9.1). The contingency which dictates the *holy spectrum* of planning relates to degrees of complexity. It is a *static kind of complexity*, qualifying a situation as it 'is' in the here and now (De Roo 2010). This is distinct from a dynamic kind of complexity,

central to the complexity sciences and defined by situations which are perpetually 'becoming'. Static complexity, as embodied in the *holy spectrum*, considers a situation as fixed or frozen in time, and locates it on the spectrum according to its degree of certainty and a compliant mix of facts and values. Considering reality as 'a matter of degree' qualifies situations as specific within a generic frame. In other words, situations are seen as part of *a differentiated world*.

Relationalism addresses a world in which objects (such as events and situations) are understood in relation to other objects. Here, relation can be measured in terms of degrees and by its position relative to—or in interdependency with—other objects. A 'matter of position' can easily be explained by reference to a piece of wood on four legs, which has to be considered 'a table' because there are chairs around it. A matter of degree is equally easily explained by reference to sequences such as 'small, big, massive,' 'village, town, city, metropolis,' 'cabin, house, palace' and so on. Our differentiation of planning issues as simple, complex and very complex relates to this same 'matter of degree.'

The *holy spectrum* is relationally divided into categories. These categories are considered simultaneously through the cognitive frames of realism and relativism. Relationalism relates to realism as it regards objects, events and situations in relation to other objects, events and situations. We have observed a contingent relationship here, incorporating a shift from direct causal relationships between clear entities in a stable environment to remote causalities between fuzzy parts in a dynamic environment. A relational perspective adds *information* to objects, events and situations by comparing these with other situations.

Relationalism also relates to relativism; when a situation is 'fuzzy,' it is for those involved to mutually agree on how to view, value and weight the objects, events and situations. This mechanism of mutual agreement incorporates an element of *choice*: how to define the situation at hand. It is an individual choice to consider, balance and weight the ratio between certainty and uncertainty regarding a situation. The choice is also, in part, a communal choice: The actors involved discuss the relevance of what is known and what is unclear, and based on this decide which related approach, action and consequences best fit the situation. Having said this, we must consider that not only the various factors but the actors may be 'unclear': not all actors are willing to take responsibility, and some may even obstruct the planning process.

Contingencies are traditionally seen from a realist and object-orientated perspective on reality. With regard to the *holy spectrum*, we cannot ignore the presence and the relevance of relativism and consequently the intersubjective element of choice. Zuidema (2011) qualified this relational understanding of the *holy spectrum* as *post-contingency*.

This differentiated set of well-defined planning issues has a post-contingent relationship with its elements. Planning issues as they 'are' (realist perspective) or as they are 'agreed' (relative perspective) can be understood not just because of their intrinsic qualities but also according to their relational position on a spectrum

of planning issues. This relationalist perspective has two aspects, both of which are fundamental. One is to consider every planning situation as a combination of a factual and an agreed reality; every planning situation can thus be positioned on a spectrum between the two absolute, with both of these present to some degree.

We consider these possible and altering combinations of a factual reality and a reality of agreements as a meaningful response to the acknowledged duality in planning. The other fundamental aspect of a relationalist perspective is a shift from a determined and dual view of planning (either functionality and a 'one-size-fits-all' attitude or considering only two opposing planning realms: the factual and the agreed), to a differentiated one.

The spatial planning discipline beds most of its theoretical reasoning in the cognitive understanding through which realism and relativism are related. Etzioni (1967) never explicitly referred to relationalism. However, his mixed scan approach relates strongly to it: 'Reality cannot be assumed to be structured in straight lines where each step towards a goal leads directly to another and where the accumulation of small steps in effect solves the problem' (Etzioni 1967: 389). Mixed scan proposes a two-step approach to understanding reality: a wide and generic understanding strongly influenced by situational context; and a narrow and specific understanding which digs deep into those parts considered relevant to the situation. The parts, the whole (the situation) and its context acquire meaning through being considered meaningful in relation to each other and are therefore relational.

Recently, some writers (Hillier, Van Wezemael, Boelens, Boonstra, De Roo and others) have begun to make explicit reference to relationalism and spatial planning. Hillier (2007) refers to the poststructuralists Deleuze and Guatari when exploring the situatedness of planning issues: For them as for Hillier, situations are proposed as assemblages—material manifestations of components which merge with or deviate from each other repeatedly—in a process at a particular place and time. This is also referred to as situations being 'historically contingent'. Van Wezemael (2008, 2010) favours DeLanda's situational understanding of reality, stressing the heterogeneity of the world of components, and the relationship between an assemblage (a whole) and its components (the parts) as complex, non-linear and self-referential.

Recently, planners have taken a strong interest in the work of Latour (2005) and Actor Network Theory (Callon 1995; Law Law 2004). Actors or agents acquire meaning in and through collectives. For Latour, 'participants explicitly engage in reassembling the collective' (2005: 247). Consequently, reality is considered as the product of collective behaviour. Actors interact within this reality which they have been instrumental in creating, or, in other words, in which actors are relational. Boelens (2009) takes this reasoning further to construct what he calls the *Actor Relational Approach*: 'In order to analyse a particular space or spatial question, we must follow the actors or stakeholders and the networks of relations that they form. Thus, relational planning does not consider a plan or a project as the focal point when it comes to spatial developments, but the actors' (Boelens and De Jong 2006: 111; Boonstra and Boelens 2011).

Some contemporary scholars (De Roo 2003; Rauws and De Roo 2011; Verhees 2013; Zhang et al. 2012; Zuidema 2011 and others) already embrace the idea of a differentiated world view, classifying planning issues on the basis of their complexities. First, planning issues are weighed up based on their internal and static complexities, which relate to the contingent and post-contingent relationships between the technical and communicative rationales through which classes of planning issues connect to specific planning approaches, actions and consequences. Secondly, planning issues are measured by their internal-external relationship and their dynamic complexities, building on the idea of the world undergoing a continuous process of discontinuous change, open to non-linear developments and resulting from co-evolving and transformative processes in time. In this chapter, we started building on this notion of static complexity and contingency to explain the role of the various cognitive understandings commonly applied to spatial planning. By incorporating 'dynamic complexities' as part of a differentiated world view we continue our reasoning going beyond the here and now.

Before we start deliberating on the issue of time and the becoming, and the dynamics that come with it, we have to bring our reasoning regarding relationalism to a proper end. The various categories of planning issues can be viewed as contingent and post-contingent products (facts and values) which acquire meaning from a realist and relativist cognitive frame. Here, relationalism does not deny or compete with realism and relativism. Instead, relationalism relates to both and builds on them. We consider a static perspective on complexity to be merely one more step towards a dynamic perspective on the same thing: a world that is 'becoming'. This dynamic complexity is relational to order and chaos, and a world 'becoming' desires a cognitive frame on reality: 'idealism'.

9.6 A World of Ideas

No one is able to absorb all the facts that surround us, neither are we able to value every fact or situation comprehensively. We select, and we make sure our selection (analysis) fits well within the story (synthesis) through which we construct a context to a fact. This context connects the fact to the bigger picture, a conception of reality created out of fragments and layers. These fragments and layers combine to form a mosaic of conceptions of reality. This mosaic keeps us quite busy looking for matches between mentally constructed ideas and the externally perceived signals which relate to our constructed ideas. But we have some help doing this: The *holy spectrum* presents us with a rational frame of reference for regarding a world that 'is'. It is also a first step when considering ideas, specifically ideas which relate to the contingency between the technical and communicative rationales.

This imaging of a contingency between the technical and communicative rationales resonates to some extent with a traditional scientific approach to grasping reality: assuming interdependence between analysis and synthesis. *Analysis* is the deconstruction of a 'whole' into its functional parts: a technical rational approach. It

is a reductionist attitude which helps us understand the 'whole' by understanding its constituent parts, provided the assumption that certainty is intrinsically accessible among the interacting parts. As if the implicit meaning of the parts are revealed. This revelation is a stepping-stone to understanding the whole 'better': the whole according to the conditions of a technical rational perspective.

The reconstruction of the parts back into a whole is known as a *synthesis*. It is the construction of a storyline in which the parts (as facts) participate as actors would in a play. According to a communicative rationale, the storyline explains and gives meaning. In an uncertain world, a storyline is the conceptual frame that gives meaning to a situation. The frame will position, connect and value the facts coherently with regard to that situation. In a world full of certainty the emphasis is on explaining, by reference to the facts and their direct causal interactions. Consequently, in a world of certainty, analysis explains the situation as it is, implicitly producing the synthesis, while in an uncertain world the synthesis gives meaning to the analysis.

While analysis means exploring a situation to find the parts that make up the whole, synthesis conceptualizes the parts and the whole (preferably within a context). Analysis and synthesis both tie together facts and stories, and we argue that both are intrinsically related and needed to understand reality (see Fig. 9.5a). A clear entity which relates to its parts through direct causal relationships in an environment that is completely stable is an *idée fixe*: such a situation can only be created under extreme and ideal conditions. However, this is not how reality 'works' (or rather, 'is'). When a situation is not entirely ideal (and no real situation is), gaps will appear among the facts we perceive, limiting the possibility of an object-oriented route to knowledge. These gaps will always be present, and widen the moment uncertainty creeps into the observation. In order to bridge these gaps we must mentally construct the possible outcomes, thereby bridging uncertainty in this mental process. When analysing a situation, we always have to imagine. To do so, we employ facts—the building blocks of our imagination—generated through an analysis-synthesis mechanism. These building blocks, both facts and stories, allow us to idealize the situation. Doing so, we take these building blocks out of the context of a reality that 'is' and introduce them to qnd make them part of a world the might be. *Idealism* is the construction of an idea, a concept or a vision about how the world could be seen: a world of ideas.

Intersubjective reasoning is the process that connects the various individual imaginings as explicit constructs of what we observe. It also combines perceived objects with meanings, leading to an understanding of reality. Through object-oriented and intersubjective reasoning, a process of mental interactions starts. In situations relevant to spatial planning, most objects, events or situations are no longer considered completely clear or to have clear and implicit meanings. Instead, we are forced to explicitly superimpose an agreed meaning onto a fuzzy object, event or situation. This fuzzy element and the meaning that we add to it are both greatly interdependent and intrinsically connected, as—once mentally paired—we expect both to match, to relate or to work well together. We call this the *associative* match.

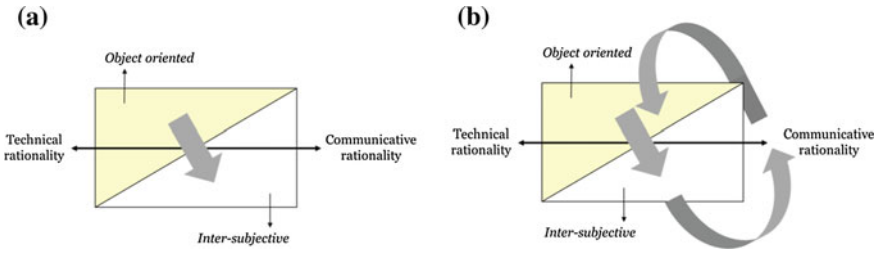

Fig. 9.5 The 'it', entity or idea (**a**) and the self-referential process of imagined possibilities of what can become of 'it': a possible future (**b**)

In planning, the associative match is essential. This becomes clear if we consider the 'object' (or event or situation) as synonymous to structure, and 'meaning' to be the same as 'function'. In planning, we continuously try to match spatially related structures and functions. Where there is a need for housing development due to demographic pressures, the function is clear (to house) and needs a suitable structure (housing). In this case, the suitable structure is likely to require a street plan and various other networks, such as the sewer system and a connection to energy sources or the drinking water supply system. This matching of structure to function is set out in a local plan before it is realized, to allow others (the community, the water board) to share their ideas about it. If there is consensus, the plan will be carried out.

The associative match mechanism is not limited to linking a 'real' object and its 'relative' meaning perceived in the here and now. It also relates imagined realities to proposed, plausible or assumed meanings related to them. Our imagination allows us to play a mental game (in operational terms this is called a 'design'), through which we are able to construct various possible realities, and label them with various meanings: a piece of wood on four pillars could be characterized as a table, which we could also imagine as a drawing board or a bed. But, from the same elements, we can also imagine realities distant from the idea of the piece of wood as a table. Translating the metaphor of the 'table' into planning parlance, we would label the various possible realities as desirable and realistic in terms of the attainment of a possible plan bridging the here and now with a possible future. As such, an associative match could result in a possible creation of something not before considered: this process is what we call *creativity* (see Fig. 9.5b).

Idealism no longer relates to what 'is', but to what might be or might become: the imaginary (Fig. 9.5b). Humans can imagine, and therefore they can imagine a better world: a goal in its own right and one spatial planning is meant to contribute to. Spatial planning considers the world as it 'is' (the actual) and relates this to a world that is 'becoming' (the desired, or ideal—see Fig. 9.6). Spatial planners often call the product of such an exercise between imagination and desire a *plan*.

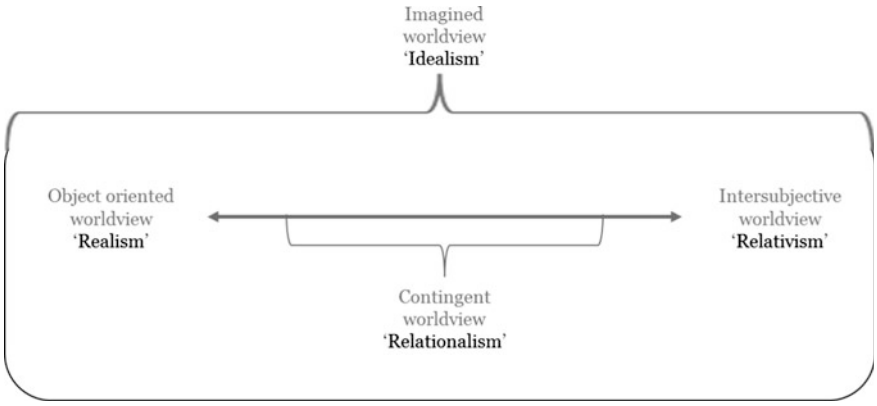

Fig. 9.6 A cognitive frame for spatial planning, bridging the here and now (real, relative and relational) with the imaginary (ideal)

9.7 What if, then …

A plan with proposals for identifying or enacting a desired future will relate to situations and stories, and to the facts and values perceived, constructed and qualified in the here and now; this desired future is connected by associative and creative processes to a reality to become. As there are different perspectives on reality, and as we have the choice to consider reality as it 'is' as differentiated—for example, qualifying it as simple, complex or very complex—every plan will differ in how it addresses a possible future. And each plan will address a variation on a future: it is a vision. The choice of how to view the issue in question conditions the issue and the planning actions which follow. If it is regarded as simple, a blueprint plan will ensue. If it is regarded as highly complex, the plan will be expected to generate discussion. The choice is by and large situationally dependent and will encompass the expected consequences of the actions to be taken. A planner's task is elaborating choice and situation, imagining the possible consequences of the actions taken: "*What if, then ...*" is the logic that follows from *a differentiated world view*. "*What if, then ...*" also refers to expectations, the future image, the idea … the plan.

The plan links the world of rationales with the world of design. The mechanisms we have addressed above (rationale: analysis—synthesis; design: associative—creative) are relevant to planning and various other related disciplines, such as urbanism, urban design, landscape architecture and architecture. While most of these disciplines focus primarily on spatial design, spatial planning relates strongly to both spatial and institutional design. Linking rationality with design allows us to reason differentiatedly about design. But it is also specially relevant to planning because a rationale (at least the technical and communicative rationales) does not address change, development and progress, while design clearly does, being an expression of a desired becoming.

The self-referential mental mode of our associative brain allows us to be creative in looking beyond what we perceive in the here and now (Fig. 9.5b). Making use of the ingredients produced by an analysis-synthesis mechanism, the associative-creative mechanism is able to construct an imaginary reality: the 'it is' is being transformed into a possible 'becoming'. Various methods support this transformation: extrapolation, divergence and convergence, reverse reasoning, connecting trends and scenario construction. These are some of the common methods which can create the conditions essential for the technical and communicative rationales (see Fig. 9.3b). In other words, these methods relate to conditions under which we understand the here and now (t = 0), and these conditions will remain crucial for possible futures, if viewed as frozen or fixed in time (t = n).

The *conditions* identified here as representing realities in the here and now (Fig. 9.3b) relate to the real and the relative, and combinations of the two which we refer to as relationalism (underlining our differentiated world view as a 'matter of degrees of static complexity'). The idea that the various conditions expressed in Fig. 9.3b (for example, causality as something between 'direct' and 'remote') remain unchanged in the transformation process from the here and now to a future and an idealist perspective on the world is an assumption we call linear reasoning. Here we challenge this *linearity*.

There are various arguments positing that the world hardly ever evolves linearly or exponentially. The world's evolution may occasionally appear to follow a linear path: viewed from a distance it becomes clear that a 'linear' path is often no more than a stable stretch between general instability. Change is ever present and all too often behaves discontinuously. Cities, for example, grow and decline while undergoing various phases of transition. Economies lurch from one bubble to the next, and the stock market barely ever maintains a trend. Institutions come and go, and often do not match up to the tasks they are intended for. Municipal boundaries are often a nineteenth-century construct conforming to even older power relationships, and while the municipality's responsibilities emerge from twentieth-century legislative powers, it is confronted by the problems and challenges of the twenty-first century. The world is often fragmented, out of balance and in processes of discontinuous change: in short, it is *non-linear*.

Non-linear states are addressed by the complexity sciences, making these complementary to spatial planning and its *differentiated world view*. We have seen that spatial planning and its differentiated world view comes with *conditions*: conditions which are contingent and post-contingent between a certain and an uncertain world view, and which are a consequence of and a mix of the technical and communicative rationales. Both the technical and the communicative rationales lack a time reference (De Roo 2010; Hillier 2007). In a linear world, there is no need for a time reference. Both the technical and the communicative rationales closely focus on 'per se' decision-making processes. These decision-making processes are considered as taking place in the here and now. Consequently the world is either predictable from a technical rationale perspective, or there is consensus about how to act from a communicative rationale perspective. The result is a kind of planning that narrows down planning issues to one particular moment: at t = 0. In

that sense, planning is considered a-temporal (Hillier 2007). A-temporal planning: a contradiction in terms. Nevertheless, this is what contemporary planning is about.

This a-temporal attitude in planning has been subject to critique. Rittel (1972) Webber and Christ-Churchman introduced the idea of 'wicked problems': those which are fundamentally impossible to grasp in their entirety. Doxiades (1968) and his Ekistics movement introduced an alternative view of reality as multilevel, interconnected and evolving. Alexander opposed the idea of a world controlled by planners and politicians desiring to design, develop and allocate spatially fixed and stand-alone groups of functions in his famous paper 'a city is not a tree' (1965). He considers tree-structured space as having no overlaps, and therefore lacking identity and character. Instead, he elaborates on semi-lattice structures and connections representing more 'natural,' robust links between functions and space, likely to result in appreciated urban fabric. The 'wicked problems,' the 'world in flow' and semi-lattice structures cannot be dealt with by believing only in the existence of discrete problems with a beginning and an end which are there to be solved definitely, or in problems which are agreed upon by consensus, not solved explicitly but structuring processes in such a way that these are understood by the actors involved. Scholars such as Batty (2005) and Portugali (2000, 2011) have demonstrated the possibility of the world being non-linear and the potential impact this perspective has on planning. Others have considered how planning, landscaping and architecture would look if the disciplinary debates digested these non-linear ideas (Barnett 2013; Boelens and De Roo 2014; De Roo and Rauws 2012; Hillier 2007; Marshall 2009; Portugali 2000; Schönwandt et al. 2012; Weinstock 2013).

If we consider a non-linear world as more realistic than a linear one, the planning discipline has not yet devised a rationale that frames situations as 'becoming' (see Fig. 9.7). This would require a 'non-linear kind of rationale' (De Roo 2010) for spatial planning. Consequently, we have to reconsider the bridge we have constructed between a real, relative and relational view, and an idealist view of the world. While idealism is about our ability to deconstruct reality as we know it and to reconstruct it in such a way that it enables us to imagine a possible reality, we do not yet have a rationale that can explain how the constraining and enabling conditions (Fig. 9.3b) will respond to transformations of the way towards a possible future. We are left with guesswork, hope and embracing the linear.

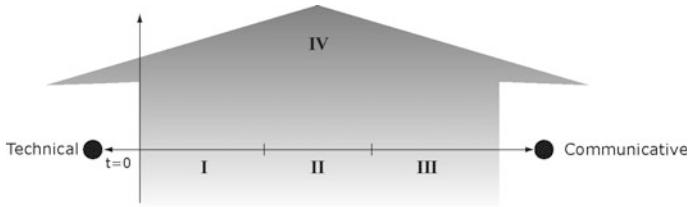

Fig. 9.7 The holy spectrum of planning viewed from a temporal perspective (De Roo 2012)

9.8 Framing the Non-linear

The complexity sciences offer some guidelines for considering a route towards an unfolding future, although these do not yet come with a *holy spectrum*, a contingency, a post-contingency or a consistent world view we could consider 'differentiated.' The complexity sciences do come, however, with various fragmented conceptions of an evolving and emerging reality. These conceptions do, to some extent, offer us a frame through which to consider a route towards the future.

Situatedness is the first of these. In a non-linear environment we do not observe isolated objects, entities or events. Nor do we observe actors reaching consensus about a particular issue in the sense of taking a firm decision. We have to accept that situations as we encounter them (in non-linear environments) are fuzzy, fluid and vague in their relationships with their surroundings. Situations emerge from various directions and trajectories, having evolved from individual pasts to a point where their paths merge in the sense that we see them represented by a manifestation in the material world we would label a single 'situation.' This merging relates strongly to the idea of 'assemblages' mentioned above (Hillier 2007; Van Wezemael 2008). The merging of paths and trajectories is often unintentional and conditioned by the contextual environment. Such an environment is never a plain level field. Instead, it will be unstable and discontinuously transforming, affecting the various paths and trajectories which evolve within it and with it. Some would consider this as a path-dependent route in a 'fitness' landscape (Barnett 2013). This 'situation' is likely a construct relating to various levels of scale, perhaps particularly manifest at the meso-level (with the whole being manifest), though also strongly related to the micro-level (in system theory: the parts that make a whole) and macro-level (the context). The 'situation', when looked at closely, is then a multi-level perspective (Hartman et al. 2011).

If we become aware of a 'situation,' it is likely to be sufficiently manifest to be recognized by others, to become a topic for discussion and, perhaps, trigger collective action. Such a situation is continuously in a state of becoming. A neighbourhood in decline is a good example: it is the result of a slowly progressing state of becoming. However, when is a neighbourhood no longer in an acceptable state? When is renovation desired? A neighbourhood in decline is likely to be a persistent problem. However, a situation may well disappear or resolve itself over time, as the paths and trajectories that make it up continue into the future, independently or in interdependency with other paths and trajectories. As a result, time can be enough to dispel a situation; time can continuously transform how matters stand in comparison to when we first considered the situation an 'issue'. A traffic jam is the obvious example of such a situation, appearing and disappearing as traffic moves forward. We tend to intervene when such situations become persistent and are accompanied by negative consequences, as might be the case in a pile-up.

All in all, situatedness relates to interdependent trajectories, path dependency, contextual multi-level states of becoming and being manifest to the observer. Situatedness relates therefore to realism, relativism and relationalism. By stressing the aspect of becoming, idealism also enters the picture. Situatedness is about being place and time-related: a manifestation within a place-time continuum. Every tick of the clock moves us forward in time, a process characterized by spatial movements which trigger processes of continuous acknowledgement and reformulation of our ideas about reality, and consequently a continuous reinterpretation of facts. Having acknowledged time as relevant, planning then requires rationales which either extend the real into the future or bridge the real and the imaginary.

Emergence, the second notion offered by complexity theory, occurs between order and chaos (Barnett 2013; Weinstock 2013). This expectation is the trademark of the complexity sciences. It is the consequence of the contextual environment being unstable. A fully ordered environment is an environment resistant to change —what some would call 'dead' (Lister 2008)—and therefore not open to development and progress. A persistently chaotic environment might lead to destruction, clashes and collapses, pushing us out of the arena of development entirely. Between order and chaos we can identify potential for development to occur. Development therefore relates to instability, which in turn allows room for creativity. Instability creates 'potentiality differences' (a state of being out of equilibrium), symmetry breaks (Bak 1999) which could lead to criticality, mismatches between structures and functions, and a mismatch between what is and what plausibly could become. Emergence stresses that environments are always ready for change, if not already in a process of change (or of 'becoming'). It is not a change from A to B, but a change which gradually adds or subtracts energy, causing situations to join, move alongside, merge with and adapt to the changes and the turbulent fields which are part of the contextual environment. The result is likely to be a transformation of the situation within a transforming environment, set in motion by an attempt to reach a better state of becoming. The contextual environment conditions the state of being 'in between order and chaos' and is therefore conditional to emergence.

Transitions are the third frame through which we will view complexity theory's offering to planning practice. The moment we add time to the concept of the *holy spectrum* (which we have previously defined as a-temporal as a-temporal), we accept a world in flow. A situation earlier considered as being 'simple and straightforward' now has to be considered as 'relatively stable.' A situation earlier seen as 'very complex' we would now call 'emergent': a shift from open systems to emerging networks. Relatively stable situations will never be entirely fixed or ordered, and emerging networks are unlikely to become completely chaotic. If they were, this would mark the end of both situations. Instead, we will see that all situations are open to transition (De Roo 2010; Rotmans et al. 2012). In a relatively stable environment this might occur every now and then, perhaps barely noticeably but nevertheless happening. In emerging environments, a continuous process of transformation makes it difficult to clearly identify one transition among many—with a defined beginning and an end—in between two stable periods. However, that is precisely what a transition is: a dynamic period where a system co-evolves from

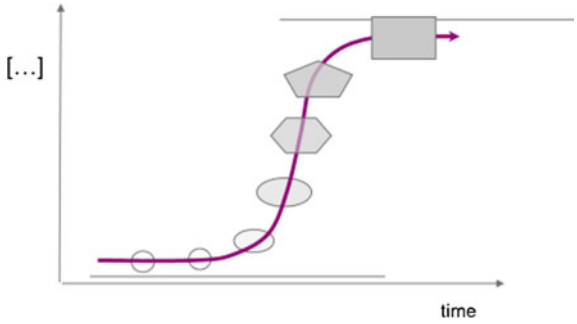

Fig. 9.8 Transition and co-evolving structure (*circle* to *square*) and function (*white* to *grey*)

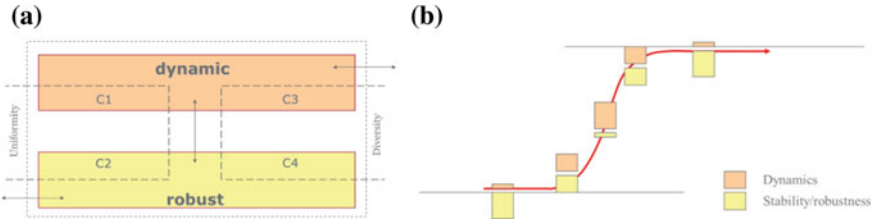

Fig. 9.9 A complex adaptive system (**a**) in a process of transition (**b**) (Source: De Roo 2012)

one stable period or level to another, seeking a better fit with its environment. Moreover, while the system is in transformation, it will undergo a process of change or becoming in which structure and function co-evolve (see Fig. 9.8).

Complex adaptive systems are the fourth frame offered by complexity theory. We have seen how *the holy spectrum of spatial planning* relates to various system classes: Class I representing closed systems, Class II representing feedback and circular systems and Class III representing open network systems (Kauffman 1995; Langton 1992). A fourth class of systems, called 'complex adaptive systems' (Waldrop 1992; Wolfram 2002), are not just a bunch of nodes interacting in a closed, inwardly oriented structure or in an open and externally oriented network. Instead of one node representing a system or a part of the system, a complex adaptive system consists of two internally interrelated layers of robustness and dynamics which jointly interact with their environment between order (a uniform state) and chaos (diversity), continuously looking for the right *conditions* to evolve, trying to find a best fit with the environment and to develop and progress while transforming into another representation, entity, or situation (Fig. 9.9).

Finally, *self-organization* is the internal restructuring of a system open to and being affected by its environment. Through a process of internal restructuring, the system produces new pattern formations. These are steps in the system's transformation towards a new identity. Prigogine (Nicolis and Prigogine 1977) identified these systems as being *dissipative*: the ability to cause the interdependency with

external influences to resonate internally. These influences create both a symmetry break and criticality (Bak 1999). The moment criticality is achieved, energy is released, causing parts of the system to act in order to adjust their behavior to the symmetry break. The moment criticality is achieved and action is triggered, a non-linear process follows: the result can be minimal or great, and the scale of the impact is impossible to foretell. However, the non-linear process will spontaneously produce the formation of a pattern, which can be spatial, socio-spatial and social.

9.9 Patterns, Contingency and the *Holy Spectrum* of Planning

Pattern formation as a response to external influences is explained by Haken's synergetics as 'the working together of many parts, individuals, subsystems, groups' (in Portugali 2011: 60). Instead of the parts collapsing into inert and random structures (increasing entropy), we can see (in a nonlinear context) patterns emerging from interacting parts. These patterns represent a new order. The parts seem to conform to a common product: a pattern. This conformation is what Haken calls the *order parameter*, which 'enslaves the others to act in the same way and is called the slaving principle' (Portugali 2011, 62). Haken's *order parameter* relates to what is called the *power law* in mathematics, statistics and modelling, *attractor* in the complexity sciences, *convention* in the social sciences and *contingency* in the organizational sciences.

We have seen the *holy spectrum* of spatial planning representing a contingent and post-contingent relationship between a technical and a communicative rationale. The *holy spectrum* represents the planner's ideal decision-making line, which relates situations, issues, approaches and actions to their likely consequences, whatever the static 'complexity' of these situations. The *holy spectrum* connects the 'what' (target, goal or objective: the material world) with the 'who' (from command-and-control government to shared governance: the institutional world), producing the 'how' (from a technical to a communicative rationale, De Roo 2003). The *holy spectrum* represents the match or fit between structure and function, between institutional design and spatial design, between an object-oriented perspective and intersubjective interaction, between entity and value, between fact and story.

Could the story of this chapter end with a suggestion to consider the planner's *holy spectrum* as an order parameter, a power law, an attractor or the contingency which results in pattern formations? Why not? The interdependence between technical and communicative rationales produces frames of reference for planners that express the least effort state, a 'best fit' for each case. This 'best fit' or the ideal is not the real but a construct of what it could become. The real resonates in the ideal, and the real is responsive to the idea—to our ideas—regarding the real. This relates strongly to the duality in spatial planning and the interdependency between object orientation and intersubjectivity. In that respect, Haken's *order parameter* is

also a construct, despite his focus on the material world. The *order parameter* is as much a mental construct as the *holy spectrum*: Both are a frame of reference which can be explored further to yield better ideas about how to relate spatial design and institutional design, not just for situations which 'are' but also for those which are 'becoming'. We could discover new 'order parameters' and new contingencies, for example contingencies which include time. These could reveal conventions which relate to non-linear, co-evolving and transforming processes.

Non-linear transformative processes would be greatly welcomed in spatial planning, being a discipline which must transform from an a-temporal focus into a temporal and non-linear perspective. In this chapter, we have made a serious effort to enhance the planner's vision, bridging contemporary planning ideas and the challenges posed by a non-linear understanding of entities, events and situations. It must be stressed that this effort is far more fundamental than merely a response to a Western world confronting a severe spatial and monetary crisis: it is a non-linear response to too much faith in linear growth and the certainties coming from a Newtonian kind of reasoning.

The challenge this chapter proposes (to the discipline, to the reader) is *to expand the differentiated view of planning* including the notions of time, change and non-linearity. Are we able to maintain well-defined differentiated views of planning under non-linear conditions? In our quest to find a clear answer to this challenge we will have to incorporate time within planning theory and practice. Does this mean that aside from realism, relativism and relationalism, serious attention must also be paid to idealism? Yes, of course this means planning has to seriously incorporate idealism as another frame of reference. Idealism refers to the capability of humans to imagine worlds yet 'to become'. Any kind of reasoning that addresses change and transition represents an idealist perspective. This raises the question of how to underpin change and transformation beyond the imaginative. Are we able to construct frames of reference based on non-linear rationales which allow us to relate institutional and spatial design to a world which is 'out of equilibrium'? Could we continue building on a differentiated world view and the 'what if, then …' routine while incorporating non-linear perspectives?

9.10 Conclusions

In this chapter we discussed realism, relativism, relationalism and idealism as essential cognitive features for understanding our environment. We consider cognition to be more than a mechanism for perceiving and responding to information reaching us through our senses. We implicitly centered our view on higher mental processes, which include reasoning, perceiving, imagining, creating, conceptualizing, symbolizing, memorizing and learning processes (Flavell 1985). In this chapter we emphasize perceiving experiences of an environment with all its qualities, ranging from clear objects to fuzzy social constructs (subject-object orientation), and sharing mentally produced values, meanings, concepts and ideas

(intersubjective orientation). These four cognitive features together allow us to grasp the world, experience it, discuss it with others and develop a differentiated world view. *A differentiated world view* is considered key to spatial planning as it relates categories of planning issues (simple, complex, very complex and transforming, co-evolving and adaptive issues) to particular approaches and actions out of which consequences can be imagined. These cognitive features are also the legitimate foundations for analysis and synthesis, and in turn the base for the creativity and associative mental powers which allow us to consider plausible futures. These foundations bridge the world of rationale with the world of design; the cognitive features discussed in this chapter are important lenses through which to explore our reasoning about and our cognitive perceptions of a world which we consider non-linear. These perspectives will affect our thoughts about spatial environments and the daily living conditions they harbor, how we evaluate these and our aspirations to intervene—when and where necessary—by designing a well-defined future or guiding non-linear, spontaneous spatial developments towards an undefined becoming.

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