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**Concept Representation in the Child:
What Did Little Hans Mean by ‘Widdler’?**

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Chapter 12

**The Meaning of ‘Widdler’:
Does Hans’s Assertion that His Baby Sister Hanna Has a Tiny Widdler
Show that He Is Defending Against Castration Anxiety?^{1,2}**

Freud’s Interpretation of Hans’s Reaction to His Sister’s Genitals

The most provocative piece of evidence Freud presents for his fundamental construct of castration anxiety in the Hans case (indeed, the only evidence, once one rejects the probative value of the plumber fantasies and the “fixed in” remark considered in the last chapter) is Hans’s surprising reaction to seeing his little sister, Hanna, naked in the bath. On two occasions, at about the ages of three-and-a-half and three-and-three-quarters, Hans, observing Hanna’s vulva, insists that she has a tiny widdler, using the same word he and his parents use to refer to his penis:

'A little later Hans was watching his seven-day-old sister being given a bath. "But her widdler's still quite small," he remarked; and then added, as though by way of consolation: "When she grows up it'll get bigger all right."' (p. 11)

'He was watching his three-months-old sister being given a bath, and said in pitying tones: "She has got a tiny little widdler."' (p. 14)

Hans’s reaction is not limited to his sister but is the same with a female doll, presumably construed as symbolic of his sister:

¹ Some of the material in this chapter is a much revised version of a talk given at the *American Psychological Association* Annual Meeting in Washington, D.C., in 1984.

² Throughout this work, I abide by the philosophical convention of using single quotes to refer to a linguistic term itself (thus ‘widdler’ refers to the word *widdler*) and double quotes to refer to the meaning of a word (thus “widdler” refers to the meaning of ‘widdler’ or, equivalently, the concept of widdlers).

'He was given a doll to play with and undressed it. He examined it carefully and said: "Her widdler's ever so tiny.'" (p. 14)

Freud, observing that this reaction is not limited to Hans, poses the question: how can one account for such a seemingly irrational reaction to the plain fact that Hanna has no penis?

Two other boys were reported to me as having made the same judgement, expressed in identical words and followed by the same anticipation, when they were allowed to satisfy their curiosity and look at their baby sister's body for the first time. One might well feel horrified at such signs of the premature decay of a child's intellect. Why was it that these young enquirers did not report what they really saw - namely that there was no widdler there? (p. 11, n. 3)

Poking fun at brain-deterioration theories of neurosis, Freud observes that the assertion that Hanna has a tiny widdler suggests the "premature decay of a child's intellect." He wonders why Hans and the other boys "did not report what they really saw – namely that there was no widdler there?"

Freud's initial answer is that at this point in his development, Hans held the theory that all people have penises. Hans's puzzling assertions thus can be understood as analogous to an overly zealous scientist defending a beloved theory despite evidence to the contrary:

In little Hans's case, at all events, we can account completely for the faulty perception. We are aware that by a process of careful induction he had arrived at the general proposition that every animate object, in contradistinction to inanimate ones, possesses a widdler. His mother had confirmed him in this conviction by giving him corroborative information in regard to persons inaccessible to his own observation. He was now utterly incapable of surrendering what he had achieved merely on the strength of this single observation made upon his little sister. He therefore made a judgement that in that instance also there was a widdler present, only that it was still very small, but that it would grow till it was as big as a horse's. (p. 11, n. 3)

He assumed that all animate objects were like himself, and possessed this important bodily organ; he observed that it was present in the larger animals, suspected that this was so too in both his parents... (p. 106)

Consistent with recent developmental perspectives on children as "little scientists," Freud portrays Hans as a scientific enquirer who uses observation to test theories about the world (Gopnik, 2012), and who derives pleasure from his insights (Gopnik, 2000) – but who also has some of the weaknesses to which scientists are prone when evaluating the evidence for their own theories. Freud explains that Hans's sexual researches led him to embrace the general explanatory principle that every animate object has a penis. Here Freud refers not only to Hans's many comments about the widdlers of various male animals, but more specifically to Hans's apparent formulation of a general theory at the age of three-and-three-quarters following an incident in which he saw water being let out of the bottom of a train engine and asked about the location of the engine's widdler. After being corrected by his father, Hans came to the conclusion: 'A dog and a horse have widdlers; a table and a chair haven't' (p. 9).³

³ "When he was at the station once (aged three and three-quarters) he saw some water being let out of an engine. 'Oh, look,' he said, 'the engine's widdling. Where's it got its widdler?' After a little he added in reflective tones: 'A dog and a horse have widdlers; a table and a chair haven't.'" (1909, p. 9)

Freud then comments: "He had thus got hold of an essential characteristic for differentiating between animate and inanimate objects" (1909, p. 9). Presumably what Freud means to say is that Hans formed the hypothesis that all

Freud further explains that Hans's "mother had confirmed him in this conviction by giving him corroborative information in regard to persons inaccessible to his own observation." This is an evasive way of saying that, in response to Hans's questions, Hans's mother had misleadingly assured Hans that she possessed a widdler, leading him to place even further confidence in his incorrect theory (the mother's statements are discussed further below). Freud refers here to two incidents reported in the diary of Hans's sexual development, the first one a bit before Hans's third birthday and the second at about the age of three-and-three-quarters. On both occasions, Hans asked his mother whether she had a widdler and she answered yes, thus disconfirming any speculation on Hans's part that the sexes might differ in this respect. At about the same time Hans asked the same question of his father, with the same answer.

Having accumulated this evidence, it was not unreasonable for Hans to leap to the conclusion that widdlers are possessed by all human beings (and perhaps, as Freud suggests, all animate objects, although Freud need not insist on that degree of generality for his purposes). Freud concludes that once Hans formulated this theory, he was then "utterly incapable of surrendering what he had achieved merely on the strength of this single observation made upon his little sister."⁴ A scientist typically handles such a situation of apparent refutation by invoking an auxiliary hypothesis to explain why the appearance of disconfirmation is misleading. In analogous fashion, Hans constructed the auxiliary hypothesis that Hanna's widdler was there but was currently so small as to be virtually imperceptible.

Like most ad hoc hypotheses aimed at saving a disconfirmed theory, Hans's conclusion that Hanna has a tiny widdler is a perfectly coherent position. In a strictly logical sense, Freud's initial account of Hans's response, as he says, "can account completely for the faulty perception" of Hanna's genitals. One must merely suppose that Hans conceives of the penis as a structure that can retain its identity while changing size even to the point of invisibility. For a precocious child of Hans's age, this would seem well within his conceptual capacity. Changes in size of objects that retain their category identity is routine (as in a child growing into an adult), and smallness to the point of invisibility poses no insuperable problem. This is shown, for example, by recent studies revealing the young child's ability to understand notions of contamination of one thing by another due to invisible entities moving from one to the other (Kalish, 1999; Siegal, 1988; Legare, Wellman, & Gelman, 2009).

animate objects have widdlers. Freud's way of stating Hans's insight (i.e., as the discovery of an "essential" characteristic for differentiating the animate from the inanimate) seems misleadingly to imply Hans concludes that having a penis is somehow part of the essence of being an animate object. Developmentally, however, the essential insight concerning the animate versus inanimate distinction appears to be that animate entities move spontaneously. By Hans's age, this distinction appears to be rather well-elaborated.

For example, Carey (1985) found that children as young as 3 or 4 years "attribute animal properties of various sorts only to animals, and not to inanimate objects much like animals (e.g., dolls, stuffed animals)" and that the "inductive projection of newly taught internal organs is constrained by the distinction between animals and non-animals, in the sense that only animals are credited with having the organ" (p. 183).

Rather than an insight about the nature of the animate (as Freud would have it; but does Freud really think that Hans thinks that if Hanna does not have a widdler, then she is inanimate?), Hans's formulation might more accurately be understood as an insight about the meaning of 'widdler', namely, that this concept applies only to the organs of biological/animate beings, not artifacts, even when the artifact includes a protuberance for expelling waste water. This inferential leap is consistent with a large body of research demonstrating that even quite young children understand the difference between animals and artifacts (Wellman & Gelman, 1992). Hans's reflective response is likely due to the fact that his insight disconfirms a more general structural theory encompassing artifacts that he had entertained about the meaning of 'widdler'.

⁴ This is a remarkably apt description of what was, from the perspective of my overall analysis, Freud's own reaction to the Hans case's disconfirmation of his Oedipal theory, a theory which he famously (purportedly) reached after reflection on the one case of his own feelings towards his mother.

How, then, does castration anxiety enter into the explanation? It enters because of a need to further explain Hans's motive in deciding to defend his plainly disconfirmed theory. Hans, after all, is not really a zealous scientist but a boy learning about the world. Freud makes clear that Hans's assertion, although coherent, is so implausible given the evidence that the motive of theory preservation by itself does not adequately explain why Hans selects this irrational approach. One might add that Hans's reaction is puzzling because it is so out of character. Hans shows himself elsewhere in the case record to be a flexible explorer of nature who readily accepts falsification of hypotheses about widdlers, as when he is corrected in labeling a cow's udder giving milk (p. 7) and a monkey's tail (p. 14) as widdlers. He is quite capable of changing his basic theory due to a single disconfirming instance, as in the train engine incident (p. 9) in which he comes to the conclusion that widdlers belong only to animals, not inanimate objects, based on one example. Given Hans's past cognitive flexibility, his choice in this instance to save his theory at the cost of denying the evidence of his eyes – if indeed Freud is correct to describe the situation this way – requires explanation and is not adequately illuminated by the general inclination of scientists big and little towards theory preservation.⁵

Freud thus concludes that a further explanation of Hans's lapse into irrationality in his reaction to seeing Hanna's genitals is needed. It is at this point that Freud invokes Hans's need to defend against castration anxiety:

He...was not deterred by the evidence of his own eyes from authenticating the fact in his new-born sister. One might almost say that it would have been too shattering a blow to his "*Weltanschauung*" if he had had to make up his mind to forego the presence of this organ in a being similar to him; it would have been as though it was being torn away from himself. (p. 106)

One must grant Freud that to the young male, the unobscured female genitalia may look like the penis has been cut away leaving a gash. Moreover, Hans's mother has used castration as a threat to stop Hans from touching his penis, stating to him at age three-and-a-half: "If you do that, I shall send for Dr. A. to cut off your widdler" (p. 7). The question is whether there is any evidence that Hans's perception of Hanna did indeed trigger such intense fear about his own possible "castration" (a misnomer for penectomy) that Hans denied what he saw to be true.

Obviously, one might be tempted to dismiss Hans's assertions made about Hanna's tiny widdler, which he made at about age three-and-three-quarters, as transient misconceptions. Freud's trump card in arguing for his analysis is the fact that throughout the case, which lasts until Hans is almost 5 years old, Hans continues to insist that Hanna has a widdler. For example, "Hans (aged four and a half) was again watching his little sister being given her bath, when he

⁵ In a footnote to his account of Hans's theory-preserving cognitive error, Freud pokes merciless fun at his philosophical critics who deny that there are genuinely unconscious mental states and who insist instead that the states in question are ones that may go unnoticed because the degree of consciousness is very slight. They are, Freud suggests, committing the same sort of error as Hans; despite the obvious lack of consciousness, the critics insist that the consciousness *must* be there, but it is very tiny!

It seems only fair to mention a potential riposte that such a critic might offer to Freud. When Freud looks at case material like Hans's that contains no apparent indication of the Oedipal emotions and desires postulated by Freud to be universal, and proceeds to create an elaborate explanation of why the postulated mental states exist nonetheless but in deeply unconscious form, Freud is from a methodological perspective doing exactly what Hans does (according to Freud) when he asserts that Hanna has a penis: despite the contrary evidence of observation, the mental state is there nonetheless, Freud insists, it is just unobservable because it is deeply unconscious! Freud's position, the skeptic might continue, although coherent, suffers from the same sort of prima facie implausibility as Hans's assertion. The question of whether Freud's reactions to the case evidence suggest the "premature decay" of Freud's intellect will be considered in the concluding chapter.

began laughing. On being asked why he was laughing, he replied: "I'm laughing at Hanna's widdler." "Why?" "Because her widdler's so lovely" (p. 21). A few months later, Hans also attributes a widdler to his nanny (p. 30). Most importantly, Hans continues to insist on this view as he approaches his fifth birthday despite an explicit explanation of the true state of affairs provided by Hans's father at Freud's behest (considered below). After Hans's father explains that Hans's mother has no widdler, Hans still reports that he dreamed (or possibly fantasized)⁶ that he saw his mother's widdler under her chemise. All of this is especially perplexing because Hans usually accepts without hesitation the explanations provided to him by his parents. Freud rightfully takes this enduring deviation from the expectable as further evidence that a special explanation is needed of Hans's reactions to Hanna's genitals.

Freud claims that the required explanation lies in Hans's need to defend against his castration anxiety:

The enlightenment he had been given to the effect that women have no widdlers was not accepted by him at first. He regretted that it should be so, and in his phantasy he stuck to his former view. (p. 30).

The piece of enlightenment which Hans had been given a short time before to the effect that women really do not possess a widdler was bound to have had a shattering effect upon his self-confidence and to have aroused his castration complex. For this reason he resisted the information... Could it be that living beings really did exist which did not possess widdlers? If so, it would no longer be so incredible that they could take his own widdler away, and, as it were, make him into a woman. (p. 36)

Following Freud's lead, subsequent generations of analysts have cited Hans's seemingly irrational reaction to Hanna's genitals and Hans's clinging to his view despite being instructed to the opposite as solid evidence for castration anxiety, as in Hendrick's (1934) early comment that

⁶ The father takes Hans's report about seeing his mother's widdler to be something that Hans fantasized rather than dreamed, asserting: "This was none of it a dream, but a masturbatory phantasy, which was, however, equivalent to a dream" (p. 32). One can agree with the father that the two are equivalent from the perspective of interpretation. However, overall it seems more likely that the content was a dream rather than a masturbatory fantasy as the father suggests.

The episode is introduced as follows: "Next morning he woke up in a fright at about six o'clock. When he was asked what was the matter he said,..." (p. 32). This strongly suggests that the reported content was a dream Hans had just experienced. The report continues: "When he was asked what was the matter he said: "I put my finger to my widdler just a very little. I saw Mummy quite naked in her chemise." The father interprets this as meaning that Hans was actually masturbating when he had the fantasy about his mother, perhaps the night before or immediately upon awakening. However, Hans reports the two events of touching and seeing without differentiating between actual and dreamed or fantasized. It seems more likely, given that Hans had just awoken, that he is reporting the content of his dream when he says he put his finger to his widdler just a very little. Hans's having such a dream with anxiety linked to it is understandable given the context. Touching his penis was associated with anxiety because of Hans's parents' repeated attempts to stop Hans from touching his penis, even to the extent of using the Victorian technique of placing Hans in a sack at night to prevent inadvertent self-touching. This focus was justified by the view, explained repeatedly to Hans, that the self-touching was causing his intense horse fears as well as bringing about inappropriate feelings of desire for his mother. Hans seemingly accepted his parents' explanations and had been struggling with the prohibition on self-touching. Just a few days before the chemise-dream report, Hans had finally declared triumphantly, "I don't put my hand to my widdler any more" (p. 31). At this point, he was placed in the sack at night nonetheless on the grounds of the father's accusation, "But, you still want to," and despite his quite reasonable response, "Yes, I do. But wanting's not doing, and doing's not wanting" (p. 31).

The dream seems an expression of this theme of the link between self-touching and inappropriate interest in his mother. The anxiety around this issue may well have led him to dream about anxiously touching himself just a little, which he could report to his father without fear of having broken the no-touching rule because dreaming (like wanting) is not doing!

“the boy’s idea, after seeing his baby sister’s genital...was one of the first clear empirical observations of what was later recognized as the ‘castration complex’ of boys and girls” (p. 267).

The Concept of Widdler

Must we conclude with Freud that Hans denies “the evidence of his own eyes” because he can’t handle the truth that Hanna has no penis, which is too threatening due to castration anxiety? Note that Freud’s two explanations for Hans’s reaction to Hanna’s genitals are broadly emotional rather than cognitive, involving emotional interference with reasoning. The first is that Hans, like an overly zealous scientist, clings to his familiar theory even in face of conclusive evidence to the contrary. The second is that Hans chooses to cling to his familiar theory because it keeps him from experiencing castration anxiety that would arise if the alternative theory that is in fact supported by the evidence – that Hanna has no penis – were to be accepted. These emotion-based hypotheses would be superfluous if there were some purely cognitive reconstruction of Hans’s reasoning that could explain Hans’s reaction as quite reasonable and evidentially defensible.

I will argue that Freud’s argument goes astray at the very first step: Hans’s statements about Hanna’s widdler, at least at the time of his later statements about Hanna and his reaction to his father’s explanations, do not necessarily mean what Freud takes them to mean, that Hanna has a tiny penis. Understanding how Freud’s theorizing about what was in Hans’s mind went wrong requires getting into a detailed analysis of what Hans likely meant by ‘widdler’. Some readers might question whether conceptually analyzing “widdler” is a suitable pastime for serious scholars and not merely a form of mental widdler self-touching (or a sign of the premature decay of aging academics’ intellects). However, such an analysis turns out to be pivotal not only to properly assessing Freud’s argument for castration anxiety in the Hans case, but also to evaluating another view of Hans’s meaning of ‘widdler’ put forward by Jonathan Lear (1990) in *Love and Its Place in Nature* – a view which Lear leverages into a broader account of child concepts and Freudian interpretation, considered in the next chapter. It also illustrates some basic potential pitfalls in psychoanalytic interpretation, to be considered at the end.

Hans and his family use ‘widdler’ as a convenient term to refer to Hans’s penis. Freud, assuming Hans’s conceptual capacities are fairly primitive and tied to obvious structural/perceptual properties, not unreasonably assumes that Hans means “penis” by ‘widdler’. Although one might object that Freud is projecting an adultocentric and male-oriented view onto Hans’s term rather than exploring what Hans himself might mean, on first glance Freud seems on solid ground. As far as the case record evidence goes, prior to the incidents with Hanna, no first-hand experience had challenged Hans’s structural conception or his belief that all humans and all animals have widdlers. The parents’ sexual diary of Hans’s early years indicates many sightings and discussions of male animals’ widdlers, but Hans’s parents report no parallel sighting of a female animal’s genitals nor their discussing with him the genitals or urinary organs of a female animal, nor is there a record of his having seen a female playmate’s genitals where the question arose of whether she had a widdler. So, in Hans’s experience, ‘widdler’ had been fully coextensive with “penis.”

On this basis, if Freud is correct, we may suppose that the meaning “penis” of ‘widdler’ would likely involve for Hans some mix of both structural and functional elements, as it does for biologists, with the external protruding structural element primary in Hans’s case⁷ and the function of micturition replacing the biologist’s primary reproductive function. Freud himself

⁷ Even if Hans’s early concept of widdler is structural, it is clear that it is not a locational concept. Hans’s observation that the horse’s penis is located similarly to his own, and his early mistake of labeling the monkey’s tail a widdler, suggest that he understood that the locational aspect is conceptually contingent.

observes that from the perspective of the phenomenology of a child's experience of his body, the term 'widdler', as the name's reference to "widdle" (urine) suggests, is most associated not with sex and reproduction but with urination, observing that the widdler is "an organ deriving its name from that one of its two functions which, scarcely the less important of the two, is not to be eluded in the nursery" (p. 106). However, although Freud observes the primacy of the link between 'widdler' and micturition, he fails to follow up this lead in his further theorizing about Hans's meaning.

This structural-functional view does fit many of Hans's early generalizations, which are primarily along structural lines, as when he initially asserts that the cow's udder and monkey's tail are widdlers before being corrected. As to the functional element, Hans expresses surprise when anything other than urine emerges from what he infers to be a widdler, as when he exclaims with surprise that milk is coming out of the cow's widdler, and when, in reaction to seeing blood in the bedpans after his mother gave birth, he exclaims that blood does not come out of his widdler. In the case of his mother, he knows she widdles and so the necessary function exists aside from any additional blood that has emerged, but in the case of the cow, once he understands that the udder is not for urinating at all but only for milk production, his judgment that it is a widdler is revised. Indeed, modern cognitive developmental studies reveal that children at ages earlier than Hans's already link anatomical structures to functions and understand that bodily parts are "for" something (Carey, 1985; 2006; see the discussion below). So, Freud might argue that structural and functional elements of "penis" are fused together in the meaning of 'widdler' for Hans.

From these facts about the reference of 'widdler', Freud concludes that the term's meaning to Hans is "penis." However, reference is not the same as meaning, and coextension is not the same as synonymy. What a term generally is used to refer to in the local environment may not exhaust its meaning, which generally indicates how to extend the term to novel instances and how to apply it to a range of possible and counterfactual cases in non-local environments.⁸ If you lead a sequestered life, you might use the term 'lemon' to refer only to the yellow roughly-spherical objects obtained from aisle three of your local supermarket, but that is not your meaning. You (and others in your linguistic community) would, if confronted with the situation, apply the term to unripe green lemons, lemons still on trees, lemons at another supermarket or in another country, and so on. This point goes back a long way. Plato famously observed that 'human being' refers to all and only featherless bipeds, and Diogenes plucked a chicken to demonstrate that "human being" means more than that.

Recent Developmental Evidence of Children's Conceptual Capacities

Before developing my argument for an alternative understanding of Hans's meaning of 'widdler', it will be useful to review some of the kinds of insights yielded by recent cognitive developmental research on concepts, in order to appreciate the depth and richness of this field's growing understanding of child cognition. A major implication of this work is that, contrary to many traditional psychoanalytic formulations, children do not think all that differently from adults at a conceptual level. Recent cognitive developmental research thus supports a view of the child Hans's age as being capable of much more subtle conceptualization than the simple

⁸ However, contrary to a common view, a well-defined concept need not be defined in a way that determines its extension in all possible cases. Concepts can and generally do have domains of ambiguity, vagueness, indeterminacy, and fuzziness. What is essential is that some set of reasonably clear cases occur on both sides of the distinction. Night shades into day, red into orange, and child into adult without sharply defined boundaries, yet these are all useful conceptual distinctions given the reasonably clear cases.

structural-type concept of “penis” that Freud attributes to Hans. These new insights into children’s thinking about intentionality, essences of categories, and biological functions open additional possibilities in interpreting Hans’s meaning.

First, then, there is a well-documented early development of an understanding of intentionality and goal-directed action in the child (Bruner, 1981; Meltzoff, 1995; Premack, 1990; Premack & Woodruff, 1978; Woodward, 1998). Even babies 9 to 18 months of age begin to demonstrate knowledge of others’ intentions and internal psychological states (e.g. Premack, 1990; Gopnik and Meltzoff, 1997), including that agents act in goal-directed ways (Gergely et al., 1995) and by 3 or 4 years display an understanding of “folk psychology” by being able to explain others’ behavior in terms of an interacting system of mental states including beliefs and desires (Gopnik and Astington, 1988; Bartsch and Wellman, 1989). Autistic pathology as well as other childhood pathologies have been correlated with a failure of the development of the “theory of mind” and thus a failure to understand others’ intentionality (Baron-Cohen, 1991; 1995; Korkmaz, 2011). In sum, “In relation to the intentional stance, between 9 and 18 months of age, babies demonstrate an active knowledge of others’ intentions and internal states...They are sensitive to the fact that agents act in goal-directed ways... By 3- or 4- years of age, children’s ‘naive psychology’ is such that they can competently explain others’ behavior in terms of mental states such as beliefs and desires” (Kelemen, 1999, p. 242).

Of more direct relevance to Hans’s meaning is the now well-supported discovery that children at Hans’s age are capable of thinking about categories essentialistically, that is, not just in terms of salient perceptual features but also in terms of non-obvious, internal, and possibly as-yet-unknown underlying properties or “essences” that explain an object’s properties and determine an object’s identity (Carey, 1985; Gelman, 2003; Gelman et al., 1994; Gopnik & Meltzoff, 1997; Keil, 1989; Kripke, 1980; Medin & Ortony, 1989; Putnam, 1975; Searle, 1983). Children may even have an innate psychological propensity to develop such “essentialist” concepts in which the criterion for category membership goes beyond manifest perceptual properties (Gelman, 2004; Gelman & Wellman, 1991; Medin & Ortony, 1989).

Traditional or “classic” theories of concepts tended to portray concepts as determining categories by sets of observable or easily ascertainable properties that constituted necessary and sufficient conditions for being a member of the category. Thus, “tiger” might mean something like “striped large feline,” “lemon” might mean something like “spherical yellow sour-tasting fruit,” and “water” might mean something like “tasteless odorless thirst-quenching liquid.” This classic empiricist view was largely overthrown in the twentieth century by philosophers whose conceptual analyses revealed that the classic view does not explain the way people actually reason about category membership. For any such category, one can readily think of or imagine instances that would fall under the category but don’t satisfy the empirical conditions (e.g., stripeless albino tigers, unripe green lemons), and instances that do satisfy the empirical conditions but do not fall under the category (striped cougars, yellow sour oranges). It appeared that the history of the object (e.g., what kind of tree or animal did it come from) and its underlying nature (e.g., its DNA structure) overrode superficial properties in determining category membership. Moreover, scientific concepts are characterized by often surprising conceptual unities among things that are superficially very different but that share deep theoretical properties; thus, respiration is a slow form of combustion, and the sun is a star.

The classic view was thus replaced by an “essentialist” approach to the psychology of some concepts. Essentialism can be broadly understood as the thesis that in many kinds of categories people determine category membership not by superficial or observable similarities as the classic view held, but rather by properties that are non-obvious and often unobservable

features: “Psychological essentialism is the idea that certain categories, such as ‘lion’ or ‘female’, have an underlying reality that cannot be observed directly” (Gelman, 2004, p. 404). Essences are often inferred to exist based on observable evidence without knowing what they are; thus, such concepts can be “placeholders” for developing further knowledge about the causal structure of objects in the category (Medin & Ortony, 1989), or can be “black box essentialism” (Wakefield, 1999; 2000; 2004) in which an unknown essence is postulated to exist among a group of entities without any claim about what it will turn out to be. The underlying or causal-historical features that constitute the essence, whether known or inferred to exist, alone determines category membership irrespective of more manifest properties.

An unknown underlying essential property uniting a category might be inferred to exist because of circumstantial evidence. For example, circumstantial evidence is presumably how humanity came to know that ice and water and steam are the same substance despite their superficial differences, without any knowledge at the time of the nature of their common underlying property. We now know that that underlying property is H₂O chemical structure, so even stranger entities – such as H₂O molecules floating in space in the Horsehead nebula – are classified as water.

In the case especially of children, an unknown shared nature that predicts further commonalities might be assumed to exist just because two things have the same adult category label, even if they look very different. For example, in one series of studies (Gelman & Markman, 1986; 1987), preschool children were shown pictures of two things that looked very different (e.g., a bright green leaf and a typical black bug) and given contrasting information about their further properties (e.g., “see this bug, this bug takes in air”; “see this leaf, this leaf does not take in air”). Then the children were shown a picture of a third object that is similar to one of the first two but of the same named category as the second one (e.g., a bright green leaf-shaped bug that looks very similar to the leaf and dissimilar to the bug), and asked about its further property (e.g., “see this bug, does this bug take in air?”—in a variation, synonyms [e.g., “insect”] rather than the same term were used). In other words, in this and many related studies, the children were forced to predict properties when similarity and category membership diverged. Like adults, the children tended to put similarity aside and predict further properties on the basis of category membership, presumably assuming that shared category membership indicated shared deeper “essential” properties that would likely predict shared further features. Variations of this procedure eliminated the verbal component of category label with the same result (see the next chapter).

Another way that essentialist concepts have been explored is to examine the degree to which children base their judgment of the category identity of a thing on hidden internal features rather than superficial appearance. In this regard, various experimental paradigms have explored the insides of animals versus their observable and more familiar outsides as the basis for conceptual classification. Here is a description of one such study:

Each item had either its “insides” or its “outsides” removed. Test items were selected to be clear-cut examples (for adults) of objects for which insides, but not outsides, are essential. For example, blood is more important than fur to a dog; the engine of a car is more important than the paint. As a control, we also selected a set of items for which the insides are not integral parts (e.g., a jar; a refrigerator). We asked 4- and 5-year-old children to consider three transformations: (a) removal of insides (e.g., “What if you take out the stuff inside of the dog, you know, the blood and bones and things like that, and got rid of it and all you have left are the outsides?”), (b) removal of outsides (e.g., “What if you take off the stuff outside of the dog, you know, the fur, and got rid of it and all you have left are the insides?”), and (c) movement (e.g., “What if the dog stands up?”) as a control.

For each transformation, children were asked two questions: (a) identity (“Is it still a dog?”) and (b) function (“Can it still bark and eat dog food?”). As predicted, the children correctly reported that the identity of the containers (e.g., refrigerator) would not change if the insides were removed. For the other items, the children said that if the insides are removed, the identity and function of an object change, but that if the outsides are removed, the identity and function do not change, even when removing the outsides would sharply change the appearance of the object. (Gelman, 2003, p. 62)

In light of these findings on children’s essentialistic thinking, one might ask: if Hans is thinking essentialistically about widdlers, what sort of non-obvious property is he potentially attributing to all and only widdlers? This brings us to a final crucial insight in the recent cognitive developmental literature: children are able to think teleologically, in terms of what a thing is “for” (i.e., what is its function), rather than simply what it does or causes or has hidden inside it (Atran, 1994; 1995; Carey, 1985; Keil, 1992; Keleman, 1999a; 1999b; Lombrozo & Carey, 2006; Slaughter, Jaakkola, & Carey, 1999).

Teleology is the categorization of things in accordance with an explanation of their having been created for a common purpose. Adults tend to assume that such explanations of “what something is for” can be given for both artifacts and biological organs, yielding an explanation of the thing’s existence and structure in terms of its function. In the literature on children’s understanding of teleology and biological functions, there remain many disagreements about the nature of genesis of such understanding.⁹ However, based on a rich empirical literature, there is agreement on all sides that children at about Hans’s age do understand the idea of the function of a bodily organ and things being “for” some purpose, and apply it to categorization, explanation, and inductive generalizations.

A great variety of studies have revealed much about child teleological thinking. Keil’s (1989; 1992; 1995) studies show that, prompted by questions concerning what is better for an entity, children understand the teleological notion that some things are “for” some purpose, and they selectively apply such notions to biological and artifact concepts as opposed to natural concepts. For example, Keil (1992) presented children with an emerald or a plant and were asked to choose between two explanations of their green color: a teleological explanation (e.g., they are green because it helps there be more of them) or a physical explanation (e.g., they are green

⁹ To briefly mention some prominent views, Carey (1985; Lombrozo & Carey, 2006; Slaughter, Jaakkola, & Carey, 1999) argues that young children have no specific innate conceptual programming specifically for biological teleology but rather that the child’s understanding of biological functions is derived from an application by analogy of concepts from the child’s early and likely innately programmed understanding of human intentionality, purposeful action, and theory of mind. Consistent with Carey’s account, Kelemen (1999a; 1999b) proposes that, based on the model of their own intentionality, children see the world in general in teleological terms, as if everything is for some purpose (e.g., mountains are for climbing). Kelemen documents that children thus display a “promiscuous teleology” in which function ideas apply not just to artifacts and organisms but to natural entities like rocks and clouds (e.g., rocks are pointy in order to prevent animals from sitting on them). Others suggest that the concept of function is built on very early notions of goal-directedness of action and attention even more basic than intentionality or theory of mind (Csibra & Gergely, 1998). In contrast, Keil (1989; 1992; 1995) argues for “selective teleology” in which a distinctive “teleological stance” specifically about biological entities is applied selectively to biological organisms and their parts from a very early age. Similarly, Atran (1994; 1995), based partly on universals in biological understanding he found across divergent cultures (e.g., living things are classified hierarchically, have an essentialist nature, and are explained in teleological terms), argues for an innate teleological “living-kind module” that is the basis for an understanding of biological entities in the form of teleo-essentialism in which biological category essences are defined by functions. Hatano and Inagaki (1994; Inagaki & Hatano, 1993) claim that preschool children gradually develop a distinct conceptual approach to biology that is based on properties of growth and spontaneous motion that comprise a distinct “vitalistic” mode of causality that presupposes a life-maintaining vital energy that allows biological organs to initiate goal-directed action to benefit the organism. For example, a vitalistic response to the question ‘why does the chest take in air?’ might be ‘because our chest obtains vital energy from the air’.

because tiny parts mix together to give them a green color). Second-graders preferred teleological explanations for biological entities and physical explanations for biological entities, and kindergartners trended in this direction.

Moreover, young children understand some of the differences between artifact functions designed by humans for human use versus natural biological functions that are “for” some organismic purpose but not created by humans. For example, children understand that similar features of a biological entity versus an artifact have different functional explanations, with even three-year-olds judging biological parts as serving the organism’s benefit but artifact parts as serving people’s interests (Keil, 1995): “Thus, young children know that while a barb on a rose is good for the rose, a barb on barbed wire is good for someone else” (Kelemen, 1999b, p. 463).

Like adults, children distinguish what something was made for – which is its function -- from what it is used for (Keil, 1992; Keleman, 1999a; 1999b; Lombrozo & Carey, 2006). One experimental procedure is the following. A picture of a made-up creature with a made-up name is presented to the child. The creature has an unusual organ; for example, it might be a deer-like creature with a long tendril-like appendage coming out of its head.¹⁰ The child is told (and a picture illustrates the point) that creatures of this sort have always used the organ for a certain purpose, say, knocking fruit out of trees. However, a third picture shows one of the creatures using the organ for some novel purpose, such as splashing itself with water due to a hot spell. (This condition can be varied; the organ might be used for the new purpose accidentally or intentionally, and once or repeatedly.) The child is then asked what the organ is for – that is, what is its function. The result for every age group from preschool children that are Hans’s age to adults is that the organ is for whatever it was originally used for by the creatures – what it was made for, in other words – and not the purpose to which it is later put (Kelemen, 1999a; 1999b; Kelemen et al., 2003). The same procedure is used to test thinking about the functions of artifacts, and yields similar results; what the artifact was originally made for remains its function irrespective of later uses.

With respect to artifacts, one can assess the relative importance of originally designed function versus current functions rather directly by presenting children with scenarios in which the two types of function diverge. For example, children can be presented with a picture of an object and told that it was made for watering flowers but is now being used for making tea, and then ask whether the object is a teapot or a watering can. Matan and Carey (2001) found that a transition towards the “design stance” in which the original function dominates takes place between 4 and 6 years of age, a bit later than was indicated by Keil’s results but still placing design-stance intuitions within Hans’s precocious reach.

Turning to inductive reasoning, children predict further information about a biological creature based not only on overall similarity to known creatures but also to judgments about the specific functions of parts. For example, Kelemen et al. (2003) presented children with pictures of two creatures (e.g., a shrew and a duck) before they were shown a picture of a test creature (e.g., a platypus). The first creature shared overall perceptual similarity with the test animal (e.g., the shrew looked overall very much like the platypus) and the second creature was quite dissimilar to the test creature (e.g., duck versus platypus) but it shared a specific functionally adaptive physical characteristic (e.g., both the duck and platypus are broad-billed creatures). The children were given information about the two preliminary creatures (“this animal eats insects”; “this animal eats weeds”) and then asked what they thought would be true of the test creature. This experiment thus set up a conflict between overall similarity and a functional understanding of biological parts as the basis for inductive inference. The result was that children chose the

¹⁰ Perhaps subject to “cap-stration anxiety”?

functional commonality rather than overall similarity as the determinant of their prediction (i.e., they predicted that the platypus would eat weeds based on the bill). Children generalized their knowledge based on inferences about the common function of parts of different creatures, and ignored whether the creatures were overall similar.

Simons and Keil (1995) argue that the evidence supports the view that children adopt these functional and essentialist schemas long before they have any specific detailed understanding of the nature of the mechanisms involved. Of relevance to Hans, they note that (presumably because the child is cognitively “prepared” for functional concepts) dramatic shifts in conceptual structure can occur “possibly even from a single instance” and that such an “experience might immediately yield higher-order abstractions that are more salient than representations of individual exemplars” experienced in the past (Simons & Keil, 1995, p. 135). An illustration would be, despite Hans’s familiarity with many exemplars of his and animals’ penises, Hans’s shift after the one train engine incident (where he mistakenly judges that a valve made for emitting waste water from the engine is a widdler) from a more primitive concept of widdler as liquid-emitting entity common to animals and artifacts to a narrower view that widdlers are a biological category and exclude inanimate objects. Consistent with what the developmental research shows about children’s conceptual powers, I will argue that other small bits of evidence, including his mother’s statements and seeing Hanna naked, led to a further shift in Hans’s conceptualization of widdlers, from widdlers conceived structurally/functionally as penises to widdlers conceived functionally as organs-made-for-widdling.

A Functional Account of the Meaning of ‘Widdler’

Building on knowledge of child cognitive development, there is a plausible account of Hans’s meaning of the term ‘widdler’ that is consistent with the evidence of his judgments and when extended to Hanna involves no incorrect or irrational assertion. This account of Hans’s meaning depends on attributing more conceptual sophistication to Hans than Freud is willing to attribute, consistent with the research cited above. This alternative is also consistent with Hans’s characteristic bold hypothesizing and conceptual acuity, which weigh against the idea that he is defending himself from castration anxiety.

The alternative is that Hans came to mean by ‘widdler’ just what the word literally suggests, “organ for widdling” (urinating), a purely functional concept that does not include the structural requirements of “penis.” Hans was, in his own way, rejecting the conceptual patriarchy involved in Freud’s phallic/structural interpretation of ‘widdler’.

‘Widdler’ is the term James Strachey aptly used to translate the German word that Hans and his parents used to refer to Hans’s penis, which was *Wiwimcher*, literally “urine-maker.” We saw that Freud acknowledges that the name derives from the “one of its two functions” that is most salient to Hans. If Hans inferred that the term could refer to any organ that has that same function, that is, that is for producing urine (i.e., has urine production as its function), then he was actually grasping the standard meaning in his linguistic community rather than the distorted meaning of his household’s usage. As one might suspect, adult German colloquial speakers tend to construe *Wiwimacher* not as meaning ‘penis’ but as potentially applying equally to men’s and to women’s micturational organs (Balsam, 2012, p. 45; pp. 53-54, note 4). The structural elements to which Hans attended in labeling organs as widdlers would on this account be useful superficial evidence, but they would not determine the essence of the concept and thus would not be essential features when extending the concept to novel instances.

Importantly, the research cited above (Atran, 1994; 1995; Carey, 1985; Gelman, 2003; Gelman et al., 1994; Keil, 1992; Keleman, 1999a, 1999b) supports Hans’s *capacity* for having

such a functional concept at his age. By Hans's age at the time of his most explicit interchanges with his father on the meaning of 'widdler' (just shy of 5 years old), children understand essences and functions. That is, they understand that what makes something the kind of thing it is may be hidden and not manifest in appearance, so that the extension of a term to new instances may be guided not by superficial structural properties or manifest appearance but by inferred underlying commonalities or aspects of the thing's history. Regarding functions, children Hans's age know that some things are "for" doing certain things – that is, were designed to accomplish certain goals – and are classified by the relevant history. They understand, for example, that both artifacts and biological entities such as bodily organs are functional concepts defined by what they are designed to do, not by their structure; bean bag chairs and formal dining room chairs may have nothing at all in common in terms of shape or materials or any underlying essence, but both are chairs because they share the historical essence that both are made for sitting.

So, one can safely assume that Hans at his age had the capacity to understand that 'widdler' might refer to a purely functional concept, namely, an organ for urinating, rather than a structural/functional concept like "penis." However, granting that capacity, one might challenge a teleo-essentialist type of account of Hans's understanding of 'widdler' by asking: what evidence could have led Hans to such an understanding, and what evidence is there that he actually did have such an understanding? If there was no direct evidence prior to the Hanna incidents, then what indirect evidence (other than the term itself) might correspond to Diogenes's plucked chicken in getting Hans to see 'widdler' in a different, more purely functional light that potentially extends beyond penises?

Widdlers As Organs for Widdling

Three passages in the case record report interchanges between Hans and his mother that may help to reveal the indirect evidence that was the basis for Hans's semantic inferences to a functional interpretation of 'widdler'.

(1) "When he was three and a half his mother found him with his hand on his penis. She threatened him in these words: 'If you do that, I shall send for Dr. A. to cut off your widdler. And then what'll you widdle with?' *Hans*: 'With my bottom.'" (pp. 7-8)

Hans accompanied his mother to the W.C. and probably also saw girls widdling, so he knew that females widdled while sitting down -- thus possibly from their bottoms (his questions about his mother's widdler—see below—show that he was quite unclear about the physiological details). He seems in this reply to his mother to have assumed (or to have presupposed for the sake of an effective rejoinder to a nasty threat – and a rejoinder for which the mother herself in her own widdling behavior had provided the grounds for the response) that he could accomplish the same feat as his mother and widdle from his bottom, if need be. This is not as surprising as it might seem; developmental studies reveal that, although children Hans's age can reason in an abstract way about the functions and nature of internal organs, their fund of knowledge and level of understanding about organisms' insides and how they are arranged or might be manipulated is quite minimal and vague (Simons & Keil, 1995). There was also another source of evidence for Hans's claim that he might widdle from his bottom; he had actually experienced something very much like this. The case history indicates that Hans was chronically constipated as a child and was forced to undergo frequent enemas, and during an enema the ejection of the liquid introduced into the lower bowel could easily seem like widdling from one's bottom. Hans obviously had no idea how a redirection of his urine could be accomplished, given that for him his widdler was the organ that was for widdling. However, his riposte is plausibly based on his supposition that for some human beings, the bottom is for widdling, and he might be able to mimic that approach.

This line of thinking suggests a potential divergence between “penis” and “organ for widdling,” at least raising the question of whether the term ‘widdler’ is best associated with the latter structural or former functional sense (or might be ambiguous; see below).

Further aspects of this interchange deserve attention and bear on Hans’s conceptual understanding. In particular, one might wonder whether, in imagining that he might widdle with his bottom if deprived of his penis, Hans was imagining that his bottom would then *become a widdler*, or that his bottom would be a *non-widdler that he would be using to widdle*? The former obviously confirms a functional understanding, but the implications of the latter approach are not so clear. There is actually a research-based likely answer. Developmental research on children’s teleological concepts suggests that, like adults, children distinguish what something was made for – which is its function -- from what it is used for (Keil, 1992; Keleman, 1999a; 1999b; Lombrozo & Carey, 2006). From a cognitive developmental perspective, it is thus possible that Hans could accept his mother’s premise that he could be derived of his widdler (his organ-for-widdling) yet adapt his bottom to widdling, even though it is not inherently a widdler because in Hans’s case it is not made for widdling. This would be consistent with considering the bottoms (or other unknown adjacent organs) of females to literally be widdlers because in females they are made for widdling. I return to these issues in the next chapter, when I consider Jonathan Lear’s argument that the conceptual ambiguity about Hans’s bottom in the castration scenario (among other ambiguities) suggests that Hans did not really have much of a concept of widdler at all.

(2) Hans had never seen his father’s or mother’s genitals. His greatest curiosity and uncertainty was directed at his mother, as in the following interchange at just before the age of three:

“Thus he once asked his mother this question:
Hans: ‘Mummy, have you got a widdler too?’
Mother: ‘Of course. Why?’
Hans: ‘I was only just thinking.’” (p. 7)

The fact that his parents’ widdlers were systematically hidden from Hans even when undressing and in the W.C. no doubt amplified Hans’s interest. Presumably, in this instance Hans means to ask whether his mother has a penis. His mother avoids addressing the intent of Hans’s question and responds instead to the vernacular meaning of the term “Wiwimacher,” saying “of course” she has a widdler. Freud takes this to have been a misleading answer that confused Hans, given Freud’s phallogocentric concerns. However, although she did choose to avoid a full explanation of a topic that clearly made her uncomfortable, the mother’s insistence on a commonsense and gender-neutral response may be seen in its way as a muted form of protest (for exploration of family and gender power issues in the application of the Oedipal theory in the Hans case, see the Foucaultian analysis in the accompanying book, *Bed Time*.)

Why would Hans be thinking about whether his mother has a widdler/penis? Other than simple curiosity, it seems plausible that he was trying to resolve a genuine puzzle. Hans had seen his mother widdling in the W.C. sitting down. He presumably realized that she might widdle by some other method than by use of a penis, perhaps via her bottom. Whether she is using her bottom, has a penis that she uses in this fashion, or has some other organ for widdling is a real question Hans sets out to answer.

(3) Again at age three-and-three-quarters, while watching his mother undress in an unsuccessful attempt to catch sight of her widdler, Hans was assured by his mother that she possessed a widdler:

“Another time he was looking on intently while his mother undressed before going to bed. ‘What are you staring like that for?’ she asked.

Hans: ‘I was only looking to see if you’d got a widdler too.’

Mother: ‘Of course. Didn’t you know that?’

Hans: ‘No. I thought you were so big you’d have a widdler like a horse.’”(pp. 9-10)

In watching to catch sight of what he assumed would be his mother’s large widdler if she had one, Hans seems to have been grappling with two problems. First, if she has a penis, then by the laws of scale applying to visible body parts, Hans expected that her widdler ought to be much larger than Hans’s. Indeed, Hans’s father asserts as a general principle that big animals have big widdlers and little animals have little widdlers, without any qualification as to males versus females (p. 33). Yet, no such sizable organ is immediately visible under his mother’s chemise. This interchange left Hans with an understanding that widdlers might not follow the same rules that hands, legs, and other observable bodily parts generally follow regarding similarity of structure and proportional variation in size. Hans must entertain the possibility that his mother has a penis that is unexpectedly small.

Second, however, there is the more basic question of whether his mother has a penis at all. Here, there is an important nuance. Hans knows from visits to the W.C. with his mother that his mother widdles. But, his mother has kept the anatomical aspects of her widdling obscured from Hans’s view, so he does not know – and he knows that his mother knows he does not know -- whether she has a penis. It is notable, then, that Hans’s mother, when asked by Hans whether she has a widdler, says “of course” she has a widdler – indeed, does so in both passages above, and even adds “didn’t you know that” in the second instance, implying that the answer should be obvious to Hans from evidence he already possesses. This is an important piece of evidence for Hans’s disambiguation of the meaning of ‘widdler’. The mother’s possession of a widdler would only be entirely obvious from what Hans already knew if the fact that she widdles, whether from a penis, her bottom, or wherever, is sufficient to infer that she must have a widdler. Yet, she knows – and Hans knows that she knows -- that Hans has not seen her widdler and that he has seen only that she widdles sitting down and thus seemingly widdles from her bottom. Why should it be obvious that she has a widdler unless ‘widdler’ just means “organ for widdling”?

One might object: perhaps Hans interprets his mother’s “of course” as a way of saying that a *penis* must exist if there is widdling? No, that can’t be, because Hans’s earlier answer that he would widdle with his bottom if he lost his penis shows that this sort of lawful connection is not assumed. The alternative is that his mother’s “of course” is a way of saying that Hans knows that she widdles, therefore he knows she must have a widdler, that is, some organ that is for widdling – whatever sort of organ that is, penis or otherwise. Given the evidential situation, Hans’s mother’s “of course” suggests a functional interpretation of ‘widdler’ in which anyone who naturally widdles obviously has a widdler, whether or not they have a penis.

One Meaning Or Two?: Essentialism, Ontological Levels, and the Ambiguity of ‘Widdler’

If it is difficult to believe that Hans does not at least sometimes mean “penis” by ‘widdler’, then it is important to recognize that the two accounts of Hans’s meaning need not be exclusive and can live side by side as a semantic ambiguity, with the same negative consequences for Freud’s castration anxiety argument. In fact, given how essentialist concepts work, it would be unsurprising if ‘widdler’ is an ambiguous term for Hans, meaning both “penis” and “organ for widdling.” This is because the same initial set of objects (e.g., penises) can have two different essences (structural, functional) from which parallel essentialist concepts can be constructed.

So, for example, in defining ‘water’ using the liquid in the familiar lakes and rivers, one has to specify whether one is defining it as a chemical substance or as a substance-plus-form-of-matter. ‘Water’ is used both ways. On one hand, ‘water’ can be interpreted as referring to liquid water, which includes the essence of the liquidity form of matter in the overall essence that forms the basis for generalizing the category, thus distinguishes water from ice and steam. In this sense of water, when one asks for a glass of water in a restaurant, one has a right to complain if the waiter (perhaps a moonlighting chemistry student?) serves you a glass of steam. On the other hand, ‘water’ is commonly understood at the substance ontological level, and humanity long ago inferred from indirect evidence without even knowing water’s chemical essence that ice and steam are water. Ice is water in the “substance” sense crucial to chemistry, but not water in the “form of matter” sense crucial to drinking. Yet, both “water” concepts are picked out by reference to essences of liquid water. The term ‘water’ is generalized from the base set of the liquid in the familiar rivers and lakes in two different ways in accordance with two different inferred essences of the same base set.

This sort of ambiguity may well be occurring in Hans’s use of ‘widdler’. The fact that penises form the base set for defining ‘widdler’ does not mean that “penis” is the only meaning of ‘widdler’, nor need the alternative “organ for widdling” be the exclusive meaning. Penises have structures and functions. Hans no doubt has the structural concept of penis, and could at times be extending the term in that way. However, the evidence is that he also has the functional concept, and this is the concept that he is using in Hanna’s case, undercutting Freud’s argument.

Comparing Genitals: Is the Mother Speaking Truth to Power?

Freud, assuming that Hans means “penis” by ‘widdler’, comments that there is some truth in Hans’ assertion that Hanna has a tiny widdler; “[A]s is so often the case with the sexual researches of children, behind the mistake a piece of genuine knowledge lies concealed. Little girls *do* possess a small widdler, which we call a clitoris, though it does not grow any larger but remains permanently stunted” (p. 13).¹¹ Freud’s choice of words appear to reflect his patriarchal, phallogocentric orientation.

However, the clitoris is not the only female structure that is both embryonically and functionally homologous to penile structures in ways that would impart some truth to Hans’s equating of the sexes. The urethral opening and anterior part of the urethra are also homologous across the sexes. When Hans’s mother insists that “of course” she has a widdler, it seems that, rather than corroborating an incorrect theory that women have penises (as Freud avers), she is affirming a simple identity. Instead of choosing to emphasize to her son the Freudian comparison between large penises and stunted clitorises, she points instead to the sexes’ common functional machinery as the more basic fact.

It is true that the mother does not clarify to Hans the anatomical difference between male and female organs (nor does the father do so until Freud forces the issue; see below). Clearly, from her responses elsewhere in the case history and what else we know of her, she was uncomfortable with sexuality. Nevertheless, she provides Hans with the information he needs to solve the conceptual puzzle that intrigues him. Moreover, perhaps she provides that information with just a hint of indignation or even defiance of Freud’s structural-phallogocentric emphasis. (For an exploration of the gender and family power implications of applying the Oedipal theory in the Hans case, see the accompanying volume, *Bed Time*.)

¹¹ Freud’s choice of words here clearly reflects his patriarchal bias. All too often it seems that the history of sexology is a political debate between those who wish to see the clitoris as a stunted penis, and those who wish to see the penis as an overdeveloped clitoris.

Evidence for the Functional Interpretation of Hans's Concept of Widdler: How Hans Reacted to the Explanation that Females Do Not Have Widdlers

So, from Hans's perspective, what is a widdler? Is there evidence that by 'widdler' Hans means "organ for widdling," a sheerly functional-essentialist concept? If so, then Hans would understand that the structural features characteristic of a penis are ultimately contingent properties of widdlers and in principle the concept could be extended to non-penises. Indeed, he has *conclusive evidence* that females – including Hanna -- do, in fact, have widdlers in this sense, because he has accompanied his mother to the W.C. and seen her widdle and is well aware that his baby sister regularly widdles as well. The possible alternative hypothesis that such widdling involves contingent and accidental use of some non-widdler (i.e., of an organ not made for widdling) is very unlikely given that female humans are a natural kind who widdle as regularly, naturally, and lawfully as Hans himself and seem to have their various parts lawfully "designed" for various purposes. The inference to their having a widdler for the purpose of widdling thus seems secure. Consequently, if the functional-essence account of Hans's concept is correct, then there is nothing necessarily irrational about Hans's insistence that Hanna has a widdler despite her lack of a penis, and Freud's argument for Hans's castration anxiety collapses.

Is there any way of testing the two hypotheses about Hans's meaning to determine which is closest to the true state of affairs? The best way is to examine Hans's reaction to a case where the two properties – the partly structural property "penis" and the purely functional property "organ for urinating" – diverge. In principle, Hans's reaction to the divergence should reveal the core features of his concept because a core feature, being part of the ultimate criteria for application of the relevant term, generally will be given preference in classificatory judgments.

Hans's observation of Hanna is one such instance where "penis" and "organ-for-widdling" diverge, but the meaning of Hans's reaction there is under dispute. The best other evidence on this point occurs in two later interchanges with Hans's father in which such a divergence is explicitly considered.

First, at a crucial juncture in Hans's analysis, his father attempts to explain to Hans that women and girls do not have widdlers. The lesson was requested by Freud as a way to stop Hans from trying to see his mother's widdler by persuading him that she has no widdler:

I further suggested to his father that he should begin giving Hans some enlightenment in the matter of sex knowledge. The child's past behavior justified us in assuming that his libido was attached to a wish to see his mother's widdler; so I proposed to his father that he should take away this aim from Hans by informing him that his mother and all other female beings (as he could see from Hanna) had no widdler at all. This last piece of enlightenment was to be given him on a suitable occasion when it had been led up to by some question or some chance remark on Hans' part. (p. 28)

So, one day the father attempts to enlighten Hans. The father proves to be incapable of carrying through Freud's instructions to explain to the boy that "his mother and all other female beings (as he could see from Hanna) had no widdler at all." He starts out following Freud's script, asserting that women and girls have no widdlers. However, under Hans's cross-examination, he is forced to retreat to the more coherent view that they have different kinds of widdlers:

Little girls and women, I said, have no widdlers: Mummy has none, Anna has none, and so on....

Hans (after a pause): "But how do little girls widdle, if they have no widdlers?"

I: "They don't have widdlers like yours. Haven't you noticed already, when Hanna was being given her bath?" (p. 31)

The "Anna" to whom the father refers is a ten-year-old girl with whom Hans had played at Gmunden (assuming that this is not a mistranscription of "Hanna"). Thus, between Mummy, Anna, and Hanna, the father's examples cover a range of ages and sizes of female, underscoring that he is claiming that lack of a widdler is a general property of all females and not of an accidental few.

In response to Hans's asking what females widdle with, if they don't have widdlers (reminiscent of the challenge he faced from his mother in their "castration threat" conversation), the father explains that they don't have a widdler *like Hans's*. The father thus succumbs to the necessity to invoke the functional concept. Given that females naturally widdle, they must have organs for widdling, thus they must have widdlers. Yet, as Freud insists, it is apparent to Hans that Hanna has no penis, not even a penis unlike Hans's. So, she must have a widdler unlike his, one that is not a penis.

Hans, with his precocious logical acumen, could not have failed to be impressed by the incoherence of his father's presentation in which he contradicts a statement he made just a few moments before. Rather than this contradiction representing a descent into confusion by Hans's father, it reveals that, with Hans playing analyst, the father has gained some clarity about the meaning of 'widdler' despite Freud's leading him astray. The father's response to Hans's question has yielded unambiguous confirmation of the functional notion of "widdler." If Freud's goal was to end Hans's curiosity about his mother's widdler, the father's admission that she has a widdler that is different from Hans's would scarcely be expected to have this impact, and would lead on to Hans's dream about what Hanna's organ transposed to his mother might be like. In that regard, recall that the father never asked Hans what the mother's widdler in the "chemise" dream looked like – whether it looked like Hans's or Hanna's widdler. The father's assumption that 'widdler' means "penis" made such a question seem superfluous; nor does Hans volunteer the information.¹²

Further aspects of the interchange also weigh against the "penis" account of Hans's meaning. When his father says that girls and women have no widdlers, Hans has a strong reaction, expressing his puzzlement by asking a challenging question. But when the father retreats to the position that girls and women have widdlers that are unlike Hans's widdler, Hans

¹² Freud goes so far as to claim that Hans dreamed not only that he saw his mother's penis but that she was touching it—that is, masturbating. In the initial editions of the Hans case study, Freud says of Hans: "He reacted to this first effort at helping him by producing a phantasy that he had seen his mother touching her widdler" (p. 120). In fact, there is nothing in the case evidence to support such a claim. Perhaps someone pointed this out, because Freud changed the latter part of the sentence in the 1924 edition and thereafter to "he had seen his mother showing her widdler" – which is closer to accurate (in the dream, Hans's Mummy was "in her chemise, and she let me see her widdler") but still somewhat misleading in attributing to the mother more active exhibitionistic agency than Hans's report implies. However, never one to easily give up a theory when faced with apparent disconfirmatory evidence, Freud brazenly undid his correction by adding the following explanatory footnote to the revised sentence in the later editions of the case history: "The context enables us to add: 'and touching it' (p. 32). After all, he himself could not show his widdler without touching it" (p. 120). Yet the essential idea in the case's text is that the chemise was short and the mother's widdler was thereby visible (and she allowed this to occur), not that she manually displayed her widdler in the way Hans might do when taking his widdler out of his pants. The idea of catching sight of his mother's widdler due to the shortness of her chemise was the very possibility Hans had entertained when watching his mother prepare for bed a year before.

appears to understand immediately and to be satisfied with this insight. He displays no resistance or questioning of the kind that a conceptual challenge might elicit.

Consistent with this construal, when the topic arises again in a further interchange and the father asserts that Hanna's widdler won't look like Hans's when she is grown, Hans displays an attitude of tolerant knowledgeability about the matter:

I: 'You know what Hanna's widdler looks like, don't you?'

He: 'It'll grow, though, won't it?'

I: 'Yes, of course. But when it's grown it won't look like yours.'

He: "I know that. It'll be the same" (sc. as it now is) "only bigger."

I: 'When we were at Gmunden, were you curious when your Mummy undressed?'

He: 'Yes, and when Hanna was in her bath I saw her widdler.'

I: 'And Mummy's too?'

He: 'No.' (p. 62)

Note that the father has now come around to speaking of Hanna's widdler and Mummy's widdler, having himself adopted the "organ-for-widdling" interpretation (similarly, the father later asks Hans if he's seen the hair near Mummy's widdler [p. 67]¹³). Hans's statement that he knows that Hanna's widdler when it's grown won't look like his but like it does now only bigger, is close to a clear statement that Hanna does not have a tiny penis that will grow into a bigger penis like Hans's. Nevertheless, he clearly continues to believe that Hanna has a tiny widdler, and continues to believe that his mother has a widdler. "Widdler" and "penis" have plainly diverged.

In the end, Hans out-reasons Freud and his father, who project onto Hans their simplistic idea of the limited conceptual possibilities that a 5-year-old boy like Hans is capable of entertaining. Freud's equation of "widdler" and "penis" is soundly defeated, with the father implicitly changing sides and aligning himself semantically with Hans. Hans's functional understanding of widdlers places the two sexes on all fours when it comes to having widdlers. The idea that females do not have penises is gotten across by asserting that *they do not have widdlers that are like Hans's penis*. Thus, from Hans's insistence that Hanna has a widdler, one cannot infer that he is denying or repressing the truth that Hanna has no penis. Freud's claim that the evidence shows that Hans was motivated to embrace an implausible conclusion due to an aversion to the truth motivated by his castration anxiety can be safely rejected.

Concluding Observations

What general lessons might one carry away from this intensive analysis of one small point in Freud's case of Little Hans? There are several different kinds of points, and I will briefly list a few of them.

Surely the most crucial lesson is that it is difficult to know the meanings in a child's – or a patient's – head, that persistent open-minded exploration is necessary to identify those meanings, and that our theoretical assumptions can help us or hurt us in this endeavor. Freud failed to understand Hans due to biases he held, both theoretically (Freud was looking to confirm castration anxiety, and was definitely phallogocentric in his developmental approach to Hans) and developmentally (Freud assumed that Hans must mean something simple and obvious by 'widdler', such as "penis"). Psychoanalytic schools tend to be dominated by one theory or

¹³ These are instances where the reference appears to be literal. I ignore the many instances where, although the text refers to female widdlers, the reference can be taken to refer hypothetically to what Hans mistakenly believes he might see, for example, when the father suggests that Hans likes going to the W.C. with his mother because he thinks he will see her widdler (by which he is presumably referring to Hans's desire to see his mother's nonexistent penis).

another, and tend to practice what I call “nomological hermeneutics” – that is, interpretation of meaning in which one starts with a commitment to the kinds of meanings that ultimately must be at the root of a patient’s problem, and one then seeks those meanings on the evidence. It is ironic that a discipline aimed at the reconstruction of the individual’s idiosyncratic idiographic meaning system should so often succumb to generalized principles about what the individual’s meanings must ultimately be, in effect imposing meaning rather than discovering it. We must never be so wedded to our theories that we lose sight of the patient.

More substantively, the analysis obviously casts doubt on Freud’s claim that the Hans case history supports his central Oedipal construct of castration anxiety. It thus contributes to the larger goal of dismantling the mythology that, in my view, sent psychoanalysis on an unproductive path. The analysis also illustrates how interdisciplinary intellectual linkages are crucial for psychoanalytic thinking. It is the empirical cognitive developmental research on children – not speculative developmental theories formulated on the basis of adult analyses -- that provides the critical evidentially supported insights in understanding what Hans was saying and where Freud went wrong.

An important lesson is that sufficient evidence was available within the case history to allow us to reassess and argue against Freud’s interpretation and for an alternative account. Most psychoanalytic case histories involve highly selected vignettes and are presented in a way that shows how the data confirm the theory of the writer rather than, as in the Hans case, presenting relatively theory-neutral data that is then interpreted. Yet, if collected in a way that is adequately theory-neutral, psychoanalytic case data are sufficiently rich that with careful attention to detail one can formulate and test rival hypotheses using the same case data.

Moreover, scientific methodology matters, even in the consulting room. Freud erred in part because he violated fundamental methodological principles. He failed to formulate and evaluate rival explanatory hypotheses. He sought only confirmatory evidence and did not look for or notice disconfirmatory evidence. He failed to formulate tests that might distinguish rival hypotheses and generate disconfirming evidence. As one would expect, this scientifically weak approach yields a spurious conclusion. Attention to confirming one’s preferred theory rather than comparing the explanatory powers of rival hypotheses is an unlikely pathway to the truth.

Freud was basing his view of Hans’s meaning on an implicit developmental assumption about a child’s concepts that turned out not to be true, raising questions about how firmly or in what ways psychoanalysis should embrace developmental conjectures (Green, 2000; Klein, 1981; Peterfreund, 1978). Starting with Freud’s understanding of psychopathology in terms of developmental “regression” and “fixation,” psychoanalysts have embraced many speculative theories about how infants and young children’s minds work. They have used these theories to anchor and explain – some might say rationalize -- their theories of adult psychopathology. Indeed, psychoanalytic developmental theory has often functioned as a kind of projection onto children of what one wants to be able to say about adult psychopathology, where child and adult states are essentially identified. Psychoanalysts have built extensive theories of development, psychopathology, and psychoanalytic process and cure on these developmental speculations, often with minimal or no evidence (Eagle, 2010). These hypotheses range, for example, from Freud’s primary narcissism, Mahler’s normal autism, and ideas that infancy is accompanied by a psychotic-like lack of differentiation of self and world, to Melanie Klein’s ideas about the florid fantasies of infants and her notion that children naturally organize their object relations along affective “splitting” lines and thus harbor “good breast” and “bad breast” and good mother” and “bad mother” representations without object integration until later.

The developmental literature indicates that such notions that children think in radically different ways from adults are generally incorrect. The evidence suggests instead that although children have much less information than adults, they are attempting to understand the world using strategies and conceptual structures somewhat similar to those an adult would use if faced with a radically unfamiliar environment. If psychoanalysis is to progress, it would do well to cleanse itself of undemonstrated developmental theories and to embrace instead mainstream empirical developmental psychology. However, psychoanalysis's distinctive and daunting task—the reconstruction of the individual's idiographic meaning system – will always give it a unique position and unique challenges within the psychological disciplines.

References of Chapter 12

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Chapter 13

Jonathan Lear on Widdlers and their Place in Nature

Jonathan Lear, in his book, *Love and its Place in Nature* (1990), also considers what Hans means by ‘widdler’ when he asserts that Hanna has a tiny widdler, as I did in the last chapter. However, he takes a very different approach to concept meaning than I do, and arrives at very different conclusions. Rather than offering an alternative account of the meaning of ‘widdler’ to replace Freud’s claim that ‘widdler’ means “penis,” which was my approach, Lear argues that Hans does not really mean anything very determinate at all by ‘widdler’—that is, that Hans does not yet have any formed conceptual representation that determines membership in the category of widdlers in a coherent, rationalized way that can be systematically extended to new cases. Instead, Lear suggests that Hans has only a fluid set of associative linkages determined by overall similarity and “family resemblance.” Although of course Hans has mental representations of various specific things – horses, his father, and so on – Lear argues that Hans has no structured mental representation of what makes something a widdler, thus no specific adult-type concept expressed by his term ‘widdler’. Rather, Hans’s labeling of things as widdlers derives from broad perceptual and emotional similarities and associations, and such associations rather than a representation of what makes something a widdler comprise all the conceptual structure Hans possesses:

But it is not that the conscious idea of a horse is substituted for the unconscious idea of the father. Rather, for Hans's unconscious, there is no significant difference between fathers and horses. Father-representation and horse-representations are, one might say, “lumped” together.” (Lear, 1990, p. 109)

Lear’s analysis has affinities to Ludwig Wittgenstein’s philosophical account of meaning based on family resemblance (1953) and to the similarity-to-prototype theory of meaning derived from Wittgenstein’s view by the psychologist Eleanor Rosch (1973; Rosch & Mervis, 1975). These views of concepts as similarity-based structures are opposed to the “essentialist” views derived from Kripke (1980), Putnam (1975), Searle (1983), and Medin and Ortony (1989) on which I relied in the last chapter’s analysis.

Lear does not specifically consider the link between the meaning of ‘widdler’ and Freud’s castration anxiety argument (although he does quote Freud’s comment on the connection). Rather, he challenges Freud’s assumption that ‘widdler’ means “penis” as the first step towards a broader argument in which he questions the whole notion that children’s terms have determinate rationalized meanings. This in turn is the basis for his attempt to give a developmental meaning to Freud’s notions of “primary” and “secondary” mental processes, with primary process being constituted by fluid “family resemblance”-based thinking that is the dominant form in the child, and secondary process being constituted by thinking guided by maturely structured conceptual representations determining class membership which is dominant in the adult. In other words, rather than posing family resemblance versus essentialism as two opposed theory of concepts, Lear in effect cedes the ground of adult concepts to essentialist theorizing but retains the distinction as a developmental one between the dominant way children think and the dominant way adults think – and also as a distinction between two levels of mental processing that continue to occur in adults.

Moreover, Lear puts forward the provocative thesis that the transition from associative-linkage based concepts to culturally sanctioned rationalized concepts characterizes not only child development but psychoanalytic cure. Thus, both psychological development and psychoanalysis are forms of semantic socialization into the use of rationally structured categories not subject to family-resemblance associative intrusions. Lear's speculation is in opposition to a powerful strand in contemporary developmental theory that sees the child's concepts even at preschool ages as primitive versions of adult representations of concepts including inferred essences and causal histories, with apparent differences being due mostly to the child having less knowledge and less developed theories and inferences and distinctions, rather than a difference in the nature of concepts per se.

One might expect that in challenging Freud's assumption that Hans means "penis" by 'widdler', Lear is at least indirectly challenging Freud's argument for castration anxiety based on Hans's response to Hanna. However, Lear's argument takes a surprising turn. Whereas the rationally structured concepts of adulthood are culturally determined and shared, one might expect that the pre-rationalized associative webs that, according to Lear, form the child's concepts are highly idiosyncratic. Lear, however, argues to the contrary that the early irrational linkages are also culturally shared. Consequently, Freud's interpretations, being intuitive expressions of these pre-rationalized shared associations, are therefore often manifestly plausible on their face without the need for further evidence. For example, the equation between "father" and "horse," Lear holds, is culturally shared. Thus, Freud's interpretation of Hans's fear of horses as fear of his father is not a hypothesis about Hans's idiosyncratic symbolization that must be supported by evidence from Hans's history but rather, according to Lear, is true on its face to any member of the same cultural community. In this roundabout way, Lear's dismantling of the meaning of 'widdler' postulated by Freud unexpectedly leads full circle to the position that Freud's intuitions about the latent meaning of Hans's response to Hanna – and most of the rest of Freud's interpretations as well -- are manifestly correct after all.

Lear thus manages to turn what looks like a minor disagreement with Freud about the meaning of 'widdler' into not only an analysis of child cognitive development and a theory of how psychoanalysis works but also a surprisingly blanket defense of Freudian interpretation. His challenge to Freud's semantic premise yields a defense of Freud's conclusion. I don't think that either the challenge or the defense are sound. In this chapter, I evaluate Lear's argument about meaning in the context of closely examining his claims about the meaning of 'widdler'.

Lear on the Ineffability of the Infantile Mind

Lear starts out, much as I did in the last chapter, arguing that although 'widdler' as Hans uses the term appears to apply to penises, it is not so obvious that 'widdler' covers only penises:

According to Freud, little Hans, like many a scientist, is willing to misinterpret the observational evidence rather than abandon his theory. But how does Freud know that this is what Hans is doing? He assumes that by "widdler" Hans means penis, but what grounds this assumption? There does seem to be some evidence in favor. Hans refers to his own penis as a widdler, as he does to the penises of animals he sees in the zoo; he speculates that his mother has a big widdler like a horse; and when he draws a widdler on a giraffe, it is a straight line down from the giraffe's underside. Penises, it is plausible to say, are widdlers. However, Hans also refers to a cow's udder as a widdler, he observes that his newborn sister has a very small widdler and says, apparently nonchalantly, that if his widdler were cut off, he would widdle with his bottom. In virtue of what are we to say that Hans has made a mistake about the cow? Or his sister? Why aren't udders and vaginas and, indeed, bottoms that widdle also widdlers? (pp. 100-101)

Lear accepts that Hans believes that all penises are widdlers but challenges Freud's assumption that to Hans all widdlers are penises (or, equivalently, that only penises are widdlers), citing some of Hans's classificatory judgments where he asserts that non-penises are widdlers. (My functional account -- that by 'widdler' Hans eventually comes to mean "organ made for widdling" -- poses the same challenge; although penises are organs made for widdling, not all organs made for widdling are penises.) A problem with running together all these judgments of Hans's is that Lear does not place Hans's various judgments into a developmental context. Hans likely meant something different at age three years old than he did later at close to five years old. Moreover, Freud is only interested in the later "mistake" of attributing a widdler to Hanna, and makes no judgment about mistake versus conceptual change regarding other judgments.

Nonetheless, Lear raises the question of meaning and error for all the many judgments by Hans, not just his mistaking Hanna's vulva (or "vagina" as Lear has it) for a widdler. How do we know, he asks, that each of these seeming mistakes were merely inaccurate judgments given Hans's concept at the time, in the way that, say, one might mistakenly judge a cow in a far off field to be a horse? To judge that Hans erred, Lear observes, one must have some determinate baseline of the concept's meaning against which to compare Hans's judgment. He claims, however, that no such baseline can be identified, using Hans's judgment that a cow's udder is a widdler as his example:

For Hans to have made a mistake about cows, it seems he must have a determinate concept of a widdler, in which a widdler is a penis. His mistake is then one of observation: he takes the milking of a cow to be through a penis. But in virtue of what can we attribute to Hans such a determinate concept? Whether we look inside or outside the mind, it is not obvious how we can answer this question. (pp. 100-101)

Lear has now gone from questioning whether Freud is correct about Hans's concept to questioning whether we can ever know Hans's concept – or, to put it more ontologically than epistemologically (a distinction about which Lear is surprisingly nonchalant), whether Hans has any determinate concept at all. Lear relies on a traditional Wittgenstein-inspired philosophical conundrum to challenge this commonsense understanding: how can one tell the difference between a mistake in classifying an entity versus the possession of a broad and socially deviant concept that includes the entity in question? For example, if someone calls a cow in a far off field a horse, how does one tell the difference between their having made an error relative to the concept "horse" which they share with us, versus their possessing a deviant meaning of the term 'horse' that is along the lines of "horse or cow in a far off field"? Similarly, when Hans initially called the cow's udder a widdler, but later retracted the claim, how can we tell whether Hans: (1) had a concept "penis" associated with the term 'widdler', mistakenly applied it to the udder based on incorrect beliefs (e.g., that widdle sometimes came out of it), and then corrected himself when the error was explained by his parents, or instead (2) had a broader concept associated with 'widdler' – of, say, "protuberance at a certain position" – and correctly applied his concept to the udder, but then changed the concept he associated with the term 'widdler' when his parents explained that the udder was not a widdler. In this line of argument, while explicitly denying it, Lear in effect argues for "the ineffability of the infantile mind" (p. 103). He concludes:

There is, then, a severe limit to the extent to which anyone can go native in a tribe that that consists of one three-and-a-half-year-old speaker....There seems to be a gap that cannot be completely closed between the conceptual content of a mental state and the content of an infant's mind. (p. 103)

Is it true that there can be no relevant evidence to deciding Hans's concept at a given time? Common sense suggests there are many ways to approach the distinction between change in belief and change in concept. I consider one of Lear's examples of this claimed indeterminacy.

Lear observes that, when Hans's mother threatens him with castration and asks what he would widdle with then, "Hans...says, apparently nonchalantly, that if his widdler were cut off, he would widdle with his bottom." Lear then poses the question: "Why aren't...bottoms that widdle also widdlers?" (pp. 100-101). As noted in the last chapter, there is an ambiguity as to whether, in imagining that he might widdle with his bottom if deprived of his penis, Hans was imagining that his bottom would then *become a widdler*, or that his bottom would be a *non-widdler that he would be using to widdle*. Lear argues that there is no possible evidence that could bear on the question of whether Hans believes that in widdling with his bottom he would be using a non-widdler to widdle, or would thereby make his bottom a widdler. Lear throws up his hands at the presumed impossibility of addressing what Hans thinks, rather than rolling up his sleeves and searching for possible evidence that could support one interpretation or the other.

Fortunately, developmental psychologists have not taken this easy way out. They have attempted to test how children think about the functions of bodily parts, and, as we saw in the last chapter, they have even explored how children think about functions when organs are used to perform new tasks for which they were not originally designed. Some of these studies have been done with preschool children in the same age-range as Hans and bear directly on the question of how Hans would be likely to think about a bottom used for widdling. As we saw, children – like adults – classify the functions of both organismic parts and artifacts by the original function for which it was made or biologically shaped, not by some other current use (Keil, 1992; Kelemen, 1999a; 1999b; Lombrozo & Carey, 2006).

For example, Kelemen et al. (2003) set up situations in which there was a divergence between the usual/original use of an organ (they also tested artifacts) and the use to which the organ is being put now, creating a potential conflict in attributing a function to the organ. In what the experimenters called a "conflict trial," children were presented with the following kind of story, accompanied by illustrations of the original function and the alternative use: "This animal is a Prole and this is a part of her body. All the Proles everywhere have always used this part of their body to tie themselves to rocks to stop the wind from blowing them away. When they do that, it works really well. One day, this Prole was climbing around in a tree. She decided to use this to wrap and twist around the top of the tree so she could hang there and see far away. She was very sure when she did this with it because that's what she wanted to happen" (Kelemen et al., Scope, 269-270). The original use is what these kinds of animals generally and always have done with the body part (e.g. Proles tie themselves to rocks) while the alternative use picture was what an animal intentionally (or accidentally, in another condition) does with it (e.g. hangs from a tree so she can see far away) repeatedly ("Because it works out well, it happens again the next day") or on one occasion. The children were then asked to say what the organ was 'for'. The study found that, like adults, preschool children predominantly view an object's function as the activity it was designed to perform.

Thus, there is evidence relevant to answering Lear's conundrum about Hans's bottom. If, as argued in the last chapter, Hans eventually adopts a functional conception of "widdler," then, given how children (and adults) have been empirically shown to understand functions, something is a widdler if and only if it was made for widdling. For Hans, it is his penis that was made for widdling. He may manage to somehow use his bottom to widdle, but for him this would be using

his bottom for a purpose for which it was not designed, and thus it would not be a widdler (nor does he characterize it as a widdler in his response to his mother). On the other hand, if Hans comes to believe that females widdle from their bottoms or some related structures (other than a penis), and that in their case their bottoms (or the relevant organs) were made for widdling, then their bottoms would be classified as widdlers.

The Community Argument

In arguing that there is no way to support one hypothesis about the meaning of Hans's term 'widdler' over another, leaving his "concept" a mere set of undisciplined associations, Lear engages in an argument by elimination. He proceeds to look on the outside and the inside of the mind for all the possible ways that one might try to determine the meaning of 'widdler', and he rejects each of them.

Regarding external-to-the-mind criteria, Lear starts with the community's usage as a criterion for attribution of conceptual meaning:

In fact, Freud began by looking outside the mind. For to say that Hans has made a mistake about widdlers is implicitly to assume that Hans is willing to correct his understanding to conform to the community's understanding of what a penis is. Hans, one might say, wants to mean penis by "widdler," but he doesn't yet understand what a penis is. His "mistake," then, is not that his use of "widdler" conflicts with the idea in *his* mind. It is, rather, that both his idea and his linguistic behavior are out of step with the community that he is in the process of joining. His "mistake" consists in being a child. There may be value in taking "widdler" to mean penis if one's aim is to bring the child into a natural language community. For one will eventually correct the child's use of "widdler" when it deviates from ordinary use of "penis": and one will thus educate the child into the language. But this strategy defeats our purpose. We don't want to educate Hans; we want to understand the contents of an infantile mind. (pp. 101-102)

Lear is surely correct that, in attempting to understand Hans, we do not want insist that the adult community's concept, into which Hans is gradually being socialized, determines what Hans has in mind. Although Hans is striving to understand the community's meanings, at this early stage of his development he may not yet possess the community's adult concept. As Lear says at the end of the above passage, this strategy defeats our purpose because it does not really get at the contents of Hans's mind.

However, Freud claims an out-and-out mistake only in the instance that matters to his Oedipal theorizing, namely, Hans's labeling of Hanna's vulva as a widdler. This is where the lack of any developmental framework undermines Lear's point. Freud can agree that at earlier stages of his development, Hans did not mean "penis" (as we understand the concept) by 'widdler'. Perhaps his knowledge was too slim to justify that degree of determinacy in his concept, or maybe he started with much broader concepts that got whittled down to "penis" as he was corrected in his over-attributions in the train engine, cow, and monkey's tail instances, and then expanded in a different direction as he came to a functional understanding. At the time of the train-engine, cow, and monkey tail incidents, Hans had the notion that 'widdler' applied to a range of protuberant and/or liquid-discharging organs like his own penis. With these incidents, he learned such things as that the concept associated with the term did not extend to inanimate artifacts, or to protuberant organs that are not for discharging liquid, or to protuberant organs that are for discharging some liquid other than urine. In each case, some possible theories of the meaning were disconfirmed.

The essentialist analysis provides an interestingly nuanced way of understanding Hans's learning process and the sequence of concepts he entertains, and its relationship to community usage, due to the need to identify what type of essence forms the rule for generalizing a concept to new instances. One can think of Hans's learning of the concept as a series of experiments in determining what the appropriate rule is for extending the concept from the initial base set, which was surely Hans's own penis. He soon learned that it was appropriate to extend the concept to the penises of other humans and animals. However, as I detailed in the last chapter, for any base set there are many ways of identifying an ontological level of essence to guide application of the concept to novel instances. Locational, structural (protuberances), functional (liquid-emitting; urine-emitting), and various other possible rules would be consistent with the initial base set of animal penises. Hans quickly came to understand that the essence has something to do with biological entities (versus the fire engine's release of water) and that locational rules are not predominant (although he remarks that the horse's widdler is placed analogously to his own, clearly the positional analogy is not exact, and is violated by the cow's udder). He also learns that protuberance in and of itself is not the rule he seeks (the monkey's tail), and that liquid-emitting in general is too broad (the cow's udder yielding milk). His discussions with his mother confirm that urine-emitting is a virtually sufficient criterion for 'widdler', and this is how he comes (correctly) to extend the concept to Hanna. Rather than passively navigating the seas of associative linkages, Hans is an active theoretician who formulates and tests hypotheses as he seeks the right ontological level at which to pitch his application of 'widdler' to match the meaning in his community. This means that Lear is incorrect that we cannot judge Hans's "errors" by the standard of the community, in one specific sense: each hypothesis Hans formulates during his learning process is both a meaning he possesses for a time and a hypothesis about the essence according to community standards, and so he does have a concept about how to extend the concept in his head, and yet he is "wrong" to the extent that this is not the community's way of extending the concept.

Deviation from community standards is thus not as easily dismissed as a test of error as Lear suggests. This is because we naturally tend to use language with the intention of matching community conceptual standards. For example, a friend discovered in her twenties that she was using the term 'genitals' incorrectly, to include female breasts. Lear might say that, given her concept, she was not making a mistake when she labeled breasts as genitals. This was not her reaction; she certainly thought she had been making a mistake in not matching the community's meaning. But was it a mistake by her own lights, in terms of her own concept, as Lear demands? The answer seems more complex than Lear allows. Certainly her belief and her intention was that she was using the concept in accordance with the community's meaning, so she was mistaken in that belief and failing in that intention. More importantly, her error was one of selecting the wrong rule for extending the term 'genitals' from the prototypical instances of genitals, and being misled by accidental features such as the breasts needing to be hidden from public gaze due to sexual implications, when in fact the essence-rule went in a different functional direction. The mistake was "by her own lights" because the rule she embraced was per hypothesis supposed to be at the same ontological level as the rule that the community embraced, and this hypothesis was incorrect. Due to the multiplicity of possible ontological levels by which an essentialist concept can be extended from a base set, judgments about what new things fall under the concept and hypotheses about the community's usage are intricately interwoven and not easily separated.

Why Concepts Are Not Mental Images

If an appeal to the community is abandoned as non-psychological, then the natural thing to do is to look inside the mind at Hans's own ideas to find his concept's meaning. Doing so, we might take the traditional approach of considering ideas in a Lockean or Humean vein to be mental images, and assume that such images correspond to and provide the meaning of Hans's term 'widdler'. However, this approach runs into the problem that an image can mean many things and does not have its rules of application written on its sleeve, so to speak: "Suppose, then, that Hans's "idea" of a widdler is a mental image of a penis. There is nothing about this image that would direct Hans to apply the term "widdler" only to penises" (p. 101).

Lear is quite right about this. For example, the image I get when I think of the concept "triangle" may be an equilateral triangle, but how would one know on the basis of an examination of that image alone whether the representation defines the narrow concept of equilateral triangle, the somewhat broader concept of isosceles triangle (of which equilateral triangles are a subset), or the much broader concept of triangle? The image instantiates and is a reasonably prototypical instance of all of these concepts. The common notion that things fall under the concept if they are "similar" to the mental image falls apart once one realizes that similarity relations themselves are determined not only by superficial commonalities but by concepts (e.g., ice and liquid water might be considered quite similar because they are both the substance water, even though their superficial properties are quite different). Moreover, the salience of a feature in regard to determining similarity is not absolute but is influenced by context and culture:

Even if Hans is supposed to apply "widdler" only to things that look like his mental image [of a penis], what is it for something to *look like* his image depends on his sense of similarity. There is no absolute standard of similarity independent of people's judgments of similarity. (p. 101).

The mental image account offers no help, for example, in answering Lear's question as to why the cow's udder and the monkey's tail are not really widdlers according to Hans's concept, even though Hans initially mistakes them for such: "Therefore, if a cow's udder looks to Hans like his image of a widdler, there is no basis for saying that Hans had made a mistake. The mental image alone gives no ground for saying that for Hans, "widdler" means penis" (p. 101).

Concepts as Mental Representations that Determine Classification

In rejecting external community standards and internal mental-image standards as determining conceptual structure, Lear's analysis is persuasive. But there is a natural response to the problems with the image account, one that Lear recognizes and attempts to address. The response is simply that if mental images do not wear their rules of application on their sleeves, then perhaps those rules of application have to be added to the image as additional mental representations that help to determine a term's applicability to an item. That is, one must assume that, either in addition to or instead of the image, there exists a set of beliefs or rules or other mental representations in Hans's mind -- of unknown nature and presumably inaccessible to consciousness -- that guide the application of the image (if there is one) or category to cases. These latent representations or rules are Hans's criteria for application of the term 'widdler'.

Lear brings up this sort of potential riposte to his meaning skepticism several times in slightly different terms, and each time offers objections. First, Lear says:

Alternatively, one might suppose that Hans's idea is the embedded rules which direct his use of the expression "widdler." Unlike a mental image, this type of idea is not something that by its nature is at least potentially available to consciousness. And so the only route to these rules is by

inference from Hans's linguistic behavior. Therefore, there can be no basis for citing his linguistic behavior as making a mistake about his idea; for it is only from the behavior that we can determine what the idea is. (p. 101, n. 8)

The "verbal behavior" argument (which reflects strands of what has been called Wittgenstein's "logical behaviorism") comes to this: Hans's verbal behavior is the only evidence we have for establishing the rules determining Hans's concept; therefore, there can be no basis for inferring that his verbal behavior is a mistaken application of his concept; therefore, there is no concept.

It is hard to see why Lear thinks this argument is sound. First, even if we grant that the conceptual rules are unconscious and verbal behavior is all we have, it does not follow that there can be no grounds for attributing error. Verbal contents can conflict in various ways, leading to rival theories of Hans's mental content. The fact that all of the evidence is from a certain domain tells us nothing about whether rival theories can be differentially supported by the evidence from that domain. If Lear's argument were valid, then one could similarly argue that one can't identify a language's grammar because the only evidence we have for the grammatical rules a community is following is the community's verbal behavior, so there can be no evidence that a given statement is ungrammatical. But of course the study of grammar flourishes nonetheless, because evidential relations are richer and subtler than this argument envisions.

In fact, we don't literally have only Hans's verbal behavior in applying the term in question as relevant data. At a minimum, we also have the relationship of his verbal behavior to what is happening in the environment, relations among his applications of different concepts, his nonverbal behavior consequent upon or correlated to his verbal behavior, and background theories from a variety of disciplines, including psychological theories about the conditions under which people are likely to make errors. Despite the evidential richness of the web of belief, Lear breezily dismisses the idea of exploring Hans's beliefs as a way to gain evidence to understand his concept, as if it is obvious that beliefs, too, are impossible to determine: "If by "idea" we just mean "belief, " then we are back with our original question, trying to determine what Hans believes about widdlers" (p. 101). However, here as elsewhere in science, the formulation of rival theories and the evaluation of the overall explanatory power of, and evidential support for, those theories is an extraordinarily powerful method. Even if two rival theories can be maintained with adequate ad hoc hypotheses, one of them may be more plausible than the other.

Lear offers a further objection aimed at the idea that, instead of Hans's actual responses, one might consider all of his dispositions to respond under various circumstances:

One way to get at these contents might be to treat Hans as being a community of one. The meaning of "widdler" would then be given by what Hans does and would call a "widdler." [Lear here cites the views of Wittgenstein—JW] The focus on Hans's actual and potential use will give us Hans's disposition to call things "widdlers." But there is a problem which confronts any attempt to determine what this disposition is. Would Hans call an elephant's trunk a widdler? An anteater's nose? A large draining cyst? An octopus's tendril? We have no way of answering these questions. We may see a certain coherence in Hans's way of going on, but it is not sufficient for us to feel confident that we can go on to use the expression in respect to these problematic cases. (p. 102)

Lear considers the idea that the evidence for Hans's concept consists not only of what can be gleaned from his actual assertions but also what he would say if confronted with various examples. What Lear refers to as the "problem which confronts any attempt to determine what this disposition is" seems to be just the fact that we don't know for sure what Hans would say in

response to various circumstances that he has not yet experienced. However, this is a limitation of any theory that makes claims that go beyond observations of what has already occurred. The epistemological/ontological confusion seems to rear its head here. Even if it were true that at present we “have no way of answering these questions,” that would not imply that the questions do not have answers. The way we get such answers is to formulate theories and test them. Lear’s comments reflect a simplistic theory of Hans’s concepts that implies that his categorization is based on similarity, and, given the unlimited ways one thing can be seen as similar to and dissimilar to another thing, how can we say which similarities Hans will and will not find most salient? However, once we see Hans as making ontologically sophisticated judgments, we can formulate theories that explain and predict his various judgments and have evidence-based reasons for attributing one meaning or another and anticipating/predicting one response versus another.

Once we conceptualize the problem as one of identifying the essential properties that Hans is using to guide concept extension, there is ample evidence from Hans’s past judgments to guide us in making predictions in each case: (1) The elephant’s trunk: this would seem to offer the same conceptual challenge as the monkey’s tail and the cow’s udder (roughly penile shape but no widdle emerges and it has other functions), and the answer would be expected along the same lines. (2) The anteater’s nose: Why should Hans call an anteater’s nose a widdler? He does not call large human noses widdlers. Both placement and emerging fluid are wrong. Even if Hans were initially to mistake snot for widdle, at age 5 he understands that yellow liquids can be of different kinds and would quickly be corrected. (3) A large draining cyst: aside from lack of proper shape and unlikely positioning of the cyst itself, Hans knows that fluid emerging from a creature need not be widdle (e.g., the cow’s milk, the blood from his mother during childbirth), so there is simply no reason to think Hans would say the draining cyst is a widdler, unless he mistook the substance emerging from it – we may imagine yellow pus – for widdle, and at his age he understands that two yellow liquids may be of different kinds, so he would soon correct such an error. (4) An octopus’s tentril: Again, the monkey’s tail, and to a lesser extent the cow’s udder, provide reason for expecting Hans to judge the octopus tentril—which does not widdle, which does not have expectable positioning, and which has other biological functions—a non-widdler once he has adequate information.

Lear further questions whether, in exploring Hans’s judgments, we can tell whether we are discovering Hans’s preexisting conceptual dispositions or changing them through our own questions:

More importantly, there does not seem to be any way to investigate what the disposition is without possibly altering it. Suppose, for instance, that Hans had called an elephant’s trunk a widdler. Is there any room for thinking that he might have made a mistake, even by his own lights? Suppose that we pointed out to Hans that this elephant also had a penis or a vagina; suppose, too, that we showed Hans that the elephant urinated through his penis, and that he used his trunk both as an olfactory and as a prehensile organ. It is not clear how Hans would respond. He might decide that the elephant has two widdlers. But let us suppose that he revises his original judgment: he comes to deny that the trunk is a widdler and asserts that the penis is one. There is no way to decide whether Hans has corrected a mistake in his own use of “widdler” or whether he has revised the concept of a widdler in the light of our teaching. (pp. 102-103)

However, situations similar to the elephant’s trunk have been confronted in both the cow’s udder and monkey’s tail examples. Hans seems secure in the understanding that only organs-for-widdling are widdlers. The fact that the elephant’s trunk is penis-like in shape has

long ago become non-criterial; Hanna has a widdler that is not that shape, and the monkey and cow have things that shape that are not widdlers. Hans is aware of variations in size and in superficial appearance in widdlers (he's seen the widdlers of lions, horses, likely giraffes, and his own, as well as Hanna's, and non-widdlers such as the cow's udder and the monkey's tail), but he also knows that he can make a mistake because superficial appearance need not directly reflect essential structure and function. Hans's concept and responses can be understood just the way any process can be understood, by formulating rival accounts and evaluating which has the most explanatory power and evidential warrant.

As to distinguishing judgments based on previously held rules from the construction of new rules, the possible evidence includes, for example: consistency with earlier judgments, retrospective assessment of previously accessed beliefs and judgments that might have changed as well if the individual's conceptual rules have been altered to accommodate the instance at hand, the difficulty the individual has coming to a judgment (concepts are more central than other more superficial beliefs and take more work to change), exploring why there might have been a factual error, answers by the individual to questions in which the instance is systematically altered counterfactually to better establish the basis for the judgment, monitoring what information is accessed as the individual reaches a judgment, reaction of the individual to being told that he or she made an error (e.g., degree of resistance to changing the judgment), questions about whether the individual could be wrong and under what circumstances the individual would decide he or she had been incorrect, and so on. The challenge is methodological, not ontological. As always, one meets the challenge by finding additional information that might distinguish between rival accounts on the basis of overall explanatory power and consistency with background knowledge.

Does Hans Lack Rationally Constrained Concepts?

Lear attributes quite different conceptual structures to children and adults; children have complex associative webs of ideas not yet regimented into rational concepts with criteria, whereas adults manage to form coherent conceptual criteria for application of concepts. Yet, Hans's classificatory principles are by no means the inchoate jumble of associative linkages that Lear seems to suggest. Hans's responses indicate that his conceptual representations are analytical in structure, consistent with the developmental evidence that by the time a child like Hans is approaching 5, he understands intentional, essentialist, functional, and other sophisticated conceptual apparatuses.

If, instead of Wittgenstein's confused account of concepts, we look to more recent work such as the essentialist insights of philosophers such as Putnam (1975) and Kripke (1980) (read through internalist eyes such as Searle's [1983]) and developmentalists such as Keil (1989) and Carey (1985), the problem changes. In Hans's struggle to bring his concept into alignment with the community's concept, Hans approaches the task not in via associations among superficial properties but in terms of identifying the underlying essential properties that determine the concept's generalization. Hans, we might say, is a little philosopher engaged in the metaphysics of widdlers.

Nonetheless, it is notoriously difficult to translate the meaning of a child's or infant's thoughts or concepts into those of an adult. The reason for the difficulty is that the meaning of each particular concept or thought entails links to the meanings of many other concepts and facts. The problem is that animal and infant thinking does not seem to possess the critical mass of background information so that relevant adult meanings can be attributed to a thought. As the philosopher Stephen Stich (1983) famously argued, it just makes no sense to say that someone

(say, an individual with waning memory due to dementia) has just one belief (say, that McKinley was president) without having a host of other background beliefs that make sense of the notion of a president, of the reference of a name like McKinley, and so on. For related reasons, some philosophers – notably, Donald Davidson (1982; 1984; 1997) -- have argued that animals and infants do not have beliefs and desires, and that only language-possessing beings have a rich enough set of converging concepts and beliefs that one can coherently attribute mental states with contents to them.

While Davidson’s principled argument seems too extreme – most people exposed to infants and animals think it is manifestly obvious that they do have some kinds of beliefs and desires – explaining why he is wrong is not easy. What, for example, do we attribute to an infant when we say he or she “wants milk”? Is it *milk* – with the various essential attributes of that liquid – that the infant wants, or a white liquid with a certain flavor (but does the infant have concepts for “liquid” and “flavor”?), or just cessation of an uncomfortable sensation (i.e., hunger)? Spelling out mental contents is hard enough among adults with a full conceptual/representational repertoire, and it becomes a daunting challenge for those who lack such resources.

In arguing that Hans has no coherent concepts, Lear unjustifiably places Hans with the animals and the infants in Davidson’s account. But if Lear is right, how do we explain Hans’s inferences and astute questions? Inanimate objects as a matter of principle do not have widdlers, he concludes at one point. If he is embracing a Wittgensteinian family resemblance approach to determine his classifications, it remains mysterious why not, for the valve that releases water under the fire engine does have a family resemblance to a widdler—yet Hans is capable of correcting that misimpression and understanding the essentialist principle behind the correction. On Lear’s account, we saw, Hans conceptually runs together fathers and horses and lumfs, and psychoanalysis helps him to clarify these concepts and impose a rationalized order on his classificatory behavior. Yet, surely Hans does understand perfectly well the difference between his father and a horse, between lumf and a horse, and so on, in more or less the same way we do. Lear’s skepticism about Hans’s cognitive structures seems wholly unwarranted by the case evidence, in which Hans out-argues his father on rational and conceptual grounds and shows remarkable conceptual astuteness—as, for example, in distinguishing what one thinks from what one does (in responding to his father’s admonition that he should not have had a certain thought).

In analyzing Hans’s concept, we are constructing a *theory* of the representations in his mind that determine his classificatory disposition. Lear is of course correct that our sheer confidence in our own projection of Hans’s thoughts is not enough to ensure our correctness. That is why we *test* our theories against whatever data we can obtain. But no profound ontological skepticism need follow. I conclude that there is no reason to accept Lear’s claim that Hans does not possess a literal determinate concept of “widdler.” I now turn to the broader arguments Lear constructs by which he justifies some of Freud’s interpretations of the symbolic meanings of Hans’s mental contents.

Lear’s Argument For Freudian Interpretations As Universally Recognizable Associations

Lear derives a rather surprising conclusion from his critique of Freud’s assumption that Hans has a determinate meaning of his term ‘widdler’. Lear expansively postulates – without presenting any serious evidence for it -- that a culture shares primitive associative perceptions of similarity of the kind ruling Hans’s associations:

It is remarkable how Hans's train of associations through fathers to horses and lumps appears at once so bizarre and so natural to us. Freud doesn't even have to argue for the associations; he need only present it for it to take on a certain plausibility. In this world of archaic associations horses are fathers and mothers and lump carriers. It is these hidden but natural-seeming family resemblances that give secondary-process concepts their archaic, imaginative content. (pp. 108-109)

Philosophers tend to think that what holds us together as a linguistic community are our shared perceptions of similarity and relevance, our shared routes of interest and feelings of naturalness. [Lear here cites the views of Wittgenstein—JW] Freud shows that there is a realm of shared perceptions of similarity that tend to be overlooked by conscious thought. The meaning of "horse" is not exhausted by all the things we are disposed to call horses. If we "look and see" all the things we call horses, we will only discover the manifest content of the concept. We will miss the family resemblances to all those things we are not disposed to call "horses" but which invest horses with significance for us. (p. 109)

Thus, Lear is claiming that Hans's associations, such as those between "horse" and "father," "horse" and "mother," "horse falling" and "father dying," "fat horse" and "pregnant mother," "horse lump" and "baby," and so on, are at some archaic level shared by all in our linguistic community and feel natural. Consequently, just as there is immediate recognition that the classification of a creature as a horse is correct by our shared literal concept, there is also immediate recognition that Freud's interpretation of Hans's horse-related thoughts and statements as symbolic of various Oedipal contents are correct. Because of this shared access, Lear downplays the need for evidence or argument to support Freud's claims about what "horse" means psychologically to Hans

Lear's claim that "Freud shows" that there exists this shared realm of associations that is common "for us" runs counter to the spirit and letter of Freud's presentation. Freud does not take the evidential challenge as cavalierly as Lear does, and argues vigorously for his claims about Hans's associations. Indeed, if Lear is correct, one wonders why Freud must argue for the Oedipus complex using child data at all, for shouldn't the associative links between "mother" and "sex," "father" and "castration" and "murder," and all the rest of the Oedipal paraphernalia be obvious to anyone in our linguistic community?

Freud believes that the associative links he reveals are quite idiosyncratic and anything but shared or obvious, and require detailed evidential justification in terms of an individual's history. He attempts to show that there is a specific complex web of accidental incidents in Hans's life that create the associative links between the Oedipal and horse meanings, and nothing in this is preordained (except for the existence of the Oedipus complex itself). These linking associations include, for example, the incident in which Fritzl injured his toe while playing a horse, the warning from a friend's father that the white horse will bite, and the horse accident witnessed by Hans, among many other events. Without these, Freud's case history is devoid of evidence that the horse phobia is about Oedipal issues.

Indeed, Freud explicitly argues that a converging series of such idiosyncratic associations is *required* to get Hans's symbolic associations to form. Regarding the bus-horse falling in the street, Freud says that "the neurosis took its start directly from this chance event," but that "it acquired its great effectiveness only from the fact that horses had formerly been of importance to him as objects of his predilection and interest, from the fact that he associated the event in his mind with an earlier event at Gmunden which had more claim to be regarded as traumatic, namely, with Fritzl's falling down while he was playing at horses, and lastly from the fact that there was an easy path of association from Fritzl to his father," and moreover "even these connections would probably not have been sufficient if it had not been that, thanks to the pliability and ambiguity of associative chains, the same event showed itself capable of stirring the

second of the complexes that lurked in Hans's unconscious, the complex of his pregnant mother's confinement" (pp. 136-137). Freud's painstaking historical account appears quite incompatible with Lear's easygoing recognition of shared archaic direct horse/father associations as justification for the Oedipal interpretation. Freud's embrace of the idiosyncratic nature of associations and the need for evidence to support the validity of interpretations, and his clear rejection of any notion that he "doesn't even have to argue for the associations," has a "certain plausibility" lacking in Lear's account.

I am not disputing that some background shared sense of meaning beyond the conceptually explicit exists. Philosophers as diverse as Merleau-Ponty (1962) and Searle (1983) have argued that some such shared implicit pre-linguistic background must anchor a community's explicit concepts, in the way that the background is necessary for the emergence of a Gestalt. We saw in an earlier chapter that even behaviorists such as Seligman, in grappling with the biological preparedness of phobias, suggested the existence of innate symbolic linkages.

Nevertheless, there are several reasons for rejecting Lear's claims in the far-reaching form in which he states them, such that they become a blanket defense of Freud's interpretations. For one thing, there seems to be a contradiction in Lear's own account. Lear assumes a shared metric of associational similarity throughout a community that defines archaic family resemblances for everyone. Yet, earlier in his discussion, we saw, he was skeptical that there was any such shared metric that determined what is similar to an image in the head. His argument against images being concepts was based on the plausible assumption that perceptions of similarity to the image would vary so idiosyncratically and situationally that one could not rely on such intuitions to ensure culturally shared conceptual judgments. That plausible argument conflicts with Lear's implausible postulation of culturally shared connotative meanings that are so clear and widely shared that the correctness of primary process interpretations is immediately evident to everyone.

Internal tensions within Lear's position aside, he is incorrect on the facts about how children think. If Lear is correct, then children have no rationalized, structured essentialist concepts that override perceived similarity in forming judgments or setting boundaries. Thus, to a child, according to Lear, a horse is overall more similar to a father than to a non-father (or a father is overall more similar to a horse than to a non-horse), so the child's judgments and reactions are ruled by that overall resemblance rather than categorical structures of the kind adults possess ("for Hans's unconscious, there is no significant difference between fathers and horses" [Lear, 1990, p. 109]). The horse and father are part of the same seamless psychological structure.

In adults, the dominance of meaning representations over similarity relations is obvious. For example, for a variety of reasons, people will judge "3" as more similar to "5" than to "222,229"; they will judge "5" as overall more similar to "6" or to "555,554" than to "222,229"; and they will judge both "3" and "5" as better or more typical or central examples of odd numbers than 222,229. Nonetheless, when asked to classify numbers as odd or even, people set aside the similarity judgments and use a rational rule structured in a wholly different way that has nothing to do with perceived similarity, with all three of the odd numbers equally members of the category "odd number." The membership rule is such that membership is not a graded dimension like similarity but all-or-none. (Armstrong, Gleitman, & Gleitman, 1983). Mathematics aside, classic experiments show how similarity judgments and category membership judgments diverge based on causal knowledge. To take a simple example, subjects judge a 3-inch-diameter round object to be more similar to a quarter than to a pizza, but more likely to be a pizza than a quarter given the causal laws governing quarters and pizzas (Rips, 1989). The general arguments against the family-resemblance prototype/similarity view of adult concepts developed most famously by Rosch (1973; Rosch & Mervis, 1975) are many (see, e.g., Wakefield, 1999; 2012; Wakefield &

Eagle, 1997) and Lear seems to accept this verdict for adult concepts. The question, then is whether Lear is justified in his approach to classification by children using the family resemblance approach.

Cognitive developmental research, as we have already seen, refutes any such idea about child concepts. Children of Hans's age deploy adult-type structured essentialist conceptual categories, albeit with less background knowledge than adults to guide their application.

In one approach to the study of children's essentialism, developmental psychologists have examined children's beliefs about the importance of an animal's insides versus outsides in determining its category and identity, on the assumption that the insides would be seen as encompassing a hidden essence. Keil (1989) initially found that preschoolers seemed to lack a clear understanding of the importance of insides in determining a creature's category, but that children were clear about this starting around age 7. (Hans was extremely precocious for his age, so even if this were true, it would not preclude his conceptual maturity.) Children were shown a picture of an animal (e.g., a skunk) and told that the animal could have a surgical operation that would change it to look like another animal (e.g., a raccoon). In these initial studies, four-year-olds tended to say the animal would then be changed to a raccoon, whereas 7-year-olds seem to pay less heed to the change in appearance and say that the animal would still be a skunk.

However, this initial result was tied to the specific procedure of surgical change. When the children were told that the animal is putting on a costume rather than undergoing an operation, they all, including the younger children, agreed that the animal is still a skunk (Keil, 1989). Later studies attempted to clarify the meaning of these early results. Gelman and Wellman (1991) focused on whether children thought that taking out something's insides left it the same kind of thing it was before or changed its nature, using examples where what's inside make no difference to a thing's identity (e.g., containers) and examples where the insides do make a difference (e.g., animals). Children of all ages, including those younger than Hans, reported that identity had changed when animals' insides were removed, but not when containers' insides were removed. So, children recognize that hidden insides matter to identity, supporting an essentialist account; preschool children of Hans's age "appreciate the special importance of insides for an object's identity and how it functions" (Gelman & Wellman, 1991, p. 229). Keil's earlier results were explained in terms of ambiguities in a child's mind about what can be accomplished with surgery, and ambiguities about how insides differentiate between animals: "Thus a child might well believe that a zebra without any insides is no longer a zebra, but not be nearly as sure as to how zebra and horse insides help distinguish the two" (Simons & Keil, 1995, p. 143). The essentialist understanding of concepts thus starts very early: "Non-obvious properties, especially internal properties, appear to be salient to young children and are privileged in their determinations of what things are" (Gelman, 2004, p. 406). Thus, even in preschool children, the two systems, if you want to conceive of them as such – the family-resemblance system of similarity-based associative linkages and the representational system of rationalized and often essentialistic conceptual structures and rules – already exist together, and the conceptual system often takes priority in judgment.

Other studies specifically test the issue raised by Lear, the power of similarity versus formal category membership in young children. In one such study, sets of three items were presented to preschool children (Gelman, 2004; Gelman & Markman, 1986; 1987). The initial two items were labeled differently (e.g., "leaf" and "bug") and looked very dissimilar (e.g., a large green leaf with some striped markings on it versus a typical black bug), and some information was given about the items. A third item was then presented that was labeled like one of the previous items (e.g., "bug") but bore a marked overall similarity to the other one and was dissimilar to the one that shared its label (e.g., the third item might be labeled a "bug" but be a leaf-

like bug that is shaped like the leaf and has the same size and bright green color and stripes as the leaf). The child was then asked to predict new information about the third object.

The task was thus set up to create a conflict between overall similarity in superficial properties like shape and color versus category membership as indicated by a common label. The idea was that the category label would be selected only if the child believed that the fact that things share a category implies common features even when the things are very different, because things in the same category share a deeper commonality. The children overwhelmingly generalized their knowledge along category grounds, not overall similarity grounds. It also was found that the children could adjust their predictions in rather subtle ways depending on additional causal information that might imply whether a property would be linked to the category's deeper properties or was accidental and transient (Gelman, 2004).

A possible objection is that in the above study, the power of the shared verbal label (e.g., "bug") was doing all the work. Findings from other developmental studies, where notions of essence and function intersect, illustrate how conceptual understanding is independent of the power of category labels. As described in the last chapter, Kelemen et al. (2003) presented 3-, 4- and 5-year-old children with information about the contrasting behavior of two very dissimilar animals. For example, the children were presented with pictures of a shrew and a duck, and regarding the shrew they were told: "See this animal? It tries to find insects because that's what it likes," whereas regarding the duck they were told, "See this animal? It tries to find weeds because that's what it likes." Then they were presented with a picture of a platypus that looks overall very similar to the shrew and very unlike the duck except that it has a bill like a duck, and asked: "See this animal? Does this animal try to find weeds or does it try to find insects?" This set up a conflict between overall similarity versus inferences about specific part-function of an organ as a basis for generalization: "The sets were constructed so that one of the training animals (e.g. shrew) shared overall perceptual similarity with the test animal (e.g. platypus) while the other training animal (e.g. duck) was dissimilar to the test but shared with it a specific similarity in the form of a functionally adaptive physical characteristic (e.g. billed beak)" (Kelemen et al., 2003; p. 331). The children's judgments were based on inferences about the functional parts, not overall similarity; they said the platypus tries to find weeds. Similar results were obtained with a variety of stimulus sets (e.g., presented with a weasel that "spends time on land" and a very dissimilar booby bird that "spends time in the water," and asked where an otter, that looks overall very similar to the shrew and different from the booby but shares webbed feet with the booby, spends its time, children answered "in the water"). Rather than being dominated by overall similarity, as Lear's account would imply, children in this study from age 3 overwhelmingly generalized in accordance with the part-function relationship and ignored overall similarity.

One might wonder whether the fact that the booby bird and the otter (or the shrew and the duck) are from such different parts of the animal kingdom may have biased the study's results. Perhaps amidst the extreme difference between the booby and the otter, the one similarity of the webbed feet stood out and became extremely salient to the children, so perceptual similarity was paradoxically increased. To address this question, Kelemen et al. (2003) performed the same procedure using triads that were all from the same class of creature. So, for example, the two initially presented creatures might be insects that overall looked rather similar, except that one had two prominent horns or pincers for fighting. Again, no category labels were used; instead, the children were told: "See this animal? It hides from dangerous animals" (for the insect without pincers), and "See this animal? It fights off dangerous animals" (for the insect with pincers). The children were then shown a third insect, overall rather similar to the first of the earlier two insects but which had pincers (of different size than the second insect's), and asked: "See this animal? Does this animal fight off dangerous animals or hide from dangerous animals?" Children tended

to say that it fought off dangerous animals, going with the one functional property of having a pincer weapon rather than overall similarity even when all the creatures were of the same sort. When the children were debriefed, they explained their responses in terms of the presence of the pincers for fighting (Kelemen et al., 2003). This sort of systematic probing of the conceptual capacities of children consistently reveals a degree of sophistication and representational complexity that is inconsistent with Lear's family-resemblance similarity/prototype account of children's thinking.

Perhaps Lear is correct that "Freud doesn't even have to argue for the associations; he need only present it for it to take on a certain plausibility," if those to whom the associations are presented consist of psychoanalytically knowledgeable individuals whose judgments have been shaped by their familiarity with Freud's work—such as Lear. But most people do not immediately see how the associations attributed to Hans make sense. Even if they do come to see it, the recognition of the similarity occurs only once the similarity has been brought to their attention. Almost anything can be "shown" in this way to be potentially "similar" to anything else. After all, how many of us would have filled in "A father/mother/lumf is like an X" with "horse"? Rather than being socially shared associations, these may be idiosyncratically perceived resemblances that can seem natural once they are pointed out—a matter, as it were, of suggestion.

The existence of a similarity metric to the extent that Lear proposes it, and its dominance in the thinking of the 5-year-old child like Hans, must be demonstrated. The evidence we have goes strongly against such a view. More problematically, based on the hypothesis that there are shared associative webs, Lear embraces the links identified by Freud while offering no independent evidence that those meanings fall within the preordained shared set of associations that he postulates. If Freud's critics claim that those postulated meanings are absurd, how will we settle the matter? Without evidence, Lear simply begs all the major epistemological questions regarding the Hans case as well as psychoanalysis more generally.

Moreover, Lear's notion that development and psychoanalysis can both be conceptualized as specifically conceptual growth, from immature associative family-resemblance ways of categorizing the world to mature rationally structured rule-governed ways of categorizing, is inconsistent with what we know about concepts and the way they develop. It would of course be unsurprising if psychoanalysis often involves addressing primitive associative linkages. However, there is no support for Lear's formulation of this simple truth as a thesis about concepts and categorization.

Ineffability and Psychoanalytic Interpretation

Finally, what of the ineffability of the child's mind? The problem of the ineffability of infant and animal thought remains a challenging one given Stich's and Davidson's arguments about the difficulty of interpreting the contents of representations in pre- or non-linguistic intentional systems. Even so, one feels there must be a solution because infants and animals do obviously have intentional states with determinate contents of some sort. Seeking that solution is beyond the scope of this essay.

When it comes to the meanings of Hans's mental states and the mental contents of children well past infancy, there is a convenient although not philosophically illuminating solution at hand to the ineffability problem. The solution is that we have underestimated children's mental complexity, and it turns out that their capacity for representation and the richness of their intentional systems is much greater than we suspected when it was thought they were immersed in James's "booming, buzzing confusion" or perceptually anchored. Children's meaning systems, although lacking the background store of information of adults, are complex enough to be probed in parallel to the quite effable meanings entertained by adults.

Lear claims that his alternative approach to meaning development, involving a shift from primary to secondary process meaning, also solves the problem of ineffability of Hans's mental contents, but in a very different way:

The meaning of an infantile wish, therefore, is grounded both in the loose associations of archaic mind and in the analytic interpretation that completes the development of the wish as it renders it intelligible. And this, in turn, solves the puzzle of the intelligibility of infantile wishes. We render this mental force intelligible by imposing an adult, analytic, secondary-process judgment on it. Yet though an imposition, it is not an arbitrary imposition; indeed, it is the archaic manifestations of the infantile wish that give content to the interpretation. (Lear, 1990, p. 119)

Lear suggests that his solution applies to the archaic contents of the minds of all those who enter psychoanalysis. (Note the subtle equivocation here on the meaning of "infantile wish"—initially referring to Hans's literal mental contents when a child, but then referring to the reconstructed and quite theory laden notion of "infantile wish" in the psychoanalysis of an adult.) He says it is the much later secondary-process interpretation that "completes the development" of the earlier "loose associations of archaic mind" and thus "renders it intelligible." Lear maintains that the child's effable meaning is the outcome of a mature act of interpretive imposition: "We render this mental force intelligible by imposing an adult, analytic, secondary-process judgment on it."

This is a perplexing solution. According to Lear, Hans's meaning is not determined, complete, and intelligible until the later interpretation of his childhood archaic state during psychoanalysis. This suggests that the original content was incomplete and unintelligible -- thus ineffable! -- and that Lear's "solution" is simply an elaborate rationalization of the fact that psychoanalysis imparts meanings to archaic infantile material that did not exist in the original mental states themselves. Lear offers us psychoanalytic process as the "completion" that imparts the child's meaning, yet interpretations presumably can complete earlier archaic material in innumerable ways, as dueling psychoanalytic systems of interpretation demonstrate. The child's meanings seem to exist for Lear only in the sense that they can later be psychoanalytically interpreted.

To understand what is wrong with Lear's account as a solution to the ineffability-of-child-meaning problem, one need only cite Lear himself: "This strategy defeats our purpose. We don't want to educate Hans; we want to understand the contents of an infantile mind" (Lear, 1990, p. 102). Lear summarily dismissed the idea that what Hans means can be established by appealing to community standards, because what the child is being socialized to mean is different from what the child means. Yet, Lear's own solution comes down to the claim that Hans's meaning is provided by psychoanalytic interpretation imposing mature conceptual rules on archaic associations, essentially the same idea as community standards.

An odd apparent implication of Lear's account is that the only children who have meaningful mental states are those who eventually undergo psychoanalysis. This puzzling idea suggests that the proper location of Lear's analysis is not in the understanding of child meaning but in the justification of psychoanalysis. Lear seems to equate two tasks: understanding what a child really means, and justifying a psychoanalytic interpretation of what the child meant during an adult analysis. Lear's analysis veers back and forth between these goals but finally emerges as primarily a rationalization for psychoanalytic interpretive practices and claims. It is not the child but psychoanalysis that Lear is attempting to render intelligible. That is a worthy goal, but the net result of Lear's finessing of the issues is the opposite of the intended effect. In undermining one's confidence that psychoanalysis has an evidence-based grip on the child's mental life, Lear unjustifiably and regrettably casts doubt on the credibility of the central psychoanalytic quest for truths about ourselves to which our consciousness is not privy.

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