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Abstract

"Normalized legal drafting" has been defined as "a mode of expressing ideas in statutes, regulations, contracts, and other legal documents in such a way that the syntax that relates the constituent propositions is simplified and standardized." Although many legal academics over a number of years have asserted that there are many benefits to be obtained through use of the principles of normalized drafting in the enactment of legislation, surprisingly only one formal empirical study has been reported that indicates that the theory of normalized drafting may provide for the effective enactment of legislative policy. This paper examines the subject of normalized drafting from an empirical perspective and investigates the ability of current research to contribute to scientific understanding of legislative drafting. A framework to enable future research to achieve this goal is presented.

Keywords

Bill drafting

THE STATUS OF NORMALIZED DRAFTING: THE NEED FOR THEORY BUILDING AND EMPIRICAL VERIFICATION©

BY PETER ZIEGLER*

"Normalized legal drafting" has been defined as "a mode of expressing ideas in statutes, regulations, contracts, and other legal documents in such a way that the syntax that relates the constituent propositions is simplified and standardized."

Although many legal academics over a number of years have asserted that there are many benefits to be obtained through use of the principles of normalized drafting in the enactment of legislation, surprisingly only one formal empirical study has been reported that indicates that the theory of normalized drafting may provide for the effective enactment of legislative policy. This paper examines the subject of normalized drafting from an empirical perspective and investigates the ability of current research to contribute to scientific understanding of legislative drafting. A framework to enable future research to achieve this goal is presented.

I. INTRODUCTION

The theory of normalized drafting as advocated by Allen, Orechkoff, and Engholm appears capable of improving the quality of the representation of the legislative intention as reflected in enacted legislation.[1] These academics have asserted that the

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[1] See for example, L.E. Allen, "Symbolic Logic: A Razor-Edged Tool for Drafting and Interpreting Legal Documents" (1957) 66 Yale L.J. 833; L.E. Allen & G. Orechkoff, "Toward a More Systematic Drafting and Interpreting of the *Internal Revenue Code*: Expenses, Losses, and Bad Debts" (1957) 25 U. Chi. L. Rev. 1; and more recently, L.E. Allen & C.R. Engholm, "Normalized Legal Drafting and the Query Method" (1978) 29 J. Leg. Ed. 380; and, C.R. Engholm, "Logic and Laws: Relief from Statutory Obfuscation" (1976) 9 J. L. Ref. 332.

normalized drafting approach provides a straight-forward and logical means for the representation of legislation and regulations. Based on this original research, further investigation and application has indicated the apparent usefulness of the techniques in the automation of the drafting process, and in the development of intelligent systems for the law.[2]

Although conceptual developments in this field have arisen,[3] only one academic journal has empirically verified the technique involved.[4] This lack of empirical verification implies that researchers will be unable to ascertain whether the theory of normalized drafting can explain or predict with respect to its subject matter of application. Therefore, the usefulness of a normalized drafting approach must be open to doubt.[5] In fact, several researchers have questioned the basis and applicability of normalized drafting techniques. For example, as long ago as 1972, Boyd, in an in-depth article investigating the integration of computers and law, claimed that there were "difficulties and disadvantages associated with the approach."[6]

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[2] See for example, a series of three articles by C.G. de Bessonet, "A Proposal for Developing the Structural Science of Codification" (1980) 8 Rutgers Computer & Tech. L.J. 47; "An Automated Approach to Scientific Codification" (1982) 9 Rutgers Computer & Tech. L.J. 27; and "An Automated Intelligent System Based on a Model of a Legal System" (1984) 10 Rutgers Computer & Tech. L. J. 31. See also, Edwards & Barber, "A Computer Method for Legal Drafting Using Propositional Logic" (1975) 53 Tex. L. Rev. 965.

[3] See the research of C.G. de Bessonet, *ibid.*, for his extensions of Allen's normalized drafting techniques to include semantic processing of conditions, together with a refinement of normalized drafting techniques for the syntactic representation of legal rules.

[4] L.E. Allen & C.R. Engholm, "The Need for Clear Structure in 'Plain Language' Legal Drafting" (1980) 13 J. L. Reform 455.

[5] The motivation, and underlying basis, for this paper arose out of an article by Vessey & Weber, "Research on Structured Programming: An Empiricist's Evaluation" (1984) IEEE Trans. Software Eng. 397. These researchers observed that while there is significant academic and practitioner support for a theory of structured programming within the discipline of computer science (which, at a higher level of abstraction, can be considered analogous to the techniques of normalized drafting within legislation), there has been a lack of detailed theory development, and few empirical studies have been undertaken that unequivocally support the usefulness of the approach.

[6] W.E. Boyd, "Law in Computers and Computers in Law: A Lawyers View of the State of the Art" (1972) 14 Ariz. L. Rev. 267. The author claims at 278-79:

As Robson implies when analyzing drafting deficiencies within legislation, the subject of legislative drafting must be considered as an empirical science.[7] Consequently, for any normative theory of legislative drafting to be of benefit it must enable cost-effective improvements in the practice of legislative drafting. Ultimately, if the theory of normalized drafting and its various extensions does not provide for such cost-effective improvements in legislative practice it should be discarded and other avenues for improvement investigated.[8]

In this paper the theory of normalized drafting (as defined originally by Allen[9] and subsequently extended and articulated by other researchers) is examined from an empirical viewpoint. The paper attempts to demonstrate that the normalized drafting approach to legislation is in need of empirical verification. The objective is to determine the type of problems that are faced by empirical

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> success depends on the willingness of members of the legal profession to learn and use the language of symbolic logic. Given the notorious reluctance of lawyers to assimilate new techniques, the prospects of getting them to learn a new language would appear dim at best. Apart from this important practical difficulty, it is not clear that the law can or ought to be reduced to precisely stated implicative-normal form rules which assume there is only one correct statement of and answer to a particular question.... Whatever legal "rules" are ... it is not apparent that they can be stated in "normal" form without distorting their meaning, concept and content.

[7] See Robson, "Legislative Draftsmanship" (1946) 17 Pol. Q. 330 at 342. Some researchers may dispute this assertion. See for example, Bennion (formerly one of the Parliamentary Counsel in Great Britain), "A Computer Experiment in Legislative Drafting" (1975) 6 Computers & Law 8 at 8 who implies that legislative drafting is an "art form" based on experience and heuristics rather than a scientific or theoretical basis.

[8] It is acknowledged that it may still be premature to evaluate the usefulness of the technique in the light of current research being conducted by researchers into the computerization of the legislative drafting process based on normalized drafting techniques. See for example, C.G. de Bessonet (1984), *supra*, note 2; J.A. Sprowl, "Automating the Legal Reasoning Process: A Computer That Uses Regulations and Statutes to Draft Legal Documents" [1979] A.B.F.R.J. 1; C.G. de Bessonet, "Automated Retrieval of Information: Toward the Development of a Formal Language for Expressing Statutes" (1979) 6 So. U. L. Rev. 1; J.P. Finan, "LAWGICAL: Jurisprudential and Logical Considerations" (1982) 15 Akron L. Rev. 675; J.T. Welch, "LAWGICAL: An Approach to Computer-Aided Legal Analysis" (1982) 15 Akron L. Rev. 655. Research currently being performed may lead to cost-effective improvements in legislative drafting practice as either a direct or indirect result of the investigations undertaken.

[9] See L.E. Allen, *supra*, note 1.

researchers in their investigation of normalized drafting techniques, indicate why these problems have arisen, and suggest how they might be remedied, at least in part.

The paper is presented as follows. Section II briefly outlines the theory of normalized drafting and its extensions, and evaluates its ability to provide clearly defined hypotheses with respect to the impact of normalized drafting on the syntactic and semantic representation of the legislative intention. Section III considers the type of hypotheses that have been frequently proposed. In particular, their ability to contribute toward understanding or prediction with respect to the drafting task is examined. Section IV then discusses the kinds of empirical investigation that will facilitate the achievement of this aim, together with certain problems that are likely to be encountered in the performance of any empirical research undertaken. Finally, Section V provides a brief summary of the major conclusions of the paper.

II. THE THEORY OF NORMALIZED DRAFTING

In order to consider empirical verification of normalized drafting theory it is first necessary to have an understanding of the nature of the theory – only through this understanding can major hypotheses be generated and meaningfully evaluated. That is, without detailed knowledge of the theory of normalized drafting it is impossible to either develop understanding or make predictions with respect to the legislative drafting task.

To date, normalized drafting theory has followed two major directions. The first direction, which is identified for convenience as the "syntactics stream," has provided the basis for the second research direction which is identified below as the "extensions stream." The syntactics stream is typified by the work of Allen, Engholm and Orechkoff, and more recently, Edwards and Barber.[10] Normalized drafting, in this original form, can generally be defined

[10] *Supra*, notes 1 and 2.

as the use of symbolic logic[11] to draft and analyze the syntax of legal statements. Professor Layman Allen first explored the use of this technique in 1957 to identify ambiguities, inconsistencies, and redundancies within legal documents.[12] He found a close relationship between the connecting words and phrases such as "and," "or," "not," "unless," and "provided that," commonly found within statutes, and other legal documents, and the logical operators of symbolic logic. He asserted that use of "unless" and "provided that" lead to unnecessary syntactic ambiguity between sentences, and to a lesser extent, within sentences. Professor Allen claims that the logical operators, "and," "or," "not," "if ... then ...," and "if and only if ... then ..." can be used to reduce this syntactic ambiguity.

The syntactics stream, therefore, aims to establish, for example, that any statute can be drafted using specific rule formulations,[13] or that a statute written based on these rule formulations can be demonstrated to be syntactically consistent.[14] While these researchers implicitly hypothesize with respect to the impact of normalized drafting on the representation of the legislative intention, they do not appear to have explicitly defined these hypotheses as principles of interaction connecting use of normalized drafting techniques with bench marks that can be used to evaluate the legislative form enacted. Therefore, from an empirical perspective, their research does not enable experiments to be performed that examine the impact of normalized drafting on the cost-effective representation of the legislative intention in an enactment.

The extensions stream, on the other hand, endeavours, to a limited extent, to demonstrate how the application of normalized

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[11] A concise and clearly presented treatment of symbolic logic can be found in N. Rescher, Introduction to Logic (New York: St Martin's Press, 1964). For a more advanced treatment of the topic, see R.B. Angell, *Reasoning and Logic* (New York: Appleton-Century-Crofts, 1964).

[12] See L.E. Allen, *supra*, note 1.

[13] The predominant rule formulation is the "if-then-else" form rather than a general rule followed by exceptions, exceptions to exceptions, and cross-references to other rules.

[14] See for example, L.E. Allen, "Analysis of Law by Symbolic Logic," in R.P. Bigelow, ed., *Computers and the Law* (Chicago: Commerce Clearing House, 1969) 167 at 167-68; and P.B. Maggs & C.G. de Bessonet, "Automated Logical Analysis of Systems of Legal Rules" (1972) 12 Jurimetrics J. 158.

drafting techniques, as currently articulated, potentially impacts both the syntactic and semantic representation of the legislative intention.[15] The extensions stream has, therefore, extended the research of the syntactics stream and thereby adopted a more systematic and comprehensive approach to the representation of legislation. However, to this point, insignificant headway has been achieved from the original extensions made to normalized drafting theory some six years ago.[16]

Care must be taken to distinguish between the many assertions pertaining to the impact of normalized drafting (irrespective of whether research is defined within either of the above two streams) on the drafting of legislation, and models that accurately express associations among the factors considered relevant. Without doubt, a perusal of academic journals indicates that there are no fully developed models which, for example, account for why, for a normalized and a non-normalized enactment containing the same decision rules, "[s]tudents using normalized versions of the statutes answered questions about 20 percent faster and about 30 percent more accurately than they did using the original text of the statutes."[17] However, the foundations for this type of model have existed for a number of years. As indicated above, the underlying basis for normalized drafting techniques, the if-then-else statement, is in the discipline of symbolic logic. Originally, the techniques of symbolic logic were applied in the field of mathematics.[18] They were then applied and developed in the context of psychological

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[15] See for example, C.G. de Bessonet, *supra*, note 2.

[16] C.G. de Bessonet, "A Proposal for Developing the Structural Science of Codification," *supra*, note 2, appears to be the first researcher who considered both the syntactic and semantic representation of legislation using normalized techniques. Subsequent research has more fully articulated these ideas and related the underlying concepts to the production of statutory texts that are capable of being processed intelligently by computers.

[17] L.E. Allen & C.R. Engholm, *supra*, note 1 at 396 where the authors use normalized and non-normalized sections of the U.S. *Internal Revenue Code*. Allen and Engholm in their later 1980 study, *supra*, note 4 at 470, observe, in the context of what has become known as the New York Plain Language statute, that even greater differences in accuracy may be achieved (up to 80%) although with no differences in time taken.

[18] See for example, Post, "Formal Reduction of the General Combinatorial Problem" (1943) 65 Am. J. of Math. 197.

research[19] and in the area of complexity theory[20] in the 1950s and 1960s. More recently, a close derivative of the underlying theory has been applied in the field of computer software design and representation.[21] Research from this latter area has indicated that the if-then statement form in software programmes enables programmers to better understand the logic of program code.[22]

There is a significant difference, however, between the development of casual hypotheses derived from symbolic logic and the various contexts in which it has been applied, and models seeking to explicitly articulate the relationship or association between normalized drafting and some quality characteristics for the representation of legislation. Unquestionably, in-depth research needs to be undertaken in this regard. Thornton, for example, identifies two major bases by which the quality of legislation can be assessed: simplicity and precision.[23] Simplicity is said to have the principal qualities of (a) economy; (b) directness; (c) familiarity of language; and (d) orderliness, while precision needs to be considered in terms of (a) choice of words; and (b) sentence structure.[24] A theory must be developed that associates those symbolic logic concepts considered relevant with the quality characteristics presented above.[25] There are two aspects to this theory

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[19] See for example, A. Newell & H.A. Simon, *Human Problem Solving* (Englewood Cliffs, N.J.: Prentice-Hall, 1972).

[20] See H.A. Simon, "The Architecture of Complexity" (1962) 106 Proc. Am. Phil. Soc. 467; and J.G. Miller, *Living Systems* (New York: McGraw-Hill, 1978).

[21] See for example, G.J. Myers, *Reliable Software Through Composite Design* (New York: Petrocelli-Charter, 1975); and E. Yourdon & L.L. Constantine, *Structured Design: Fundamentals of a Discipline of Computer Program and Systems Design* (Englewood Cliffs, N.J.: Prentice-Hall, 1979).

[22] See Tracz, "Computer Programming and the Human Thought Process" (1979) 9 Software - Practice and Experience 127; and Frost, "Psychology and Program Design" (1975) 21 Datamation 137.

[23] G.C. Thornton, *Legislative Drafting*, 2d ed. (London: Butterworth & Co., 1981).

[24] *Ibid.* at 49-55.

[25] Of course, other quality characteristics for the representation of legislation (or other legal documents) can be identified which are equally as valid as those presented in the text. For example, Melville, *The Draftsman's Handbook* (London: Oyez Longman Publishing Limited, 1985) identifies (at 17) three characteristics; viz., clarity, conciseness, and comprehensibility. Readers' preferences for various quality characteristics, however, should

development. First, as an initial step, the nature of the relationships involved must be identified. Secondly, each suggested relationship must be empirically verified. Based on a perusal of academic journals, it can be observed that neither aspect has been sufficiently addressed, with the result that the detailed development of a theory of normalized drafting has not been forthcoming. This conclusion is reinforced by the following examination with respect to normalized drafting hypotheses.

III. NORMALIZED DRAFTING HYPOTHESES

Following on from the above empirical analysis of normalized drafting theory, it must be expected (given the direct relationship between hypotheses and the theories from which they emanate) that detailed, carefully constructed hypotheses generated from normalized drafting principles will not have been developed and evaluated. However, it is considered fruitful to examine the nature of these hypotheses as they enable further understanding of the difficulties involved in developing, and empirical verification of, normalized drafting theory.[26]

Pursuing an empirical perspective, the benefit of a theory can only be evaluated by testing hypotheses generated from that theory. Dubin, in his classical text *Theory Building*, suggests that theories of social and human behaviour address themselves to two distinct objectives, either prediction or understanding, and that in the usual course of events these objectives are not often achieved together as each objective may be attained without reference to the other.[27] In terms of the objective of prediction, Dubin suggests that researchers can either "foretell the value of one or more units making up a system; or ... anticipate the condition or state of a system as a

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not affect the tenor of the arguments presented.

[26] In terms of theory development, it appears that little real progress has been achieved if a comparison is made between J.A. Meldman's 1977 research, "A Structural Model for Computer-Aided Legal Analysis" (1977) 6 Rutgers J. Computers & L. 27 and the most recent research in the area, C.G. de Bessonet, "An Automated Intelligent System Based on a Model of a Legal System," *supra*, note 2.

[27] R. Dubin, *Theory Building*, rev'd ed. (New York: Free Press, 1969) at 18-19.

whole." On the other hand, he defines the goal of understanding as being "knowledge about the interaction of units in a system."[28]

Dubin describes the prediction/understanding paradox in the following terms:

> The disjunction between power of understanding and precision in prediction rests essentially on three factors.
> (1) The development of a model as a system for comprehending a limited realm of knowledge is necessarily bounded, and hence excludes realms of phenomena. This may have the effect of excluding crucial variables that contribute significantly to an outcome [prediction] but not to an understanding of the operation of the particular system being analyzed.
> (2) A model may be a deliberate oversimplification of a range of phenomena that makes for better understanding of the simplified realm but cannot directly generate precise predictions.
> (3) The model for understanding may focus on broad relationships among the variables composing it and consequently emphasize such a feature as directionality of relationship, which is not of itself sufficient to determine precision in prediction.[29]

Hence, given that a theory of normalized drafting must be firmly rooted within the fields of social or human behaviour, hypothesis testing should seek to either explain the interaction between variables that comprise the theory, or make predictions with respect to those variables. At present researchers appear to adopt neither approach.

Viewed from another perspective, as the learned methodologist Blalock observes in *Theory Construction*, it is necessary to develop theories that, on the one hand, are not so abstract or general that they cannot be adequately tested (leading to problems in identification, definition, and measurement of variables), nor, on the other hand, so simple as to be totally inadequate to mirror the real world (trite).[30] Blalock suggests there is a need for "middle range" theories that provide testable hypotheses that instantiate a more general theory.[31]

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[28] *Ibid.*

[29] *Ibid.* at 26-27.

[30] H.M. Blalock, *Theory Construction: From Verbal to Mathematical Formulations* (Englewood Cliffs, N.J.: Prentice-Hall, 1969) at 3-5.

[31] *Ibid.* at 141. Blalock terms these middle range theories "auxiliary theories."

Apart from the need for a theory of normalized drafting to generate testable hypotheses that contribute to an understanding and/or prediction of the drafting task, there is an additional requirement from an economic perspective for hypothesis testing to be performed in a cost-effective manner. That is, only strategic or critical hypotheses should be evaluated to minimize the effort and expense involved in empirical experiments designed to validate the theory.

As Dubin notes:

> In choosing the propositions of a model for empirical testing, it is desirable in the interests of parsimony to select strategic propositions.... The strategic proposition points out where something notable is happening to the values of one or more units [in a theory]. Such notable values readily command attention because they are distinguished from the mundane surrounding values. Therefore, insofar as the theorist-researcher can distinguish strategic from trivial propositions, he is armed with a useful means for zeroing his research attention on critical tests of the model. Whether or not a model will be corroborated or need modification after making the empirical test is more easily determined if strategic propositions have been tested.[32]

Recall that in the previous section it was stressed that many possible relationships are able to be identified within a theory of normalized drafting. As a result many testable propositions may be generated from the theory. Furthermore, each proposition identified may need to be empirically investigated utilizing the numerous metrics that exist for the variables of interest. By way of example, Thornton identified six metrics for the two quality characteristics (simplicity and precision) identified. Obviously, it is critical to first test the strategic hypotheses involved if parsimony is to be attained. It is submitted that normalized drafting theory as currently developed and articulated does not enable understanding of the underlying processes involved in the effective representation of legislation, nor does it assist in the selection of strategic hypotheses to be evaluated. In general, proponents of the theory have sought predictive power, although they have not been particularly successful in this regard either.[33] Researchers have sought to apply the techniques derived

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[32] R. Dubin, *supra*, note 27 at 169.

[33] Following on from the prediction/explanation argument in the text, it would be interesting to examine the numerous claims made for the advantages of normalized drafting and analyze them from this perspective. From an investigation of the academic literature available to the author, it appears that claims with respect to prediction, rather than

from normalized drafting theory instead of, as a first step, determining the soundness of its foundation in the legal drafting context.[34]

In support of the author's arguments, consider first Table 1.

TABLE 1

FRAMEWORK FOR ANALYSIS OF RESEARCH LEVELS OF ABSTRACTION

Phase \ Activity	Development of new Legislation	Amendments to Correct Defects[1]	Amendments to Correct Design Errors[2]	Amendments to Correct Coding Errors[3]
Feasibility Study				
Diagnosis & Requirements Analysis				
Analysis & Design of Legislation				
Syntactic Representation				
Semantic Representation				

Notes:
1. Legislation will have defects if the sociolegal environment has changed since the enactment of the legislation.
2. Design errors will occur where the structure of the rules within legislation is ambiguous, i.e. syntactic ambiguity.
3. Coding errors will occur where the representation of legislative rules is ambiguous, i.e., semantic ambiguity.

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understanding, are made. See for example, C.G. de Bessonet, "An Automated Approach to Scientific Codification," *supra*, note 2, where the author claims that a structural model of a civilian code emerges as a product of attempts to idealize the manner in which code information is communicated. Perhaps this emphasis on prediction indicates that academics/drafters who are primarily interested in results or outcomes dominate the journal literature rather than legal scientists who presumably are more interested in understanding.

[34] Within the Kuhnian thesis of scientific development, many researchers are now undertaking "normal science" within a supposed paradigm of normalized drafting. See further, T.S. Kuhn, *The Structure of Scientific Revolutions*, 2d ed. (Chicago: University of Chicago Press, 1970) especially at 23-42.

The rows depict the major phases within the legislation development life cycle; the columns depict the various legislative activities that can be undertaken.[35] Further dimensions to the matrix could be added in a more detailed analysis. For example, dimensions to represent the complexity of legislation or the manner in which the legislative process is organized or structured. The shaded area in Table 1 represents the part of the legislation development life cycle where normalized drafting techniques could be expected to have an impact.

Consider, now, two levels of abstraction. At a high level of abstraction, assume the legal researcher is trying to articulate theory and generate hypotheses associating use of normalized drafting techniques and various quality attributes of new enactments. For example, the quality attributes and associated metrics described by Thornton may be used.[36] Thus, a legal researcher would investigate the relationships between normalized drafting and economy, normalized drafting and directness, normalized drafting and familiarity of language, etc., and then propose hypotheses based on the model. Using this approach, the focus will be on the shaded part of the first column within Table 1.

From another perspective a legal researcher may seek to develop theoretical models for a particular step within an activity – a cell of the matrix. Once again, at this lower level of abstraction, an attempt would need to be made to identify the various criterion variables of interest and to articulate the relationship between normalized drafting and these variables. For example, for the syntactic representation step in the development of new legislation, an attempt can be made to model the impact of normalized drafting on the understandability of the structure of legislative code.

While research at the column level may add to our predictive powers, it is submitted that, at this time, research at the cell level must be undertaken if legal researchers are to increase their understanding of the impact of normalized drafting and their

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[35] See further, P. Ziegler, *Evaluation of the Legislative Process: A Controls Approach* (Unpublished Ph.D. thesis, University of Queensland, Australia, 1986).

[36] *Supra*, note 23.

aptitude to distinguish the strategic hypotheses involved.[37] As it is not possible to prove this argument an effort is made to illustrate the point by way of hypothetical example. Suppose several replications of an experiment indicate the following outcome: if normalized drafting techniques are utilized in the enactment of a new statute, the total number of labour hours expended by the legislative drafters will be less than the number expended to develop a statute of equivalent quality[38] when normalized drafting techniques are not implemented.[39] Legal researchers would then seek to determine the reason for these results being obtained. To find the solution to this problem, researchers need to identify the laws of interaction or principles of association between normalized drafting and labour hours needed to draft a new statute. Obviously, some complex interactions are potentially involved. A legal researcher may expect that there is a decrease in the time required to produce the syntactic representation of legal rules when normalized drafting techniques are utilized, but may be uncertain that a decreased time period will be required for the semantic representation of those legal rules. It may be that normalized drafting techniques are associated with both increases and decreases in labour hours expended on the drafting phases within the legislative process. If this is correct, use of normalized drafting techniques will not always imply a decrease in the amount of time for the development of legislation. For example, for *simple* enactments it is possible that use of normalized drafting techniques will be correlated with an increased time

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[37] It is not denied that theories can be pathbreaking with respect to their general applicability rather than specificity. However, these theories appear to emanate from an advanced body of restricted theories and empirical findings.

[38] It is acknowledged that it is difficult to obtain objective criteria in order to ascertain the quality of legislative enactments. To date, use of readability measures, such as the Flesch Readability Test (Flesch, *How to Test Readability* (New York: Harper and Bros., 1951)) or the Gunning Fog Readability Test (R. Gunning, *The Technique of Clear Writing* (New York: McGraw-Hill, 1968)) have been considered useful in providing objective, as distinct to subjective, criteria. As to the usefulness of the Flesch Readability Test in the evaluation of the readability of legislation, see Conrad, "A Legislative Text: New Ways to Write Laws" (1946-47) 56 Yale L. J. 458.

[39] To date, the author is unaware of any published research that has addressed this question. This finding is considered surprising given that legislative drafters and supporters of normalized drafting techniques are presumably interested in the identification of cost-effective changes in the practice of legislative drafting.

requirement for the development of legislation while the converse may apply for more complex legislation.

When seeking to solve problems of this type, legal researchers must follow a process of disaggregation utilizing variables at a lower level of abstraction.[40] This disaggregation process should stop when a legal researcher is certain as to the validity of the axioms forming the basis for the general theory and the derived relationships under consideration.[41]

By way of illustration, consider again the previous hypothetical example. To explain why deceased labour hours expended by the drafters on the development of new legislation are associated with the use of normalized drafting techniques, legal researchers may form the following propositions:

> 1. Syntactic and semantic representation are two phases that comprise the development task for new legislation (axiom).
> 2. Decreased labour hours expended on syntactic representation are associated with the use of normalized drafting techniques (axiom).
> 3. Decreased labour hours involved in semantic representation are associated with the use of normalized drafting techniques (axiom).
> 4. Decreased labour hours expended on the development of new legislation are associated with the use of normalized drafting techniques (derivation).

Obviously, if the axioms are correct then the derivation must be also correct.[42] On the other hand, if the axioms of the theory turn out to be incorrect based on empirical verification of the derivation, the legal researcher will need to continue the disaggregation process by identifying new axioms formulated in terms of variables expressed at a lower level of abstraction.

It would appear that the arguments made in support of normalized drafting are not logical derivatives of a carefully constructed theory. No set of axioms and derivations can be

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[40] See generally, M.D. Mesarovic, D. Macko & Y. Takahara, *Theory of Hierarchical, Multilevel Systems* (New York: Academic Press, 1970).

[41] When the axioms of a theory are articulated, the derivations must follow as a logical consequence. If the derivations prove incorrect, assuming the system of logic has been applied correctly, then the axioms must be also incorrect.

[42] H.M. Blalock, *supra*, note 30, argues that an axiom in the empirical sciences (a category to which the subject of legal drafting aspires) should be considered separately from an axiom in mathematics. In this latter field an axiom is a truth statement taken for granted. In the empirical sciences it is only an assumption that is *almost universally accepted.*

identified, with the result that it is impossible to evaluate the axioms on which the claims rest. Furthermore, the claims appear to be made at a fairly high level of abstraction. Thus, even if the theoretical model utilized as the basis for the claims can be determined, in light of the foregoing arguments, the axioms used in the model may be disputed.

By way of further example of these problems, consider the claim made by Allen and Engholm that normalized drafting methods result in statutes that are easier to understand.[43] From an empirical research perspective, this argument is in need of further articulation. Fortunately, Allen and Engholm do indicate two criterion variables they have in mind.[44] They assert that normalized drafting methods enable statutes to be read faster[45] and more accurately than corresponding statutes that are non-normalized.

First, consider the issue of the speed of reading statutes. From an empirical viewpoint, it is uncertain what is meant by speed of reading unless there is a benchmark to provide a standard for reference. Reading speed must be related to a measure or measures of understanding, otherwise the resulting statistic will not be interpretable in any meaningful fashion.

Further, it is uncertain whether Allen and Engholm are concerned with understanding pertaining to the enactment of new legislation (a single column in Table 1) or with respect to all types of legislative activity (four columns in Table 1). If their emphasis is on a single column, it appears possible to identify a theoretical model based on relationships among reading speed, the major precept of normalized drafting – syntactic representation, and understanding of legislation. On the other hand, if their focus is with respect to all four columns of Table 1 (a higher level of abstraction), the validity of any relationship identified within the context of theory appears open to question. For example, it is unclear whether the cognitive processes needed to comprehend the

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[43] L.E. Allen & C.R. Engholm, *supra*, note 1 at 380.

[44] *Ibid.* at 396.

[45] This finding was not obtained in their later 1980 study, *supra*, note 4. Allen and Engholm found that "lawyers, law students and lay persons ... work about 80% more accurately when the statute is expressed in normalized form ... with no significant change in the time taken to analyze and answer the questions." *Ibid.* at 470.

meaning of a statute are the same for new legislative enactments and for legislative amendments to correct defects found within an enactment. If these processes are not the same, it is arguable whether normalized drafting techniques facilitate both types of understanding required.

Next, the issue of accuracy in understanding a statute can be considered. This criterion variable (as was the first criterion variable) is a quality characteristic of the final product of the legislative process (the legislation enacted) rather than the result of each phase of that process. Once again, it is uncertain whether the focus is with respect to the enactment of new legislation (a single column of Table 1), or all types of legislative activities (four columns of Table 1). Given the proposition, it is a difficult problem to determine the underlying theoretical model. Nevertheless, assuming that empirical evidence indicates that the proposition has predictive power, the researcher will be unable to understand why the relationship exists. In order to gain this understanding, legal researchers must disaggregate the process and analyze the impact of normalized drafting on the basis of this "accuracy" variable (howsoever defined) during each phase of the legislative process.[46]

The intent is not to ridicule Allen and Engholm's claim in the above analysis. As has frequently been recognized, theory development in an area usually necessitates the dedicated efforts of many researchers. The above simple analysis suggests, by example, that the benefits claimed for normalized drafting techniques are not clearly articulated. The major reason for this problem appears to be the lack of an in-depth, comprehensive theory for the generation of hypotheses, coupled with research performed at a high level of abstraction which does not enable understanding to be achieved. As a result of these two reasons, empirical researchers must find it extremely difficult to perform empirical experiments that enable understanding of the impact of normalized drafting on the legislative process. Moreover, as strategic hypotheses cannot be isolated, empirical research cannot proceed in a parsimonious fashion.

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[46] For a good example of this tendency, see C.G. de Bessonet, "An Automated Approach to Scientific Codification," *supra*, note 2, where this researcher refers back to the underlying conceptual schemata that form the basis for the representation of the legislative intention. Such underlying schema can be viewed as "part and parcel" of the analysis and design phase of the legislative process in Table 1.

IV. EMPIRICAL RESEARCH DIRECTIONS

As indicated throughout this paper in Sections II and III, empirical research is needed to investigate the effects of normalized drafting techniques on the representation of the legislative intention. It is submitted that this research should proceed in terms of the approach identified in the previous two sections on theory and hypotheses; namely, that the hypotheses tested should be a reflection of the underlying theory, and that the level of abstraction chosen must enable understanding or prediction to result. Therefore, careful controls will have to be exercised over any empirical research undertaken so that only a few factors are allowed to vary, at least in the initial stages of the research.[47] It should be noted at the outset that the conclusions drawn on the status of normalized drafting theory and hypotheses do not augur well for the success of empirical studies that may be undertaken. Nevertheless, it is hoped that the following guidelines and suggestions will enable some progress to be achieved.

A. *Laboratory Studies, Field Studies and Surveys*

Laboratory studies provide the easiest, most straightforward means for the collection of empirical data with respect to legislative drafting.[48] The analysis and design, syntactic, and semantic representation phases in Table 1 can be investigated on the basis of certain quality attributes of legislation that may be identified. Different subject matters dealt with by legislation can be examined,

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[47] As indicated previously in the text, tightly controlled experiments give rise to the question of their practical significance. Ultimately, some type of effect can be produced if enough factors are controlled. It is trite learning to point out that the relative importance of those factors that are controlled versus those that are varied in an issue of real world significance.

[48] See further, L.E. Allen & C.R. Engholm, *supra*, note 4, where the authors used a laboratory study to conduct their investigation.

and different respondent groups can be used.[49] Furthermore, the impact of normalized drafting techniques on different drafting styles (for example, common law compared with continental drafting styles) can be investigated.[50] Depending on the level of abstraction pursued, the results obtained can contribute to either prediction or understanding of the drafting process.

Field studies or surveys, on the other hand, by their very nature, can be undertaken at a fairly high level of aggregation, and are better suited to gathering information enabling prediction rather than understanding. The need for a clearly articulated theory becomes all the more important if these research techniques are utilized in order to enable a logical interpretation to be made as to the information collected. Without this theory the empiricist tests vague hypotheses, is uncertain about the variables of interest, is unclear how variables should be defined, measured and controlled, and has little indication of the strategic hypotheses to test. Further, she will be unable to determine whether further empirical research should be undertaken, whether methodological problems in the study have influenced the results, and whether appropriate questions have been asked. This problem is particularly important with surveys as there are fewer opportunities to obtain understanding in that chances for follow up are more constrained than for field studies. Therefore, questions on survey materials should be specifically directed towards understanding as to why an effect occurs, otherwise surveys can give only a global picture.

Taking into account that there may be difficulties in comparing surveys or field studies based on different respondent populations, using different response scales and the like, some common findings pertaining to the advantages and disadvantages of different drafting techniques should be obtained. As stated previously, it is important to emphasize that the research problem

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[49] L.E. Allen & C.R. Engholm, *supra*, note 1, report that a series of experiments were conducted by Professor Allen over a period of nine years at the University of Michigan Law School using groups of second and third year students who were given problems designed to measure comprehension of various sections of the *Internal Revenue Code* in terms of syntactic representation. It will be remembered that in their later study in 1980, *supra*, note 4, Allen and Engholm used three types of subjects: lay persons, law students, and lawyers.

[50] This type of examination would, therefore, be concerned with at least both syntactic and semantic representation in terms of the phases (rows) identified in Table 1.

should be aimed at an appropriate level of aggregation if meaningful insights are to result.

Finally, one further issue must be discussed that is considered to be of major importance to any empirical research to be performed. It is unclear whether the complexity of legislative drafting skill prevents successful empirical research using a classic experimental approach. It is arguable that legislative drafters frequently use substantially different approaches to solving drafting problems depending on their level of skill, such that manipulating, say, a single factor is unlikely to explain much of the variance in task performance. Thus, it is these differences in approach that need to be controlled, rather than the subject of normalized drafting itself.

Legislative drafting is a process of applying knowledge structures (domains) to a legislative proposal that ultimately results in the language of the legislation enacted. A "knowledge structure" can primarily be considered as a general solution method able to be employed to solve a problem. From a Kuhnian perspective, a knowledge structure (in this context) can be viewed as a "paradigm" of legislative drafting. To date, there appear to be no well-articulated paradigms for the field of legislative drafting. Undoubtedly, legislative drafters have conceptual schemata within which they view any legislative problem, however, the clear exposition of these schemata has not been undertaken. An expert drafters will have a greater understanding of the techniques involved, and will regard specific pieces of legislation to be drafted as being particular examples that can be solved using the general solution method. On the other hand, an inexperienced (novice) drafters may confront the same requirements for legislation and be unable to solve the problem. Newell and Simon distinguish experts from novices in the elaborateness of the knowledge structures possessed by the problem solver.[51] It is widely recognized that legislative drafting is a highly skilled activity. It is contended that no matter how legislative drafters' knowledge bases are structured, their existence and size appears evident. When a high level of skill is required to fulfill a particular legislative instruction, these differences in knowledge structures are likely to account for a large proportion of the variance in performance among legislative drafters.

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[51] A. Newell & H.A. Simon, *supra*, note 19.

Therefore, as legislative drafters possess greatly different skills (differences in knowledge structures), any hypotheses which predict differences in either individual aptitude or task complexity will be extremely difficult to investigate.

Consider, again, the nature of the phases in the legislative process that involve the services of legislative drafters: the analysis and design, syntactic, and semantic representation phases. Without doubt, in order to perform these phases high level skills that have been acquired through experience, rather than by formal instruction, are necessary. Therefore, if researchers seek to ascertain whether modification in some legislative drafting technique has a beneficial impact on the performance of legislative drafting, they must ensure that subjects in their experiments employ the same knowledge structure(s) when undertaking the drafting task. Otherwise, it is impossible to determine whether changes observed in the level of performance are the result of modification to the drafting techniques employed. The underlying problem the researcher is attempting to solve is the extent to which a given drafting technique implements a particular legislative drafting paradigm (howsoever defined). It is submitted that the achievement of scientific progress in legislative drafting necessitates development and dissemination of drafting techniques which instantiate the major paradigms held by legislative drafters. In order for this to occur, these drafting paradigms should be articulated so that drafting techniques can be designed consistent with them. In this manner the paradigm can be controlled so that the features of different drafting techniques can be studied systematically in any empirical research undertaken.

The problem for the empiricist legal researcher then becomes to ascertain whether their subject drafters have homogenous knowledge structures when they undertake a particular legislative drafting experiment. Perhaps the easiest approach for performing this task is through the use of protocol analysis[52] – which, in this context, involves having subjects talk aloud when performing a drafting task and then examining their "protocols" to determine those features that are identical and those which are different. Although it is acknowledged that protocol analysis does not provide the

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[52] See further, A. Newell & H.A. Simon, *supra*, note 19.

complete solution to this problem,[53] it does provide some very useful insights in this regard.

Finally, in light of the methodological difficulties described above, it is necessary to consider the nature of normalized drafting. It is open to debate whether normalized drafting, on the one hand, is an attempt to alter knowledge structures, or on the other, an attempt to improve drafting techniques that implement certain knowledge structures. It is submitted that Allen views normalized drafting as modifying knowledge structures, and that he regards it as the major paradigm in present research in legislative drafting. In the author's view the issue is not beyond argument; and the answer relies, in part, upon the definition of normalized drafting. It may be that implementation issues rather than changes to knowledge structure are being studied when examining normalized drafting techniques. In any event, whenever researchers are modifying a variable regarded as an attribute of normalized drafting, it is essential for them to consider if they are altering knowledge structures. If this is, in fact, the case, it is necessary for legislative drafters, the subjects of the experiment, to be properly trained in the knowledge structure if unequivocal results are to be obtained.[54]

V. SUMMARY AND CONCLUSIONS

In this paper an analysis of normalized drafting theory from an empirical viewpoint has been undertaken. Four major arguments have been advanced: first, that the theory describing the impact of normalized drafting on the legislative process is in an embryonic stage of development and needs further description; secondly, that the absence of a comprehensive theory has prevented the generation of rigourous hypotheses that enable both understanding and prediction of the drafting task to be obtained; thirdly, that until the theory has been better articulated it is not possible to develop

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[53] See for example, Einhorn, Kleinmuntz, & Kleinmuntz, "Linear Regression and Process Tracing Models of Judgment" (1979) 86 Psy. Rev. 465.

[54] See further, L.E. Allen & C.R. Engholm, *supra*, note 4 at 470, where the authors gave to the subjects of their experiments an explanatory memorandum on normalized drafting techniques "intended to familiarize the subjects with provisions written in normalized form and to provide some practice in working with such provisions."

strategic hypotheses and, therefore, perform parsimonious empirical research; and finally, that the lack of empirical work reflects the poor condition of the underlying theory.

The ideas underlying the normalized drafting approach appear compelling. Published empirical evidence, however, is almost nonexistent. Unfortunately, it will not be until the underlying theory is properly developed that empirical verification will be possible, and further progress achieved.