Cognitive Control Therapy with Children and Adolescents

Therapy with Equivalence Range Cognitive Control

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Table of Contents

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The equivalence range cognitive control concerns the manner in which an individual groups information in terms of concepts. As discussed in Chapter 2, the process includes the number and width of categories used, the level of abstraction represented by a category, and whether conventional or personal concepts relate the members of a group. The program described in this chapter is designed to restructure and rehabilitate this mechanism so that it functions efficiently when information is handled as it is, as well as when information is transformed with symbols and fantasies within the process of symbolic functioning (pretending).

With the general technique, the therapist presents an object and the child details its physical and/or functional properties and locates or specifies other objects, each of which share one or more of these properties. Then the child forms groups with the objects so that those placed together share some dimension and qualify as members of a concept. With the therapist's assistance, the child learns when concepts fit the information they embrace and comes to understand the utility of concepts when applied to external information and to information construed in terms of fantasies.

To benefit from this program, a child should have achieved in the course of development, or with the assistance of the programs previously described, stage-appropriate efficiency with cognitive controls that are subordinate to, and integrated within, the process of equivalence range; namely, constructing body schemata, regulating body tempos, scanning systematically, articulating a field of information in terms of relevance, and constructing differentiated, stable images of information that are related to present perceptions.

When compared with the previous program, the experiences provided by equivalence range therapy represent another major shift along the developmental hierarchy of cognitive control functioning (see Chapter 2). With therapy in leveling-sharpening (the previous program), the information managed is contained, for the most part, in images constructed of past information and in the relation between these images and perceptions of present information. Now the therapeutic experiences require that the information perceived, as well as the information held in memory, be related in terms of categories, classes, and concepts.

PROGRAM 5: WHERE DOES IT BELONG?

Purpose and Goal: To develop the child's capacity to construct categories of various types of information that are narrow and broad, concrete and abstract, and to learn the utility of these concepts; and to promote efficient

equivalence range functioning when external information is engaged as it is and when it is transformed with symbols and fantasies within the process of symbolic functioning (pretending).

Materials: (a) familiar objects and materials of various shapes, sizes, colors, textures, densities, and lengths typically found in the child's home, school, and community; (b) unfamiliar objects varying along the same dimensions not found in the child's home and community. Objects used in homes and farms in the United States before 1940 and from other cultures frequently serve as effective unfamiliar objects; (c) material used in previously described cognitive therapy programs (e.g., geometric cutouts; buttons; keys; pieces of cloth).

Introduction and General Procedure

When administering this program the therapist places an object on the table (referred to as the *starter object)* and asks the child to list its physical and/or functional attributes. Next, the child places these attributes into groups *either physically,* by grouping objects which contain one or more of the attributes listed, *or cognitively* by grouping the attributes that have been recorded on cards. The child evaluates the groups constructed and dissolves the groups. Then, the same objects/attributes are grouped in other ways, using different categories and concepts. At a later phase, the child learns to

evaluate and relate these categories and concepts by constructing a model, or "theory," with them. This entire process is repeated with attributes which are construed or imagined.

Now the process of equivalence range will be examined closely. First, each of the other four cognitive controls are orchestrated in a complex interplay that results in conceptual thinking. This complex process, in turn, reminds the therapist to exercise careful, analytic thinking when administering the techniques described here. The therapist should observe, monitor, and understand her own "conceptual style" in order to help the child. If the therapist tends to think in abstract terms, leaping from some data to some conceptual understanding, the therapist may not be sufficiently patient in helping the child cultivate each of the steps required to perform this leap. Last, the therapy program is less structured than the previous program. With each task, the therapist creates a relatively long-term process within which the child gradually cultivates the capacity to perform each of the steps that contribute to conceptual thinking (i.e., comprehensively articulating the attributes of the field of information to be conceptualized, flexibly assigning each attribute the position of relevance and irrelevance, relating attributes to images of information already experienced, and then constructing a category which unifies the information).

For an example, consider a child who is presented a red ball, a yellow

poker chip, a 3 x 5 inch lined index card, a red plastic saucer, and an eraser. When asked to group objects that belong together in some way, the child stands relatively motionless (regulation of body tempo) and actively scans the objects (focal attention), registering the attributes of the ball (red, round, and soft), the poker chip (yellow, round, flat, corrugated edges, hard). In terms of the contribution of field articulation, the child perceives a ridge along the perimeter of the ball, and withdraws attention from this attribute, as he squeezes the ball, registering its density in terms of sensorimotor experiences involving other hard and soft objects (body schema). Then the ball is replaced, attention withdrawn from it, and directed to the index card with its blue lines, to the shining surface of the plastic saucer, back to the ball (focal attention and field articulation).

Images of these attributes become a major part of the process as the child determines how the objects belong together. As the child directs attention selectively at the red attribute of the saucer, the perception is related to the image of the red attribute of the ball. At this point, the child sets the ball by the saucer, “They're both red," simultaneously subordinating the softness of the ball, and the hardness of the saucer.

Withdrawing attention from the ball and saucer, the child perceives the index card, relating the perception to an image of the child at school erasing a line on a sheet of paper and to an image of the eraser perceived earlier on the

table. The child places the card by the eraser, “You can erase the card." Again, in grouping the items this way, the child subordinates attributes of the eraser (e.g., rectangular, gray, rubber) and the card (e.g., rectangular, white, blue lines).

Compare this example with one of disordered equivalence range functioning. The child groups the eraser, ball, and saucer, saying, "This (eraser) is soft like this (ball), and the ball is red like this (saucer)." With this type of conceptual thinking, a "shifting chain" of concepts ties the objects together rather than a single, stable concept. Or, the child sets the poker chip upright on its rim on the card, saying, "It goes like that on paper," indicating that the objects are "forced" into a group in an unrealistic way. The first example illustrates the interplay of efficiently functioning cognitive controls within the process of categorizing. The second example illustrates how deficits in these controls derail conceptual thinking.

As discussed in Chapters 2 and 3, the equivalence range control is unique in involving language, beliefs, and concepts within its process. In the early phases of therapy, or in the early phases of each step, a child, especially a young child or one who has limited language ability, may not be able to construct a label/concept/explanation which unifies the objects in the group. The therapist should not insist on labels. Rather, she should wait for developmental advances to take place that enable the child to construct labels

or explanations. This position is in accord with numerous studies which make clear that by the end of the first year of life infants construct groups of objects, clearly reflecting a common denominator, long before the child shows a verbal label for the dimension being used.

Unlike the other therapy programs, there are no criteria that define when a child successfully completes a task. With equivalence range therapy, the therapist evaluates whether, for example, a child needs 1,10, or 15 sessions to cultivate the capacity to articulate comprehensively the attributes reflected by a starter object. As another example, one child may require only a few sessions to cultivate the capacity to regroup a set of material in new ways, while another child may require many sessions.

The program of equivalence range therapy consists of eight steps as outlined in Table 9.1. The first two steps provide "basic training," so to speak. The child articulates attributes of neutral, familiar, and then less familiar starter objects, locates objects made available, each of which contains one or more of the attributes listed, and then groups the objects. This process is repeated as often as indicated, using a series of starter objects.

With Step 3, once objects are grouped, the groups are dissolved, and the same objects are grouped again, now from other points of view. In this way, the child experiences reversing the original concepts, cultivates an

understanding of how the point of view one holds influences the way in which information is conceptualized, and learns that the same information can be conceptualized in different ways. In the next step the child conceptualizes information which is not present (distal), as well as probable or hypothetical.

Then, the child conceptualizes while balancing emotions and fantasies aroused by the material (Step 5). Following this, the program embeds conceptual thinking within the process of symbolic functioning (pretending) by requiring the child to categorize objects and attributes construed as something else (Step 6), and then by requiring the child to categorize information while participating in directed fantasies (Step 7). At this point the child is equipped to use equivalence range functioning as a tool in learning and, if indicated, when engaging in non-directed verbal/play therapy designed to help the child elaborate and reform key pathological metaphors that contribute to his/her maladaptive functioning.

Table 9.1. Steps in Therapy with the Equivalence Range Cognitive Control: Where Does It Belong?

Step 1.	Child conceptualizes neutral, present information: familiar objects used as stimuli
Part A	Child conceptualizes information in terms of physical properties
	1. Therapist presents neutral, simple stimulus (starter object)
	2. Child lists physical properties of starter object
	3. Therapist guides child as needed to discover and evaluate attributes

4. Child locates objects (response objects) that contain at least one physical attribute of the starter object

5. Child places response object into groups, each defining a dimension

6. Child and therapist evaluate each group in terms of the fit between objects and dimension of group

7. Therapist presents a series of starter objects increasingly more complex and less familiar; Child repeats (2) through (6) above; Therapist encourages groups that contain increasingly more objects

Part B — Child conceptualizes familiar information in terms of functional properties (usages)

1-7 same as Part A with usages of objects focused Part C Child conceptualizes information in terms of physical and functional properties 1-7 same as Part A

Part D — Child builds conceptual model that organizes several groups already constructed

Step 2. — Child conceptualizes neutral present information: unfamiliar objects used as stimuli

Parts A-D — Same as Step 1

Step 3. — Child conceptualizes present information from multiple points of view: familiar and unfamiliar objects used as stimuli

Part A — Child groups and regroups the same response objects in terms of physical and functional properties, comparing the points of view which guided each grouping

Parts A-D — Same as in Step 1

1. Child articulates points of view guiding location of objects in groups

2. Child trained in assuming points of view if indicated

3. Child rates and compares groups and points of view (e.g., narrow- broad; concrete-abstract)

4. Child builds conceptual model organizing groups as rated

Step — Child conceptualizes information that is absent: familiar and ambiguous objects

4.	used as stimuli
Part A	Child conceptualizes information that exists in daily environment (e.g., home; school)
Part B	Child conceptualizes information that exists but is not a part of the child's daily environments
	1-7 of Step 1 and 1-4 of Step 3
Step 5.	Child conceptualizes present and absent information that arouses fantasies/ emotions
	Follow methods of Step 4. Therapist uses starter objects that increasingly provoke fantasies/emotions
Step 6.	Child conceptualizes information construed as something other than what it is
Part A	Therapist guides child with techniques of free sort, directed sort, directed pretend uses, and directed linguistic symbols
	1. Child and therapist take turns in constructing groups of material construed as something else and the other guesses the dimension guiding the group
	2. Child and therapist evaluate whether symbols constructed are conventional or personal and how they fit attributes
Step 7.	Child conceptualizes information while enacting a fantasy directed by therapist
Step 8.	Child conceptualizes information within a non-directed/free play format

The outer-oriented child begins with Step 1, cultivating the equivalence range function without the interference of fantasies against which cognition is defended or with which cognition is incompetent. Gradually the child moves to Step 8 as outlined. The inner-oriented child begins with Step 8, with modifications indicated, cultivating the equivalence range function with information from the preferred personal world and without interference from

the requirements of the external world against which cognition is defended and with which cognition is relatively incompetent. Gradually the inner-oriented child moves to Step 1.

Introducing the Program to the Child

The examples describe young children who are especially deficient in equivalence range functioning. Older children and children less deficient may not require the degree of direction illustrated.

The Outer-Oriented Child. Place a red rubber ball on the table and say, "John, we're going to play a game called *Where Does It Belong?.* Look at this ball and feel it. We want to find other things it belongs to." The child spontaneously comments that the ball belongs to a toy box and his mother doesn't like toys laying around. The therapist says, "That's *where* it belongs. Where we keep it. We want to figure out how this belongs to other things; how it's the same as other things. To do that we have to first find out what is special about the ball. Tell me what the ball is made of." "It is hard; you can bounce it on the wall (grinning), and you can bounce it off someone's head."

The therapist responds, "Bouncing is what you can do with the ball. Hard *is* one thing the ball is made of. What else?" The boy responds, "It's red." The therapist says, "Good. What else?" The boy responds, "It's small." To help John discover that this attribute requires further differentiating, the therapist

(following techniques discussed below) asks John to place a marble and soccer ball next to the red ball. Discovering that the red ball is large when next to the marble, and small when next to the soccer ball, John decides to call the ball "medium-small." In a similar way, John is given squares and other shapes until he articulates the attribute "round." The therapist says, "That's right; it's round. Round is something special about the ball. It stays round no matter what you put it next to. Medium-small is special, too, but not as special because it doesn't stay medium-small when we put other things next to it."

Next John locates objects in the room and in the "game box" provided by the therapist that have "at least one of the special things the ball has— red, round, or medium-small." John rummages through the game box, places objects on the table, and with each the therapist asks John to point out the attribute. After John locates six to eight objects, the therapist proceeds with the remaining techniques of Step 1, Part A.

The Inner-Oriented Child. Use the first session or two to observe the objects in the playroom the child tends to use in spontaneous activity. These objects and others the child brings to the session are used to introduce the program. One child came to the session wearing many buttons and badges on his shirt (baseball players, rock group performers, "Star Wars" figures). The child does not comment when asked about them although he frequently takes one off and manipulates it. The therapist asks the child for a button he is

holding and engages the child in detailing the attributes of the button following the procedure discussed above. A number of such interventions may be required over several sessions before the child begins selecting objects from the box.

Another child, during her dreamlike wanderings through the playroom, manipulates an animal puppet for a moment, and then changes its location, placing it next to a human puppet. In this case, the therapist takes both of the objects and asks the child to detail the attributes that belong to both of them.

The therapist repeats this procedure as often as is clinically indicated, slowly engaging the child in the task of detailing physical and functional attributes. As the alliance builds, the therapist moves more formally into Step 7, asking the child to group the objects within some fantasy into which the therapist has been invited.

Specific Instructions

Step 1. In Part A place a neutral, relatively simple object on the table. One of the geometric cutouts used in other programs is frequently an effective initial starter object. Ask the child, "What makes this (a green wooden square)? What is it made of?" If the child articulates a functional attribute, point out, "That's one thing you can do with it. Right now we want to figure out what are some of the things that this is made of." Occasionally a child will

spontaneously articulate drive-dominated attributes (e.g., "You can crack someone's head open with it," "You can eat it like a Cookie Monster."). At this time, point out only "that is what you can do with it." The instructions for Part B discuss how these "functional" attributes are handled.

Print each attribute the child articulates on a 5 x 8 inch card, if the child is able to read. If a child cannot read, use simple designs (e.g., a circle to connote round; red crayon mark to connote red, and a drawing of stick figure holding a huge weight to connote heavy). These cards are then used as the anchor points for a later step.

Guiding the Child to Discover and Evaluate Physical Attributes. The therapist guides the child in discovering physical attributes and evaluating their appropriateness using several techniques: (a) manipulate the starter object and, if necessary another object, in ways that suggest a physical attribute (e.g., lift the starter object in the palm of the hand, "hefting it," or place the starter object in one hand and another object in the other hand to convey weight; pass your fingers along the perimeter of the object to convey some unique shape; tap the object against a table to convey density); (b) verbally direct the child to explore a particular attribute (e.g., "Jimmy, pass your finger over the top; do you notice anything?"); (c) provide a label for one attribute as a way of encouraging the child to discover others (e.g., "Mary, right here in this part it's blue; this edge is round").

After the child has articulated at least three or four physical properties of the starter object ask the child to look through the "game box" to find objects (response objects) that have one or more of the attributes articulated. The game box should be filled with many different "odds and ends" (e.g., washers, bolts, clothes pins, shoelaces of various lengths and colors, sea shells, buttons of various colors and sizes, nuts and bolts, corks, pieces of colored sponge, cotton balls, wooden sticks, metal rods, small springs, paper clips, old brushes, pieces of ribbon, twine and wire, wooden blocks, pieces of Styrofoam). The more items in the box the more the child is enabled to locate possible response objects. Also, the smaller the items the better, since small objects lend themselves more easily to being grouped. With older children and adolescents, the box should contain at least 100 items.

Place the cards, on which the attributes of the starter object were recorded, on the table and ask the child to place each item under the card listing the attribute the object shares. Once the child locates at least six to eight objects, ask the child to place the response objects into groups, "Put into a bunch the things that belong together for some reason."

Initially the child, especially the young child, will cluster the objects in terms of the attribute shared with the starter object (e.g., two objects are clustered that have the color green, two objects that are square, etc.). In all cases, ask the child, “How do these belong together? What's the same about

them?” Accept these groupings and engage the child in evaluating each whether or not the groups appear “reasonable" or "correct" (e.g., "That's right. These go together because they are all green. These go together because this one is made out of wood and this one has some wood on the handle").

On occasion, even at the start of therapy with simple starter objects, a child constructs an inappropriate group. The therapist guides the child, using the techniques described above, in discovering why a particular object does not belong (e.g., the child places a square, wooden brush with a square sponge and says, "They're wood." The therapist taps the brush against the table and then the sponge and asked the child to do the same, saying, "What about that? Are they both wood?") After the child has articulated the physical properties of the first starter object, selected, grouped, and conceptualized some number of response objects, place another starter object on the table. If a child manages the first trial with ease, the next starter object could be somewhat more complex (e.g., a marble containing the attributes: sphere, glass, smooth, yellow, blue, white, and red) or considerably more complex (e.g., a wooden ruler, flat on one side, concave on the other; a metal strip on one edge; black, red, and white lettering; and circular designs on each end). If the child shows limitations during the first trial, a second equally simple starter object is used for the next trial (e.g., a red ball).

The therapist continues administering additional trials using a series of

starter objects each one slightly more complex than the last. The number of trials required, and the complexity of the starter objects, are determined by the child's age, developmental stage, and degree of impairment in conceptual thinking. With each trial the therapist encourages the child to locate a few more response objects than were located in the previous trial. Some children spontaneously increase the number of response objects from trial to trial; others become fixed on some number. In the latter cases, it is usually helpful if the therapist joins the child in rummaging through the box, modeling and verbalizing the search for possibilities. "Let's see. Could this be one we could put there? Does it have something like that (the starter object)?"

Following the same procedure for Part B, ask the child to articulate functional attributes of the starter object. Say, "Now we are going to play the game *Where Does It Belong?* in a different way. This time, let's figure out all the things you can do with this."

Initially, use some of the same starter objects from Part A. If the child worked with a wooden cube, for example, the child now deals with the same cube in terms of its functions, although simple and few in number (e.g., can be used as a game piece, or to hold paper down, or to hold a window up).

In addition to “static" objects from Part A, starter objects for these trials should also include items which inherently stimulate usages (e.g., door hinge,

a sponge, a shoe lace, a wooden clothes pin, a coat hanger, a pair of scissors, an egg beater). With each starter object the child follows the same seven steps of Part A: lists functions, locates response objects that perform one of the same functions, groups the response objects, and evaluates the groups.

From task to task, the child is trained to evaluate the fit between the functions articulated and the unique attributes of the object, whether the proposed function is neutral and related to external information or highly personal and related to internal information. For example, articulating the functions of a stick as a starter object, the child proposes, “You can use it like a ruler to draw a straight line, and you can build a house with it." The first use is evaluated as closely fitting the attributes of the stick. With the second, help the child discover that the stick cannot be used to build the walls of a regular house, but could to trim a window or to build a toy house.

To illustrate further, if the child says, "You can poke somebody's eye out," the child is helped to evaluate that an eye could be poked out with many different objects (e.g., a finger, a book, a pencil)—-"almost anything, except things like feathers, so poking eyes out is not a very special thing that belongs to a stick." This example illustrates that the dynamic issues involved in such responses are avoided at this phase in therapy in favor of training the child to evaluate the proposed function cognitively in terms of the properties in question.

Part C provides therapy in conceptualizing information when physical and functional attributes are considered simultaneously. The starter objects, although still familiar to the child, are now more complex and contain properties that stimulate both physical and functional attributes (e.g., coat hanger, egg beater, a drinking cup, a hammer, padlock with key, a working flashlight).

With each starter object, ask the child to note both what the object is made of and the different ways you can use it. Each physical and functional property is recorded on a card and each card is set on a table as a reminder. Following the 7 steps of Part A, the child locates objects from the game box that contain one of the physical or functional properties or some combination, then places these objects into groups, labeling and evaluating each. Over a series of trials use starter objects that are gradually more complex, and ask the child to locate an increasingly larger number of response objects.

Since including both physical and functional properties permits more abstract and broad categories (e.g., “tools," “toys"), the therapist help the child articulate categories that are broader and more abstract than those of previous steps within what is expected for the child's age and developmental stage.

Part D provides the child with preliminary experiences “building a

conceptual model" and constructing some “superordinate understanding" of how several groups can belong together. With the general procedure, the therapist selects groups of objects the child already constructed, places them on the table, and guides the child in developing a model with them.

To illustrate, assume that during the course of Step 1, the child grouped objects and formed categories listed in Level 1 of Figure 9.1: a saw and yellow paint can were grouped because they both contained yellow; a screwdriver with a green handle and a small wire cutter were grouped because they both contained green; washers and a paint roller were grouped as round; a hammer and file as long; a screwdriver and paint brush because each had a wooden handle; and tweezers, scissors, and a piece of wire because they are metal things.

The therapist places the groups on the table saying, “Jimmy, these are different groups you made before. Remember, you put the saw and paint can together? Do you remember why? Right, they both have yellow. Do you remember why you put the screwdriver and wire cutter together? Right, they both have green handles." The therapist reviews each group arrayed. If the child does not recall the category, the therapist reminds the child of the reason given previously for the group. Each category name is printed on a card and placed above the respective items.

After this review, the child is instructed to construct a second level of concepts that could unite two or more first level groups and concepts. In our example, the therapist says, “Jimmy, this bunch is yellow things and this bunch is green things. If we put both of these bunches together what do they both have to do with?" Child responds. “That's right. They both have to do with color." Continue guiding the child as needed until the child articulates the other Level 2 concepts of "how they are shaped" and "what they're made of" as shown in Figure 9.1. Print each of the Level 2 concepts on a card and place the cards on the table above the groups that fall within the concepts.

Next, the child is guided in constructing a subordinate concept. For example, "Jimmy, these groups have to do with the color of things, these groups with the shapes of things, and these with what the things are made out of. Now, let's think of a way all these things, and all these groups, can belong to one family—one group." The therapist guides the child in constructing a superordinate concept (e.g., "They all have to do with fixing things"). This Level 3 concept is also printed on a card and placed above all the groups.

The number of conceptual levels required at this stage should be relatively simple, but, of course, as complex as is appropriate given the child's cognitive status. At least two or three such pyramids should be constructed before moving on to the next step. Some adolescents are capable, even at this early stage of therapy, of constructing three pyramids and then uniting these

three pyramids within a superordinate, fourth level of abstraction.

FIGURE 9.1. Sample Conceptual Pyramid for Step 1, Part D

As illustrated by the example, the models constructed with most children at this step in therapy should make use of simple physical and functional attributes. In constructing Level 2 and Level 3 categories, a child may make use of concepts that are too global or that rely on interpretations that are too personal. For example, "all these are happy things," "these have to do with war and these have to do with peace." Though at first glance such concepts appear "creative," they should be examined carefully to determine if excessive liberties are being taken when imposing these concepts, and whether the items contained within the group provide an appropriate referent. In general, initially guide the child in constructing higher order concepts that are more closely tied to the "data base." When the child demonstrates the ability to articulate the physical and functional properties being used to form higher order concepts, the breadth and abstraction of the higher order concepts can be increased.

The example given also illustrates that initially the therapist locates the groups selected to construct a model in a way that gives the child clues as to how several groups can be clustered together. In setting the yellow group and the green group next to each other, the therapist facilitates the child's constructing the higher order category of color uniting these groups. If the yellow group were located to the far left and the green group to the far right, it would be more difficult for the child to arrive at this possible higher order concept. Initially, then, the therapist locates groups close together so as to

suggest possible higher order categories. Later in therapy the groups are arrayed randomly, requiring more vigorous conceptualizing on the part of the child.

Step 2. This step requires starter objects that are unfamiliar to the child and introduces new, important ingredients in the treatment process. When asked to list physical and functional attributes of an unfamiliar object, most children tend to dismiss it outright, or explore it only briefly. Unfamiliar objects are not unlike unfamiliar information, that is, information not readily assimilated into preexisting schemata and understanding. Therefore, by using unfamiliar starter objects, the child is provided therapeutic experiences in conceptualizing the unfamiliar and unknown which, in turn, requires accommodating preexisting schemata to the unfamiliar material.

A large number of objects, relatively unfamiliar to the child, are required to serve either as starter or response objects. Gadgets used on farms and in kitchens before the 1940s are ideal, as well as objects the therapist may have collected from other cultures and countries. Novelty shops and "flea markets" are usually excellent sources for this material. The therapist should not presume that an object is familiar to a child, and, of course, the therapist should keep in mind that an object familiar to one child may be unfamiliar to another (e.g., a wire rug beater; an alien wrench; a washboard). Before beginning the therapist establishes whether the objects are unfamiliar by

showing each to the child and asking, "What is this? Have you ever seen it before?"

Once materials are gathered, follow the steps outlined in Parts A through D of Step 1. As might be expected, when more ambiguous and/or less familiar objects are used, evaluating the fit between the category and the physical and functional properties of objects in the group takes on special significance. Now the child is more likely to propose a physical property that is not sufficiently articulate (e.g., "They all have bumps on them," or a function, "You can do things with all of them, like you can lean them on this.").

Step 3. This step requires the child to assume multiple points of view while conceptualizing the information. The familiar and unfamiliar objects used in Steps 1 and 2 are used here in combination.

In the first part of this step, present a starter object and follow the procedure of Step 1, Part C: Ask the child to list both physical and functional attributes of the starter object, locate relevant response objects, place the response objects into groups and then label the groups. The items that form a group and the reasons why the items belong together are printed on 5x8 inch cards, each group recorded on a separate card. The cards are set aside for the moment.

Next, instruct the child to dissolve the groups. For example, "Johnny,

let's leave all of the things you used in these groups on the table, but let's mix them up." The therapist moves items, asking the child to join in. When the items are arrayed more or less randomly the therapist says, "Look over all of these things again. Make new groups with them. Try to find other ways these things can belong together for some reason." After the child has formed another set of groups, the items of each and the concept the child assigns are printed on a 5x8 inch card.

At this point engage the child in comparing the groups and concepts. Move the objects just sorted to one side, and array the two sets of cards on the table, the cards of each sort in a single row. Select an item and discuss where it was located in each sort in order to cultivate the child's understanding of how points of view influence the way an item is conceptualized. For example, say, "Johnny, the first time you put the screwdriver in this group because it was long and skinny like everything else in that bunch." Point to the card describing that group and review the group. "The second time you put the screwdriver in this group because a part of it is made of metal, like the other things in that group." Point to the card describing the group and review the group. "The first time you were noticing the screwdriver one way, by its shape; the second time you were noticing it another way, by what it is made of. Do you see? The way we look at things (for older children—the point of view we use) makes us see a thing in a certain way."

Select other items and proceed in the same way, cultivating, bit by bit, the child's understanding that different points of view guided the location of an item in different groups. In these comparisons, emphasize that the object or piece of information does not change when imposing different points of view on it, but the membership assigned to the item changes in keeping with the feature the point of view has made salient. For example, "Johnny, notice the screwdriver stays a screwdriver wherever you put it, but here it belongs to a long, skinny group because that's what you picked out of it when you looked at it that way. Here it belongs to a metal group because that's what you picked out when you looked at it that way. Do you see? The same thing can be understood in different ways and belong to different groups."

With older children and adolescents, train the child to rate each group constructed in each sort in terms of width and level of abstraction. The purpose of rating is to cultivate the child's understanding that all categories are not the same in terms of the understanding they bring and that the understanding a category provides is a function of various dimensions such as the width of a category and the level of abstraction. The complexity of the ratings the therapist introduces would vary, of course, in terms of a child's cognitive ability. The therapist should invent appropriate rating scales.

To illustrate, consider the following three-point rating scales the author and colleagues have used with children as young as eight to nine years old. In

terms of category width, a rating of 1 defines a narrow group, a 3 a broad group, and a 2 falls between. In terms of level of abstraction, a rating of 1 defines a concrete group, a 3 an abstract group, and 2 falls between. With the therapist's help, the child reviews each group (listed on a card) of each sort and writes the ratings assigned on the card. Examples: items grouped in terms of identities (three red poker chips placed together because they are the same thing) would be rated as reflecting a more narrow category than items grouped in terms of the color red. The former group limits membership to things that are identical. The latter defines membership in broader terms since items that are different in some way, but colored red, can belong. Items placed in a group labeled "tools" would be rated as more abstract than a group called “fixing things," since some tools perform functions in addition to fixing. And, the category “fixing things" would be rated as more abstract than the category “metal things," which represents a more concrete attribute.

It should be noted that category width and level of abstraction are relatively independent considerations. For example, a narrow group of items (e.g., aluminum nails) can be conceptualized in more concrete terms ("nails to hook two boards together") and in more abstract terms ("You can hang a lot of different things on them."). Of course, there are no absolute criteria for defining these ratings, but criteria should be used that fit a child's conceptual abilities at this stage in therapy. Once each group of each of the two sorts is rated, the ratings are used to help the child compare whether one group and

another within the same sort was guided by a narrow or broad, or by a concrete or abstract point of view. The child also compares the first and second sorts in the same way.

After the child gains experience comparing at least two sorts, instruct the child to dissolve the groups of the second sort and to group the same items again in another way, if objects permit. If the items do not permit a third sort, another starter object is introduced (or two starter objects are used simultaneously). Ask the child to collect a larger number of response objects and guide the child through three or four successive sorts of the same material which are subjected to the same comparisons and ratings. With adolescents, a conceptual pyramid can be constructed, as outlined above, which unites groups as much as possible from each of the three or four sorts, generating as many levels and concepts as the child is capable.

Training in Assuming Points of View. Once they have grouped a set of objects, some children and adolescents have extreme difficulty viewing the same objects in a new way and are unable to form appreciably different groups with the material. In these cases, the child is trained to assume points of view that initially are concrete and physical and later more abstract and cognitive. The techniques are integrated with those already described designed to help a child discover the physical and functional attributes of material (see Step 1).

To develop physical points of view, set an item on the table and ask the child to stand about 6 feet away, to look at the object, and to describe its physical and functional attributes. Then ask the child to move 180 degrees and to examine and describe the same object. If the object is complex enough, the child is asked to view it and describe it from each of four vantage points (360, 90, 180, 270 degrees). Coach the child in comparing observations made from each physical point of view, emphasizing that "the way in which you look at it makes you see different things." Whenever necessary, instruct the child to walk up and touch the object when viewed from a particular angle or to observe the therapist manipulating the object in some way to stimulate discovering salient attributes.

To develop cognitive points of view, set an item on the table and explain to the child, for example, “Now instead of walking around and looking at something from different angles, we are going to let our minds walk around and look at things from different angles." Assume the therapist presents a glass sculpture; which is translucent and the outer surface is square; a circle of carved wood forms the base; inside is filled with clear fluid and contains elliptical flower petals made of red, yellow, and blue glass. Initially, the therapist proposes a concrete point of view, “Look at this for color. What belongs to this when you look at it for color?" The child responds with the therapist assuring that all colors are named. “Look at this for shape. What belongs to this when you look at it for shape?" The child responds with the

therapist again insuring that all contours and shapes are articulated. “Now look at this from the point of view of what it's made of," and so on. Gradually, the therapist centers discussions on how “the angle we use; the way we look at something" makes us notice certain details about the same object but the object itself stays the same.

As the child gains confidence in viewing the same item from several points of view that are more or less concrete, the therapist follows the same procedure, now suggesting more abstract points of view, (e.g., “Look at this as something you would find in a store. What could you say about it? Look at this as something about art. What can you say about it? Look at this as something you use in an office. What can you say about it?").

Step 4. This step provides experiences that emphasize conceptualizing physically distant or hypothetical information. Ask the child to note all of the physical and functional attributes of a starter object, and, if appropriate, the child or the therapist prints each attribute at the top of a sheet of paper. Then ask the child to picture her bedroom at home (or kitchen, or den) and to think about things located there which contain one or more of the properties listed. When the child names an object, the name is printed on a 3 x 5 inch card, which is placed on the sheet of paper containing the title of the attribute the item named shares with the starter object.

Initially, the therapist designates particular rooms in the child's home, school, or in a relative's home the child frequents, to help the child cultivate the capacity to use as much information “out there" as possible. For example, a child may list only a yellow bread box in the kitchen in response to a yellow poker chip presented as a starter object. The therapist asks the child to focus attention on the kitchen (the walls, cupboards, utensils), describe what she recalls, and determine whether other objects share some property with the yellow poker chip. The child now lists dishes and a clock on the wall "because they are round, like that, and a waste basket "because it's plastic, too."

After generating a number of items, each recorded on a card, the child groups the cards, conceptualizing, evaluating, and rating the groups following the procedure outlined in Step 3. If an object does not belong to a group in which it is located, ask the child to picture the object in her mind again and relocate the object if appropriate. The groups formed are recorded. Then the groups are dissolved and the same cards are used to form new groups. Following the procedures of Step 3 as many new sorts are constructed and compared as the objects listed permit.

Stimulated by a starter object, the child next lists items and information that exist but which are not part of the child's daily environments. These items are grouped, conceptualized, and evaluated and then regrouped. The goal is to provide the child with experiences conceptualizing information that

is somewhat more hypothetical than that contained in her daily environments. Initially the therapist may need to suggest locations. For example, if the child has not been to a railroad station, or has on only one occasion, say, "Think about railroad stations. Think of everything you have heard or read about them. List all the things you might find there that have the same things as this (starter object)." With adolescents, the settings or events suggested could be more distant and hypothetical (e.g., periods in history, "Think of when the settlers landed in Jamestown," "Think of imperial China.").

Step 5. This step provides experiences conceptualizing information while fantasies and emotions are aroused. The starter object presented, and the response objects made available, are real items or pictures of items that are likely to arouse fantasies and emotions. Examples: various types of knives; baby bottles; nipples for baby bottles; rubber and plastic figures of humans, animals, insects, monsters, and mythical figures; toy racing cars; small pictures such as a wounded soldier, an airplane about to crash, a policeman, a school principal, a child swinging a baseball bat, can be pasted on 3x5 inch cards.

In the first part of this step, present a starter object, ask the child to list its physical and functional attributes, to select objects and/or pictures as response objects, and to then group, conceptualize, evaluate, and regroup

them following the same procedures. In the second part of this step, beginning with a starter object, the child lists response objects that are absent, or located in distant environments or in hypothetical worlds. Each response item is listed on a card and the cards are grouped, evaluated, and regrouped following the same procedure.

In advanced stages of this step, especially with older children and adolescents, the therapist designates a domain to be conceptualized within which the child is known to experience considerable stress. For example, if an adolescent has had considerable difficulty with science courses, the therapist could suggest, “Let's list all the things that belong to biology." Each detail listed is written on a card and the cards subjected to the same grouping and regrouping procedure. As another example, if one child or a member of a child's family has experienced surgery, the therapist could ask the child to list "all the things that belong to having an operation."

With this step, the therapist has the opportunity to bring to the child's attention how fantasies/emotions influence the types, widths, and degree of abstraction of groups constructed with materials that arouse aggressive fantasies, for example, versus those from materials that arouse fantasies about nurture or discipline.

Step 6. The child categorizes attributes which are construed and

therefore gains experience conceptualizing within symbolic functioning. Several techniques are used to cultivate this capacity.

Free Sort. A wide array of material is located on the table. For example, eight washers of different diameters, some of rubber, others of metal and others of cork; six metal screws of different lengths and pitches. Say, "Let's pretend these are all something. Make believe these things are something. What could they be?" The child responds, "People." (or racing cars, or animals). The therapist accepts the child's designation and continues, "OK, let's make groups of people (or animals or cars). Put all the people that are the same in some way in one group. Then put all of the people that are the same in another way in another group. Make as many groups as makes sense to you." With each group constructed, ask, "What's the same about these people? How do they belong together?"

Although ambiguous items are used which lend themselves to being construed in many ways, the therapist engages the child in evaluating conceptual thinking within symbolic functioning. At this step the evaluation process emphasizes the relation between an actual attribute and the way it is construed and between what was pretended and the symbol assigned to the group. For example, a child calls a group of long metal screws, "angry lions, because they are the biggest," and does not articulate a referent for angry. Another child construes a group of screws as "angry lions because the

grooves of the screws are big and wide like a lion's mouth growling."

Directed Sort. The goal with this technique is to engage the child in construing items and pretend that they could be like the starter object. Therefore, care should be taken not to convey to the child that items should be selected that have a close physical resemblance to the starter object.

Locate a wide array of objects on the table, present a teaspoon, for example, and ask the child to locate within the array, "all the things that could be like this." Some of the items the child chooses might have properties close to the starter object (e.g., a tablespoon, a ladle). Others might have properties less similar (e.g., a spatula) and still others might have properties that are quite dissimilar (e.g., a wooden dowel 8 inches long).

The technique of direct sort provides opportunities to cultivate the child's ability to construe information in terms of both personal and conventional symbols. If a child is stimulus-bound, the therapist encourages the child to include items into a group that are very much unlike the starter object. "You're right, the stick doesn't look at all like the spoon; but we could pretend it is a spoon." If a child has a tendency to construe items in highly personal terms, the therapist accepts this pretending but emphasizes when and how the items selected for a group depart appreciably from the properties of the starter object.

Directed Pretend Uses. With a variation of the directed sort technique, the child is presented with a wide array of material and the therapist suggests that some function be performed with or to the starter object. For example, "Let's pretend this (a stick) is a girl (boy). Give her different things to eat for supper. Pick something out from here to feed her." The child brings a wooden cube up to the stick. "What are you feeding her? What are you pretending that is?" The child responds, "A sandwich." "Now feed it something else." As another example, the therapist could say, "Let's pretend this is a horse (wooden cube). Let's pretend different people get a ride on the horse. Pick something out from here (items on display) and pretend it is riding the horse." Again, the therapist requests the identity of each item the child places on the cube.

Directed Linguistic Symbols. With another variation, the therapist sets a wide variety of items on the table and says, "Now, I am going to say a make-believe word and you pick out all the things that belong to it. Whatever you pretend the word I say means, pick out things that would belong to that word. Ready? Pick all of the *Zips* and put them in a group here. What things can you pretend are *Zips*? Now, put all of the *Warns* here," and so on. The therapist engages the child in articulating what physical and functional attributes are construed by the child and in locating particular items belonging to a group, labeled by the therapist with a linguistic symbol.

When the child is capable of construing information fairly easily, child and therapist take turns constructing groups of material which are construed as something else and the other guesses the dimensions unique to the group. The same familiar and ambiguous materials used earlier are used here. The therapist says, “John, I'm going to put these things into groups. Watch me.” The therapist located three wooden cubes in a row and places a metal screw on each. "Guess what I'm pretending these are." The child responds, "Cowboys racing their horses." The therapist replies, "That was close. I'm pretending they are cars and the drivers in a race. Now you take a turn. You make up a group, and I'll try to guess what you're pretending."

Begin with a single group, and, when appropriate, increase the number of groups, the number of items in a group, as well as the mixture of familiar and less familiar items included in groups. When engaging the child in evaluating these groups, emphasize when and how the items are used, their positions, attributes, and so on, and communicate to the other person the symbol constructed.

Step 7. This step extends the previous activities within an elaborate directed fantasy, within which the child assumes a pretend role, discards the role, assumes her own identity, then assumes another pretend role, and so on. A directed fantasy could take an entire session or several sessions. With the general method, a wide array of materials are placed on the table. The

therapist directs the child to imagine a particular scene and situation and to perform some activity within it, emphasizing categorizing.

The following is an illustration. The therapist says, "Johnny, pretend you are a sheriff, and you just brought six crooks who tried to rob a bank into the police station. You put each one of them in a cell. Here they are." The therapist points to six blocks of different sizes and colors located on the floor at different points in the room. It may help the reader to view each of these blocks as starter objects. The therapist continues, "Some of these guys are bigger and stronger than others. You have to put each one in a different cell, give each one some furniture they can use in the cell, and give each one some food to eat. Then lock the doors of each cell with the right lock. Pick some things out from here and put them in each of the cells. Give them some supper to eat and some furniture to use and then put a lock on the cell door that belongs there." After the child performs the therapist engages the child in evaluating the material located within each group.

Step 8. When indicated, the treatment process takes on a more non-directed format, following the guidelines discussed in Chapter 10. The therapist gradually relinquishes directing fantasies and follows the themes and fantasies a child constructs, in the service of working through and resolving the child's key pathological metaphors.

Concluding Remarks and a Note About Resistance

When dealing with the tasks described in this chapter, children with significant deficits in equivalence range functioning regularly show thinking that is affect-dominated or concrete and stimulus-bound, both types equally unrealistic in terms of the information at hand. As examples of the former, when the therapist passed his fingers over the edge of a square to guide the child in articulating an attribute, the child perceived that the therapist, "cut his finger," rather than perceiving the realistic property of squareness. And, when another child was dealing with possible uses of a red wooden cube offered, "It can crack your head if someone threw it at you."

Examples of concrete, unrealistic thinking occur without evidence of overriding anxiety, aggressive tensions, or fears of injury. Consider examples of physical properties articulated by children when dealing with each of the following starter objects: a red checker piece ("It's heavy and clean"); a hammer ("It's got an end on the handle"); and, in forming a group, a child slipped a pipe cleaner into the key hold of a lock and gave as an explanation of the group, "It goes in there like that." While these examples do not reveal, in one sense, very bizarre thinking, they illustrate that distinguishing attributes of information are not being conceptualized.

The broad strategy used to deal with both types of unrealistic thinking is *to remain focused on the perceptual and conceptual qualities of the objects*

being managed. Help the child discover the obvious physical and/or functional attributes being missed, that more realistic relationships are possible, and teach the child why the attributes or relationships she articulated are unrealistic. In no case do we recommend that the therapist pursue possible dynamic issues suggested by a moment of disordered thinking, whether drive-dominated ("It can crack your head open") or less so (a pipe cleaner slipped into a key hole), until the child develops efficient equivalence range functioning as outlined above. Then the child is helped to develop an understanding of fantasies and motivations which influence conceptual thinking.

To illustrate this strategy with the child who declared the cube could crack your head open, the therapist acknowledged this, pointed out that the same was the case with a hammer, a cup, a stone, and many other items, and added, "Let's see if we can find something the block of wood can do with these things (in the game box); something that only the block of wood can do." With the child who slipped a pipe cleaner into the key hole of a lock, the therapist demonstrated that a pin and toothpick can also be slipped into the key hole and added, "We can put a lot of things in there. Let's see if we can find a way that makes the pipe cleaner do something with the lock that a pin or a toothpick can't do." The therapist inserted her finger in the loop of the lock, raised it, and asked the child if that gave her any ideas. The child passed the pipe cleaner through the loop and raised the lock.

As with other programs, resistance typically occurs whenever the complexity of the task increases, creating "conflict" between the child's conceptual abilities and the task demands (e.g., the child is asked to increase the number of response objects; or to construct a conceptual pyramid). This conflict, as discussed in Chapter 3, results in affects/behaviors characteristically used by the child to lower stress by avoiding the task. To manage, the therapist follows the guidelines of negotiation discussed in Chapter 4 along with the same broad strategy employed with other programs: the child is helped to observe the unique behaviors/affects; connects these behaviors to the particular quality of complexity introduced into the task; relates these behaviors and task complexities to similar events and requirements at school and home; and develops new responses.

The following example illustrates that resistant behaviors during this more advanced program may sometimes take on nonaggressive qualities. A 12-year-old girl frequently offered "to help" the therapist (e.g., returning response objects into the game box, washing the table top). These behaviors gradually showed themselves as serving resistance by avoiding the tasks whenever they became more complex. For example, the child would spontaneously offer to "straighten out all the items in the game box" and, on several occasions, she arrived with a large shopping bag filled with odds and ends, which she offered to the therapist for their work. However, each time she spent most of the session taking out each item, showing it to the therapist,

making comments, and carefully placing it in the game box. With assistance the child gradually came to recognize that her "clean-up mood" occurred when the tasks became more complex and served to avoid the task.

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