Dynamic patterns of CONTAINMENT

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Abstract

This chapter advocates a return to Johnson’s (1987) original notion that image schemas are “dynamic patterns”. Using CONTAINMENT as an example, it makes the case that even static locational relations are structured as dynamic processes that incorporate image-schema transformations and scanning processes by a ceaselessly active conceptualizer.

CONTAINMENT is analyzed as a merger of two basic experiential patterns, ENTRY and ENCLOSURE, and both patterns are grounded originally in the construal of motion events. The construal processes that originally accompany objective motion acquire schematic status of their own and come to characterize even timeless locational relations. Unlike proposals in which image schemas have a static structure, the analysis accounts for the basic relational nature of CONTAINMENT and provides a plausible account of its many important functional and force-dynamic implications.

Positing a fundamentally dynamic structure for image schemas has significant theoretical implications. It implies that language plays a much greater role in the development of image schemas than is often assumed, contributing not only to cross-linguistic variation but also to some universal similarities in the structure of image schemas. It also calls into question some of the most basic assumptions of the “standard view of cognition”.

Keywords: containment, image-schema transformations, in, cross-linguistic variation

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Though it is customary – and I think innocuous – to use nominal expressions to designate mental phenomena (e.g. mind, thought, concept, perception, etc.), such terms must always be understood as convenient reifications. Mind is the same as mental processing; what I call thought is the occurrence of a complex neurological, ultimately electrochemical event; and to say that I have formed a concept is merely to note that a particular pattern of neurological activity has become established, so that functionally equivalent events can be evoked and repeated with relative ease. … Mental experience is thus a flow of events: it is what the brain does. (Langacker 1987: 100)

1. Image schemas as dynamic patterns

From the beginning, Johnson (1987: 29) stressed that image schemas are “dynamic patterns rather than fixed and static images”. Image schemas are “structures of an activity by which we organize our experience in ways that we can comprehend”, and they are “flexible in that they can take on any number of specific instantiations in varying contexts” (Johnson 1987: 29-30). I believe that this fundamentally dynamic nature of image schemas has been underappreciated in the literature since Johnson (1987). For a variety of reasons having to do with the particular overriding concerns of the leading researchers and with some generally unchallenged basic assumptions, image schemas have been analyzed largely as static structures. They have come to be considered dynamic only in the sense that they can and typically do “represent continuous change in location, such as an object moving along a path” (Mandler 1992: 591). In other words, image schemas are taken to represent dynamic content, but that content is considered separate from their structure.

This chapter will advocate a return to Johnson’s core notion that image schemas are intrinsically dynamic patterns. As an example of what such a dynamic structure might be like, I will speculate in some detail about the nature and development of CONTAINMENT, which is one of the most commonly cited image schemas in the literature. Employing an “informal phenomenological analysis” (cf. Johnson, this volume) of basic recurring experiences related to containment, I will argue that CONTAINMENT cannot be a static structure like the ones typically proposed. Even when they represent static locational relations, image schemas are themselves active scanning processes, cognitive pathways that are grounded in the perception of motion.
The key to thinking of image-schematic structure dynamically is to recognize a much more essential role for construal processes such as image-schema transformations. Rather than thinking of these processes as relatively independent operations on image schemas, we need to think of them as integral or extended parts of image-schematic structure itself. Most fundamentally of all, we need to acknowledge the crucially important role of a ceaselessly active conceptualizer in any dynamic construal. That means not only that a conceptual viewpoint is “part of the structural relations” of any image schema (Johnson 1987: 36); it also means that the conceptualizer is not a static observer that stands passively apart from the image. As we will see below, image schemas consist fundamentally of conceptual scanning processes like those described by Langacker (1987: 166-177).

After illustrating the role of these processes in CONTAINMENT, I will turn to some theoretical implications of having a truly dynamic conception of image-schematic structure. To begin with, a dynamic pattern is not an explicitly encoded mental object (compare also Gibbs’ contribution to this volume). That means that an image schema cannot simply be “mapped” onto a language construction; the relation between image schemas and language is more complex than that. In fact, language turns out to play a surprisingly active role in the development and organization of image schemas, contributing not only to cross-linguistic variation but also to some universal similarities among image-schematic concepts. Finally, all of these considerations will call into question some of the most basic assumptions of what Jones and Smith (1993: 129) have called the “standard view of cognition”.

2. Containment

2.1. Background

CONTAINMENT has been a parade example in the image-schema literature for several reasons. It seems to characterize a universally important semantic concept that is remarkably similar across languages and develops very early across languages. It is fundamentally important in metaphorical structuring and in inferential reasoning. It is also grounded in a wide range of common basic experiences.

Take for example a child in a red dress who watches her mother put cookies into a jar. The child then takes the lid off of the jar and looks inside to search for the cookies. She reaches into the jar, reaches down into the
cookies to find a particular cookie near the bottom, grasps the cookie (so that the cookie is now in her hand), and takes it out. She wraps the cookie in a napkin. She walks with the cookie through a door into another room, where she is picked up in her mother’s arms and put into a high chair. She watches the mother pour milk into a glass. She then dunks her cookie into the milk (which is itself contained in the glass), and puts the cookie into her mouth.

According to Johnson (1987: 21-22), such experiences share a common structure that involves “spatial boundedness” and is especially related to “being limited or held within some three-dimensional enclosure, such as a womb, a crib, or a room”. Lakoff (1987: 271) developed that notion into a CONTAINER schema that consists of “a boundary distinguishing an interior from an exterior” and “defines the most basic distinction between IN and OUT”. He thus abstracts away from the functional aspects – such as restriction and limitation – that are usually connected with the notion of “containment”, distilling it essentially to what Vandeloise (1991) calls topological INCLUSION/EXCLUSION.

Given the developmental focus of her research, Mandler (1992: 597-598) is naturally more concerned to link containment realistically and in detail to the experiences of preverbal infants. She posits “a cluster of related image-schemas”, one of which “expresses the meaning of CONTAINMENT itself” – i.e. the Lakoffian CONTAINER schema (which she represents as a horseshoe-shaped landmark) with a trajector inside. She also tends to emphasize the role of functional notions such as SUPPORT, and of motion events such as GOING IN or GOING OUT and OPENING or CLOSING.

Like Lakoff and Johnson, Mandler notes a child’s subjectively embodied experiences with things going into and out of containers, e.g. eating, drinking, spitting, being clothed and unclothed, being taken in and out of rooms, etc. Unlike Johnson and Lakoff, she also stresses the importance of observing one object containing another even when the child is not subjectively involved in the relation. She notes (Mandler 1992: 597, see also this volume) that “it is not obvious that bodily experience per se is required for perceptual analysis to take place” and adds: “Indeed, I would expect it to be easier to analyze the sight of milk going into and out of a cup than milk going into and out of one’s mouth.”
2.2. Earliest schemas as paths

In adult semantic systems, pure static locations are generally considered to be simpler and more basic than motion events. Paths are taken to consist of complex sequences of locations structured in terms of starting locations, medial locations and ending locations as reflected in the common SOURCE-PATH-GOAL analysis. For example, CONTAINMENT defines a location, and paths can then be structured to go into, out of or through that basic location.

While this organization makes good sense in an adult semantic system, it is not likely to reflect the developmental sequence by which a young child originally arrives at the most basic image schemas grounded directly in experience. As Mandler (this volume) reports, infants appear to have a dynamic conception of containment that emphasizes the motion of going in and going out. What is most salient to a child will presumably involve visually observed motion, the sensorimotor routines of self-motion, and the sensations of being touched or moved by external forces.

Children’s attentive bias toward motion is reflected in a range of reported observations. The earliest uses of locational expressions such as English in are primarily or exclusively for motion (Choi and Bowerman 1991: 96). Tomasello (1987: 83) comments that children’s typical uses of words like in are more like verb-particles than like adult locative prepositions. Thiel (1985) maintains that 18-month-olds do not distinguish objects from the activities they associate with them, and even older children learn to differentiate them only gradually. When asked to identify what an object is, the young children Thiel studied would say things like in(to) (German rein) if it was a typical container or on(to) (rauf) if it had a salient surface to put things on. They would also use object terms such as table or chair to characterize activities. Thiel further observed that children would consistently carry out an associated act – at least by simulating with an empty hand gesture – when asked the name of an object. All in all, Thiel argues convincingly that young children exhibit a lack of cognitive differentiation between object and activity. It is unlikely then that their earliest image schemas would be static locations (or containers) with no path involved.

Returning specifically to CONTAINMENT, we might also observe that many actual containers do not really define a location in space the way that jars and cribs and rooms do. In our cookie example, hands, napkins and red dresses are clearly not experienced simply as bounded regions in space.

If we take a realistic developmental perspective then, it seems unlikely that a child’s earliest image schemas related to CONTAINMENT will be pure
static relations in timeless space, i.e., a notion like Lakoff’s CONTAINER that is bounded and separates an interior region from an outside. Such notions may become primitives in a sophisticated and linguistically influenced adult system, but they are not developmental primitives. It is much more likely that the earliest image schemas will involve activities and paths, with little clear differentiation between trajectors (TRs), landmarks (LMs) and relations, between paths and resulting states, or between space and time.

2.2.1. Entry

The most obvious path type related to containment can be called “entry”. Children repeatedly observe other people inserting something into an open container such as a jar or a drinking glass, or reaching into such a container to retrieve something; they learn to execute such actions themselves; they experience being inserted into (or removed from) open containers such as cribs; they observe people walking into and out of houses and rooms; and they eventually learn to do so themselves. The pattern that develops might look something like Figure 1, which is similar to Mandler’s “CONTAINMENT itself” except that a path is part of the image and there is not yet a clearly differentiated TR.¹

![Figure 1. ENTRY.](image)

The pictorial representation in Figure 1 is misleading in several ways though, making the image appear less schematic and less dynamic than it actually is. In particular, the image presumes a whole range of image-schema transformations that have to be considered a part of the structure of the image schema. To begin with, the LM in the child’s actual experience would obviously be three-dimensional rather than the two-dimensional image used here for diagrammatic convenience. Moreover, the image is schematic

¹ Cf. also the initial concept of containment posited by Hespos and Baillargeon (2001) for infants as young as 2.5 months.
with respect to the angle of inward approach. Although many common early experiences involve downward motion through an open top, the image in Figure 1 can be freely rotated so that the entry could be through any side (such as the door to a room).

Another transformation allows the opening in the LM’s surface to vary in size so that it might take up a whole side. Again, it is easy to imagine the development of a separate schema for large and small openings, particularly since the relative sizes of the TR and the opening are important for the motor routines for insertion being learned by small children. Similarly, the schema can be extended to include penetrating paths that have to create their own openings in the LM surface. Many other general transformations are of course involved in the pattern, such as those that result in a more precise shape and extent for a particular path and a particular LM. The image could also be linked with associated schemas to form more complex routines such as first creating the opening (e.g. by removing the jar lid).

Further development of the image schema will eventually involve differentiation into a distinct TR, LM, and path – each of which can be profiled separately. The TR is left maximally schematic here, although we can easily imagine languages that come to differentiate TRs according to how they need to be shaped and aligned for insertion. There will also be a salient resulting state corresponding to the final stage of the path, and this state can be profiled with endpoint focus (Lakoff 1987) as in Figure 1.1, which is understood to profile the TR in its final location more prominently than in its prior locations represented by the arrow.

2. While the English word in allows this transformation to operate freely, we can easily imagine a language that constrains its operation and differentiates downward insertion from lateral insertion. Interestingly though, I am not aware of any languages other than sign languages that do make such a distinction.

3. An image based primarily on the subjective experience of reaching into a container would of course look somewhat different from the purely visual image of observing someone else do so. The schematic image in Figure 1 could still apply though, augmented by image-schema transformations that allow the conceptualizer to adopt various vantages that include identification with an implicit agent or with the TR or with the LM. See the discussion below on the general influence of language.
2.2.2. Stative inclusion based on entry

The path arrow in Figure 1 actually depicts a *summary scan* of a path (Langacker 1987: 144-146), i.e., it is a cumulative scan of a dynamic temporal sequence of locations that begins somewhere outside the LM and ends inside it. The shaped single image of a path pattern corresponds to a memory trace of past locations – Talmy’s (2000: 149) “sensing” of “path structure”. An often neglected but absolutely crucial aspect of such a construal is that the path of the moving object is accompanied by a corresponding *conceptual movement*. In experiential terms, a person who watches an object move into a container will track the course of the object through space and time by moving the head and eyes, so that the person’s gaze takes a course that corresponds to that of the objective path. In other words, the arrow in Figure 1 also depicts a purely conceptual tracking path that accompanies the objective motion. We already know from discussions of fictive motion (Langacker 1987; Talmy 2000) that purely conceptual scanning processes have the potential to become independent of the objective physical motion that they originally accompany. I will now claim that these purely conceptual scanning paths are an essential element not only for path schemas such as ENTRY and for fictive motion, but for purely stative relations as well. In fact, nearly all image-schematic structure is characterized most fundamentally by recurring patterns in the ceaseless flow of conceptual motion.

To see why such an approach is necessary, consider the most obvious alternative account of how a stative CONTAINMENT image might result from ENTRY experiences. After an image such as that in Figure 1.1 has become established as a salient resulting state, the child can form a purely stationary locational image that becomes distinct from whatever path preceded it. At

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4. See also Cienki’s (1997) discussion of stative path traces.
that point we might imagine that the child has developed an image like that of Figure 1.2, which would result from removing the path arrow from the image in Figure 1.1. This is of course the pure static inclusion schema as it is usually portrayed (“CONTAINMENT itself”).

Figure 1.2. Pure inclusion?

The problem with this account is that it does not specify what makes the configuration “containment” – or inclusion or any other locational relation. We accept Figure 1.2 as a representation of containment because we supply that relation by a dynamic pattern of scanning. We construe the configuration as containment not simply because the configuration exists objectively, but because we process it in a particular way. And it is precisely that defining dynamic process which is missing in the misleadingly static image of Figure 1.2. As such, Figure 1.2 can only represent a meaningless configuration of unrelated entities.

If we begin instead with an event schema like that in Figure 1.1, which combines objective motion with an accompanying conceptual scanning pattern, we can trace a process of abstracting from spatiotemporal paths to static locational relations that differentiates the scanning pattern from the objective motion and thus allows it to apply to static configurations. As a first step from Figure 1.1, the child might imagine a purely hypothetical entry path, or a hypothetical act of reaching into the LM to search for an object and retrieve it. More abstractly still, the child might imagine a purely visual search path that corresponds to the schematic entry path, as if following the gaze of someone who is looking into the LM. The most abstract way of all to construe a static relation based on an entry path would be to divorce the image even from a real person’s directed gaze and imagine a purely conceptual search path that begins outside the LM and moves inward.

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5. According to Johnston (1985: 970) children “can conceptualize the path of sight and decide what someone else is looking at by age three”, and children think in terms of goal-directed paths by the second half of the first year (Mandler, this volume).
until the TR has been located. This kind of subjective gaze-based construal is in effect the same pattern of conceptual motion that accompanies normal entry paths (Figure 1) – but now completely differentiated from any objective motion (and from conceived time).  

We could draw the resulting relation as in Figure 1.3, which is the same as 1.1 except that the dashed arrow is meant to represent pure conceptual motion with no necessary corresponding motion by the TR (or by any other entity actually participating in the scene). Figure 1.3 represents a locational relation between the TR and its setting. We could think of it as an instruction to find the TR by searching from a random point outside of the LM, moving past the opening in the LM surface and continuing on inward toward the center. (Recall that the schema in Figure 1 allows entry from any angle.)

![Figure 1.3. Stative inclusion based on ENTRY.](image)

Thus we can arrive at a basic schema for stative inclusion that is thoroughly grounded in the experience of realistic containment events, and which is also fundamentally a dynamic pattern with an active role for the conceptualizer. Before we turn to the theoretical implications of this kind of dynamic image

6. As an indication of the course of development from physical paths to stative locational search paths, consider this incident reported by Thiel (1985: 202). He describes a child who put two model chairs next to a model bathtub and then said raus (‘out’). I take this as an indication that the projective prepositions begin in effect as hypothetical paths that move ‘out of’ the LM and thus have the effect of locating where the TR is now. The ‘out’ path will later become more refined by distinguishing neben ‘next to’ from über ‘above’, vor ‘in front of’ and so on – all of which describe scanning paths beginning at the LM and moving in a specified pattern.

7. The role of a scanning path grounded in ENTRY even for stative relations is reflected in the special status of TRs that extend in the direction of entry, such as flowers in a vase or a man standing in shallow water. The partially included TRs are not considered contained when the scanning of their extent does not coincide with an entry path. A man sitting on the edge of a pool may have his feet in the water, but we would not say that he is “in” the water.
schema though, we need to add another important image to the cluster of patterns that make up CONTAINMENT.

2.2.3. Enclosing

The basic experiences reflected in our cookie example are actually more diverse than most discussions imply, and many of them cannot be adequately accounted for in terms of topological inclusion or the simple entry of a mobile figure into a stationary container. That is especially true of containers that actively enclose an object by grasping (a cookie in the hand, a child in its mother’s arms) or wrapping (a cookie in a napkin, a child in a red dress). There is in effect a continuum of experiential patterns that are commonly classed together as CONTAINMENT, with the primary variable being how active the container and the contained are relative to each other. At one pole are jars and cribs and houses that are for the most part stationary receptacles with stable shapes – fixed regions of the setting where things can be located. At the other pole are hands and napkins, which are not intrinsic containers at all in their canonical states. Containing is something that these things actively do on a particular occasion by bending and closing in on the contained object. Between the two poles are many other containers – such as socks, canvas bags and container substances – that involve both entry by the contained object and active enveloping by the container.

We might represent the active enclosing pattern of a grasping hand or a wrapping napkin crudely as in Figure 2. The image suggests an originally open configuration that allows the container to begin to surround the contained object as it moves toward it. From there the container curves in on itself so that it tends eventually to enclose the object completely. An enclosing container thus engages in two types of inward motion simultaneously. It closes in on the object it contains, and it also closes in on itself. The righthand image particularly profiles the concluding phase in which the container is completing its own closure.
Figure 2. Active ENCLOSEING.

If interpreted sufficiently abstractly with primary focus on the concluding phase, this image actually applies to most typical containers. Its relevance to flexible containers such as socks, canvas bags and liquids is apparent. Even relatively stationary containers with relatively inflexible sides are usually associated with some kind of closing event before containment in them is complete. For example, putting something in a suitcase normally implies that the suitcase will eventually be closed (even if that closure is temporally remote). Similar comments apply to jars (putting the lid back on), houses and rooms (closing the door), desk drawers (pushing them back into the desk), and many other common containers.

A stative resulting image can develop for enclosing just as it did for entry. The arrows in Figure 2 can become memory traces of the scan that accompanied actual motion by the container, or they can correspond to hypothetical or potential closing motion (e.g. of suitcases or of jars that regain their lids), or they can correspond to the purely imaginary closure of a container’s open side.

2.3. Combining ENTRY and ENCLOSEING

Most instances of containment seem to involve elements of both ENTRY by the TR (resulting in a pure locational relation with functional implications associated with insertion or removal) and active ENCLOSEING by the LM (re-

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8. Figure 2 is meant to be neutral as to whether enclosing results in contact between the LM and the TR. That will depend on the flexibility of the entities involved. Grasping hands and wrapping napkins and immersing substances will continue moving inward until contact is established from all relevant directions; relatively rigidly shaped LMs will not normally reach contact except to the extent that the TR itself initiates it, e.g. by resting on the bottom of the container or by spreading (milk in a glass).
resulting in functional and force-dynamic implications such as restricted motion). Apparently, people are inclined to combine the two images into a single coherent image schema for CONTAINMENT.

The most obvious problem with combining ENTRY and ENCLOSING is that they have opposing figure-ground relations. In ENCLOSING the container is the moving figure, while ENTRY requires the contained object to be the relatively mobile entity. Reaching to grasp a cookie would more naturally be described with the container as TR and a verb such as English *grab*, *grasp*, *catch*, *enclose*, or *surround* (resulting in having the hand *around* the cookie). Only when the cookie is in the enclosed state does it become more natural to say that it is *in* someone’s hand, apparently reflecting a figure-ground reversal so that the image looks more like Figure 2.1.

![Figure 2.1. An enclosed TR.](image)

It turns out though that ENTRY events and ENCLOSING events are experienced together with remarkable frequency. We might imagine a prototypical containment experience to be putting a cookie into a mouth, so that the mouth actively encloses the cookie after its entry. In other words both the TR and the LM move, and the enclosing motion by the LM succeeds and converges with the entry path by the TR. The image schema could look roughly like Figure 3.

![Figure 3. CONTAINMENT as ENTRY-ENCLOSING.](image)
According to this approach even canonical stationary LMs such as cookie jars and houses could be construed to enclose their contents actively after entry. Their closure might reflect objective events such as putting the lid back on or closing a door after entry, but eventually an imagined virtual closure could suffice to invoke a schema like Figure 3. By the same token, a grasped TR such as a stationary cookie that does not really move relative to a grasping hand could have the ENTRY aspect of the construal imposed on it (at least in a stative configuration where nothing objectively contradicts that construal).

2.4. Schematic CONTAINMENT

In its maximally schematic form, stative CONTAINMENT could look something like Figure 3.1, which is the righthand side of Figure 3 set within a conceptual frame. Figure 3.1 is schematic in all the ways that Figure 1 is, including dimensionality and angle of scanning approach. The conceptual motion indicated by the arrows corresponds to the objective entry path of the TR, or to the reaching path of a hand seeking to insert or retrieve the TR, or

9. Permanently open-sided containers such as drinking glasses and cribs could thus undergo idealized virtual closure based on the image of closing a door or adding a lid. An alternative way to motivate virtual closure of an open-top container would be to include the downward force of gravity to complete the enclosure from all sides. Another potential analysis would make open-top containers a special case of ENCLOSING in which the surface curves only in two salient dimensions to form a band around the TR that leaves the TR free to extend in the third dimension. This transformational variant accounts for the extension of flowers in a vase beyond its virtual top boundary, and it is needed anyway to account for uses such as an arm in a cast.

10. The schema not only allows scanning from any angle; it also allows scanning from a variety of angles simultaneously, thus constricting the search area cumulatively until the TR has been located. Compare the highly general multiple-TR transformation (Dewell 1994), which allows a path image with a single moving TR to be replicated into a multiple-path image with plural TRs each of which moves – either in unison or in sequence – in conformity with the single path image. Thus several children can all reach ‘into’ a cookie jar simultaneously from all sides, or walk through the same door (cf. the sets of weighted vectors posited in many current representations of spatial regions.).
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to the direction of gaze searching for the TR, or to the enclosing effects of the LM, or to any practical combination of these.

Figure 3.1. Schematic CONTAINMENT.

2.5. Functional implications

Vandeloise (1991) and others have observed a range of factors that complicate the analysis of CONTAINMENT into a single schematic image such as topological inclusion. Some of these factors, such as partial inclusion (flowers in a vase) and virtual closure (the top of the glass of milk), result to a great extent from the kinds of image-schema transformations we have already encountered. Other factors however are unquestionably functional and force-dynamic in nature, such as restrictions on the TR’s movement (what Garrod et al. (1999) call “location control”). In fact the presence of force can be a defining factor, as indicated by Vandeloise’s (1991: 228) example l’aiguille/ *l’allumette est dans le champ de l’aimant (‘the needle/ *matchstick is in the field of the magnet’).

Functional implications such as these could only be arbitrarily related to a static image schema. If we analyze CONTAINMENT in terms of conceptual motion on the other hand, and ground that motion in the construal of objective paths, then functional implications can be naturally motivated. A schematic pattern such as that depicted in Figure 3.1 was originally abstracted from complex experiences that typically involve not only objective motion but also force-dynamic effects and subjective impressions and functional purposes. Activating the schematic pattern naturally tends to call those richer images to mind when they are appropriate to a dynamic construal in a particular context.

Given the ENCLOSING vectors emanating from the LM toward the TR, it is a natural implication that a force of some kind will typically be exerted in the direction of the vectors, thus counteracting any potential motion by the
TR out of the LM. The TR is held in by the LM. For similar reasons, if the container moves then anything found inside it will also move contingently.\footnote{As always we are talking of dynamic transformational patterns as appropriate to a particular context. A sense of restricting the TR’s motion will not normally be evoked when the LM is a piece of clothing (although strait-jackets would certainly qualify).}

Another related aspect of CONTAINMENT experiences that might be retrieved in appropriate contexts is the subjective sensation of identifying with the TR. Thus we might connect the image schema of Figure 3.1 to feeling a container such as a mother’s arms or clothing or water touching our body, or sensing the restricted maneuver space of a container such as a crib.

In other words, the analysis links a variety of actual experienced situations into a remarkably tightly woven and schematic set of cognitive patterns. The result is basically CONTAINMENT as described by Vandeloise (1991), including all of its functional implications and family resemblances. CONTAINMENT can be reduced to a basic image-schematic pattern that is in turn linked to a range of more general transformational patterns, and all of these dynamic patterns are thoroughly grounded in basic experience.\footnote{This analysis also accounts for extended variants such as the use of in as a verb particle in reflexive-TR variants such as cave in, which are natural in terms of the dynamic scanning patterns of Figure 3.1 but would seem unmotivated if we presumed a static inclusion schema.}

3. The role of language

3.1. The influence of particular languages

The discussion of CONTAINMENT thus far has not really mentioned language. In fact, one of the reasons that CONTAINMENT has been such a popular example in the image-schema literature is that it seems like a “conceptual universal” (Johnson and Lakoff 2002: 251). This claim can easily mislead though, if we think of image schemas as static things.

Although the schemas for ENTRY, ENCLOSING and CONTAINMENT are all grounded in essentially universal experiences, it is easy to imagine them developing differently in the semantic systems of different languages. There is good evidence that they in fact do. The work of Melissa Bowerman and her colleagues (e.g. Bowerman 1996a, Choi et al. 1999) for example shows that nothing in the Korean language corresponds exactly to ENCLOSING, and
there is no general category in Korean corresponding to ENTRY either – at least none that can be applied to causal insertion. Tzeltal similarly lacks a semantic category corresponding precisely to CONTAINMENT, preferring more particular schematic patterns that differentiate manners of insertion and of relations between the TR and the LM (Brown 1994).

Such observations have made Bowerman (1996a: 145) justifiably suspicious of any view that portrays children as “acquiring morphemes to express spatial concepts they already have, rather than creating spatial meanings in response to language.” Similarly, Slobin (2001: 421) maintains that “there is no set of prelinguistic categories that can be directly mapped onto the meanings of linguistic elements”, and Levinson (2003: 297-298) is skeptical of the notion that lexemes “map one-to-one onto unitary simplex conceptual representations” and that linguistic diversity is “merely a matter of complex packaging at a higher level, of universal conceptual primes at a lower level”.

The problem in this whole discussion is the presumption that any image schema (or preverbal concept) is an explicitly defined and static thing that a child either does or does not “have”, rather than a dynamic pattern that recurs as part of a larger organization of patterned cognitive processes that are not necessarily clearly distinct from each other. Semantic meanings are grounded in prelinguistic cognition that is real and patterned and largely universal; but we need to avoid the implication that the meaning of language constructions can be reduced to pre-existing universal representations.

3.2. The universalizing influence of language

There has been a tendency in the literature to frame the issue of conceptual universals mainly in terms of a competition between prelinguistic universals on the one hand and linguistic variation on the other. That is, the similarity of CONTAINMENT schemas across languages is attributed to their grounding in universally common, basic and objectively similar experiences that are independent of language, while semantic differences are attributed to the way that individual languages encode those prelinguistic schemas – as if language forms were simply being assigned to some of the pre-existing structures (or to combinations of those structures). Once we think of image schemas as complex schematic patterns though, rather than as discrete static things with a fixed structure, then language might influence the further development and organization of those patterns in any number of subtle ways. Moreover, those linguistic influences would not necessarily all be peculiar to a particu-
lar language. Given similar pressures to insure successful communication, languages generally might favor the development of certain kinds of concepts rather than others. In other words, some of the universally similar characteristics of a schematic adult concept like CONTAINMENT might reflect the influence of language as well as the influence of nonverbal experience.\(^\text{13}\)

### 3.2.1. Objective, viewpoint-neutral images

One of the more striking characteristics of the schemas represented in Figures 1.3, 2.1 and 3.1 is that they give priority to the objective and visual pattern of observing an event from a detached vantage, rather than to the more subjective sensations of actually participating in the event. The schemas do not directly include things like the motor movements involved in insertion, or the sensation of sensing contact with a mother’s cradling arms, or of being restricted in maneuver space, or of feeling warm and secure, cf. Mandler’s (this volume) comments about our conception of causal force. These aspects of containment are retrievable by general image-schema transformations that allow the conceptualizer to imagine being one of the entities in the scene, thus recalling aspects of the grounding experiences from which the schema was abstracted. But the adult cognitive patterns are organized so that the objective image is primary and the subjective implications are secondary – not the other way around. Even if a child begins by attaching such subjective meanings directly to a word like \textit{in}, learning the language will eventually guide the child to form a more objective image as the primary public one that is constrained by the construction. To the extent that they are called to mind by language rather than by more immediate experience, the more subjective images will gradually be relegated to the optional further

\(^{13}\)Another nonlinguistic factor in the universal development of CONTAINMENT that is worth mentioning is the very basic nature of the cognitive processes involved. The overall scanning pattern for CONTAINMENT corresponds to a progressive zooming sequence from the periphery of the conceptual frame inward toward the focal center, and that overall scanning pattern is very similar to the ones involved in the recognition of focal shaped objects – an ability that develops by the age of 3 to 4 months (Mandler 1992: 589). Compare the scanning patterns of CONTAINMENT with the general discussion of “field scans” and “peripheral scans” in Langacker (1987: 209-211).
interpretation that comes after first establishing a viewpoint-neutral image that is publicly accessible from any perspective.

The communicative advantages of an objective image are obvious enough. In order to imagine an objectively observed scene, the hearer does not have to adopt the speaker’s or any other particular perspective in order to understand. An image-schematic concept such as that in Figure 3.1 can be imagined from any angle and distance without affecting the objective content of the scene. That flexibility is important for language development, especially since judgments from a particular imagined perspective do not emerge until the fourth year (Johnston 1985: 970). Visually based images with a flexible perspective also make it much easier to integrate a particular image into a larger composite scene involving other entities and relations.

3.2.2. Shape bias

Another, related aspect of an adult CONTAINMENT image like the one illustrated in Figure 3.1 is that it relies primarily on linear scanning processes. That is true of the profiled CONTAINMENT relation (the arrows in the diagrams) and for the LM boundary where the TR enters, and when the TR and the LM are elaborated they will also usually be conceived primarily as recognizable shapes. (Contrast potential nonlinear conceptions such as texture, size or emotional reactions.) The role of language in this preference for linear scanning is reflected in studies of the so-called “shape bias”. When asked if one object is like another, children will base their judgments on whatever properties seem most obviously different, including size and texture as well as shape; but when they are asked to generalize a novel name for the object children attend exclusively to shape, ignoring quite large differences on the other dimensions. Moreover, the shape bias becomes more robust with development – it is stronger for adults than for children – and it gradually becomes specific to count nouns. As summarized by Jones and Smith (1993: 125):

In all the experiments on novel word interpretations, there is a dramatic contrast between the perceptual properties of objects that children attend to when naming objects versus when making other kinds of judgments (e.g. similarity).

For obvious communicative reasons, language encourages us to give priority to images that can literally delineate and define separate entities that are recognizably distinct from each other, and which can be located relative to
each other and relative to a domain. These principles apply to relations such as CONTAINMENT just as they do to objects such as cookie jars. For example, the main ENTRY arrow of Figure 3.1 can be contrasted clearly with pathways that extend only to the defined outer boundary of the LM (cf on), and with pathways that extend to a second crossing of the LM boundary (cf through), and with pathways that reverse the ENTRY direction and proceed out of the LM. Although the shape of the basic ENTRY pathway is unmarked (i.e. schematically straight), summarily scanned pathways can potentially be differentiated from each other by shape as well. Think for example of around (as opposed to past) or of the distinction between over and across as analyzed in Dewell (1994). Other, vaguer kinds of images – those that do not involve linear scans that can define distinct entities – are of course not eliminated from our minds; but they are not constantly reinforced as the ones most commonly and directly linked to conventional language constructions.

All things considered then, a schema like that in Figure 3.1 is not nearly as purely preverbal as one might think from reading most accounts of image schemas. It not only reflects the semantic organization of a particular language system. It reflects the influence of language generally toward maximally precise and differentiated linear shapes that can be explicitly profiled and publicly accessed from a flexible perspective.

4. Challenging the “standard view of cognition”

If we think of image schemas as dynamic patterns rather than static structures, the ramifications go beyond altering the detailed analysis of a particular image-schematic concept such as CONTAINMENT, and even beyond suggesting a much more basic role for language in the development of image schemas. It also undermines what Jones and Smith (1993:129) call the “standard view of cognition”, which rests on the core assumption that concepts are “static and thing-like” units. As Smith and Jones (1993: 182) put it, the standard view reflects a traditional “partition of cognition into structure (stability) and process (variability)”, with “static, unchanging representations that are repeatedly activated in different contexts”.

One problematic implication of the standard view is the fairly straightforward mapping of concepts onto language that was mentioned in section 3.1. It suggests what Zlatev (1997: 139-141) has called the “atomist assumption” that word meanings are largely context-independent units, which is in turn related to the “reificational assumption” that word meanings can be
viewed as mental objects. The standard view rests on the notion of prelinguistic, explicitly defined, static mental representations.

In theory of course, image schemas could inhabit a separate level of cognition distinct from conceptual structure (like Jackendoff’s (2002) “spatial structure”), so that concepts could be static and thing-like units without entailing that image schemas are as well. In practice though, it is very difficult to draw a clear line between image schemas and concepts. Moreover, if image schemas structure concepts it is difficult to imagine precisely how static and thing-like concepts would develop prelinguistically out of dynamic patterns that do not differentiate structure and process. The assumptions of the standard view of cognition make it difficult not to think of image schemas as static structures.¹⁴

By the same token, if we recognize that image schemas are truly dynamic patterns that do not distinguish structure and process, then it becomes difficult to hold onto the standard view of cognition. If CONTAINMENT and other image schemas are intrinsically and fundamentally nonpropositional patterns, then what reason is there to assume that the concepts that develop out of them should be explicitly defined, static mental representations that can be manipulated as context-independent propositional units?

In effect then, the notion of image schemas that has been developed in this chapter supports the proposal by Jones and Smith (1993:136) that concepts generally are dynamic cognitive patterns rather than “represented entities that exist as a unit”. Concepts are “the emergent products of multiple knowledge sources in specific task contexts”, and cognition could be “all process” and emerge from “dynamic and changing patterns of activity” (Smith and Jones 1993:187).

What is called “the meaning” of a language construction such as the English word in is a conventionally learned and constrained pattern that channels the flow of thought in certain ways. Invoking a schema like that in Figure 3.1 is not a productive act of linking a language form to a static structure that is then inserted into a context. Invoking the schema is the beginning of channeling the further flow, an opening pathway of dynamic cognitive processes and transformations that always leads somewhere else in combination with

¹⁴. The language we use to talk about them contributes to this vague impression as well. The most convenient terms we have to refer to mental phenomena – image schemas, concepts, structures, thoughts, representations, meanings – are all count nouns. It is thus part of their usual meaning that they are discrete units that can be moved around intact.
all of the other cognitive events that form the context. The effect of a lan-
guage construction is somewhat like a chess opening, providing a convention-
tally patterned sequence that becomes progressively less constrained as it
gets further from its starting point. Some aspects of the pattern will be very
entrenched and automatic (such as the scanning pattern from the periphery
toward the center of the LM). Other aspects will be subject to weaker con-
ventional constraints and to a variety of contextual factors (such as the more
specific nature and dimensionality of the LM, the functional implications of
limited mobility or access, the subjective sensation of being in the location).
The conventional semantic constraints become weaker as the interpretative
flow progresses in an ultimately open-ended and underdetermined process.

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