

## **Rethinking Concept Analysis**

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### INTRODUCTION

Concept analysis has a mixed reputation in nursing scholarship. Since Walker and Avant introduced it in *Strategies for Theory Construction in Nursing* (2005, first edition 1983), textbooks have stated that concept analysis is necessary for theory development. Yet, many commentators have found concept analysis troublesome. Rodgers remarked that it is "not clear" how Walker and Avant's method "actually contributes to further intellectual progression" (Rodgers, 1989, p. 331). After discussing Walker and Avant, as well as Rodgers' evolutionary method, Morse concluded that such methods "fail to produce a useful theoretical base" (Morse, 1995, p. 32). Paley concurred that concept analysis is "an arbitrary and vacuous exercise" (Paley, 1996, p. 578). Ten years later, after reviewing techniques for concept analysis, Hupcey and Penrod concluded that "the potential contribution of concept analysis on the evolution of nursing science has been constrained" (Hupcey & Penrod, 2005, p. 205). If these critics are right, then something is wrong with concept analysis in nursing.

### BACKGROUND

The character of concepts is a longstanding issue, both in philosophy and nursing (Rodgers 2000b). One of the outstanding questions is how concepts relate to theories. Concepts are sometimes called "the building blocks of theory" (Walker & Avant, 2005, p. 26), and

published concept analyses often suggest that concepts can be fruitfully developed prior to any significant theorizing. This idea has been criticized in nursing (Paley, 1996; Rodgers, 1989, 2000b) as well as philosophy (Quine, 1953; Wittgenstein 1953). According to these critics, concepts are "theory-formed" rather than "theory-forming" (*cf.* Morse, 1995, p. 42). This idea of "contextualism" is often expressed with Carl Hempel's image of concepts as knots in the net of scientific theory (Hempel, 1966, p. 94). As knots cannot exist without the cord, concepts cannot exist without the context. Paley opts for the related image of concepts as "niches" within theory (Paley, 1996, p. 575). Whatever the metaphor, the underlying idea is that concepts get their content from context. Contextualism played an important role in the development of concept analysis in nursing. Wilson's method (1963) was the first used by nurses, and it presupposed that context determined word meaning. When it was adopted by nurse theorists, the method was transformed and the commitment to contextualism was elided. Contemporary concept analysis thus sits uneasily between the idea that concepts are theory-formed (contextualism) and the idea that they are theory-forming (building blocks).

The philosophical questions about concept analysis are both epistemological and ontological. According to some commentators (Hupcey & Penrod, 2005; Paley, 1996), the fundamental problem with published concept analyses is that there is a very weak relation between the evidence and the result. This raises epistemological questions: What *is* the evidence for a concept analysis, and how should concept analyses be justified? This essay will argue that these questions can best be answered by reaffirming the idea that concepts must be related to contexts like theories, discourses, or speech communities. The ontological consequences of this form of contextualism have been the subject of a recent dispute. Hupcey and Penrod (2005) have argued that contextualism entails a moderate realist ontological framework. In response,

Duncan, Cloutier, and Bailey (2007) have argued that contextualism requires a relativist, context-bound ontology. Once the relationship of contextualism to the epistemology of concept analysis has been made clear, this ontological dispute can be resolved.

Many discussions of concepts and concept analysis have been committed to the idea that concepts are contextual (Duncan et al., 2007; Hupcey & Penrod, 2005; Paley, 1996; Rodgers, 1989, 2000b). Others have either been committed to a view of concepts as prior to theories, or have been ambivalent among the possibilities (Walker & Avant, 2005; Morse, 1995). This essay will recommend a renewed commitment to contextualism by arguing that if it is adopted, then concept analysis and development can be put on a more robust epistemological and ontological footing.

## DATA SOURCES

This essay uses historical and philosophical methods to critique arguments found in the nursing literature. The project began by analyzing the arguments in widely cited books and essays about concept analysis. Historical influences on these key essays were traced through their bibliographies. Google Scholar was used to identify subsequent publications responding to the key essays. Finally, arguments concerning the epistemology or ontology of concept analysis were evaluated in the light of philosophical literature on concepts and word meaning.

## DISCUSSION

### *Wilson's Method*

In *Thinking with Concepts* (1963), Wilson intended to popularize a method that was common among the so-called "ordinary language philosophers." This mid-twentieth century school held that philosophical problems were often the result of linguistic muddles. Therefore,

prior to answering the deep questions about, say, freedom or moral responsibility, philosophers should get clear about the meaning of words like "free" or "responsible." To do so, ordinary language philosophers emphasized a careful analysis of how words were commonly used. Their work made two presuppositions. First, conceptual content is closely related to (if not identical to) word meaning. Second, ordinary language philosophers generally held that "the meaning of a word is its use in the language" (Wittgenstein, 1953, p. 20). It follows from these two assumptions that clarity about concepts required attending closely to the use of words. By "use," the ordinary language philosophers meant the utterance of a word as part of a sentence in a particular context or situation. Situations where a word was naturally used must exhibit attributes of the word's meaning. If speakers refrained from using a word in a situation, preferring a contrasting word, then the situation must lack some attribute necessary to the word's meaning. Ziff framed the idea in terms of such contrast: the meaning of a word is the difference it makes to the use of a sentence (Ziff, 1960). To state the meaning of a word, then, is to articulate the difference between those situations where we are inclined to use the word and those where we are inclined to refrain.

Wilson's method of concept analysis relied on the ideas of the ordinary language philosophers. His method recommended developing examples (cases) designed to highlight the difference a word makes to the use of a sentence. In nursing, Wilson's cases are sometimes treated as if an analyst could choose to use some kinds of cases without others. This is a misunderstanding of Wilson, and the philosophical background of ordinary language philosophy shows why. The model case is an example where the word is naturally and commonly used. For example, an analysis of the concept of an "ache" might begin with the model case of Sally, who has had a dull, throbbing pain in her wrist for a half hour. It would be natural to say "Sally has an

ache in her wrist." The problem is that every feature of the model case is a possible defining attribute, including Sally's gender, or the fact that the pain is in her wrist. The problem is to narrow down the list, and this can only be done by finding more examples. Additional model cases are a first step. Gender and location can be eliminated as possible features by finding other model cases where the protagonist is male and has a pain in his tooth. Model cases all alone, however, cannot identify the *difference* that the word makes to the use of the sentence. Identifying difference requires examples where the word would not be used. A contrary case for "ache" would be one where Sally is free from pain. This shows that being painful is a necessary attribute of the concept of an ache. Related cases show that the pain must have a certain character. If Sally had only a quick flash of pain, it might be a "twinge" or "prick," but not an "ache." The contrary and related cases thus work to identify difference, and must therefore work along with the model case to isolate a set of candidates for attributes.

Epistemically, the cases form the evidence for a concept analysis. The function of evidence is to justify a belief or theory. In a Wilsonian concept analysis, the object is to create something like a dictionary definition. Dictionaries show that words typically have many different uses. Sometimes the differences are small, and we speak of different senses of a single word (*e.g.* the physical and emotional senses of "comfort"). Sometimes the differences are large, and the dictionary says that there is not one word, but a set of homonyms (*e.g.* at least three different words are spelled "bank"). A good Wilsonian concept analysis will identify the different uses, sort these into senses of the word, and articulate a definition. The definition will be justified insofar as it accounts for the whole range of examples. A good concept analysis should explain why the model and contrary cases are clear, as well as why we hesitate in the borderline cases.

*Walker and Avant's Transformation of Wilson's Method*

Wilson's method was intended to help clarify concepts that were in common, colloquial speech. Walker and Avant wanted to use concept analysis in their strategies for theory construction, and this motivated one important change in method. Scientific literature had to be made relevant. Walker and Avant thus recommended a broad review of sources: "dictionaries, thesauruses, colleagues, and available literature" (Walker & Avant, 2005, p. 67). Scientific literature is important, they said, but the literature review should not be restricted to "just nursing and medical literature" (Walker & Avant, 2005, p. 67). By itself, this modification of Wilson's method is salutary. Wilson's method put the speaker in a privileged position, as if he or she was the ultimate authority on a word's meaning. But speakers may be idiosyncratic, and words may have well established uses of which the speaker is unaware. So, a comprehensive review of literature is good advice. A problem arose when they presented concept analysis as a process of eight steps, beginning with a literature review, determining the attributes, and only then working through Wilson's cases (Walker & Avant, 2005, p. 65). Readers took this to be a linear process (in spite of Walker and Avant's advice to the contrary). In many published concept analyses, the defining attributes are identified before the discussion of cases. Wilson's cases are thereby transformed from evidence into illustrations. Treated as illustrations, Wilson's cases add little or no substance to the analysis. As a result, the most common modification to Walker and Avant's method is to reduce the number of cases or eliminate them entirely (Chinn & Kramer, 1999; Morse, 1995; Rodgers, 1989, 2000a; Schwartz-Barcott and Kim, 2000).

The practice of concept analysis in nursing, then, turns Wilson's method upside down. Wilson's cases were supposed to be evidence that justified the choice of defining attributes. The literature review replaced the cases, but there was no account of how the literature was supposed

to support the particular attributes. By turning Wilson's cases into illustrative examples (or worse, eliminating them entirely), the nursing methods of concept analysis created a gap between evidence and result. Paley (1996) and Hupcey and Penrod (2005) have pointed out that one of the chief weaknesses of published concept analyses is that the author never justifies the choice of defining attributes. The reader is left wondering why the concept has these attributes and not others. The transformation of Wilson's method explains why published concept analyses are so weakly supported by the evidence. The source of the problem is that, after Walker and Avant, the methods provide no guidance for how the attributes are to be justified. It is no wonder that concept analysis seems an arbitrary and vacuous exercise.

#### *Epistemological Foundation of Concept Analysis*

The central idea of Wilson's method is that a concept analysis is justified by a pattern of usage in a particular context. The gap between evidence and result was created when the commitment to contextualism was lost, and this happened with Walker and Avant applied the method to scientific literature. One tradition, starting with Rodgers (1989), continuing through Paley (1995), and re-expressed by Hupcey and Penrod (2005), held that scientific concepts are contextual in just the same way as ordinary language concepts. For a scientific concept, the context of use is a theory or related group of theories. To articulate the meaning of a scientific term, then, one needs to look to the difference it makes to the theory: the pattern of inferences, observations, and practical interventions that the term enables. The justification for a concept analysis in a scientific context is, therefore, largely the same as the justification for the analysis of a colloquial term. In both cases, the evidential basis for a concept analysis is a pattern of use, and a particular analysis is justified if it accounts for that pattern. The specific difference is that

scientific concept analyses need to attend to the scientific usage of a word, while colloquial analyses may rely on a broader range of uses.

If the content of a concept depends on the context of use, as contextualism holds, then when the context of use changes, the meaning must change too. This idea is a cornerstone of Rodgers' "evolutionary method" (Rodgers, 1989, 2000a). While she emphasizes the way in which concepts and theories change together over time, the point also applies to different contexts at the same time. For example, the word "depression" is used in the DSM-IV, weather forecasting, economics, and in common speech. These contexts are independent insofar as the use of "depression" in one domain may change without corresponding changes in the others. Moreover, as Hupcey and Penrod point out (2005, p. 198), when a term is part of a scientific theory, it is often explicitly defined and its implications are restricted. Scientific concepts are thus more precise than their colloquial counterparts, and when similar terms appear in different theories, they may have different meanings. Since psychology and meteorology are very different contexts, they support different concepts of "depression," even though they use the same word. It is therefore a mistake to indiscriminately mix literary, colloquial, and scientific sources. By failing to attend to contextual differences, authors dilute their evidence base to the point that it is impossible to justify any selection of attributes. A "tropical depression," a psychological "depression," the "Great Depression," and a "depression in the grass" have no more in common than a vague sense of going down. A concept analysis that does not carefully attend to a specific context of use is robbed of its power to justify a nuanced analysis.

#### *Ontological Consequences of Contextualism*

Contextualism has some ontological consequences that have recently been dispute in the nursing literature. Duncan, Cloutier, and Bailey have argued that the contextual character of

concepts implies a "relativist ontological perspective" (2007). Duncan et al. explicitly contrast this relativism with the "moderate realism" adopted by Hupcey and Penrod in their work on concept analysis (Hupcey & Penrod, 2005). Both sides of this debate agree on the fundamental premise that "concepts are assigned meaning through placement within the context of theory" (*cf.* Duncan et al., 2007, p. 296; Hupcey & Penrod, 2005, p. 199). Their dispute is about what this premise entails.

Hupcey and Penrod describe their "moderate realism" as a commitment to the "probable truth" of scientific theories (2005, p. 201). The notion of "truth" deployed by Hupcey and Penrod makes their view a form of realism. On their view, the statements of a theory can be true or false only if the concepts represent some mind-independent objects. A strong or absolute form of realism would hold that the truth or falsity of theoretical statements is determined solely by the way things are, and that an objective scientific method will guarantee truth. The anti-realist view holds that truth is "a construction of those who experience a given phenomenon at a given point in time" (2005, p. 200). Hupcey and Penrod's moderate realism occupies a middle ground between these extremes, and it does so in two ways. First, they invoke the "probable" truth of scientific theory. To say that the truth of theories is "probable" rather than "absolute" is to admit that scientific inquiry is fallible. At any given time, we judge our theories to be true, but we recognize that they may be overturned by future evidence. Second, they affirm the importance of context for conceptual meaning. This means that when theories are changed, the concepts take on new meaning. Scientists decide how to construct theories, and thus determine the meaning of the concepts, but they do not thereby determine the truth of a theory. On a moderate realist view, "probable truth transcends individual experience" (Hupcey & Penrod, 2005, p. 201).

Duncan, Cloutier, and Bailey (2007) argue that Hupcey and Penrod are part of a realist tradition of concept analysis that is at odds with contextualism. They argue that the realist tradition of concept analysis arose because Walker and Avant attempted to "transcend context, and thereby accommodate the requirement of a product useful for empirical work" (2007, p. 297). After Walker and Avant, they argue, methods of concept analysis stripped concepts from their context and attempted to provide definitions that are free from entanglement with any theory: "The outcome of [Walker and Avant's] analysis is fixed truth; concepts as measurable variables that ideally are knowable outside of context and function in a realist research world" (2007, p. 297). Realism, Duncan et al. argue, requires concepts that are not contextual. Only then can scientific methods demonstrate that a theory is true or false in a realist sense of "truth."

The key to Duncan, Cloutier, and Baley's argument is their claim that realism and contextualism are inconsistent. Realism holds that theories are true when they correctly represent a mind-independent reality. Realism therefore requires a distinction between representations (words, concepts, propositions, or theories) and the things represented. Contextualism says that concepts get their content from a context, which may be a theory or colloquial use. Contextualism tells us something about representations, not the things represented. It is therefore consistent to hold that the content of a concept is fixed by the theoretical context, but once fixed, it represents something. It follows that as the theory changes, what gets represented changes. This is part of what Hupcey and Penrod are expressing in their "moderate realism." When new evidence undermines a theory, it is taken to be an inaccurate representation of a mind-independent reality (*i.e.* false). When the theory is modified and its concepts change, something new is thereby represented. If the new theory is supported, it is provisionally taken as an accurate representation (*i.e.* probably true). Contrary to Duncan et al.,

realism and contextualism are fully consistent. Therefore, contextualism does not entail relativism.

Once we have understood why realism and contextualism are consistent, a stronger link between them appears. If concepts are "knots" or "niches" within larger contexts, then the only way to change concepts is to change the context. Where the concepts are scientific, the larger context is a theory. Theories change when they are tested. Even abstract theories or conceptual models are indirectly supported by evidence and should be developed in the light of empirical investigation. Contextualism about meaning thus entails that the only way to develop scientific concepts is to test theories. A theory can be supported (or undermined) by evidence only if its propositions are taken to be true or false, and this, in turn requires that the concepts represent something real. Therefore, if nursing is to develop its concepts, a commitment to contextualism *requires* a commitment to moderate realism.

#### IMPLICATIONS FOR NURSING

A concept analysis makes a pattern of usage explicit. Because nursing concept analyses are intended to contribute to theory development, the scientific pattern of use is important. As we have seen, there are significant differences between the scientific context and the context of colloquial speech. This difference leads Hupcey and Penrod to conclude that concept analysis should be restricted to scientific literature:

[W]e assert that the purpose of concept analysis is to determine the state of the science (or best estimate of probable truth) surrounding the concept of interest. Thus, concept analyses are concerned with scientific literature, not creative imagination, art forms, fiction, interview data, or any other form of representation. (Hupcey & Penrod, 2005, p. 205)

This conclusion will be troublesome to nurse scholars who pursue qualitative research.

Interviews are the backbone of all qualitative methods. When a researcher conducts interviews, the goal is to understand how the subjects experience or conceptualize some domain. Attributing a world of meaning (which always includes concepts) to a person or community on the basis of patterns found in interviews is part of any interview-based method. Where the researcher is trying to discover the subjects' conceptions, the researcher is doing a form of concept analysis. Therefore, excluding interviews and similar sources from the evidence for concept analysis would make qualitative research impossible.

Hupcey and Penrod probably did not mean to exclude qualitative research. The apparent exclusion arises because they focused on scientific concepts. To resolve the problem we need only remind ourselves of the importance of context. The context for a scientific concept is a theory or group of theories. When an interviewer explores the concepts of a community, on the other hand, the context is their everyday speech. This difference in context suggests that we should recognize two forms of concept analysis. Each has its own purposes and kinds of evidence. The first, "theoretical concept analysis," aims to represent concepts as they appear in particular scientific literatures, and the relevant evidence must be restricted to scientific literature. The second, "colloquial concept analysis," aims to represent the concepts of a particular group of people. Evidence of what people say and do, including formal interviews, participant observation, casual speech, or imaginative literature, is relevant to these analyses. (Notice that these are forms of analysis, not methods. Choice of methods is determined by the needs of the particular study.)

*Theoretical Concept Analysis*

To make the meaning of a scientific concept clear, a theoretical concept analysis must make explicit both the theoretical role of the concept and its relation to observation or practice. Again, the meaning of a term or concept is the difference it makes in the context. For a scientific concept, this means answering questions like: How is the term defined in the theory? Is it used to define other terms? What predictions or explanations does the concept make possible that would be impossible otherwise? In what causal generalizations or descriptions of patterns does the concept appear? If the theory has immediate practical application, how does the use of the term make a difference to what is done? An explicit formulation of the meaning of the term will make its theoretical contribution and application to observation and practice clear. In so doing, the analyst will, as Hupcey and Penrod say, determine the state of the science surrounding the concept.

One of the challenges of theoretical concept analysis is to choose an appropriate domain of discourse. To avoid ambiguities, the analyst should choose a domain that promises to be coherent and yield an informative set of attributes. If the concept is widely used, the data for the analysis may include a broad range of theories from different disciplines. However, the analyst must remain alert for differences among the scientific uses of the concept. Even within one discipline, theories might use a term in different ways. Within nursing, for example, the concept of coping has been treated slightly differently in different theories. A good theoretical analysis of "coping" would isolate these differences and determine whether there is one concept or many concepts of coping in nursing theories. Identifying such differences is an important kind of theoretical progress. By making the differences explicit, the theories can be more rigorously

compared and evaluated. Left unrecognized, such ambiguities make studies incommensurable and applications impractical.

Theoretical concept analysis is primarily useful for making the content of an existing theoretical concept explicit. When its content is clear, the nurse researcher will be able to judge whether the theory is applicable to nursing phenomena and whether it is consistent with other theories. Ultimately, however, the goal of nurse researchers is to develop solutions to nursing problems. This means that the theories will have to be modified, and changing the concepts is a part of theoretical change. Theoretical concept analysis contributes to theory development by clarifying conceptual materials that nurse theorists will rework for their own ends.

#### *Colloquial Concept Analysis*

The object of colloquial concept analysis is to characterize the concepts prevalent in a particular community, typically a community of nurses or nursing clients. Colloquial concept analysis thus focuses on people, where theoretical concept analysis focuses on literature. To capture the appropriate context, the colloquial analyst needs to delimit a target population. If the analyst is concerned to understand, say, adolescents' concept of "depression," it will not be helpful to ask health professionals; the teenagers must be interviewed. Focus groups and interviews are appropriate resources for colloquial analysis. Wilson's method was intended as a way of identifying concepts in the context of common speech. The addition of focus groups or interviews expands the data available for the analysis, as does the exploration of literature and imagery that is read or produced by the target group. While the range of examples is broader and the details of the method different, the underlying philosophical principles are the same as Wilson's.

Colloquial concept analysis faces several unique challenges. First, colloquial concepts are unlikely to have the clear definitions found in scientific theories. Everyday concepts can be fluid and vague. Indeed, cognitive psychologists have found evidence that human concepts are not structured by necessary and sufficient conditions. Rather, humans tend to think in terms of paradigms, exemplars, or family resemblances (for a discussion of this literature as it relates to concept analysis, see Paley, 1996 and Rodgers, 2000b). The colloquial analyst thus needs to take care not to force the analysis into an artificial form. Second, while words are shared, the meanings may differ among communities. The analyst thus needs to consider whether there are sub-groups within her population that might have different ways of thinking about the phenomenon. There is no reason, for example, to suppose in advance that all nurses think about "caring" in the same way. Pediatric nurses in urban hospitals may have one concept, while nurse practitioners in rural clinics have another. In any concept analysis, the existence of conceptual similarities and differences is something to be discovered, not presupposed. Finally, the colloquial analyst has to be alert for contested concepts, where sub-groups have a stake in the way something is represented.

Once we identify the purpose, methods, and evidence for colloquial concept analysis, it becomes clear that it is not much different from some of the best qualitative research in nursing. Ethnography, phenomenology, and grounded theory often aim to uncover how some nurses or nursing clients conceptualize their environment. The usefulness of colloquial concept analysis is thus very similar to the value of descriptive, qualitative research. In addition, colloquial concept analysis can be a first step toward extracting the knowledge embedded in nursing practice. We are often unaware of the full extent of the patterns in our speech and behavior (Wittgenstein 1953, Ziff 1960), and nurses successfully respond to situations in ways they cannot fully express

(Benner 1984). A colloquial concept analysis makes explicit such implicit regularities, thus uncovering new concepts for theory development.

### *Mixed Analyses*

Theoretical and colloquial concept analyses have distinct goals and evidence. They are, nonetheless, compatible, and some of the more sophisticated forms of nursing research require both. Many nursing phenomena are patient-centered in the sense that how the patient feels, thinks, or responds is a central part of what is being theorized. In symptom management, for example, the patient's way of conceptualizing a symptom will be important for its expression, evaluation, and mitigation. In order to understand the phenomenon, the theorist will need to know how the patients are thinking about it and responding to it. Clearly, this phase of the research will require colloquial concept analyses. At the same time, concepts like "depression" or "pain" have been developed within scientific theories that do not begin from the patient's point of view. Many nursing phenomena have a biological, psychological, or sociological dimension. A theoretical concept analysis is likely to show that meaning of, say, pain in a neurological theory is much different than the meaning of pain to a patient. Nursing theories of pain cannot afford to ignore either the neurological or the patient-centered concepts of pain. Nurse scholars thus face the profound challenge of developing theories that encompass both the subjective and physical character of phenomena like pain. Using both theoretical and colloquial concept analyses, nurse theorists can begin to forge new concepts (in new theories) that do justice to the whole phenomenon.

## CONCLUSIONS

Concept analysis, whether theoretical or colloquial, articulates concepts that already have a home in some domain: in scientific theories, among people in a community, or both. Concept analysis is thus merely a phase of the concept development process. It makes existing concepts explicit objects of reflection, and this is especially important where theories are being borrowed and modified. Nurses have also found that where theory does not yet exist, it is useful to start with the knowledge embedded in nursing practice. Colloquial concept analysis (often as part of a qualitative research project) is one way to make this knowledge explicit. Whether colloquial or theoretical, concept analysis is never an end in itself; it is a means toward theoretical development. Contextualism entails that if concepts are to be developed, they must be embedded within theories, and these theories must be tested. The evidence for concept development is therefore nothing more (or less) than the evidence for theory development. We keep those concepts that are parts of well confirmed and useful theories, and when theories are changed, the concepts change. Therefore, neither concept analysis nor concept development is an independent form of nursing research. Both are adjunct to theory development. If nursing is to develop mature concepts, the emphasis must be on the testing and subsequent modification of theories.

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