

COMMUNICATIVE FUNCTION AND LINGUISTIC VARIATION
IN STATE STATUTORY LAW

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A Dissertation

Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Philosophy
in Applied Linguistics

Northern Arizona University

May 2023

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ABSTRACT

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Statutory law has the power to create, modify, and terminate legal rights and obligations of everyday individuals. Even so, statutory language remains understudied from an empirical, linguistic perspective, in particular, in relation to the different ways in which statutory provisions modify and prescribe human behaviors. As the interpretation of statutory language is a critical part of the judicial process in the United States, the aim of this study is to provide a detailed linguistic description of statutory language, focusing on patterns of variation between texts serving different communicative functions (e.g., prohibition of actions, authorization of actions).

In order to explore this variation, a framework of *functional types of statutory provisions* was developed in order to classify statutory texts into groups based on the function that they serve. This framework consists of seven functional types of provisions: Duties, Permissions, Impersonal Rules, Operational Definitions, Prohibitions, Procedural Guidelines and Criminal Offenses. 1,000 statutes were sampled from the Arizona State Code, and each subsection of those statutes (i.e., A., B., C.) was classified by the communicative function it served in accordance with the framework. This resulted in a corpus of 2,972 statutory texts organized into seven sub-corpora representing distinct functional types of statutory provisions. The first analysis in the study was non-linguistic, focusing on the description of the relationship between functional types of statutory provisions and ‘titles’ in the Arizona State Code (broad areas of subject matter; e.g., Environment, Public Health, Education). Following this, keyword

and key feature analyses were conducted in order to examine the extent to which functional types of statutory provisions exhibit systematic patterns of lexical and lexico-grammatical variation.

Results from the linguistic analyses indicate that state statutory law is a linguistically varied register, and that some functional types of statutory provisions are more linguistically distinct than others. Criminal Offenses appear to be the most lexico-grammatically distinct, with 11 positive key features and 26 negative key features, many with large effect sizes (measured through Cohen's *d*). This is in contrast to other functional types, such as Impersonal Rules and Prohibitions, each of which have 2-3 key features with small effect sizes. Operational Definitions and Procedural Guidelines are the most lexically distinct functional types, each with over 100 keywords. This is in contrast to the other five functional types of statutory provisions, each of which have fewer than 30 keywords. In addition to this, key features indicate that there is a divide between functional types of statutory provisions that function for description and identification (e.g., Operational Definitions and Impersonal Rules), and those that concern the regulation of human actions (e.g., Duties and Permissions).

Overall, this study demonstrates that there is considerable linguistic variation within the register of state statutory law that can be attributed to the function of the statutory provision. This suggests that those who interpret the law would benefit from considering the influence of communicative function in statutes.

ACKNOWLEDGMENTS

I'd first like to thank my co-chairs and committee members who have guided this dissertation study. Thank you to Jesse, who has had the greatest impact on my experience here at NAU over the past seven years. Jesse believed in me when I didn't, always knew exactly what I needed to hear, and let me keep far too many of his books for far too long (I'm happy to say they've finally been returned). Thank you for introducing me to the field of law and corpus linguistics, and for being both a great mentor and a great friend. Thank you, Doug, for agreeing to co-chair my dissertation, even in retirement, and for giving big picture comments that sometimes boggled my mind, and sometimes inspired light-bulb moments. It has been an honor to work with such a knowledgeable, well-known and well-respected scholar. Thank you, Randi, for being a constant source of encouragement, a positive and enthusiastic mentor, and a great friend. Thank you to Tom for agreeing to try something new and providing much-needed guidance for the legal aspects of my project.

I've always felt incredibly fortunate to be surrounded by faculty at NAU that values personal well-being as much as they value quality research. Along with Jesse, Doug, and Randi, I'd like to thank all of the faculty members whose guidance I've benefited from over the years, in particular, Tove Larsson, Romy Ghanem, Luke Plonsky, Bill Crawford, and Fredricka Stoller.

I was lucky to have the greatest group of classmates to go through this process with. Thank you to Amanda Black for being the greatest friend, confidant and "academic spirit animal" (as she would say), and for reminding me to continue to participate in life outside of academia. Thank you to the rest of the crew: Masha Kostromitina, Larissa Goulart, Kevin Hirschi, and Garrett Larson, for sharing the ups and downs of this process with lots of memes, GIFs, and laughs. Accomplishments are more enjoyable, and disappointments easier to take,

when you experience them with friends. A special thank you to Masha for being here with me since day one, and Larissa for taking my calls with grammar questions at all hours of the day (it was excessive at times).

To my friends and family at home in Los Alamos: Thank you, Carlos, for being a source of support and encouragement that I could always count on, and for reminding me to take care of myself, because “you can’t pour from an empty cup”. Thank you to my sisters, Jeanine and Heather, for accepting me as the absent family member for so many years - I’m back! Thank you to my Bathtub Row family who welcomed me home every summer for the past eight years and sent me off again every academic year with a, “go get ‘em, Mags”.

Finally, thank you to my parents, Blake and Rebecca, for always being interested and invested in my work, and for reminding me at the end of every phone call that I was smart, capable, and resilient. I dedicate my dissertation to you.

This has been both the most challenging and most rewarding experience of my life thus far. I would say that to succeed in a Ph.D. program, all you need is a good support system, resilience, and a sense of humor (this came in handy when I inadvertently titled the final chapter of my dissertation draft, “Synthesis and Confusion”). To borrow some words from Larissa: they say doing a Ph.D. is lonely, but that wasn’t my experience. I’m incredibly grateful for the support system that has surrounded me over the past several years.

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CHAPTER 1

Introduction

1.1 Background

Statutory law is written with the intent of directly altering our norms of social behavior in order to ensure that citizens act in a way that is deemed acceptable by society (Gunnarsson, 1984). While legal discourse encompasses a variety of domains, both spoken and written, and is aimed at a variety of different audiences (general and specialized), statutory law is distinct from other forms of legal discourse in the great amount of power it holds over the everyday lives of private citizens.

Statutes are directly relevant to an individual's everyday life regardless of their familiarity with the domain. Citizens are bound to the legal authority of the discourse whether or not they directly interact with the texts in their lifetime, and are unable to withdraw participation from the domain as they are for other forms of written discourse, legal or otherwise. As described by Bowers (1989), "statutes are written transactions that are a part of the real life of people and have concrete consequences which may be directly observed or experienced" (p. 4).

Furthermore, the public does not have the freedom to interact with or interpret statutory texts as they do other forms of written discourse. While most other forms of discourse are designed with "equalising interpretive opportunity" (Candlin, 1981), in which the audience's interpretation may be one of opinion, argument or request for clarification, this opportunity for public participation is limited in statutory law. Instead, statutes are subject to authoritative interpretation that an entire body of citizens must accept as 'true' and 'real' (Bowers, 1989, p.3). Furthermore, the process of *writing* statutory texts and the process of *interpreting* statutory texts are not undertaken by the same individual. Instead, these tasks are completed by two independent

specialists, the drafter and the interpreter (i.e., judges), who will rarely, if ever, come into contact with one another.

Finally, statutes are unique in that they are not a ‘here today, gone tomorrow’ type of discourse. Once a codified statute is signed into law, reversing it requires a lengthy process that relies upon a group of legislators agreeing on its inadequacy and taking action to either amend or repeal the law. This level of permanence furthers the high-stakes nature of both drafting and interpreting the language.

1.2 Codified statutory law

The present study concerns the narrow register¹ of *codified state statutory law*. Statutes, which are written laws enacted by legislative bodies, begin as bills that are proposed by an elected member of a state house or senate. Typically, these bills are drafted by a draftsman and passed through various committees in the state legislature, where they are subjected to a variety of revisions in order to gain a majority vote. Once the bill is passed by both legislative bodies in identical form, it is signed into law by the governor of the state and added to the state code (the process of becoming ‘codified’). A state code is a compilation of all statutory laws in force in a particular state, organized into ‘titles.’ Each title contains statutes that pertain to a particular subject (e.g., agriculture, public health). State codes are continuously updated as laws come into effect or are repealed.

In the present study, a statute is defined by its *statutory citation* which includes the title number, section number, and the date (e.g., §17-202 (2019)). A statute may comprise a single body of text, or it may be a conglomerate of multiple subsections of text. Subsections generally

¹ In this study, a ‘register’ is understood as a culturally-recognized text variety with overt external indicators of the register category (Biber, 2019, p.44).

pertain to different aspects of the greater topic of the statute. Note the title of Text Sample 1.1 (underlined), which summarizes the content of the statute such that each word is associated with a different subsection.

Text Sample 1.1: AZ Rev. Stat. §8-263 (2019). Order for counseling; administration; enforcement

- A. In addition to or prior to entering a judgment pursuant to article 4 of this chapter, the court may order parents or guardians of a child referred to the court and such child to attend family counseling programs administered by the court pursuant to this article.
- B. The frequency of attendance at the counseling sessions provided for in subsection A, times and locations thereof and areas of counseling to be emphasized shall be as determined by the court. The court may employ personnel and delegate to public and private agencies execution of the family counseling programs. Payment for services necessary to carry out the provisions of this section shall be a county charge to the matching funds as provided in this article.
- C. The juvenile division of the superior court shall inquire into the ability of the minor, his estate or parent, guardian or person who has custody of such minor to bear the charge or expense of conducting counseling sessions provided for by this article. If the court is satisfied that the minor, his estate or parent, guardian or person who has custody of such minor can bear such charge or expense, the court may fix the amount thereof and direct that the minor, his estate or parent, guardian or person who has custody of such minor pay such amount to the clerk of the court on terms directed by the court. (. . .)

Importantly, while the subsections in the statute above (referred to as *statutory provisions* in the present study), may rely upon each other in some small measure for context, they do not rely upon one another to affect change in a human behavior. In this way, the individual statutory provisions (i.e., A., B., C.) are able to function independently of one another.

1.3 Variation in the communicative function of statutes

Statutes are used to achieve certain overarching societal goals or outcomes, such as creating safer communities and maintaining social order. These goals are a work in progress -- each statute signed into law helps to advance these goals in some way. To contribute towards these larger goals, statutory texts serve different *communicative functions*; for example, prohibiting or mandating actions. This is demonstrated in the two statutes below. The communicative function of Text Sample 1.2 is to explicitly prohibit private citizens from carrying out a particular action, while the communicative function of Text Sample 1.3 is to prescribe a duty to a government institution (establishing and administering a statewide program).

Text Sample 1.2: AZ Rev. Stat. §17-308 (2019)

It is unlawful for a person to camp within one-fourth mile of a natural water hole containing water or a man-made watering facility containing water in such a place that wildlife or domestic stock will be denied access to the only reasonably available water.

Text Sample 1.3: AZ Rev. Stat. (2019) §46-193

The department shall develop and implement a statewide program to provide respite care for caregivers of the elderly. The department shall establish guidelines regarding the distribution of monies and respite care services. (. . .)

When a statute comprises multiple independent statutory provisions (as described in Sec. 1.2), each statutory provision typically serves an independent communicative function. This is demonstrated in Text Sample 1.4, below. In this statute, Subsection A authorizes a party to carry out a particular action, Subsection B conditionally prohibits an action, and Subsections C and D

prescribe duties to two independent actors: the court of appeals and the judge of the juvenile court.

Text Sample 1.4: AZ Rev. Stat. §8-235 (2019)

- A. Any aggrieved party in any juvenile court proceeding under this title may appeal from a final order of the juvenile court to the court of appeals in the manner provided in the Arizona rules of procedure for the juvenile court as adopted or approved by the Arizona supreme court.
- B. The order of the juvenile court shall not be suspended and the execution of the order shall not be stayed pending the appeal, except that the appellate court may, by order, suspend or stay the execution of the order if suitable provision is made for the care and custody of the juvenile.
- C. The court of appeals shall give the appeal precedence over all other actions except extraordinary writs or special actions.
- D. The judge of the juvenile court shall appoint an attorney for an indigent party appealing a final order of the juvenile court and a reasonable sum shall be fixed by the court to be paid by the county to the attorney for the appeal.

Communicative function constitutes a ‘situational characteristic’ of the register of statutory law, which, as demonstrated in Text Sample 1.4 above, exhibits a wide range of variation across statutory provisions.

1.4 Communicative function and linguistic variation

Register variation research has demonstrated that there is an underlying functional relationship between the situational characteristics of a register (in particular, the communicative function) and the pervasive linguistic features of that register (Biber, 1988, Biber, 2012; Biber, 2019; Biber & Conrad, 2019; Biber & Egbert, 2023). Bhatia (1983) uses this notion to motivate the examination of legislative discourse as a “specialist discourse variety” apart from other domains of legal language:

“the description of a specialist discourse variety will necessarily be based on the assumption that discourse processes (. . .) vary depending upon contextual and situational factors that are associated with a particular discourse variety, and the communicative purpose it needs to fulfill. It is further assumed that this variation will be largely reflected in the selection and use of features of language” (p. 9)

Similarly, Maley (1987) states that:

“legislative communicative competence links the relevant categories (. . .) of the institutional situation to the linguistic forms (. . .) and reveals the dynamics of the relationship and how situational dimensions influence and even determine linguistic choice” (p. 27)

Importantly, recent developments in register variation research have demonstrated that these “contextual and situational factors” described by Bhatia vary not just between registers (e.g., judicial opinions and statutory law), but between texts, regardless of register membership. It follows that the functional relationship between situational context and linguistic forms will also exist at the text level (Biber & Egbert, 2023). In more explicit terms, this means that where there is variation in the situational characteristics of a text (e.g., the communicative function), there will likely be corresponding systematic patterns of linguistic variation between those texts.

While the register of statutory law exhibits this type of situational variation in the communicative function of statutory provisions, we have yet to explore the influence that this may have on the linguistic characteristics of the texts. Instead, legal researchers tend to frame their inquiries at the title level. As the interpretation of language is at the heart of the judicial

process in the United States, an empirical and systematic evaluation of the relationship between the function of statutory provisions and the associated linguistic structures is long overdue.

1.5 Goals of the dissertation and research questions

The overarching goal of the present study is to expand our current knowledge of the register of statutory law in terms of the relationship between ‘functional types’ of statutory provisions and other characteristics of the texts (both linguistic and situational). The following three research questions will guide the study:

1. Can statutory provisions in the Arizona State Code be grouped into categories representing different functional types?
2. To what extent are titles in the Arizona State Code associated with different functional types of statutory provisions?
3. To what extent does variation in the functional types of statutory provisions correspond with systematic patterns of:
 - a. Lexico-grammatical variation?
 - b. Lexical variation?

This study is conducted in three stages. The aim of the first stage is to create and empirically evaluate a framework that describes the pervasive communicative functions served by state-level statutory law. In the second stage of the study, this framework is used to classify statutory provisions into ‘functional types’ based on the communicative function that they serve. In the final stage of this study, these functional types of statutory provisions are used to conduct a variety of analyses that reveal the extent to which they are associated with patterns of both situational and linguistic variation.

1.6 Organization of the dissertation

Chapter 2 describes the theoretical and methodological approach taken by the present study. This begins with an introduction to the text-linguistic approach to register analysis and a description of recent developments in register variation research. The chapter then describes the situational context of state statutory law and the various functions of legislative texts that past literature has identified.

Chapter 3 describes our current understanding of the language of legislative texts. It begins with a description of the ‘nature’ of legislation with reference to past qualitative, non-empirical literature. The chapter then provides an overview of the body of quantitative research examining legislation, including study aims, linguistic features of interest, and methods employed to study those features. The chapter concludes with a detailed description of a selection of lexico-grammatical features that are considered particularly characteristic of the register.

Chapter 4 describes the methodological steps of the present study. It begins with a description of the compilation of the corpus, including both the construction of CorUSSS (Corpus of United States State Statutes) (Egbert & Wood, 2023) and the sampling process undertaken to compile the corpus for the present study. The chapter then describes the development of the communicative function framework and the process of coding the texts into functional types. The chapter ends with a description of the linguistic annotation of the corpus.

Chapter 5 provides a detailed description of each functional type of statutory provision identified in the present study, including a description of subtypes of these provisions, and numerous sample texts.

Chapter 6 begins with an introduction to ‘titles’ in the state code, followed by a detailed description of the relationship between functional types of statutory provisions and the 47 titles of the Arizona State Code. This chapter will look specifically at the proportion of each title represented by each functional type of statutory provision.

Chapter 7 presents the results of a set of key feature analyses used to describe the pervasive lexico-grammatical characteristics of each functional type of statutory provision. The chapter ends with a synthesis of these findings and an analysis of the patterns of lexico-grammatical variation across functional types.

Chapter 8 presents the results of a set of text dispersion keyword analyses used to describe the ‘aboutness’ of each functional type of statutory provision. The chapter ends with a synthesis of these findings and an analysis of the patterns of lexical variation across functional types.

Chapter 9 summarizes the findings of the study and presents a case study to demonstrate in concrete terms how these findings may be of use to the legal community. The chapter will conclude with a brief discussion of the limitations of the present study and avenues of future research pertaining to both register variation and legal applications.

CHAPTER 2

Theoretical Framework

2.1 Introduction

The aim of the present study is to describe the relationship between functional types of statutory provisions and their associated pervasive linguistic characteristics. As such, this study is situated within the text-linguistic framework, which is a theoretical and methodological approach for studying textual variation. Under the text-linguistic framework, text varieties are described in terms of their linguistic characteristics and various aspects of the situational context in which they occur (Biber, 2012). With this in mind, the chapter will first introduce the text-linguistic approach (Sec. 2.2) and then provide a brief history of situational analysis (Sec. 2.3.1), which is an important methodological step in carrying out a text-linguistic register variation study. This will be followed by a description of the situational context of statutory law with reference to past literature describing the situational context of legislation more broadly (Sec. 2.3.2). The chapter will end with a focus on communicative function, providing an overview of the ways in which past literature has described different functional types of legislative texts (Sec. 2.4).

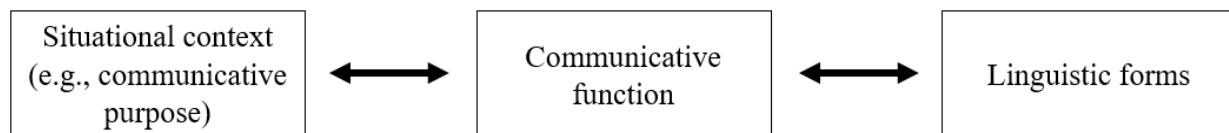
2.2 The text-linguistic approach to register variation

As described by Biber (2019), there are three defining characteristics of the text-linguistic approach that distinguish it from other approaches to studying textual variation: (1) the research goal of describing text types in terms of both situational *and* lexico-grammatical characteristics, (2) the assertion that the situational context has a systematic functional relationship with observed linguistic characteristics, and (3) the assertion that we can describe lexico-grammatical characteristics in a continuous quantitative space (p.44). In regards to the second characteristic,

the approach asserts that linguistic features are frequent and pervasive in certain registers because the situational context of the register requires them to be. In this way, linguistic features are *directly* functional (Biber & Egbert, 2023). Figure 2.1 is a visual representation of this relationship between situational context, function, and linguistic forms, which is the foundation of the text-linguistic approach to register variation (Biber, 2019, p.45).

Figure 2.1

Visual representation of the three-way relationship among situation, function, and linguistic form in the text-linguistic framework



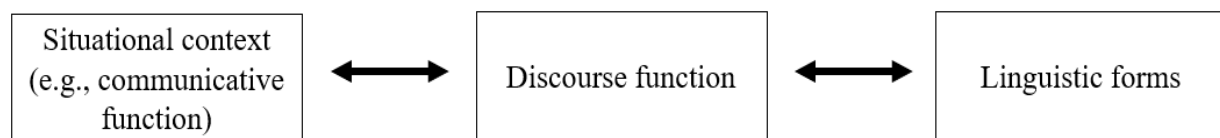
A text-linguistic register variation study involves three major methodological steps: a situational analysis of each text within a register, a quantitative linguistic analysis, and a functional interpretation of the relationship between the situation and the linguistic forms (Biber, 2019, p.53). A situational analysis is used to describe the situational characteristics of the register, including the participants and the nature of their relationship, production circumstances of the texts, and communicative purpose, among others. In the quantitative linguistic analysis, each text is treated as an observation. This allows for the comparison of average linguistic rates of occurrence between registers, and for analysis of the extent to which there are linguistic differences among texts *in* a register (Biber et al., 2020, p.3).

As the goal of the present study is to describe the extent to which texts in the register of statutory law exhibit internal variation (both situational and linguistic), the text-linguistic approach to register analysis is adopted as the theoretical and methodological approach. In accordance with peculiarities of the register of statutory law, this study adopts slightly altered

terminology to describe the functional relationship between situational characteristics and linguistic forms. As previously mentioned, the present study focuses on the *communicative function* of a text, which is traditionally referred to as *communicative purpose* in text-linguistic register variation research. While the word ‘purpose’ is more closely associated with the *reason* that something exists, ‘function’ is associated with what something *does*, or, what it accomplishes. In order to avoid the implication of making judgments about intent or reason in the context of statutory texts, the term *communicative function* has replaced the term *communicative purpose*. Accordingly, the original use of the term *communicative function* by Biber (2019) in the description of the three-way relationship (Figure 2.1) has been revised to *discourse function* for the purposes of this study. The modified visualization of the three-way relationship among situational context, function, and linguistic forms that is adopted in the present study is presented below in Figure 2.2.

Figure 2.2

Modified visual representation of the three-way relationship among situation, function, and linguistic forms



The following section will explore the first methodological step in a text-linguistic register variation study: describing the situational context of a register. A situational analysis includes consideration of all aspects of the context in which the text occurs, and in practice, can be based on a number of aspects, including prior knowledge and observation, expert informants, and previous research (Biber & Conrad, 2019, pp. 37-39). The following section (2.3) will first provide a brief history of the development of situational analysis, which resulted in the

frequently referenced situational characteristics framework put forward by Biber & Conrad (2009, 2019).

2.3 Describing the situational context of a register

2.3.1 The history of situational analysis

The ‘context of a situation’ was first described by Malinowski (1923), and then later developed by Fishman (1972), Hymes (1974), Halliday & Hasan (1978), and Duranti (1985). Hymes (1962) first developed the S.P.E.A.K.I.N.G. model (setting and scene, participants, ends, act sequence, key, instrumentalities, norms, and genre), which posits that in order to speak a language ‘correctly’, one needs to understand the context in which the words are used. In this model, speech is not only governed by linguistic rules, but by the specific context in which it occurs. Hymes (1974) later described a ‘speech situation’ as comprising the components of message form, message content, speaker, hearer, purpose, key, channels, and norms of interaction. According to Hymes (1989), “when the meaning of speech styles are analyzed, we realize that they entail dimensions of participant, setting, channel, and the like, which partly govern their meanings” (p. 444).

Halliday (1978) took the description of the speech situation in a slightly different direction, describing three components of the situational context: the field, the tenor, and the mode. In this model, ‘field’ refers to the ‘total’ event in which the text takes place, along with the purpose of the speaker and subsequent subject matter. ‘Tenor’ refers to roles of the speakers and hearers in the interaction, including the aspects of the relationship between them and the social relations, and ‘Mode’ refers to function, describing the channel and text type (narrative, expository, argumentative, etc.). This would later develop into the Systemic Functional Linguistic (SFL) framework.

At this time, descriptions of the situational context diverged in two directions, one following the SFL concept of field, tenor, and mode, and one influenced by Hymes' (1974) description of a speech situation. The latter approach to the description of language was instrumental in the development of the "situational distinctions" between speech and writing first put forward by Biber (1984). Biber named five situational distinctions: physical channel, cultural use, relation of communicative participants to each other, relation of communicative participants to the external context, and relation of communicative participants to the text (p.31). Citing influence from scholars who had described the situational characteristics of speech events (e.g., Hymes, 1974) and the communicative situation (e.g., Brown & Fraser, 1979), Biber (1988) altered this framework to consist of eight measures of the situational context, many of which included sub-components: participant roles and characteristics, relations among participants, setting, topic, purpose, social evaluation, relations of participants to the text, and channel (pp. 28-29). Based on the framework introduced in the 1988 study and influenced by Hymes (1974) and Crystal and Davy (1969), Biber (1994) proposed an altered framework of situational characteristics that largely influenced many works following. This framework included communicative characteristics of participants, relations between addressor and addressee, setting, channel, relations of participants to the text, purposes, intents, and goals, and topic/subject. In this framework, 'purposes, intents, and goals' included two sub-categories: factuality and general purpose, which included four purpose parameters: persuasion, transfer of information, entertainment, and revealing of the self (p. 44). Biber's (1994) situational characteristic framework was later elaborated on by Biber and Conrad (2009, 2019) in the first and second editions of *Register, Genre, and Style*. Notably, in the second edition, Biber and Conrad (2019) further detailed aspects of the 'purposes, intents, and goals' category, expanding it to include the

sub-categories of general purposes, specific purposes, factuality, and expression of stance. They relabeled this category ‘communicative purposes’ (p. 40).

The situational characteristics framework found in the 2019 version of *Register, Genre, and Style* serves as a model for situational analysis in current text-linguistic register variation studies. The framework includes the following seven characteristics: (1) participants, (2) relation among participants, (3) channel, (4) processing circumstances, (5) setting, (6) communicative purposes, and (7) topic (Biber & Conrad, 2019, p.40). In the following section, this framework will be applied to describe the register of statutory law with reference to past literature describing the situational characteristics of legislative texts.

2.3.2 Situational characteristics of legislative texts

This section focuses on legislative discourse more broadly due to the infrequency with which past literature focuses on statutory law alone. The term *legislation* tends to apply more broadly to various types of written, legally-binding texts in a variety of countries, such as regulations, acts of parliament, directives, and statutes. With this in mind, the literature surveyed in this section represents the scholarly consensus of the situational characteristics of legislation, more broadly.

Bhatia (1987, 1993, 1994) has provided the most thorough and detailed descriptions of the various situational characteristics of legislative discourse. In his overview of ‘language of the law’, Bhatia (1987) describes a number of situational characteristics that are useful in distinguishing certain ‘genres’ of law from others (what the present study understands as ‘registers’):

“[language of the law] encompasses several usefully distinguishable genres depending on the communicative purpose they tend to fulfill, the settings or

contexts in which they are used, the communicative events or activities they are associated with, the social or professional relationship between the participants taking part in such activities or events, the background knowledge that such participants bring to the situation in which the particular event is embedded, and number of other factors” (Bhatia, 1987, p. 227)

After an overarching divide between spoken and written language, Bhatia (1987) makes the distinction between written legal texts that occur in the legislative setting, the judicial setting, and the academic setting (p.230). According to Bhatia, the legislative setting holds texts such as statutory instruments, contracts, and agreements.

Bhatia (1993, 1994) describes the ‘function’ of legislative provisions as generally directive, serving to impose obligations and confer rights, fundamentally setting it apart from legal language in the judicial and academic settings. Similarly, Tiersma (1999) described statutes as documents that “create, modify, and terminate” legal rights of everyday individuals.

In a later description of the ways in which legislative provisions (i.e., statutory instruments, acts) are distinct from other texts in the legislative setting (i.e., contracts, treaties), Bhatia (1993, 1994) focuses specifically on participants as the distinguishing factor. He notes that there are several distinct participants in legislative provisions that have unique roles: the originator of the text (i.e., parliament/congress), the author of the text (i.e., the draftsman), the recipient of the text (i.e., the lay citizen), and the readers of the text (i.e., lawyers and judges) (p.137). Bhatia (1994) comments that the large number of participants in the texts, and the distinct relationships between them, represent a “unique contextual factor” of legislative provisions (p.137). Maley (1987) describes a similar division of roles, noting that while traditional legal theory only identifies “the sovereign” and “the subject” as participants, there are

in fact four participants. On the production side, there is the “source” and the “draftsman”, and on the interpretation side, there is the “audience” and the “interpreter” (p. 31).

In reference to the descriptions provided by Bhatia (1987, 1993, 1994), Maley (1987), and Tiersma (1999), among others, Table 2.1 presents an overview of the situational characteristics of the register of statutory law. This situational analysis is modeled after the framework presented by Biber & Conrad (2019) in the second edition of *Register, Genre, and Style*.

Table 2.1
Situational analysis of statutory law

Participants	• Originator/source (congress) ◦ Single or multiple ‘originators’ for one text • Author (the draftsperson) – multiple or single • Recipient/audience (the lay citizen) • Readers/interpreters (lawyers and judges) (Maley, 1987; Bhatia, 1993)
Relation Among Participants	• Unequal power, high social distance (Maley, 1987), impersonal (Bhatia, 1994, Tiersma, 1999; Williams, 2007) • Specialist → non-specialist, no personal relationship • Non-interactive
Channel	• Written, freely available in electronic format • Generally permanent, but able to be repealed by judicial or legislative intervention
Processing Circumstances	• Planned, debated • Heavily revised, edited
Setting	• Time, place, and time period (sometimes) not shared by participants • Public texts • Time period varied, ranges from historical → contemporary

Communicative function	• To modify behaviors of citizens and prescribing future behaviors in order to ensure socially-acceptable behaviors/actions • Creating, modifying, terminating legal rights (Tiersma, 1999) • To impose obligations and confer rights (Bhatia, 1994) • <i>Varied</i> (presented below in Sec. 2.4.2)
Topic (Title)	• Organized by ‘title’ • Topical content of titles is <i>varied</i>, includes subjects such as the environment, education, taxation, public lands, labor, agriculture, domestic relations, etc.

As previously mentioned, this type of description of the situational context is one of the major methodological steps in a traditional text-linguistic register analysis. These situational characteristics are then analyzed in relation to the frequent and pervasive lexico-grammatical features of the register to describe the functional relationship between situation and linguistic forms.

More recently, Biber and Egbert (2023) have argued that this method of conducting a situational analysis of a register is limited, in part because the descriptions are generalized to the entire register (also see Biber et al., 2020). This method, they argue, disregards the possibility that texts within a register may vary in their situational characteristics (note in Table 2.1., above, that the word *varied* is used in the description of both communicative function and title). As a result, research has, up to this point, overlooked the extensive amount of linguistic variation that exists between texts belonging to the same register.

In light of this, Biber & Egbert (2023) propose a new conceptualization of ‘register’ that highlights the three-way relationship between situation, function, and linguistic forms at the text level. The following section will introduce this new conceptualization of register described by

Biber & Egbert. The section will then provide an overview of research that has adopted this conceptualization, conducting register-internal variation studies.

2.4 Register-internal variation

2.4.1 Functional correspondence

Biber & Egbert (2023) use the term *functional correspondence* to refer to the relationship that exists between situational characteristics, frequent and pervasive linguistic features, and the discourse function of those features at the *text level*, regardless of register membership. Based on this, Biber and Egbert suggest that we conceptualize ‘register’ as a cultural construct which not only allows for, but assumes within-group variation. This is in contrast to a “scientific construct” which assumes homogeneity of all texts within a register. By conceptualizing register as a cultural construct, we can analyze situational and linguistic variation that exists between texts - even if they fall within the same register, or outside of a culturally-recognized register category altogether.

In order for a register-internal variation study to be comparative, the texts within the register must be grouped pertaining to shared characteristics in their situational context. Biber et al. (2019) did just this, coining the term ‘situational text types’ for groups of texts that are defined in terms of their situational characteristics. This means that instead of relying on overt external indicators, texts are grouped in terms of characteristics such as the participants, the relation amongst participants, the medium, the production circumstances, and the purpose of the text.

Thus far, only a handful of studies have taken this approach to register analysis. The focus of these studies has been on variation in communicative purpose (referred to as ‘function’ in the present study), including some form of coding for this characteristic at the text level. One

such example is Biber et al. (2020), who coded web documents for a variety of communicative purposes (among a number of other characteristics), such as *to entertain*, *to sell a product or service*, and *to describe a person, place, thing, or idea*. Biber et al. (2021) coded conversational discourse for communicative purpose, demonstrating that conversations could be split into units that had clear and distinct goals (e.g., *figuring things out*, *giving advice and instructions*). Most recently, Goulart et al. (2022) coded a corpus of university student writing for communicative purposes such as *to explain*, *to compare*, and *to argue*. Goulart (2022) coined the term ‘communicative text types’ to describe types of university student writing that are similar in their communicative purposes.

Informed by this body of literature, the present study takes a similar approach to register analysis in an effort to describe the situational and linguistic variation that exists within the register of state statutory law.

2.4.2 A survey of literature describing functional types of legislative texts

In research examining the function of legislative texts, the construct of ‘communicative function’ has gone by a number of different names, including “illocutionary forces of statutes”, “rule classes of laws”, “legislative rules”, and “legislative speech acts” (see Table 2.2). Bhatia (1994) is the lone scholar to have used the term “function” in relation to legislative writing. Regardless of the variety of names given to this construct, there is general consensus that it displays variation in legislative texts. Table 2.2 presents a summary of this research. The remainder of this section will detail each of these studies in turn and synthesize our current understanding of communicative function in legislative texts.

Table 2.2*Summary of literature describing communicative function of statutes*

Author	Framework and Description
Gunnarsson (1984)	Rule-classes of laws (pp. 84-85): 1. Action Rules a. Right, Duty, Prohibition, Exemption, Recommendation 2. Definition Rules 3. Stipulation Rules
Kurzban (1986)	Illocutionary forces most characteristic of statutory language (pp.15-23) (also cited by Hiltunen, 2012): 1. Permission (conveyed through may) 2. Ordering (shall) - Prohibition (shall not)
Bhatia (1994)	The communicative purpose of legislative provisions (p.137): “To impose obligations and confer rights”
Šarčević (1997)	Regulatory instruments (p.11): 1. Commands 2. Permissions 3. Authorizations
Cao (2007)	Performative legislative speech acts (p.77): 1. Affect institutional position or social status of persons or things 2. Create institutional rights and obligations 3. Prescribe behaviors and prohibitions 4. Process or procedure
Williams (2007)	Structure of prescriptive legal texts (pp. 38-52) 1. Preliminary Provisions a. Preambles, Application provisions, Definition provisions 2. Principal Provisions (mandatory and directory) a. Commands, Requirements, Prohibitions, Permissions, Authorizations 3. Final Provisions
Macagno (2010)	Two broad classes of definitions (pp. 201-202) 1. Statutory definitions – used to establish an unambiguous lexicon with the aim of preventing potential ambiguities 2. Descriptive definitions – used to clarify meaning of a technical term

One of the earliest descriptions of function in legislation was presented by Gunnarsson (1984), who classified Swedish Acts of Parliament into “types of legislative rules.” To describe these types, Gunnarsson introduced ‘rule-component analysis’ in which “the content base of a law-text is described according to its implications in terms of action” (p.84). In this type of analysis, there are three “rule-classes”: (1) action rules, (2) definition rules, and (3) stipulation rules. According to Gunnarsson, action rules include a statement of the action itself, and the possible conditions of that action (p.84). The five types of action rules described by Gunnarsson are rights, duties, prohibitions, exemptions, and recommendations. Gunnarsson also associated each of these types with their own modal verb: *may* (right), *shall* (duty), *may not* (prohibition), *need not* (exemption), and *should* (recommendation) (p.85). Definition rules only encompass the single function: to define (associated with *is meant*). Stipulation rules describe the application of the law, using language such as *shall apply* and *shall not apply* (p.85).

Kurzon (1986) later described the function of legislative texts through a pragmatic lens. Kurzon’s pragmatic perspective was informed by early work from Searle (1969, 1979) and Austin (1975), who described spoken legal speech acts. Kurzon describes the statute as a speech act with illocutionary force that is enacting, and therefore, “performative in form and function” (p.5). The performative, illocutionary forces that Kurzon considered most characteristic of statutes include permitting, ordering, and prohibiting. Like Gunnarsson (1984), Kurzon notes that these illocutionary forces are closely tied to the finite verb found in the main clause: permission conveyed through *may*, ordering conveyed through *shall*, and prohibition conveyed through *shall not*.

In Kurzon’s book chapter titled “The Statute as a Speech Act”, he explicitly argues that a statute does not need to be analyzed as an entire text, but instead, that single sentences in a

statute can have independent illocutionary force (p.15). This argument informed decisions regarding the unit of observation in the present study, in particular in terms of text boundaries (discussed in detail in Ch. 4, Sec. 4.2.3).

Making reference to the early speech act frameworks by Austin (1975), Searle (1979), and Danet (1980), Cao (2007) described ‘performative legislative speech acts’ as those that create institutional rights or obligations, prescribe behaviors and prohibitions, and describe a process or procedure (p.78). Notably, this description of legislative speech acts is the first to identify ‘procedure’ as a distinct function.

While not examining legislative texts through a pragmatic lens, Šarčević (1997) used similar language as Kurzon to describe ‘regulatory instruments.’ In this description, Šarčević states:

“(. . .) it is generally agreed that normative instruments prescribe how members of a given society shall act (*command*), refrain from acting (*prohibition*), may act (*permission*), or are explicitly authorized to act (*authorization*)” (p.11)

Williams (2007), informed by the work of Šarčević (1997), described the “substantive provisions” of prescriptivist legal texts (e.g., regulations, codes, contracts) as those principally concerned with commands, requirements, prohibitions, permissions, authorizations, and procedures (p.45-50).

Definitions in legislative provisions have been given a fair bit of attention independent of the other functions as they have proved instrumental to the integrity of legal documents. According to Macagno (2010), definitions are used for two overarching purposes in law. The first purpose is to explain the meaning of an unclear or ambiguous word, and the second is to

attribute a specific meaning to a word (pp. 201-202). Macagno also describes three main ways in which we define words in law, including providing examples, showing fundamental characteristics of the target concept, and listing constituent parts of a denotatum (p. 200). Williams (2007) distinguished between “stipulative definitions” and “explanatory definitions”, the former altering the meaning of words by narrowing or enlarging their sense or by creating a wholly new meaning for them, and the latter not altering conventional meaning (pp.43-46). Williams notes that *is/are* and *is deemed to be* are favored in stipulative definitions, while *means*, *signifies*, and *includes* appear more frequently in explanatory definitions (p. 46) (cf. Šarčević, 1997).

To the best of the researcher’s knowledge, Bhatia (1994) is the only person to have used the word ‘function’ in the description of legislative provisions. In a book chapter about cognitive structuring in legislative provisions, Bhatia states: “The general function of this writing is directive, to impose obligations and confer rights” (pp.136-137). He later appears to describe a more detailed breakdown of function when he writes:

“[legal draftsmen] attempt to define their model world of *obligations* and *rights*, *permissions* and *prohibitions* as precisely, clearly, and unambiguously as linguistic resources permit” (p.137)

The literature presented in this section demonstrates that there is consensus that legislative provisions serve distinct functions. There also appears to be a general consensus concerning the existence of a few particular functional types of legislative provisions, including the following:

1. Rights (Gunnarsson, 1984; Bhatia, 1994; Cao, 2007)

2. Obligations/Commands/Ordering/Duties (Gunnarsson, 1984; Kurzon, 1986; Bhatia, 1994; Šarčević, 1997; Cao, 2007; Williams, 2007, Hiltunen, 2012)
3. Permissions/Authorizations (Kurzon, 1986; Bhatia, 1994; Šarčević, 1997; Williams, 2007, Hiltunen, 2012)
4. Prohibitions (Gunnarsson, 1984; Kurzon, 1986; Bhatia, 1994; Cao, 2007; Williams, 2007, Hiltunen, 2012)
5. Definitions (Gunnarsson, 1984; Gunnarsson, 1984; Williams, 2007; Macagno, 2010)
6. Procedures (Cao, 2007; Williams 2007)

The literature surveyed in this section informed the creation of the communicative function framework adopted in the present study, which will be described in detail Chapter 5.

2.5 Conclusion

This chapter has introduced the theoretical and methodological approach for the present study and described our current understanding of the situational context of statutory law (in particular, pertaining to communicative function). With this backdrop, the following chapter will survey the literature that has described statutory law from a linguistic perspective. It will present both qualitative and quantitative descriptions of statutory law, with a focus on lexico-grammatical characteristics that are considered particularly pervasive by consensus of linguistic researchers.

CHAPTER 3

Linguistic Characteristics of Statutory Language

3.1 Introduction

This chapter presents a survey of the linguistic research that has informed our current understanding of the language of statutory law. At the present time, linguistic literature that has described pervasive linguistic characteristics of statutory law as a register are highly limited in number (Goźdz-Roszkowski, 2011; Wood, 2022). As statutes have frequently been treated as a type of legislative discourse in past research (Bhatia, 1983; Caliendo et al., 2005), this chapter will survey our current knowledge of the language of legislative texts as a whole.

The chapter will first describe the ‘nature’ of legislative texts as presented in past qualitative descriptions of the register (e.g., formal, wordy and exclusionary) (Sec. 3.2). Following this, the chapter will provide an overview of the empirical, quantitative linguistic research describing pervasive lexico-grammatical features of legislative texts, and briefly present trends in both methodology and study goals (Sec. 3.3). Section 3.4 will report on the findings of the quantitative research surveyed in Section 3.3, with a particular focus on the lexico-grammatical features considered most characteristic of legislative writing (Sec. 3.4.1 - 3.4.4). Based on this, Section 3.5 summarizes the trends and gaps in quantitative linguistic research of statutory law, and describes how the present study aims to fill these gaps and add to our cumulative linguistic knowledge of the register.

3.2 The nature of legislative language

This section reports on past literature that has described the ‘nature’ of legislative language. Legislative texts have been described as formal and impersonal (Maley, 1987; Tiersma, 1999; Williams, 2007; Bhatia, 1994; Goźdz-Roszkowski, 2011), ‘archaic’ (Tiersma,

1999; Williams, 2007), and wordy (Tiersma, 1999, Williams; 2007). Also frequently commented on, and related to the latter two characteristics, is the inaccessibility of the texts to the lay population (Williams, 2007; Bhatia, 1994).

According to Maley (1987), the impersonal nature of legislation is largely due to the fact that the natural relationship between a sovereign power and a subject (e.g., the Parliament and the people) is one of authority and social distance (p.40). Linguistically, Tiersma (1999) adds that the impersonal nature of legislation is reflected in the notable absence of particular linguistic features, such as 1st and 2nd person pronouns (p.67), which result the distant tone used often found in legislative documents (Text Sample 3.1). Instead, 3rd person pronouns are favored as they are meant to be of general applicability and are used to address an inclusive audience, including the drafter him/herself (Text Sample 3.2).

Text Sample 3.1: AZ Rev. Stat. §14-4401 (2019)

An adjudication rendered in any jurisdiction in favor of or against any personal representative of the estate is as binding on the local personal representative as if *he* were a party to the adjudication.

Text Sample 3.2: AZ Rev. Stat. §13-3403.01 (2019) (A)

A. *A person* shall not knowingly sell, give or deliver to a person under eighteen years of age any container exclusively containing nitrous oxide (. . .).

The archaic nature of legislation is realized in the use of vocabulary that is no longer a part of ordinary language, and therefore, highly unfamiliar to the lay population (Tiersma, 1999). Legislative texts make frequent use of vocabulary and phrases that are derived from other languages, which is driven by the centuries of Norman influence in English politics, law, and religion (Williams, 2007, p.32). Because of Norman influence, many legal documents were originally drafted in Latin or French; meaning that as a result, English law continues to borrow

hundreds of terms, phrases, and expressions from old and middle English, Latin, and French (Williams, 2007, p.30). Williams (2007) points to ‘Latinisms’ such as *attainder* (the loss of civil rights through conviction for high treason), *ex parte* (on behalf of), and *ratio legis* (the reason for, or principle behind, a law) as being particularly unfamiliar to the lay person (p.32). Other examples of ‘archaic’ vocabulary include *hereinafter* and *aforesaid*, and multiword expressions such as *malice aforethought* and *concurrent tortfeasors* (Williams, 2007).

The wordiness of legislative texts is attributed to the characteristically long-winded sentences. Tiersma (1999) attributes this wordiness in part to the use of phrases in place of simple prepositions or adverbs; for example, ‘at a slow speed’ instead of ‘slowly’ (p.59). He also attributes wordiness to the use of multiple prepositions (called ‘doubling’), which he notes are routinely strung together in legal documents (p.63) (see Text Sample 3.3).

Text Sample 3.3 (preposition doubling):

(. . .) may be fixed or varied from time to time *at and in accordance with* the sole discretion and opinion of the seller, or it’s factor (. . .) (Tiersma, 1999, p. 63)

Wordiness is also attributed to an abundance of coordination. There is a tendency for legislative texts to make frequent use of binomial expressions or multiple conjoined clauses using conjunctions *and* and *or* (see Text Sample 3.4). As stated by Tiersma (1999), “The possibilities of creating tremendously long phrases and sentences by use of conjunctions like *and* and *or* are virtually limitless” (p.62).

Text Sample 3.4: AZ Rev. Stat. §13-3623 (2019) (D)

D. A person who intentionally *or* knowingly engages in emotional abuse of a vulnerable adult who is a patient *or* resident in any setting in which health care, health-related services *or* assistance with one *or* more of the activities of daily living is provided *or*, having the care *or* custody of a vulnerable adult,

who intentionally *or* knowingly subjects *or* permits the vulnerable adult to be subjected to emotional abuse is guilty of a class 6 felony.

The wordiness of legislative language coupled with the use of archaic words directly contributes to what Williams (2007) calls the “exclusive/exclusionary” nature of legislative texts; Further problematic are legal terms of art, which are considered technical words and phrases that have precise and fixed legal meanings. These terms are problematic for the lay person as the legal meaning of such words is often different from the *ordinary* meaning of the word that the lay population might have otherwise understood (Haigh, 2018, p.8). For example, to a lawyer reading a legislative text, the word *distress* will refer to the seizure of goods, while to the lay population, the word will be equated to anxiety or exhaustion. This is why legislative texts have been referred to as “the language of the experts.”

3.3 An overview of quantitative linguistic research

The present chapter will now turn its focus to quantitative linguistic research that has described the lexico-grammatical characteristics of legislative texts. This body of literature contrasts with the literature presented above as it does not aim to describe or comment on the *nature* of legislation, but to identify pervasive lexico-grammatical features through quantitative means.

Table 3.1, below, summarizes this body of literature. For each study in the table, the register of interest, country of origin, goals of the study, target linguistic features, and methods of linguistic analysis are provided. In this body of literature, patterns can be seen in the target registers, the lexico-grammatical features of interest, and the methodology employed in these studies. The first noticeable pattern is a tendency to either combine several registers into a single target domain for analysis, or to analyze a single register without a register of comparison. Those

that have conducted comparative studies most frequently focus on comparisons between texts originating from different countries for the purposes of translation. There are six notable exceptions to this pattern, which focus on register variation (Caliendo et al., 2005; Goźdz-Roszkowski, 2011; Özyildirim, 2011; Breeze, 2013; Asghar et al., 2018; Wood, 2022).

The most common target domain is legislation originating in the E.U. (around 50% of the studies), followed by legislative documents originating in the United Kingdom and the United States. Also represented in the literature are documents originating in Turkey, Sweden, Pakistan, China, Poland, Slovakia, and Japan. Analyses have overwhelmingly focused on single features (in particular, modal verbs and other verbal constructions), and analyses have often relied on frequency counts (~50%).

The following section (3.4) will report on the findings from this body of literature, with a focus on a selection of lexico-grammatical features that are considered particularly characteristic of legislative texts; namely, modal verbs, dependent clauses, multi-word units, and the passive voice.

Table 3.1
An overview of research examining legislation

Author	Registers	Goal of the study	Comparative or single-register description	Origin of texts	Feature(s) of investigation	Method
Gunnarsson (1984)	Acts of Parliament	Examination of plain language	Single-domain	Sweden	Readers, reading situations, purposes, and processes	Comprehension questions
Gustafsson (1984)	Law, (registers not specified)	Linguistic description	Comparative (origin of documents)	U.S., Great Britain	Syntax of binomial expressions	Frequency counts
Foley (2002)	<i>EULEG</i> : Treaties, Regulations,	Linguistic description	Single-domain	E.U.	Modals <i>shall</i> , <i>may</i> , <i>must</i>	Frequency counts

	Directives, Decisions					
Caliendo et. al. (2005)	<i>EUSLEX</i> : Secondary legislation: Decisions, Directives, Regulations, Framework Decisions	Linguistic description	Comparative (register)	E.U.	1) Modal verbs 2) Function words	Frequency counts, Keyword analysis
Andersson (2007)	E.U. treaties and directives, U.K. & Irish statutes, Swedish statutes	Translation, Linguistic description	Comparative (translation)	E.U., U.K., Ireland, Sweden	Modal verbs	Frequency counts
Williams (2007)	Prescriptivist texts: acts, treaties, regulations, resolutions	Linguistic description	Single- domain	U.K., U.S., E.U., Australia, Canada, South Africa, Ireland, New Zealand, U.N.	Verbal constructions	Frequency counts
Jablonkai (2010)	<i>EEUD</i> Corpus: E.U. legal texts (e.g., treaties, regulations, directives), Legislative preparatory documents (e.g., legislative resolutions), Other (declarations)	Linguistic description, Pedagogy	Single- domain	E.U.	Lexical bundles	Lexical bundles analysis
Gibova (2011)	E.U. Legislation: decisions, directives, agreements, and Slovakian translation	Translation, Linguistic description	Comparative (translation)	E.U., Slovakia	Modal verbs	Frequency counts

Goźdz-Roszkowski (2011)	Legislation, academic journals, briefs, contracts, opinions, professional articles, textbooks	Linguistic description	Comparative (register)	U.S.	Variety	Keyword analysis, Lexical bundles, Multi-dimensional analysis
Ozyildirim (2011)	Turkish legislative language (non-legal registers: scientific research articles, newspaper articles, etc.)	Linguistic Description	Comparative (register)	Turkey	Variety	Multi-dimensional analysis
Stravinkaite (2011)	Legislation	Translation, Linguistic description,	Single-domain	E.U. (English & Lithuanian)	Verb-based nominalization	Frequency counts
Breeze (2013)	Commercial law: academic articles, legislation, case law, 'documents' (e.g., contracts, merger agreements)	Linguistic description	Comparative (register)	<i>Not specified</i>	Lexical bundles	Lexical bundle analysis
Williams (2013)	U.K. 'Public General' Acts, Australian Parliamentary Acts, E.U. 'legislative texts'	Linguistic description	Comparative (country)	U.K, Australia, E.U.	Verb phrases	Frequency counts
Biel (2014)	Regulations, Directives, Polish Statutes	Translation, Linguistic description	Comparative (translation)	E.U., Poland	Deontic modals verbs	Frequency counts
Biel (2017)	Regulations, Directives, Polish Statutes	Translation, Linguistic description	Comparative (translation)	E.U.: (England, Poland)	Lexical bundles	Lexical bundle analysis

Sun & Cheng (2017)	Chinese legislative texts, U.S. Code	Translation, Linguistic description	Comparative (translation)	China, U.S.	Variety	Multi-dimensional analysis
Asghar et al. (2018)	Constitutions, directives, acts, articles, legal decisions, ordinances, legal reports, and rules and regulations	Linguistic Description	Comparative (register)	Pakistan	Variety	Multi-dimensional analysis
Pei & Li (2018)	Commercial legislative instruments (laws and regulations)	Translation	Comparative (translation)	China	Modal verbs	Frequency counts
Giczela-Pastwa, (2019)	Polish legal acts, U.K. legislation, translated English corpus	Translation	Comparative (translation)	Poland, U.K.	Multi-word units	Keywords → 3-8-ngrams
Fan (2020)	Chinese legislative texts, translated English version	Translation	Comparative (translation)	China	Modal verbs	Frequency counts
Wood (2022)	U.S. state codes, news articles, encyclopedia articles, historical articles, sports reports	Linguistic Description	Comparative (register)	U.S.	Variety	Key feature analysis
Aricaga (2022)	English-translated Japanese immigration law	Translation	Single-domain	Japan	Sentence length, nominal, complex prep. phrases, bi/multinomial phrases, syntactic discontinuities	Frequency counts

3.4 Characteristic lexico-grammatical features of legislative texts

Features considered particularly characteristic of legislative language include modal verbs, dependent clauses, the passive voice, and a variety of multi-word units (e.g., lexical bundles, binomials). An overview of the use of these four pervasive features in legislation is presented below in Table 3.2. These findings will be described in detail in the following sections (3.4.1 – 3.4.4).

Table 3.2
Overview of pervasive linguistic features of legislation

Linguistic Feature	Studies	Common themes
Modal verbs	Garzone (2011) Foley (2001; 2002) Caliendo (2004) Williams (2007) Cooper (2011) Gibova (2011) Biel (2014; 2017) Yankova (2017)	• <i>Shall</i> is the most frequently appearing modal verb in legislative texts (frequency of <i>shall</i> in <i>EULEG</i> is almost as high as frequency of function words <i>to</i> and <i>and</i>; Foley, 2001) • <i>Shall</i> is used for both deontic and performative uses; deontic expressing obligation of human agents, performative used to express a change in the state of affairs. • Performative uses often appear in definitions. • <i>May</i> is the second most frequently used modal verb in legislative language, predominantly used to express permission.
Dependent clauses	Bhatia (1983) Williams (2007) Goźdz-Roszkowski (2011) Hiltunen (2012) Wood (2022)	• Legislative texts hold a high number of post-nominal clauses in particular (13.45 per 1,000 words; Goźdz-Roszkowski, 2011) • Non-finite dependent clauses are particularly characteristic of statutory language (Wood, 2022) • Syntactic discontinuity is particularly characteristic of laws (Arciaga, 2022) • Adverbial clauses make up $\sim \frac{1}{3}$ of subordination (Hiltunen, 2012)
Multi-word units (e.g., verb phrases, complex preps., binomials, lexical bundles)	Gustafsson (1984) Kjær (2007) Goźdz-Roszkowski (2011) Breeze (2013) Williams (2013) Biel (2015)	• Binomials considered ‘style marker of legal language’; used for technical precision and accuracy • Binomials are 4-5 times more common in legal texts than other registers (Gustafsson, 1984) • A variety of functions associated with complex prepositions in legislative texts (e.g., conditions and hypotheticals, time deixis) (Biel, 2015); type of

	Giczela-Pastwa (2019) Arciaga (2022)	complex preposition varies greatly across type of legislation and origin of texts • Use of lexical bundles represent an extremely high degree of formulaicity and repetitiveness in U.S. legislative texts • Most common structures of bundles are NP + <i>of</i>-fragment, NP + other post-modifier, prepositional phrases (Goźdź-Roszkowski, 2011); most common functions of bundles are legal reference and text-orientation (Goźdź-Roszkowski, 2011) • Most common prepositional phrases include, <i>for the purpose of</i> (Arciaga, 2022)
Passive voice	Williams (2004) Goźdź-Roszkowski (2011) Bulatović (2013)	• Passives frequently used in legislative texts to place emphasis on the action and to define key terms • ¼ of all verbal constructions in legislative texts are in the passive voice (Williams, 2004) • agentless passives and <i>by</i>- passives are particularly pervasive compared to other forms of popular written language (Wood, 2022)

3.4.1 Modal verbs

Modal verbs, in particular, *shall* and *may*, are considered a hallmark feature of legislation. The use of modal verbs has been studied extensively in legislative texts from a variety of different origins, including Japan (Pei & Li, 2018), China (Fan, 2020), and the E.U. (e.g., Lauridsen, 1992; Gibová, 2011; Cooper, 2011). Of the variety of modal verbs used in the English language, *shall* and *may* are the only two modal verbs that are used considerably more frequently in legislation compared to general English (Yankova, 2017, p. 366). In E.U. legislative documents, Biel (2017) found that *shall* accounts for nearly 70% of the modals used to express obligation, clearly preferred over modal verbs *must* and *should*.

Shall is the most frequently occurring modal verb in legislative texts (Hiltunen, 1990; Caliendo, 2004; Williams, 2007; Gibová, 2011). In the European constitution alone, Williams (2006) identified 3,190 instances of *shall*. Caliendo et al. (2005) reported that *shall* had the highest keyness score in a corpus of E.U. secondary legislation when compared to the British

National Corpus (BNC) (p.398), while Wood (2022) found that predictive modal verbs, including *shall*, had one of the highest keyness scores in a corpus of statutes compared to other forms of popular written language (p.30). Gibová (2011) reported that on a word list of E.U. legislative documents, *shall* appeared in the 13th position, following other function words such as *the*, *of*, *and*, and *to*. Similarly, Foley (2001) showed that the frequency of *shall* in the *EULEG* corpus approaches the frequency of words such as *to* and *and*, which Foley commented, “place[s] it squarely among semantically void function words” (p.191).

According to Jespersen (1933), *shall* originally referred to obligation or compulsion, which was carried over from Old English and Germanic words meaning “to owe.” Many have made the distinction between deontic uses and performative uses of *shall* – deontic uses expressing obligation, and performative uses bringing about a new state of affairs or modifying a previous state (Garzone, 2011). Garzone offers the following contrast of deontic uses (Text Sample 3.5) and performative uses (Text Sample 3.6) of *shall* in legislation:

Text Sample 3.5 (deontic use):

The *employer shall*, before the period of two weeks ending with the date of the meeting, *provide* to the trade union any information (. . .) (*Employment Relations Act 1999*) (p.157)

Text Sample 3.6 (performative use):

Consultation undertaken before the passing of this Act *shall constitute*, as effective compliance with subsection (404) as if undertaken after that passing (. . .) (*Pollution Prevention and Control Act 1999*) (p.157)

Deontic use is considered most closely in line with the original use of the word, and most closely related to three widely accepted functions in statutory law: obligation, permission, and prohibition (discussed in Ch. 2, Sec. 2.4.2). However, in *EULEG*, Foley (2002) found that *shall*

was more commonly used in definitions with a performative function, for example, “*for the purpose of this Regulation, ‘participating member states’ shall mean Belgium, Germany...*” (p.368).

May is the second most frequently occurring modal verb in legislative texts, used with two primary meanings: epistemic possibility and deontic permission (Foley, 2002, p.364). These two meanings are demonstrated below in Text Samples 3.7 and 3.8.

Text Sample 3.7 (deontic use):

Notwithstanding the provisions of paragraph 1, each participating Member may take measures (. . .) (Foley, 2002, p.364)

Text Sample 3.8 (epistemic use):

(. . .) which may be necessary in order to: - redenominate in the euro unit outstanding debt issued by the Member State’s general government as defined in (. . .) (Foley, 2002, p.364)

According to Ni & Sin (2011), the modal verb *may* is used almost exclusively to issue permissions in legislative statutes (associated with deontic use), and is most often used to establish the rights of legal institutions (p.379).

3.4.2 Dependent clauses

Dependent clauses are also considered a hallmark feature of legislation. In a register variation study comparing seven registers of legal English to one another, Goźdz-Roszkowski (2011) reported that the highest number of post-nominal clauses were found in legislation (13.45 per 1,000 words). In particular, he reported that *that* relative clauses, *wh*-relative clauses, and the *wh*-relative ‘pied-piping’ construction frequently co-occurred in the register. Wood (2022) also reported that the pied-piping *wh*-relative clause is particularly characteristic of statutory language

(Text Sample 3.9; underlined), alongside non-finite *-ed* and *-ing* clauses (Text Sample 3.10; underlined).

Text Sample 3.9:

A remote claimant has a right of action on the payment bond only upon giving written notice to the contractor within ninety days from the date on which the person did or performed the last of the labor or furnished or supplied the last of the material or rental equipment upon which the claim is made, stating with substantial accuracy the amount claimed as unpaid and the name of the party to whom the material or rental equipment was furnished or supplied or for whom the labor was done or performed. (South Carolina Rev. Stat §11-35-3030) (Wood, 2022, p.40)

Text Sample 3.10:

A mutual bank may, with the approval of the department, establish and operate branches inside the state. Before approving the establishment and operation of a branch office, the department shall make the findings required before the granting of a charter to a mutual bank with respect to the branch proposed. (Alaska Statutes §06.15.290) (Wood, 2022, p.38)

Dependent clauses are often nested within one another in legislative texts (Hiltunen, 2012; Arciaga, 2022) (Text Samples 3.11 – 3.12). Arciaga (2022) states that, in particular, legislative language frequently displays verb discontinuity, as seen below in Text Sample 3.12. Note the lengthy clause that separates the modal verb *may* from the main verb *produce* (**bolded**).

Text Sample 3.11:

A person who, when riding a cycle, not being a motor vehicle, on a road or other public place, is unfit to ride through drinks or drugs, shall be guilty of an offence. (*Road Traffic Act 1972*) (Hiltunen, 2012, p.45)

Text Sample 3.12:

(1) A special permanent resident who has been issued with a special permanent resident certificate which does not bear the place of residence **must**, within 14 days of settling on a place of residence, in accordance with the procedure prescribed by the Ministry of Justice Order, **produce** the relevant special permanent resident certificate (. . .) (Arciaga, 2022, p.60)

This clausal language is functional, according to Bhatia (1993), as every care is taken to include all possible contingencies that may arise in the context of the provision at hand.

According to Bhatia, without these qualification inserts, “the provision is nothing more than a mere skeleton” (p.111).

3.4.3 Multi-word units

Multi-word units encompass features such as complex prepositions (Swales & Bhatia, 1983; Biel, 2015), binomials (Gustafsson, 1984), verb phrases (Williams, 2013), and lexical-bundles (Giczela-Pastwa, 2019).

Binomials, or, common expressions including two terms conjoined by *and* or *or*, have been referred to as “style marker of law language” (Gustafsson, 1984) (Text Samples 3.13 – 3.14). According to Gustafsson, there is a long tradition of the use of binomials in the register because it is often needed for technical accuracy and precision (p.123).

Text Sample 3.13:

(2) Upon the foiling of such petition the court shall have jurisdiction to *affirm or set aside* the order complained of *in whole or in part* (US Law, 192) (p.129)

Text Sample 3.14:

(6) All persons shall be entitled to the *full and equal* enjoyment of the goods, services, facilities, privileges, advantages, and accommodations of any place of public accommodation (. . .) (US Law, 243) (p. 134)

Notable findings from Gustafsson's study of binomials in U.S. and British law include the following: (1) a relatively even split between the occurrence of binomials in independent and dependent clauses (53% - 47%, respectively), and (2) the tendency for binomials to appear in adverbial clauses (50% of the time).

In an analysis of complex prepositions in English-translated E.U. legislation, Polish-translated E.U. legislation, and Polish national law, Biel (2015) identified nine functions of complex prepositions that are pervasive in legislative language. These functions include conditionals and hypothetical patterns (e.g., *in the event of*), text deixis (e.g., *in accordance with*, *pursuant to*), time deixis (e.g., *for a period of*), anchoring and particularization (e.g., *in terms of*, *with respect to*), participative patterns (e.g., *together with*), purpose (e.g., *for the purpose of*, *in order to*), means/instrument (e.g., *by way of*), cause, effect, and reason (e.g., *due to*, *as a result of*), and inclusion and exclusion (e.g., *with the exception of*). Arciaga (2022) found similar sets of complex prepositions in a corpus of translated Japanese law, the two most common being *in accordance with* and *for the purposes of* (p.59).

Lexical bundle analysis is used to identify pervasive lexical patterns regardless of their structure. Biber & Conrad (1999) call them "basic building blocks for constructing spoken and written discourse" (p.188). In an analysis of U.S. legislation, Goźdz-Roszkowski (2011) reported that lexical bundles accounted for one-tenth of the total number of words in the legislation sub-corpus. Furthermore, 54% of the bundles identified were high-frequency bundles, meaning that they occurred over 100 times per million words (p.108). Based on this finding, he stated that, to date, no other text type displays such a large proportion of formulaic expressions (p.132). Goźdz-Roszkowski took this as, "further evidence of an extremely high degree of formulaicity and repetitiveness" in the register (p.101).

Structurally, Goźdz-Roszkowski found that the top three most common structures in legislation were noun phrase + *of* fragment (*the amount of the*), noun phrase + other post-modifier (*the extent to which*), and prepositional phrase expressions (*at the request of*) (p.104). Functionally, Goźdz-Roszkowski found that the two most common bundle types were legal reference and text-orientation. The top three legal reference bundles were procedure-related bundles, institutional bundles, and temporal references, examples of which are provided in Text Samples 3.15 - 3.17, below.

Text Sample 3.15 (procedural-related bundle):

The Act entitled “An Act concerning tonnage duties on vessels entering otherwise than by sea”, approved March 8, 1910 (36 Stat 234; 46 U.S.C. App. 132), *is amended by striking* “through 2002,” and inserting “through 2006” (p.117)

Text Sample 3.16 (temporal bundle):

Discovery in such proceedings shall be permitted *for a period of* 60 days, except for discovery ordered by the Copyright Royalty Judges in connection with the resolution of motions, orders, and disputes pending *at the end of* such period. (p.110)

Text Sample 3.17 (institutional bundle):

Whenever *the Internal Revenue Code* of 1986 provides that the amount excluded from gross income in respect of the discharge of indebtedness in a case under this title (. . .) (p.115)

Breeze (2013) reported that the top three most common bundle structures in a corpus of legislation were content-related noun phrases (*the board of directors*), verb bundles expressing obligation and permission (e.g., *shall be entitled to*), and non-content prepositional phrase bundles (e.g., *in the case of*) (pp. 238-245). Breeze found that over 50% of the bundles in legislation were content-related noun phrases.

3.4.4 The passive voice

The passive voice, used to place emphasis on an action and to define key terms, is also considered highly characteristic of legislative language. According to Williams (2004), approximately one quarter of all verbal constructions in prescriptive legal English are in the passive voice (p.231). Wood (2022) found that both *by*-passive and agentless passive constructions are characteristic of statutory language compared to other forms of popular written language. Bulatović (2013) reported that the passive voice is particularly common in definitions (Text Sample 3.18) and in ‘legislator statements’ concerning the interpretation of documents (Text Sample 3.19).

Text Sample 3.18:

(24) In this section “the relevant time”, in relation to electricity, means the time at which *it was generated*, being a time before *it was transmitted* or *distributed*, and in relation to any other product, means (. . .) (Bulatović, 2013, p.104)

Text Sample 3.19:

(26) *It is hereby declared* that liability by virtue of this Part is to be treated as liability in tort for the purposes of any enactment conferring jurisdiction on any court with respect to any matter (Bulatović, 2013, p.104)

The passive voice is considered so characteristic of legislative texts that it is frequently targeted for modification to improve readability (Friman, 1994; Seracini, 2019; Villata, 2020). Friman (1994) stated that the passive voice is “among the evils to avoid” when attempting to write in Plain English (p.104).

3.5 Our current understanding of statutory language and gaps in the research

This survey of literature has revealed a set of trends and gaps in the current state of our knowledge about the language of statutory law. First, while past research has highlighted the

pervasive use of modal verbs, dependent clauses, multi-word units, and the passive voice in legislative language, there is *very* little research focused on the register of codified statutory law. Of the body of quantitative research presented in Table 3.1 (Sec. 3.2), only two studies described the pervasive linguistics characteristics of U.S. statutory law apart from other forms of legislative writing (Goźdz-Roszkowski, 2011; Wood, 2022). This means that, currently, a majority of our lexico-grammatical knowledge of statutory law is actually based on the larger domain of legislative language, which encompasses the register.

Importantly, we currently have no knowledge of the extent to which, and what type of, linguistic variation may exist *within* the register of codified statutory law. Recent register research has demonstrated that there is a functional relationship between situational characteristics and pervasive linguistic forms at the text level (see Ch. 2, Sec. 2.4.1). While literature as far back as 40 years has shined a spotlight on the variation that exists in the communicative function of statutes, we have yet to consider the influence that this variation may have on the language of the texts.

The present study will fill these gaps by describing the register of codified statutory law in terms of the relationship between communicative function and a variety of other situational and linguistic characteristics. To do this, this dissertation takes on three important tasks:

1. Developing a framework that represents the communicative functions served by codified statutory law
2. Classifying of a sample of statutes by their *functional type* based on the functions identified in the framework
3. Describing patterns of lexical and lexico-grammatical variation that exist between functional types of statutory provisions

The following chapter will present the methodological steps taken in the present study with a focus on the processes used to complete the first two tasks presented above.

CHAPTER 4

Method: Corpus, Communicative Function Framework, Coding, Annotation

4.1 Introduction and Steps of the Study

This chapter will describe the methodological steps carried out in the early phases of the present study, including the compilation of the corpus, the creation of the communicative function framework, the classification of texts by functional type, and the annotation of the corpus. The complete study was carried out in the following six phases:

1. Compile the corpus
2. Develop the communicative function framework and evaluate reliability
3. Classify texts in the corpus into functional types of statutory provisions based on the framework developed in phase 2
4. Annotate the corpus for lexico-grammatical features, check the accuracy of the tags, and tag-fix where needed
5. Investigate the relationship between functional types of statutory provisions and titles in the Arizona State Code
6. Conduct lexico-grammatical and lexical analyses to investigate systematic patterns of linguistic variation between functional types of statutory provisions, including:
 - a. Key feature analysis
 - b. Text dispersion keyword analysis

Section 4.2 will describe phase 1 of the study, in which the Corpus of United States State Statutes (CorUSSS) was built (Egbert & Wood, 2023) and subsequently sampled from to compile the corpus for the present study (Sec. 4.2.1 - 4.2.2). Section 4.2.3 will introduce the unit

of observation for analysis in the present study. Sections 4.3 and 4.4 will describe phase 2 of the study, in which the communicative function framework was developed (Sec. 4.3) and evaluated for reliability (Sec. 4.4). Section 4.5 describes phase 3 of the study, in which the corpus was coded for communicative function to form functional types of statutory provisions, and Section 4.6 will describe phase 4, in which the corpus was annotated for lexico-grammatical features.

4.2 Corpus compiling procedures

4.2.1 Building CorUSSS

The corpus used in this study comprises texts sampled from the Corpus of United States State Statutes (CorUSSS) (Egbert & Wood, 2023), which holds the state code for each of the fifty U.S. states. To build CorUSSS, the 2019 versions of all fifty states' codes (the most recently available at the time) were accessed through *Justia*, which is a legal database providing free access to case law, codes and regulations (<https://law.justia.com/>). To extract the target text from *Justia*, a Python script was written that used a seed URL as a starting point and recursively searched through all pages to identify and follow hyperlinks to lower-level pages. The crawler would stop when it reached a page containing target statutory text, which it was trained to identify by the appearance of the term 'Universal Citation:' (Figure 4.1). A statute's universal citation is unique to it, so training the crawler to identify the target text in this way ensured that the texts were scraped, stored and named in a uniform manner without duplication.

Figure 4.1

Webpage containing statutory text

The screenshot displays the Justia US Law website. The header features the Justia logo and navigation links: Find a Lawyer, Ask a Lawyer, Research the Law, Law Schools, Laws & Regs, Newsletters, and Marketing Solutions. A search bar is located on the right. The breadcrumb trail indicates the current page is: Justia > US Law > US Codes and Statutes > Arizona Revised Statutes > 2019 Arizona Revised Statutes > Title 8 - Child Safety > § 8-116 Court order; contents; form.

The main content area shows the title "2019 Arizona Revised Statutes Title 8 - Child Safety § 8-116 Court order; contents; form". A red box highlights the "Universal Citation: AZ Rev Stat § 8-116 (2019)". Below this, the text of the statute is displayed, starting with "8-116. Court order; contents; form". The text describes the requirements for adoption and the court's role in determining the best interests of the child.

The sidebar on the right contains a "Meet the Next Generation" section with the Justia Connect logo and a "Learn More" button. Below this is a "Free Daily Summaries in Your Inbox" section with a sign-up form and a "Sign Up" button. The "Our Suggestions:" section lists "Arizona Supreme Court", "Juvenile Law", and "US Supreme Court" with checkboxes.

Once the crawler navigated through the layers of hyperlinks and reached the webpage carrying the target text, it scraped all text from the webpage (boilerplate and target text) and stored it in a .txt file. The crawler then returned to the previous webpage, entered the next hyperlink it found, and carried out the same process of scraping and storing texts. All files were titled with the information from the universal citation found on the webpage that the text was scraped from. The state codes were scraped from the website one at a time as it was necessary to tweak the Python script to reflect the language used in the hyperlinks, which often varied from state to state (Egbert & Wood, 2023).

Following this, an additional Python script was used to clean the text files created by the previous crawler. The cleaning process entailed opening each text file and removing extraneous text that was not part of the original statute. This information included webpage boilerplate text such as website contact numbers, ads, and disclaimers. The new Python script also identified and annotated meta-data by inserting brackets around the desired information. The meta-data included the title of the statute, the section of the code in which the statutory text appeared, and the universal citation (Egbert & Wood, 2023). This process was used to create the Corpus of United States State Statutes (CorUSSS) containing the entire state code for all fifty states, and comprising 1,785,742 texts and 421,073,320 words.

4.2.2 Sampling procedure

For the present study, the Arizona State Code was selected to represent the target register of codified state statutory law. Because the texts would be manually classified by their communicative function at a later stage in the study, it was not an option to use the entire set of ~1.8 million texts from the CorUSSS. Instead, the corpus needed to contain a manageable number of texts that could be coded by a single coder in a reasonable amount of time.

Sampling from a single state meant that the texts in the corpus were much more situationally cohesive, which was important in order to avoid introducing unknown or unwanted variables that may exist across states. In addition to this, state codes are organized by subject matter into ‘titles’ (see Ch. 1, Sec. 1.2 and Ch. 6, Sec. 6.1), meaning that narrowing the domain to a single state allowed for the investigation of ‘title’ as a second variable of interest in the study. Taking a balanced sample from each title in the Arizona State Code provided the opportunity to examine the interplay between title and function in the final stage of the study.

The 2019 version of the Arizona State Code consists of 24,211 statutes organized into 47 active titles, each representing different subject matter (e.g., agriculture, elections and electors, property) (see Appendix A for the complete list of the titles in the Arizona State Code). To build the corpus for the present study, a balanced sample of 1,000 statutes was sampled from the 47 titles (~21 statutes per title). One title contained less than 20 total statutes (Title 7), so the entirety of the title was sampled and those statutes were removed from the sampling frame. This left 988 statutes to sample evenly from the remaining 46 titles. The full set of statutory citations for the 1,000 statutes, organized by title, is provided in Appendix B.

4.2.3 Determining the unit of observation

A majority of the statutes sampled from the Arizona State Code comprised multiple subsections. In this study, the individual subsections are treated as the texts for analysis, which will be referred to as *statutory provisions*. Subsections are treated as the unit of observation in the present study for a number of reasons. As discussed in Chapter 1 (Sec. 1.2 - 1.3), each subsection in a statute typically serves an independent communicative function and does not rely upon other subsections in the statute to affect change in a human behavior. Because statutes are conglomerates of functions, to treat the entire statute as a text would mean that the texts could not be coded for a single function. Instead, by treating each individual subsection as a text, communicative functions could be isolated and texts grouped by functional type, which was necessary to fulfill the aims of this study.

In addition to this, the drafters of the statutes are responsible for the organization of the texts. By organizing a statute into subsections, the drafters created natural text boundaries that are meaningful. By adopting the text boundaries created by the drafters of the text, we can trust

that while the unit of observation represents a piece of a larger text, the boundaries themselves are not arbitrary.

As seen in the text samples provided in Chapter 1 (Text Samples 1.2-1.3), not all statutes in the sample comprise subsections. In these instances, the single body of text in the statute is treated as the unit of observation as the subsections are.

The 1,000 statutes sampled from the Arizona State Code comprise a total of 2,972 subsections, which constituted the corpus for the present study. The breakdown of this corpus into sub-corpora representing different functional types of statutory provisions will be presented in Section 4.5 following the description of the coding process.

4.3 Development of the communicative function framework

The communicative function framework was developed in this study for the purpose of classifying texts into *functional types* of statutory provisions. The end goal was to develop a coding rubric with clear and detailed descriptions of each functional type of statutory provision such that an independent coder could use it to classify statutory texts by the function that they serve (e.g., prohibitions, definitions). The identification of these functional types of statutory law was the basis of the analyses carried out in later stages of the study.

The development of the framework took place through the following steps:

1. Read the texts in the corpus, write descriptions of the communicative functions identified ('exploratory coding')
2. Arrive at a preliminary set of functional types, attempt to code new texts, revise the framework accordingly
3. Revise/refine descriptions of the functional types in reference to past literature
4. Conducting pilot coding

While one would normally assume that this process *begins* with access to previous literature (which occurs here in step 3), it was necessary to conduct exploratory coding of the texts as a first step, as the past literature does not pertain to the register of state statutory law, but to a range of other legislative provisions from a variety of different countries (see Ch. 2, Sec. 2.4.2). For this reason, prior classifications were not relied upon as a starting point for the framework. An attempt was first made to develop a framework based on the target texts for the present study, and then reference was made to past literature in order to help develop and refine descriptions of the functional types identified.

In the first step, a sample of texts was taken from the corpus and a description of the functions of the texts were written down. Plenty of liberty was taken in the way these functions were described in order to capture as much detail as possible. These descriptions were sometimes single words or phrases, and other times, sentence-length descriptions. For example, some of these early descriptions of functions in the corpus included: “describing contents of a document”, “describing the composition of a government institution”, and “giving conditional permissions and obligations to government officials”.

Following the exploratory coding, an initial set of functional types of statutory provisions was created by manually grouping texts with similar descriptions. These groups were given names that the primary researcher felt best captured the function of the texts that had been grouped together. A new set of texts was taken from the corpus and an attempt was made to classify them into the existing groups. Based on this attempt, further revisions were made to the framework.

This process took place multiple times. Sometimes the revisions included adding a new functional type to the framework, sometimes this meant simply refining the description of an

existing functional type, and sometimes the revision involved collapsing two functional types into one and modifying the description of new type accordingly. For example, “Role description” (a communicative function that appeared in an early version of the framework) was collapsed into “Duties” when it became clear that the difference between the two functional types was minimal and difficult to capture in their descriptions.

Following several rounds of coding attempts and revisions, the framework was compared to other descriptions of legislative texts offered in past literature (Gunnarsson, 1984; Kurzon, 1986; Bhatia, 1994; Cao, 2007; Williams, 2007; Macagno, 2010; and Fan, 2020) (see Ch. 2, Sec. 2.4.2). Where possible (and logical), adjustments were made to the framework in order to be consistent with past literature, in particular in terms of naming the types. Some of the recurring functional types of legislative provisions in past literature that informed the development of the framework in the present study include: Obligations/Ordering/Duties (Gunnarsson, 1984; Kurzon, 1986; Bhatia, 1994; Cao, 2007; Williams, 2007), Permissions/Authorizations (Kurzon, 1986; Bhatia, 1994; Williams, 2007), Prohibitions (Gunnarsson, 1984; Kurzon, 1986; Bhatia, 1994; Cao, 2007; Williams, 2007), Definitions (Gunnarsson, 1984; Gunnarsson, 1984; Williams, 2007; Macagno, 2010), and Procedures (Cao, 2007; Williams 2007).

The final communicative function framework that was developed comprised seven functional types of statutory provisions, plus an ‘Other’ category. The ‘Other’ category contained texts that either did not clearly fit one of the seven existing types, or could be categorized as more than one of the existing types. The seven functional types of statutory provisions and a selection of sample provisions are provided below in Table 4.1.

Table 4.1*Functional types of statutory provisions*

Type and Description	Sample Subsection
Duties Prescribes a mandatory duty, responsibility or requirement for a human agent(s) or government entity(s).	AZ Rev. Stat. §9-471 (2019) (G) G. The county assessor and the department of revenue, respectively, shall furnish to the city or town proposing an annexation, within thirty days after a request, a statement in writing showing the owner, the address of each owner and the appraisal and assessment of all such property.
Permissions Authorizes human agent(s) or government entity(s) to act. Allows for inaction.	AZ Rev. Stat. §10-2259 (2019) (C) C. A corporation formed under this chapter may amend its articles of incorporation provided that prior to the filing of articles of amendment with the corporation commission the same shall have been approved by the superintendent of financial institutions in the manner and as provided for in section 10-2260.
Impersonal Rules States a general rule or provision that does not directly regulate a human agent or government entity's behavior.	AZ Rev. Stat. §10-701 (2019) (C) C. The failure to hold an annual meeting at the time stated in or fixed in accordance with a corporation's bylaws does not affect the validity of any corporate action.
Operational Definitions Defines a term or phrase from another statute or subsection.	AZ Rev. Stat. §34-603 (2019) (L) L. For the purposes of this section, "professional services" includes architect services, engineer services, landscape architect services, assayer services, geologist services and land surveying services and any combination of those services.
Prohibitions Expressly prohibits human agent(s) or government entity(s) from taking a specified action.	AZ Rev. Stat. §23-373 (2019) (I) I. An employer may not require that documentation under subsection G explain the nature of the health condition or the details of the domestic violence, sexual violence, abuse or stalking.
Procedural Guidelines Describes a process, including the description of the role(s) of one or more human agents or	AZ Rev. Stat. §3-239 (2019) (B) B. If the court finds the seed is in violation of this article and orders condemnation of the seed, it shall be denatured, processed, destroyed, relabeled or otherwise disposed of

government entities in a specific situation or context.	in compliance with the laws of this state. Before the court orders such disposition of the seed, it shall first give the claimant an opportunity to apply to the court for release of the seed or permission to process or relabel it to bring it into compliance with this article.
Criminal Offenses	AZ Rev. Stat. §13-2322 (2019) (A)
Explicitly states that a prohibited action rises to the level of a criminal offense (i.e., felony, misdemeanor)	A. A person or company that owns, sells, leases or brokers a transaction involving property or real property that the person or company knows will be used as a drop house is guilty of a class 4 felony.
Other	AZ Rev. Stat. §12-113 (2019) (C)
Provisions that do not clearly serve one of the above functions, or that serve two or more	C. The supreme court shall administer the fund and may expend monies in the fund, subject to legislative appropriation, for local, regional or statewide projects. The supreme court may directly provide or contract for services consistent with the purposes of the fund. Monies from the fund shall supplement monies already provided to local courts for purposes consistent with the purposes of the fund.

After arriving at the seven functional types seen above, a coding rubric was developed by adding a third column to the framework that described each functional type of statutory provision in more detail, including specific inclusion and exclusion criteria to aid in the coding process. The goal was to create a rubric that an individual with no familiarity with the register of statutory law, or the study, could use to classify statutory texts by their function. Multiple versions of the coding rubric were piloted with the help of outside coders, who attempted to classify a set of sample texts and then provided feedback. This feedback (both verbal and written) was used to refine the description of the functional types and the inclusion/exclusion criteria until the rubric was deemed ready to evaluate for reliability. The complete rubric used to code the corpus will be presented in the next chapter.

4.4 Evaluating the reliability of the coding rubric

To evaluate the reliability of the coding rubric, a second, independent coder was recruited to code a sample of 100 texts. The initial sample of texts was taken at random, and then a few substitutions were made by the primary researcher in order to ensure that all functions were adequately represented in the sample. To train the second coder, they were provided with the coding rubric and instructed to read through it independently. A brief meeting took place following this, in which the second coder was given the opportunity to ask clarification questions about the rubric. The second coder was then asked to code the first five texts independently and explain their coding decisions. This process resulted in perfect agreement for the first five texts, and the second coder coded the remaining 95 texts independently.

When the coding was completed, the two coders met again to discuss coding decisions and potential disagreements. On two occasions, the meaning of the language in the text had been misunderstood by one of the coders and following discussion, agreement was reached. This coding process resulted in a simple percent agreement of 98% and an unweighted Cohen's kappa value of $\kappa=.97$, which is considered 'near perfect agreement' ($>.90$) (McHugh, 2012, p.279). The online Cohen's kappa calculation tool from JASP was used to calculate the kappa coefficient (<https://www.langtest.jp>). Based on the high coder agreement, the coding rubric was adopted for the study.

4.5 Classifying texts into functional types of statutory provisions

Once the framework had been finalized, the corpus of 1,000 statutes was coded for communicative function to form groups representing functional types of statutory provisions. At the time of coding, the corpus was formatted into the 1,000 text files that had been sampled from CorUSSS, each representing a single statute. Each functional type was assigned a unique coding

ID (see Table 4.2) and the symbols were manually inserted into the text files at the beginning of each individual subsection to indicate that subsection's function (Figure 4.2).

Table 4.2
Functional Type IDs

Function	Coding ID
Duties	<*>
Permissions	<+>
Prohibitions	<\$>
Impersonal Rules	<=>
Operational Definitions	<@>
Procedural Guidelines	<#>
Criminal Offenses	<&>
Other	<?>

Figure 4.2
Text file with subsections coded for functional type

```

<2019 Arizona Revised StatutesTitle 4 - Alcoholic Beverages>
<$ 4-201 Licensing; application procedure in city, town or county; burden of proof>
<Universal Citation: AZ Rev Stat § 4-201 (2019)>

<*>A. A person desiring a license to manufacture, sell or deal in spirituous liquors shall

<?>B. A person who files an application for a license within an incorporated city or town
natural person's complete name, street address or post office box address and written or
ther the board should grant or deny the license. The state liquor board may hold a hearing

<#>C. The governing body of the city, town or county shall then enter an order recommendi

<*>D. If a person applies for a license to conduct a spirituous liquor business outside ar

<#>E. On receipt of an application for a spirituous liquor license, the director shall sei
e-mail. The written argument shall contain the natural person's complete name, street addi
untly recommends approval of the license pursuant to subsection C of this section or makes
to the director, as provided in subsections C and D of this section, its order of disappi

<#>F. A hearing may be conducted by an administrative law judge at the request of the boar

<?>G. Except for a person-to-person transfer of a transferable license for use at the same

<?>H. In order to prevent the proliferation of spirituous liquor licenses the department r

<*>I. The board shall adopt, by rule, guidelines that state criteria for use in determini

<?>J. If the governing body of a city or town recommends disapproval by a two-thirds vote

```

Once all subsections were coded for their functional type in the text files, a Python script was written that split the statutes by subsection and stored each subsection in its own text file, along with the associated meta-data from the original statute. The Python script then sorted the new text files into the appropriate directory (based on the symbol assigned to the text) to compile the final corpus for use. In the process of splitting the text files and sorting them into directories, the Python script also renamed files such that each file carried its original statutory citation followed by its alphabetic subsection indicator (e.g., title-6+section-5-601-**A**; title-6+section-5-601-**B**).

The final corpus for the dissertation comprises eight sub-corpora representing the seven functional types of statutory provisions + an ‘Other’ category. The full corpus contains 2,972 texts and 225,781 words, and is presented below in Table 4.3. The lists of citations for the texts classified as each functional type can be found in Appendix C.

Table 4.3
Composition of corpus for dissertation study

Function	No. of texts	No. of words
Duties-Responsibilities	856	53,538
Permissions	505	32,841
Impersonal Rules	375	18,774
Prohibitions	191	11,184
Procedural Guidelines	167	23,277
Operational Definitions	161	22,584
Criminal Offenses	83	4,478
Other	635	59,105
TOTAL	2,972	225,781

4.6 Tagging, Tag-checking and Tag-fixing

Once the corpus was compiled, the Biber Tagger was used to annotate texts for their lexico-grammatical features (see Biber, 1988). The Biber Tagger identifies a larger set of

characteristics than other existing taggers, for example, the passive voice and the gap position in *wh*-relative clauses (Biber & Egbert, 2018, p.22). Using the tagger, words are individually tagged for their part of speech and syntactic dependencies in tag fields separated by ‘+’ symbols to indicate the field (Figure 4.3).

Figure 4.3

Sample tagged text

```
|<2019 Arizona Revised StatutesTitle 1 - General Provisions>
< 1-103 Effective date>
<Universal Citation: AZ Rev Stat  1-103 (2019)>
Each ^dt++++=Each
and ^cc++++=and
all ^rb++++=all
of ^in++++=of
the ^ati++++=the
laws ^nns++++=laws
and ^cc++++=and
statutes ^nns++++=statutes
as ^cs+sub+++ =as
herein ^rb++++=herein
contained ^jj+++xvbn+=contained
and ^cc++++=and
hereby ^rb++++=hereby
enacted ^vwbn++agls+xvbn+=enacted
shall ^md+prd+++ =shall
take ^vb++++=take
effect ^nn++++=effect
and ^cc+cls+++ =and
be ^vb+be+vrb++=be
in ^in++++=in
force ^nn++++=force
on ^in++++=on
and ^cc++++=and
after ^in++++=after
twelve ^cd++++=twelve
o'clock ^rb++++=o'clock
noon ^nn++++=noon
on ^in++++=on
January ^nn++++=January
```

While the Biber Tagger is reported to tag at 90% accuracy for academic written language (Gray, 2015), it has been used to tag statutory language in empirical research relatively infrequently (e.g., Goźdz-Roszkowski, 2011; Wood, 2022; Egbert & Wood, 2023). To the best of the

researcher's knowledge, no one has ever reported precision or recall measures for a tagged corpus of statutory language.

The tag-checking process entails manually evaluating a smaller number of features in each text in order to check the accuracy at which the tagger has identified the lexico-grammatical features. Checking the tags for accuracy includes calculating both a precision score (the rate at which the tagger is correct in the tag it assigns a feature) and a recall score (the rate at which the tagger correctly identifies *all* instances of a feature present in the text). For example, a precision measure will tell us how often the tagger was correct when it assigned a nominalization tag to a word, and a recall measure will tell us the rate at which the tagger identified *all* of the nominalizations that were present in the text. Calculations used for precision and recall are as follows:

$$\text{Precision} = (\# \text{ Correctly Tagged as X}) / (\# \text{ Automatically Tagged as X})$$

$$\text{Recall} = (\# \text{ Correctly Tagged as X}) / (\# \text{ of Actual Occurrences of X})$$

To check the tags, a balanced sample of 42 texts was taken to represent each of the functional types. The allotted number of texts for each functional type was randomly sampled from within each sub-corpus. The texts were loaded into an Excel sheet such that each row represented a single word, and each column represented a tag field (tag1, tag2, tag3, etc.). Following this, the tags of each word were manually checked, one at a time. Indication was made in the Excel sheet if a tag was incorrect (and if so, what the correct tag was), or if a tag had been missed.

Precision and recall scores were calculated for a selection of features, informed in part by past dissertations that used the Biber Tagger to annotate corpora (Gray, 2011; Dixon, 2022; Goulart, 2022). As described in these studies, there is a particular set of features that are

notoriously challenging for the tagger to accurately identify, such as the various uses of *that* (e.g., *that* relative clauses, demonstrative *that*, etc.). In addition to these features, another set of features was selected based on their prevalence in statutory language relative to other forms of popular written language (informed by Wood, 2022) (e.g., pied-piping relative clause, non-finite *-ed* and *-ing* clauses).

Once precision and recall scores were calculated for the selection of features (see Table 4.4, below), features with low precision or recall were re-examined with the aim of identifying patterns that could be used to correct the tags. A number of features were targeted for tag-fixing due to the unique way they are used in statutory language. For example, the words *hearing* and *proceeding* were consistently identified as verbs by the Biber Tagger, but overwhelmingly used as nouns in statutory law. In the Python script written for tag-fixing, these two words, among others, were targeted for revisions to their part-of-speech tag.

Other revisions required the identification of patterns surrounding the target word. Examples of this include a revision to the ‘subordinating conjunctions - other’ tag, and the creation of a new tag for *-ing* complement clauses preceded by prepositions (e.g., *on receiving approval from the board of directors ...*). For the former feature, many occurrences of the word *as* in the role of a subordinator were missed (most often tagged as qualifiers) resulting in low recall for the feature. Because it appeared so frequently in a particular set of formulaic sequences (e.g., *as follows*; *as provided in*; *as provided by*), it was simple to target these particular uses to change the ‘qualifier’ tag to a ‘subordinating conjunction – other’ tag. A tag was created for *-ing* complement clauses preceded by prepositions as this structure is surprisingly common in statutory law. In addition to this, these particular *-ing* clauses are generally missed by the tagger as they are not directly preceded by the noun that they modify. In this case, words were targeted

that: (a) carried the ‘xvbg’ tag (signaling a present progressive verb) and (b) were preceded by a word carrying the ‘^in’ tag (signaling a preposition). The addition of this tag allowed for the identification of unique *-ing* complement clauses such as, *in applying this uniform act...* A selection of other features was also targeted for tag-fixing, including phrasal and clausal coordinating conjunctions, *that* and *wh-* relative clauses (in particular, when coordinated with a preceding relative clause), and specific nominalizations (e.g., ‘nom’ tag removed for the word *subsection*, ‘nom’ tag assigned to the word *failure*), among others.

Once patterns were identified that could be used to correct tags in the corpus, a Python script was written to implement these changes. The Python script would read in the tagged files, use regular expressions to identify the target pattern (or word, such as *hearing*) that was associated with an incorrect tag, and replace the existing tag with the correct one. Once the full corpus was run through the tag-fixing Python script, a new set of 56 texts was sampled to re-test precision and recall.

Tag-fixing was highly successful, overall, with a majority of the precision and recall scores increasing, and only five scores decreasing. In the latter instances, the magnitude of the decrease was quite small, and the overall precision and recall scores for the feature remained satisfactorily high. The precision and recall scores calculated for the tag-fixed corpus are presented in Table 4.4, below. Precision and recall scores that increased following tag-fixing are denoted in blue, and those that decreased are denoted in red. Generally, rates greater than .95 are considered good, while rates greater than .90 are considered acceptable (Gray, 2011).

Once the tags were fixed, the Biber Tagger TagCount program was used to generate normed frequency counts for over 150 lexico-grammatical features (normed per 1,000 words). This was used later in the study for lexico-grammatical analysis presented in Chapter 7.

Table 4.4*Accuracy measures before and after tag-fixing*

Feature	Precision (before)	Precision (after)	Recall (before)	Recall (after)
nouns	.93	.97	.96	.97
adverbs	.90	.96	.84	.96
prepositions	.96	.98	.95	.99
adjectives	.80	.88	.88	.95
predicative adjectives	1.00	.96	.71	.83
attributive adjectives	.98	.95	.80	.92
modal - possibility	1.00	1.00	1.00	1.00
modal - predication	1.00	1.00	1.00	1.00
modal - necessity	1.00	1.00	1.00	1.00
NF <i>-ing</i> post-nominal	.82	.71	.43	.83
NF <i>-ed</i> clause	.85	.90	.49	.71
demonstrative pronouns	1.00	.98	1.00	1.00
<i>wh</i> - relative clause	.92	.96	.55	.96
<i>wh</i> - rel. clause (subj. & obj.)	1.00	1.00	.76	1.00
<i>wh</i> - rel. clause pied-piping	1.00	1.00	1.00	1.00
finite <i>that</i> verb complement clause	.67	1.00	1.00	.86
NF <i>to</i> verb complement clause	.71	.73	.25	.36
noun complement clause (<i>to</i> and <i>that</i>)	.50	1.00	.33	.60
adjective complement clause	.75	1.00	.60	.69
<i>to</i> infinitive	.74	.90	.90	.90
passive agentless	.79	.92	.49	.85
passive verb + <i>by</i>	1.00	1.00	.48	.91
nominalizations	.69	.88	.75	.98
coord. conjunction – clausal	.62	.84	.19	.68
coord. conjunction – phrasal	.41	1.00	.08	.24
sub. conj.+ other (<i>as</i> , <i>except</i>)	.67	.96	.25	.89
sub. conj. + conditional	1.00	1.00	1.00	1.00
(prep +) <i>-ing</i> complement clause	--	1.00	--	.70
AVERAGE	.82	.95	.67	.85

4.7 Conclusion

This chapter described the methodology undertaken in the first four phases of this study, including the compilation of the corpus, the creation of the communicative function framework, the classification of texts by functional type, and the annotation of the corpus. The following chapter will present the coding rubric developed to classify texts by functional type, and a detailed description of each functional type in turn.

CHAPTER 5

Functional Types of Statutory Provisions in the Arizona State Code

5.1 Introduction

This chapter introduces the seven functional types of statutory provisions identified in the second phase of this study: Duties, Permissions, Impersonal Rules, Operational Definitions, Prohibitions, Procedural Guidelines and Criminal Offenses. In this chapter, each functional type of statutory provision will be described in terms of the inclusion and exclusion criteria that were used to code the corpus, and the subtypes of each type of statutory provision that were identified during the coding process (where applicable). The complete coding rubric used to code the sample of statutory provisions in this study is provided below in Table 5.1.

Sections 5.2 - 5.8 will describe the seven functional types of statutory provisions including a definition of the functional type, a description of its subtypes, and numerous sample texts. Section 5.9 will describe the variety of statutory provisions that did not qualify as one of the seven functional types in the framework, and thus were classified as ‘Other’. While ‘Other’ provisions are not the focus of the linguistic analyses in this study, they may well be of interest in future studies of this kind, or in potential future versions of this framework.

Table 5.1, below, presents the coding rubric used to code the 2,972 statutory provisions sampled for the present study. In Table 5.1, column 2 provides the definition of the functional type, column 3 provides sample statutory provisions, and column 4 provides the inclusion and exclusion criteria for each functional type.

Table 5.1
Functional Type Coding Rubric

Functional Type	Definition	Sample Statutory Provisions	Inclusion/Exclusion Criteria
Duties	Prescribes an obligatory duty, responsibility, or requirement for a human agent or government entity.	AZ Rev. Stat. §16-535 (2019) (A) A. The board of supervisors, at the time provided in section 16-531, shall appoint a qualified voter of the precinct as election marshal AZ Rev. Stat. §6-465 (2019) (H) H. The expenses of any examination made by or at the direction of the superintendent in connection with a proposed merger shall be paid by the merging association or corporation in accordance with the fees fixed for special examination by section 6-125. AZ Rev. Stat. §6-465 (2019) (I) I. If the continuing association or corporation is to be governed by the laws of any jurisdiction other than this state, it shall comply with the applicable provisions of the laws under which it is organized and shall comply with the laws of this state with respect to foreign corporations if it is to transact business in this state. AZ Rev. Stat. §17-361 (2019) (B) B. All traps shall be plainly identified with the name, address, or registered number of the owner, and such markings of identification shall be filed with the department. All traps in use shall be inspected daily. AZ Rev. Stat. §11-1025 (2019) (A) A. The owner of a dog which bites a person when the person is in or on a public place or lawfully in or on a private place, including the property of the owner of the dog, is liable for damages suffered by the person bitten,	Inclusion • Statements or a set of statements prescribing duties to individual(s), entity(s), or institution(s) or stating responsibilities of individual(s), entity(s) or institution(s) • Agent may be unspecified • May include an exceptions or conditions • May contain multiple different duties in one subsection (if not presented as sequential ordered steps; see exclusion criteria). • Includes liability laws • Includes mandatory contents/information to include in legal documents, forms, applications, etc. Exclusion • Not a Duty if two or more Duties are presented in the context of task completion with multiple <i>sequential steps</i>. Move to Procedural Guidelines. • Not a Duty if other functions appear in the same section (permissions, prohibitions). Move to Procedural Guidelines or Other.

		regardless of the former viciousness of the dog or the owner's knowledge of its viciousness.	
Permissions	Authorizes a human agent or government entity to act.	AZ Rev. Stat. §6-554 (2019) (A) A. A person may withdraw monies in share and deposit accounts for payment to the account holder or to third parties in the manner and in accordance with the procedures established by the board of directors. AZ Rev. Stat. §19-214 (2019) (D) D. Two or more precincts may be consolidated for purposes of voting if determined practicable and reasonable by the appointing authority. AZ Rev. Stat. §4-203.01 (2019) (G) G. If an application for transfer of a license, person to person, or nontransferable spirituous liquor license is denied or an interim permit is revoked, suspended or expires, the licensee may request the return of the surrendered license that has been issued for such premises. AZ Rev. Stat. §10-2246 (2019) Pursuant to chapter 15, article 3 of this title, the commission may administratively revoke the authority of a foreign professional corporation to transact business in this state if a licensing authority with jurisdiction over a professional service described in the corporation's articles of incorporation certifies to the commission that the corporation has violated or is violating a provision of this chapter and describes the violation in the certificate.	Inclusion • Statements or a set of statements authorizing actions for individual(s), government entity(s) or institution(s). • Agent may be unspecified • May include conditions or exceptions Exclusion • Not a Permission if two or more permissions are presented in the context of task completion, with multiple <i>sequential steps</i>. Move to Procedural Guidelines. • Not a Permission if other <i>functions</i> appear in the same section (duties, prohibitions). Move to Procedural Guidelines or Other.
Impersonal Rules	Provides general directives that <i>do not directly regulate or modify a human action</i> .	AZ Rev. Stat. §1-103 (2019) Each and all of the laws and statutes as herein contained and hereby enacted shall take effect and be in force on and after twelve o'clock noon on January 9, 1956, except where a later effective date is expressly provided in any section of these Revised Statutes, the later effective date shall prevail.	Inclusion • Rules, descriptions, statements of fact • Usually concerns inanimate objects or ideas • Describes the composition of entities, dates, etc.

		AZ Rev. Stat. §10-1636 (2019) (D) D. Execution of a consent to serve as a statutory agent does not by itself constitute a certification of the truth or accuracy of the information contained in a report, certificate, notice or other document with respect to the corporation even if the consent is attached to another filing. AZ Rev. Stat. §3-121 (2019) (A) A. The assent of the state is given to the provisions and requirements of an act of Congress entitled " An act to provide for cooperative agricultural extension work between the agricultural colleges in the several states, " known as the Smith-Lever act.	- Includes ‘exempt from’ if pertaining to inanimate objects or ideas Exclusion Not an Impersonal Rule if human actions are regulated or regulation is implied
Prohibitions	Explicitly states that a human or government entity may not take a specific action.	AZ Rev. Stat. §23-373 (2019) (I) I. An employer may not require that documentation under subsection G explain the nature of the health condition or the details of the domestic violence, sexual violence, abuse or stalking. AZ Rev. Stat. §43-1041 (2019) (E) E. The standard deduction provided for by subsection A of this section is not allowed in the case of a taxable year of less than twelve months on account of a change in the accounting period.	Inclusion - May include conditions or exceptions. Exclusion - If the subsection <i>also</i> states that a violation results in a felony or misdemeanor, code as Criminal Offense.
Procedural Guidelines	Prescribes a set of sequential steps required to carry out a task in a specific situation or context, including description of the role(s) of one or more human(s)/entity(s)	AZ Rev. Stat. §49-403 (2019) (A) A. A person may petition the director or control officer for a determination that a particular class or category of sources should be subject to a general permit instead of an individual permit that is issued under this chapter. The petition shall state the grounds for the determination that is the subject of the petition, including how the class or category meets the criteria prescribed in the applicable statute or rule for a general permit. The director or control officer shall either grant	Inclusion - May include a combination of other functional types. - Actions are presented in a <i>sequential fashion</i>. Actions of the agents depend on those preceding it. - Actions must be prescribed with the goal of accomplishing a specific task.

		or deny the petition within sixty days after its receipt. If the petition is granted, the director or control officer shall initiate the formal process for issuing the general permit within six months. If the petition is denied, the denial is an appealable agency action pursuant to title 41, chapter 6, article 10. AZ Rev. Stat. §3-239 (2019) (B) B. If the court finds the seed is in violation of this article and orders condemnation of the seed, it shall be denatured, processed, destroyed, relabeled or otherwise disposed of in compliance with the laws of this state. Before the court orders such disposition of the seed, it shall first give the claimant an opportunity to apply to the court for release of the seed or permission to process or relabel it to bring it into compliance with this article	• May concern the actions of a single agent or multiple agents • Often discusses contingencies • Often includes temporal references Exclusion • Not a Procedural Guideline if the actions described are <i>not carried out sequentially</i> or if the actions described function independently of one another and do not work together towards completion of a task. Move to Other.
Operational Definitions	Provides a definition for a term or phrase used in a different statutory provision.	AZ Rev. Stat. §34-603 (2019) (L) L. For the purposes of this section, " professional services" includes architect services, engineer services, landscape architect services, assayer services, geologist services and land surveying services and any combination of those services. AZ Rev. Stat. §18-551 (2019) In this article, unless the context otherwise requires: 1. "Breach" or "security system breach": a. Means an unauthorized acquisition of and unauthorized access that materially compromises the security or confidentiality of unencrypted and unredacted computerized personal information (. . .) b. Does not include a good faith acquisition of personal information by a person's employee or agent (. . .)	Inclusion • May define through lists of examples, descriptions, or inclusion/exclusion criteria • Must be sole content of subsection. Exclusion • Not an Operational Definition if the subsection includes other functional types. Move to Other.

		2. “Court” means the supreme court, the court of appeals, the superior court, a court that is inferior to the superior court and a justice court. 3. “Encrypt” means to use a process to transform data into a form that renders the data unreadable or unusable without using a confidential process or key.	
Criminal Offenses	Explicitly states that a prohibited action rises to the level of a criminal offense	AZ Rev. Stat. §3-1296 (2019) An owner who knowingly permits range livestock, except unweaned animals running with their mothers, to roam and feed upon the ranges of this state without being branded and marked as provided by law, is guilty of a class 2 misdemeanor. AZ Rev. Stat. §5-391 (2019) (G) G. A person is guilty of a class 6 felony who knowingly removes, defaces, obliterates, changes, alters or causes to be removed, defaced, obliterated, changed or altered a factory, engine, serial, outdrive, lower unit, power trim or hull identification number or mark on a watercraft.	Inclusion - Includes felonies, misdemeanors, and being held in contempt - May include an independent statement explicitly prohibiting the action Exclusion - Not a Criminal Offense if the subsection includes other functional types (<i>with the exception of a Prohibition</i>; see above). Move to Other.
Other	Subsections that do not fit clearly into one of the above seven functions	AZ Rev. Stat. §4-241 (2019) (H) H. The defenses provided in this section do not apply to a licensee or an employee who has actual knowledge that the person exhibiting the identification is under the legal drinking age. AZ Rev. Stat. §12-113 (2019) (C) C. The supreme court shall administer the fund and may expend monies in the fund, subject to legislative appropriation, for local, regional or statewide projects. The supreme court may directly provide or contract for services consistent with the purposes of the fund. Monies from the fund shall supplement monies already provided to local courts for purposes consistent with the purposes of the fund.	Inclusion - May include multiple individual functions presented in a <i>non-sequential manner</i>. - May serve a completely independent function from the seven above. - Includes (but not limited to) eligibility laws, civil penalties, rights, indication of entitlement. Exclusion - If multiple functions are present, but presented in a <i>sequential manner</i> and aimed at the completion of a task, move to Procedural Guidelines.

5.2 Duties

As the most common functional type of statutory provision in the corpus ($n=856$), Duties indicate that a person, entity, or institution is obligated to carry out some specified action. These laws can pertain to a variety of different people, including both government officials and entities and individuals in non-government roles. In reference to the inclusion/exclusion criteria in Table 5.1, Duties may be either agentive or agentless and they may include exceptions or conditions to the Duty prescribed. Other statutory provisions that are considered Duties under this framework include those that assign liability to an individual or entity, and those that prescribe the contents of legal documents, such as applications and reports.

In the coding process, three subtypes of Duties were identified that appeared with regularity:

1. Those prescribing a formal duty to a government entity, institution, or official associated with the governmental role ('Government obligations')
2. Those prescribing actions to an individual or entity must be completed under particular circumstances and in specific contexts ('Requirements')
3. Those prescribing general rules concerning the way in which an action must be carried out ('Agentless rules of conduct').

The following sections will describe each of these in detail, highlighting the nuanced differences between them.

5.2.1 *Government obligations*

The first subtype of Duty prescribes specific obligations to government entities, institutions, or officials. These duties tend to be larger in scale and scope, and read somewhat like job descriptions (Text Samples 5.1 - 5.3).

Text Sample 5.1: §22-424 (2019) (C)

- C. The presiding magistrate shall prepare a schedule of civil traffic violations, listing a specific deposit for each violation. The presiding magistrate shall ensure that proper deposits for civil traffic violations are accepted for and on behalf of the court.

Text Sample 5.2: AZ Rev. Stat. §25-1243 (2019)

Except as otherwise provided by this chapter, a responding tribunal of this state shall:

1. Apply the procedural and substantive law generally applicable to similar proceedings originating in this state and may exercise all powers and provide all remedies available in those proceedings.
2. Determine the duty of support and the amount payable in accordance with the law and support guidelines of this state.

Text Sample 5.3: AZ Rev. Stat. §43-1504 (2019) (F)

- F. The department of revenue, with the cooperation of the department of insurance, shall adopt rules and publish and prescribe forms and procedures necessary for the administration of this section.

The prescribed actions are directly associated with the governmental role that the entity or individual plays.

5.2.2 Requirements

The second type of Duty concerns lower-level matters of conduct. These are not governmental duties associated with the position that an individual or entity holds, but instead, tasks or requirements associated with a particular context or circumstance. The main difference between this subtype of Duty and the former subtype is that the former expresses an obligation that is *always true* (associated with the position), while this subtype of Duty applies only in a

particular context. If the individual or entity does not find themselves in the specific context or situation described, the duty does not apply to them and they are not obligated to act. These subsections are often accompanied by conditional statements and exceptions indicating the conditions under which the individual or entity is obligated to act (Text Samples 5.4 – 5.7).

Text Sample 5.4: AZ Rev. Stat. §19-161 (2019) (A)

- A. A challenge to the legal sufficiency of any referendum measure or any proposed amendment or amendments to the constitution ordered by the legislature to be submitted to the people at the polls must be filed within:
1. Twenty days after the referendum is filed with the secretary of state if the referendum is filed in an odd numbered year.
 2. Ten days after the referendum is filed with the secretary of state if the referendum is filed in an even numbered year.

Text Sample 5.5: AZ Rev. Stat. §32-2616 (2019) (B)

- B. If the department of health services has issued a pamphlet on this subject, the health professional must also provide the patient with this pamphlet.

Text Sample 5.6: AZ Rev. Stat. §32-3212 (2019) (A)

- A. Beginning January 1, 2007, if a health professional has a patient who is in her second trimester of pregnancy, the health professional must inform the patient of the following options relating to stem cells that are contained in the umbilical cord blood after the delivery of her child:
1. Discard the stem cells.
 2. Donate the stem cells to a public umbilical cord blood bank.
 3. Store the stem cells in a family umbilical cord blood bank for use by the immediate and extended family members.
 4. Store the stem cells for family use through a family or sibling donor banking program that provides free collection, processing and storage where there is a medical need.

Text Sample 5.7: AZ Rev. Stat. §34-104 (2019) (E)

- E. If in the agent's judgment a satisfactory proposal is not received for construction of the project completely finished in accordance with the accepted plans and specifications, then the architect shall revise the scope or quality of the project, or both, as necessary to obtain a satisfactory proposal to construct the project.

5.2.3 Agentless rules of conduct

The third type of Duty describes *the way in which* something must be done, unrelated to the agent who does it. While the first and second type of Duty focus on the individual, entity, or institution who carries out the task, this type focuses solely on the task and the manner in which it is carried out (Text Samples 5.8 - 5.9).

Text Sample 5.8: AZ Rev. Stat. §35-143 (2019) (A)

- A. Fees for licenses, permits, certificates of any kind and other amounts due any budget unit shall be collected at the time such licenses, permits or certificates are issued by the budget units issuing them. All other monies accruing to the various budget units or to the state through the various budget units shall also be collected at the time services are rendered, or at the time of accrual by the budget units rendering the services or assessing the charges, or otherwise giving rise to the claims in favor of the state.

Text Sample 5.9: AZ Rev. Stat. §34-401 (2019) (A)

- A. Any state building that is constructed or any state building that undergoes a major renovation at a cost of at least two hundred fifty thousand dollars after the effective date of this section must be equipped with automated external defibrillators.

This subtype also includes statutory provisions that describe the required contents of official documents (Text Samples 5.10 - 5.11).

Text Sample 5.10: AZ Rev. Stat. §29-3910 (2019) (C)

- C. The notice must state or the information in the notation must include both of the following:
1. The effective date of the termination, which must be at least sixty days after the date the commission delivers the copy of the notice or the information in the notation.
 2. The grounds for termination under subsection A of this section.

Text Sample 5.11: AZ Rev. Stat. §44-1799.05 (2019) (B)

- B. The veterinary statement that is required pursuant to subsection A shall contain the following information:
1. The purchaser's name and address.
 2. The date or dates on which the cat or dog was examined.
 3. The type, breed and age of the cat or dog, if known.
 4. A verification that the veterinarian examined the cat or dog.
 5. A statement that the cat or dog had an illness or congenital or hereditary problem that rendered the cat or dog unfit for sale or that resulted in the cat's or dog's death. (. . .)

While these two text samples may appear at first to look like Impersonal Rules, the clear implication of human action qualifies them as Duties. In other words, documents do not compile themselves - a human is actively responsible for writing or compiling a document.

5.2.4 Exclusion criteria and other unique Duties provisions

There are a few unique types of Duties that required extra coding guidance in the framework (see Table 5.1, column 4). The first of these are provisions that prescribe two or more Duties in a single provision. If more than one duty is prescribed in a single provision and the duties are *non-sequential* and not reliant upon one another for implementation, the provision was coded as a Duty. However, if two or more duties in a subsection are presented as *sequential*,

ordered steps that rely upon one another for implementation, the provision was excluded from the Duties category and instead coded as a Procedural Guidelines. An example of the distinction between these two types of subsections is presented below in Text Samples 5.12 and 5.13.

Text Sample 5.12: AZ Rev. Stat. §4-203.01 (2019) (F)

- F. Application for an interim permit shall be on such form as the director shall prescribe. If an application for an interim permit is withdrawn before issuance or is refused by the director, the fee that accompanies such application shall be refunded.

Text Sample 5.12 was coded as a Duty. In this text sample, the two actions prescribed function independently of one another; one stating that the permit be on a specific form (as prescribed by the director), and the other prescribing that an application fee is refunded. In addition to this, these two duties could be reversed in order in this provision and the provision would have the same effect – they are not dependent upon one another for implementation.

Text Sample 5.13, below, also prescribes more than one Duty but was coded as a Procedural Guideline. Note the sequential nature of the duties in the subsection, each of which relies upon the duty preceding it for implementation. The duties cannot function independently of one another, but instead work together to accomplish a goal in a specific context.

Text Sample 5.13: AZ Rev. Stat. §26-233 (2019) (A)

- A. A member of the national guard who by gross negligence or wilfulness destroys, loses or allows state or federal property to be lost or destroyed shall from personal funds reimburse the state or federal government for the cost thereof. The responsible officer shall submit a report of survey to the adjutant general. Upon receipt of the report the adjutant general shall, if the property lost or destroyed is federal property, forward the report to the national guard bureau for determination of responsibility, or, if the property is state property,

the adjutant general shall determine the responsibility and his decision shall be final.

Another type of statutory provision that does not qualify as a Duty are those that combine multiple *different* functional types within a single provision; for example, a Duty and an Operational Definition (see Text Sample 5.14). Because the aim of the present study is to isolate functional types of statutory provisions and identify lexical and lexico-grammatical features that are associated with each type, it was important to avoid mixing functional types together within categories. In the case of provisions exhibiting this characteristic, the coder was directed to Procedural Guidelines if the functional types were presented as ordered steps, or ‘Other’ if the functional types functioned independently of one another, merely co-existing in the provision. The sample text below is an example of the latter type of provision. Regardless of the clear primary role of the Duty and the supporting role of the Definition, the following provision was coded as ‘Other’.

Text Sample 5.14: AZ Rev. Stat. §34-201 (2019) (H)

(Duty + Operational Definition)

H. In addition to other state or local requirements relating to the publication of bids, each agent shall provide at least one set of all plans and specifications to any construction news reporting service that files an annual request with the agent. For the purposes of this subsection, “construction news reporting service” means a service that researches, gathers and disseminates news and reports either in print or electronically (. . .)

5.3 Permissions

As the second most common functional type of statutory provision ($n=505$), Permissions authorize individuals to carry out specified actions, allowing for inaction. These authorizations

can be awarded to government officials, entities, or institutions, and to individuals in non-governmental roles (e.g., *employer, principal, wholesaler*). In the former case, the provision awards the recipient authority over others based on the role that they fill. In the latter case, they empower citizens to act, often in the case of unforeseen or conditional circumstances. In reference to the inclusion/exclusion criteria in Table 5.1, Permissions may be either agentive or agentless and they may include exceptions or conditions for the authorized action.

In the coding process, six subtypes of Permissions were identified:

1. Powers of government officials/entities
2. Situation-specific authorizations for government officials, entities, institutions
3. Authorizations awarded to individuals in non-governmental roles
4. Agentless authorized conduct
5. Authorization by set of options
6. Authorization with conditional qualifications

5.3.1 Powers of government officials/institutions

The first subtype of Permission authorizes a government official, entity, or institution to carry out a specific action or set of actions that is associated with the position that they hold (Text Samples 5.15 - 5.16).

Text Sample 5.15: AZ Rev. Stat. §28-8133 (2019) (A)

- A. The department may conduct demonstration or pilot projects to evaluate the effectiveness of new, extended, improved or integrated public transportation services, bicycle activities, pedestrian activities, intermodal transportation activities, and car pooling or van pooling activities in meeting regional transportation needs or in improving air quality.

Text Sample 5.16: AZ Rev. Stat. §27-515 (2019) (B)

B. The commission may:

1. Administer oaths to a witness in any hearing, investigation or proceeding held under this article or any other law relating to conservation of oil and gas.
2. Issue subpoenas requiring attendance and testimony of witnesses and production of books, papers and records deemed material or necessary, and direct service of subpoenas by a sheriff or other officer authorized by law to serve process.
3. Prescribe rules and do all acts necessary or advisable to carry out this article.
4. Collect fees to cover the costs of services, including reproduction of records or any portion of records and copies of rules. The monies collected are not subject to section 27-523 but shall be deposited, pursuant to sections 35-146 and 35-147, by the commission in the fund from which the expenditure was originally made. (. . .)

These look much like the first subtype of Duties, giving specific powers to individuals or entities in authoritative positions, but allowing for inaction.

5.3.2 Situation-specific authorizations for government officials, entities, and institutions

The second subtype of Permission authorizes a government official, entity, or institution to act under particular circumstances. The distinction from the former subtype is that these provisions give governmental agents authority to act in specific contexts that they potentially may never find themselves in, meaning that the authorized action may actually never be relevant to that government official. These are often accompanied by conditional statements that describe a specific context or situation under which an authorization takes effect (Text Sample 5.17).

Text Sample 5.17: AZ Rev. Stat. §12-1633 (2019) (B)

- B. If it appears to the court, by affidavit or otherwise, that any person has property of the judgment debtor or is indebted to him in an amount exceeding fifty dollars, the court may order such person to appear at a specified time and place, before it or a referee, and answer concerning such indebtedness.

5.3.3 Authorizations for individuals serving in non-governmental roles

The next subtype of Permission pertains to the general public, both collectively (e.g., *person, public*) and those serving in specific, non-governmental roles (e.g., *landlord, employer*) (Text Samples 5.18 - 5.20). All non-governmental citizens who hold the position/role described in the law are authorized to act.

Text Sample 5.18: AZ Rev. Stat. §14-10813 (2019) (D)

- D. A beneficiary may waive the right to a trustee's report or other information otherwise required to be furnished under this section. A beneficiary, with respect to future reports and other information, may withdraw a waiver previously given.

Text Sample 5.19: AZ Rev. Stat. §3-459 (2019) (A)

- A. A person may decline to ship, transport or accept for shipment any citrus fruit when notified by an inspector that the fruit is found to be in violation of this article or rules adopted pursuant to this article.

Text Sample 5.20: AZ Rev. Stat. §17-361 (2019) (A)

- A. The holder of a trapping license, may trap predatory, nongame, and fur-bearing mammals under such restrictions as the commission may specify.

5.3.4 Agentless authorized conduct

The fourth subtype of Permission is agentless, meaning that the focus is on the action itself as opposed to a person or institution (Text Sample 5.21). Like agentless Duties, this

includes provisions that make statements about what information may be included in particular documents (Text Sample 5.22).

Text Sample 5.21: AZ Rev. Stat. §45-469 (2019) (F)

- F. The amount of groundwater that may be withdrawn or received annually per acre pursuant to this section is the lesser of:
1. The current maximum amount of groundwater that may be used pursuant to the irrigation grandfathered right for the acre at the time it is retired, as calculated pursuant to section 45-465, subsection B.
 2. Three acre-feet multiplied by the water duty acres in the farm in which the acre to which the right is appurtenant is located divided by the number of irrigation acres in the farm.

Text Sample 5.22: AZ Rev. Stat. §10-3640 (2019) (B)

- B. The articles of incorporation or bylaws may set forth provisions relating to:
1. The characteristics, qualifications, rights, limitations and obligations of delegates including the delegates' selection and removal.
 2. Calling, noticing, holding and conducting meetings of delegates.
 3. Carrying on corporate activities during and between meetings of delegates.

5.3.5 Authorization by a set of options

The fifth subtype of Permission is tailored to highly specific contexts. In this type, the agent is provided with a list of mutually exclusive authorized actions from which the agent can choose their preferred action (Text Samples 5.23 – 5.24).

Text Sample 5.23: AZ Rev. Stat. §47-3604 (2019) (A)

- A. A person entitled to enforce an instrument, with or without consideration, may discharge the obligation of a party to pay the instrument:
1. By an intentional voluntary act, such as surrender of the instrument to the party, destruction, mutilation or cancellation of the instrument,

cancellation or striking out of the party's signature or the addition of words to the instrument indicating discharge; or

2. By agreeing not to sue or otherwise renouncing rights against the party by a signed writing.

Text Sample 5.24: AZ Rev. Stat. §14-10401 (2019)

A trust may be created by:

1. Transfer of property to another person as trustee during the settlor's lifetime or by will or other disposition taking effect on the settlor's death.
2. Declaration by the owner of property that the owner holds identifiable property as trustee.
3. Exercise of a power of appointment in favor of a trustee.

Note that these laws may be directed at government officials or institutions, individuals in non-governmental roles, or may be agentless.

5.3.6 Authorizations with conditional qualifications

The final subtype of Permission authorizes an action based on a set of conditions. In this type of Permission, the full set of conditions must apply for the authorization to take effect (Text Samples 5.25 – 5.26).

Text Sample 5.25: AZ Rev. Stat. §33-1324 (2019) (D)

D. The landlord and tenant of any dwelling unit other than a single family residence may agree that the tenant is to perform specified repairs, maintenance tasks, alterations or remodeling only if:

1. The agreement of the parties is entered into in good faith and not for the purpose of evading the obligations of the landlord and is set forth in a separate writing signed by the parties and supported by adequate consideration.

2. The work is not necessary to cure noncompliance with subsection A, paragraphs 1 and 2 of this section.
3. The agreement does not diminish or affect the obligation of the landlord to other tenants in the premises.

Text Sample 5.26: AZ Rev. Stat. §15-756.09 (2019) (B)

- B. Training may be allowed that is not provided by a college or university to substitute for any of the courses required for a structured English immersion endorsement or a bilingual education endorsement if all of the following conditions apply:
1. The state board of education has reviewed the curricula, textbooks, grading procedures and attendance policies and determined that the training is comparable in amount, scope and quality to a course offered by a college or university for a structured English immersion or bilingual education endorsement.
 2. The training meets the professional teaching standards adopted by the state board of education.
 3. The state board of education has reviewed the qualifications of the instructor and determined that the instructor has sufficient experience to effectively conduct the training.

Like the former type of Permission, these too may be directed at government officials, entities, or institutions, individuals in non-governmental roles, or may be agentless.

5.3.7 Exclusion criteria and other unique Permissions provisions

The two exclusion criteria for Permissions mirrored the Duties exclusion criteria. Statutory provisions were not classified as a Permission if: (a) the provision included two or more Permissions that were presented as ordered, procedural steps to complete a task, or (b) the provision included a second distinct functional type (e.g., a Permission + a Duty). The provision below is an example of the former type of statutory provision that was excluded from the

category of Permissions. It includes three different authorizations that are presented as sequential steps and are dependent upon those preceding them to come into effect (Text Sample 5.27). As such, the provision below was excluded from the Permissions category, and instead coded as a Procedural Guideline.

Text Sample 5.27: AZ Rev. Stat. § 3-376 (2019) (B)

- B. A person who believes he has been discriminated against in violation of this section may, within one hundred eighty days after the violation, file a complaint with the attorney general. On receipt of the complaint, the attorney general may investigate as he deems appropriate. If, after investigation, the attorney general determines that this section has been violated, he may bring an action in superior court against any alleged violator.

As was the case for Duties, there is a nuanced case in which this type of provision *does* qualify as a Permission. If the two or more Permissions function independently of one another and are not sequential or aimed at task completion, the provision is considered a Permission. An example of this type of provision is presented in Text Sample 5.28. Note that the two authorized actions in this text sample function independently of one another, providing two independent authorizations about the same topic. As such, this provision was coded as a Permission.

Text Sample 5.28: AZ Rev. Stat. §29-601.01 (2019) (B)

- B. Notice may be communicated in person, by telephone, telegraph, teletype, fax, electronic transmission or other form of wire or wireless communication or by mail or private carrier. If these forms of personal notice are impracticable, notice may be communicated by a newspaper of general circulation in the area where published or by radio, television or other form of public broadcast communication.

The second type of provision that was excluded from the Permissions category are those that combine a Permission with a second distinct functional type, as seen in Text Sample 5.29. This provision includes both a Permission and a Duty which function independently from one another and do not rely upon one another for implementation. Because of the combination of multiple distinct functions in a non-sequential manner, Text Sample 5.29 was coded as ‘Other’.

Text Sample 5.29: AZ Rev. Stat. §18-422 (2019) (D)

D. An authorized third-party electronic service provider:

1. Shall submit to the state agency all statutorily prescribed fees and taxes it collects and deposit pursuant to sections 35-146 and 35-147 the fees and taxes with the state treasurer.
2. May collect and retain a reasonable and commensurate fee for its services.

As was the case for Duties, this exclusion criterion was put in place in order to isolate the functional types for later linguistic analyses.

A unique type of Permission described in the inclusion criteria are those that include conditions and exceptions. While some conditions in Permissions provisions simply describe the context in which an action is authorized (indicated through the use of conditional *if*), other conditional statements imply that the action *is prohibited* under particular circumstances (indicated through the use of *unless* and *except*). Consider Text Sample 5.30, below:

Text Sample 5.30: AZ Rev. Stat. §47-2A208 (2019) (D)

D. A party who has made a waiver affecting an executory portion of a lease contract may retract the waiver by reasonable notification received by the other party that strict performance will be required of any term waived, ***unless*** the retraction would be unjust in view of a material change of position in reliance on the waiver.

This subsection functionally authorizes a party to retract a waiver under specific circumstances, and then uses *unless* to assert that this action is *not* authorized if the retraction is unjust. While this gives the sense that the provision simultaneously qualifies as two opposing functional types, specific coding guidelines were put in place in order to retain these types of provisions as Permissions. The reasoning behind this coding guideline is that the provision *directly and explicitly* states that an action is authorized, while the prohibition is only *implied*. The provision never provides an explicit statement prohibiting an action, such as *X is prohibited*, *X is not authorized*, or *X is unlawful*. Because the present study fundamentally relies on text-level, explicit statements in order to code with consistency, the decision was made to code these provisions based on the explicit statement of authorization, as opposed to the implied effect of the statute in application.

5.4 Impersonal Rules

Impersonal Rules are the third most common functional type of statutory provision in the corpus ($n=375$). This functional type provides a set of general directives that do not directly regulate or modify human action in any way. Instead of directly indicating the things that humans can, cannot, or may do, Impersonal Rules simply state facts and rules under which the state of Arizona functions. These rules pertain to things such as rates (e.g., taxes), dates (e.g., holidays, enactment of statutes, etc.), the composition of government entities or institutions (i.e., the organization of individuals serving on a board of directors), and the state of inanimate objects, such as legal documents (e.g., *the contract is void*).

Importantly, the main exclusion criterion for Impersonal Rules is the appearance of any regulation (or implication of regulation) of a human action (Table 3.1, column 4). As a result,

statutory provisions coded as Impersonal Rules generally concern inanimate objects or abstract concepts.

In the coding process, three subtypes of Impersonal Rules emerged:

1. Those equating an inanimate object or concept to another object or concept, or describing the state of the object/concept (i.e., *X is Y*),
2. Those reading as declarations of fact, and
3. Those describing the organization of government institutions

5.4.1 Equating/descriptive statements

The first subtype of Impersonal Rule is used to describe the state of something, which is done either by describing it using an adjective, or equating it to some other object or idea. For example, these provisions may indicate that something is considered *valid*, *effective*, or *conclusive*, or state that something qualifies as *prima facie evidence*. Text Samples 5.31 - 5.34 represent this subtype of Impersonal Rules, which read as follows: *X is a limitation*; *X is deemed repealed and abrogated*; *X is valid and binding*; *X is effective*.

Text Sample 5.31: AZ Rev. Stat. §29-1064 (2019) (B)

B. A statement of dissociation is a limitation on the authority of a dissociated partner for the purposes of section 29-1023, subsections D and E.

Text Sample 5.32: AZ Rev. Stat. §1-245 (2019)

When a statute has been enacted and has become a law, no other statute or law is continued in force because it is consistent with the statute enacted, but in all cases provided for by the subsequent statute, the statutes, laws and rules theretofore in force, whether consistent or not with the provisions of the subsequent statute, unless expressly continued in force by it, shall be deemed repealed and abrogated.

Text Sample 5.33: AZ Rev. Stat. §15-2086 (2019) (A)

- A. Any pledge made under this article is valid and binding from the time when the pledge is made.

Text Sample 5.34: AZ Rev. Stat. §29-601.01 (2019) (E)

- E. If in a comprehensible form, written notice is effective at the earliest of the following:
1. When received.
 2. Five days after its deposit in the United States mail as evidenced by the postmark, if mailed postpaid and correctly addressed.
 3. On the date shown on the return receipt, if sent by registered or certified mail, return receipt requested, and if the receipt is signed by or on behalf of the addressee.

5.4.2 Declarations of fact

Declarations of fact are best described as they are titled. These provisions do not describe or equate an object to something else, but instead, prescribe rules concerning things such as official dates and territories (Text Samples 5.35 - 5.37).

Text Sample 5.35: AZ Rev. Stat. §18-503 (2019)

It is the intent of the legislature that this article is a matter of statewide concern. This article supersedes and preempts all rules, regulations, codes, ordinances and other laws adopted by a city, county, municipality or local agency regarding spyware and notices to consumers from computer software providers regarding information collection.

Text Sample 5.36: AZ Rev. Stat. §1-304 (2019) (A)

- A. The last Friday in April, in each year, shall be known as Arbor Day.

Text Sample 5.37: AZ Rev. Stat. §11-112 (2019)

Pima county, the county seat of which is Tucson, is bounded as follows:

Commencing at the point where the meridian line one hundred thirteen degrees

twenty minutes west longitude, as defined by the Atwood survey of 1918, intersects the second standard parallel south, being the southwest corner of Maricopa county; thence east on such parallel and along the southern boundaries of Maricopa and Pinal counties to the point where such parallel intersects the eastern line of range eighteen east, being the southeast corner of Pinal county; (...) thence due west twelve miles to a point; thence due south to the southern boundary line of Arizona; thence westerly and northerly on such boundary line to the point where such boundary line intersects the meridian line one hundred thirteen degrees twenty minutes west longitude, as defined by the Atwood survey of 1918, being the southeast corner of Yuma county; thence north along such meridian line to the point where such meridian line intersects the second standard parallel south, the place of beginning.

5.4.3 Organization of government entities

The third subtype of Impersonal Rule encompasses laws that describe a government entity or institution (i.e., departments, committees). These provisions either describe the members of the entity (Text Samples 5.38 - 5.39) or describe the background of the individuals who hold positions in these entities (e.g., personal qualities, education) (Text Sample 5.40).

Text Sample 5.38: AZ Rev. Stat. §26-122 (2019) (B)

- B. The national guard consists of commissioned officers, warrant officers, enlisted personnel, organizations, staffs, corps and departments of the federally recognized and regularly commissioned, warranted and enlisted militia of the state, organized and maintained pursuant to law, and all members thereof honorably retired by age or disability.

Text Sample 5.39: AZ Rev. Stat. §26-304 (2019) (A)

- A. The state emergency council is established consisting of the following persons or their designee:
 - 1. Governor.

2. Secretary of state.
3. Attorney general. (. . .)

Text Sample 5.40: AZ Rev. Stat. §37-331.02 (2019) (A)

- A. The urban land planning oversight committee is established in the department consisting of the following members appointed by the governor pursuant to section 38-211:
1. One member with experience in drainage, hydrologic or infrastructure engineering.
 2. One member with experience in urban and community planning.
 3. One member with experience in contracting for planning studies related to residential, commercial or industrial real estate development. (. . .)

5.5 Prohibitions

Prohibitions are a more cohesive functional type of statutory provision compared to the three former functional types. While there are not ‘subtypes’ of Prohibitions as there are for Duties, Permissions, and Impersonal Rules, there is a distinction between agentive and agentless Prohibitions that affect other aspects of the provision: while agentive Prohibitions prohibit the general public or specific individuals from taking particular actions, agentless Prohibitions are relevant almost exclusively to non-governmental and governmental entities (though not explicitly named). These provisions focus on things that are often not relevant to the everyday lives of citizens, such as the ways in which benefits and contracts are handled in specific institutions. Further distinctions between agentive and agentless Prohibitions will be detailed in the two following subsections.

5.5.1 Prohibitions directed at the general public or specific individuals

Agentive Prohibitions directly state that an individual, entity (governmental or non-governmental), or the general public are prohibited from taking a particular action (Text Samples

5.41 - 5.43). These agentive provisions encompass the majority of the texts coded as Prohibitions. They usually begin with a statement that reads: *it is unlawful to X, no person shall X, or it is prohibited for X*. Below are samples of Prohibitions that are aimed at the general public (Text Samples 5.41 - 5.42) and individuals/entities serving particular roles (governmental or non-governmental) (Text Samples 5.43 - 5.44).

Text Sample 5.41: AZ Rev. Stat. §27-364 (2019)

No person shall knowingly:

1. Injure or destroy any equipment or machinery of a mine, nor, unless authorized so to do, obstruct, open, close or change the position of a ventilation door, brattice, or airway, or handle or disturb any part of the machinery of the hoisting engine of the mine.
2. Open the door of a mine and neglect to close it.
3. Endanger the mine or those working therein. (. . .)

Text Sample 5.42: AZ Rev. Stat. §44-1219 (2019) (A)

A. It is unlawful for a person who has mortgaged personal property to another, or who has possession of personal property under a contract of sale whereby the vendor retains title, to:

1. During the existence of the mortgage or contract, and without first obtaining the written consent of the mortgagee or vendor or their assignees, sell, transfer or in any manner encumber such property without first fully advising the person to whom the sale, transfer or encumbrance is to be made, of the facts of the prior mortgage or contract of sale.
2. Conceal, take, drive or otherwise dispose of or destroy any of the encumbered property (. . .)

Text Sample 5.43: AZ Rev. Stat. §4-250 (2019) (A)

A. Out-of-state producers or suppliers of distilled spirits products shall not sell the products to an Arizona wholesaler at a cost higher than the lowest price at

which the item was sold by the producer or supplier, or any other person, to any wholesaler anywhere in any other state or in the District of Columbia, or to any state or state agency which owns and operates a retail liquor store.

Text Sample 5.44: AZ Rev. Stat. §30-672 (2019) (G)

G. The department shall not require persons who are licensed in this state to practice as a dentist, physician assistant, chiropodist or veterinarian or licensed in this state to practice medicine, surgery, osteopathic medicine, chiropractic or naturopathic medicine to obtain any other license to use a diagnostic x-ray machine, but these persons are governed by their own licensing acts.

5.5.2 Agentless prohibitions

While one might assume that an agentless prohibition necessarily applies to the general public, this is often not the case. Agentless prohibitions are not generally relevant to the actions of everyday citizens, but instead, relevant only to particular facilities or institutions (i.e., detention facilities, banks). Notably, these provisions generally function to *protect citizens* from harm or undue burden placed upon them by these institutions (Text Samples 5.45 - 5.47), which is distinct from the agentive Prohibition.

Text Sample 5.45: AZ Rev. Stat. §31-124 (2019) (A)

A. Male and female prisoners shall not be kept or placed in the same room.

Text Sample 5.46: AZ Rev. Stat. §23-791 (2019) (C)

C. Benefits shall not be reduced by the receipt of social security retirement in order to take into account contributions made by the individual for the pension.

Text Sample 5.47: AZ Rev. Stat. §34-221 (2019) (D)

D. No contract for construction or design professional services may materially alter the rights of any contractor, subcontractor, design professional or

material supplier to receive prompt and timely payment required to be included in the contract under subsection C of this section.

Notably, this type of Prohibition also encompasses provisions that put limits on the ways in which other sections, titles or chapters are construed (Text Sample 5.48).

Text Sample 5.48: AZ Rev. Stat. §4-247 (2019)

No provision in this title shall be construed as limiting the rights and duties of any peace officer to enforce any provision of this chapter.

5.5.3 Exclusion criteria and other unique Prohibitions provisions

One of the more unique Prohibition provisions mirrors those seen in Permissions. These Prohibitions first explicitly prohibit an action and then use *unless* or *except* to describe a set of circumstances under which the prohibition does *not* apply (implying Permission) (see Text Sample 5.49). Consistent with the way these provisions were treated in Permissions, they were coded as serving the function that was explicitly stated (in this case, a Prohibition), not the one that was implied. This is demonstrated in the following text sample:

Text Sample 5.49: AZ Rev. Stat. §27-354 (2019) (B)

B. No persons shall ride upon a cage or in or on a skip or bucket when it is loaded with rock or ore, or when loaded with tools, timber, powder or other material, ***except*** for the purpose of assisting in passing it through the shaft.

It could plausibly be argued that Text Sample 5.49, above, functionally prohibits *and* permits an action. However, to do so would be filling in missing text that is not explicitly stated in the provision. The text sample above never explicitly states *X is authorized or persons may X*. As was the case in Permissions, the decision was made to code these provisions based on their explicit prohibition (not the implied permission). Due to the nuanced nature of these types of

Prohibitions, this coding guideline was specified in the ‘inclusion’ column of the framework (see Table 5.1).

The nuanced exclusion criterion for Prohibitions described in Table 5.1 pertains to cases in which the provision both explicitly prohibits an action and explicitly states that a violation of the prohibition rises to the level of a criminal offense. In these cases, the existence of the Criminal Offense disqualified the provision from the Prohibitions category. Instead, these provisions were coded as Criminal Offenses. The reason for this coding guideline is that, while a Criminal Offense necessarily prohibits the action, the violation of a prohibition is *not always criminal*. This made it highly important to distinguish between general prohibitions (which do not indicate a consequence for violating the prohibition), and prohibited actions that are criminal in nature.

5.6 Procedural Guidelines

Procedural Guidelines prescribe directions for agents to carry out a particular task in a specific context. These directions include a description of the role(s) of one or more humans or entities. Because of this, they very often comprise multiple different functional types that are presented as ordered steps. To be considered a Procedural Guideline, the actions described in the subsection must be: (a) sequential in nature, and (b) carried out to accomplish a clear singular task in a specific context. The former characteristic is often explicitly indicated by phrases implying an order of actions, such as *upon X*, *within X*, or *after X*. Two other characteristics of Procedural Guidelines that are highly common (but not always present) include: (a) specific directions in the case of contingencies, and (b) reference to multiple actors with independent roles. Text Sample 5.50 is an example of a Procedural Guideline provision that meets the former two inclusion criteria as well as the latter two characteristics often seen in this type of provision.

Note that the directions in Text Sample 5.50 are presented as ordered steps and the provision accomplishes singular goal (i.e., collecting a sample to transmit to the department of public safety). There are also directions in the case of a contingency (i.e., if the state does not impose a particular condition) and multiple actors working together in the provision (i.e., department of juvenile corrections and the compact administrator).

Text Sample 5.50: AZ Rev. Stat. §13-610 (2019) (F)

- F. Within thirty days after the arrival in this state of a juvenile who is accepted by the department of juvenile corrections pursuant to the interstate compact on juveniles and who was adjudicated for an offense that was committed in another jurisdiction that if committed in this state would be a violation of any offense listed in this section, the compact administrator shall request that the sending state impose as a condition of supervision that the juvenile submit a sufficient sample of blood or other bodily substances for deoxyribonucleic acid testing. If the sending state does not impose that condition, the department of juvenile corrections shall request a sufficient sample of blood or other bodily substances for deoxyribonucleic acid testing within thirty days after the juvenile's arrival in this state. The department of juvenile corrections shall transmit the sample to the department of public safety.

While the existence of multiple functions in a single subsection is often a strong indicator that the provision prescribes procedural guidelines, this was not always the case. As noted above, one of the primary inclusion criteria for Procedural Guidelines is the sequential nature of the steps. If there is a clear order that the functions must be carried out in, as seen in Text Sample 5.50, the multi-function provision is considered a Procedural Guideline. If the functions were presented as non-sequential, independent actions, the provision was coded as ‘Other’ (described below in Sec. 5.9.1). Text Sample 5.51, below, is an example of a provision that did not meet the

Procedural Guidelines inclusion criteria due to the non-sequential nature of the functions and the lack of a singular goal for task completion.

Text Sample 5.51: AZ Rev. Stat. §12-113 (2019) (C)

- C. The supreme court shall administer the fund and may expend monies in the fund, subject to legislative appropriation, for local, regional or statewide projects. The supreme court may directly provide or contract for services consistent with the purposes of the fund. Monies from the fund shall supplement monies already provided to local courts for purposes consistent with the purposes of the fund.

Text Sample 5.51 indicates that the supreme court must administer the fund and may expend monies from the fund. A related, but independent fact, is that the fund supplements money provided by local courts. These functions are not reliant upon each other for existence and there is no indication of agents working to accomplish a specific task.

5.7 Operational Definitions

Operational Definitions define a term or phrase used in a different provision. They define terms by either describing identifying features or details (Text Samples 5.52 - 5.53), or by providing a list of other terms or items that the target term encompasses (Text Sample 5.54 - 5.55).

Text Sample 5.52: AZ Rev. Stat. §46-171 (2019)

In this article, unless the context otherwise requires:

1. “Lifespan respite care” means a coordinated system of accessible, community-based respite care services for family caregivers of children or adults with special needs.
2. “Respite care” means short-term care and supervision services that are provided to an individual to relieve the individual’s caregiver (. . .)

Text Sample 5.53: AZ Rev. Stat. § 38-921 (2019) (B)

E. For the purposes of this section:

1. “Active member” means a member who satisfies the eligibility criteria of the state retirement system or plan and who is currently making member contributions to or receiving credited service from the state retirement system or plan.
2. “Inactive member” means a member of the state retirement system or plan who previously made contributions to the state retirement system or plan and who satisfies each of the following:
 - a. Has not retired.
 - b. Is not eligible for active membership in the state retirement system or plan (. . .)

Text Sample 5.54: AZ Rev. Stat. §46-137 (2019) (B)

F. In this section, “administrative expenses” does not include:

1. Grants in cash or kind to or for the benefit of needy persons.
2. Cost of providing shelter and subsistence for needy persons.
3. Cost of distributing food stamps, except as necessary in claiming any federal reimbursement.

Text Sample 5.55: AZ Rev. Stat. §20-1404.03 (2019) (E)

E. For the purposes of this section:

1. “Autism spectrum disorder” means one of the three following disorders as defined in the most recent edition of the diagnostic and statistical manual of mental disorders of the American psychiatric association:
 - a. Autistic disorder.
 - b. Asperger's syndrome.
 - c. Pervasive developmental disorder not otherwise specified. (. . .)

Very rarely, a definition will define a term in the context of a specific situation, as seen in Text Sample 5.56, below:

Text Sample 5.56: AZ Rev. Stat. §47-2326 (2019) (A)

- A. Unless otherwise agreed, if delivered goods may be returned by the buyer even though they conform to the contract, the transaction is:
1. A “sale on approval” if the goods are delivered primarily for use, and
 2. A “sale or return” if the goods are delivered primarily for resale. (. . .)

As indicated in the inclusion criteria in Table 5.1, the Operational Definition must be the sole content of the subsection in order to be coded as this functional type. Any combination of an Operational Definition and another functional type was automatically excluded and coded as ‘Other’.

5.8 Criminal Offenses

Criminal Offenses explicitly state that a prohibited action rises to the level of a criminal offense (i.e., felony, misdemeanor). This functional type of statutory provision (most frequently) describes the offense that the perpetrator is guilty of and explicitly states that the offense is criminal in nature (Text Sample 5.57).

Text Sample 5.57: AZ Rev. Stat. §12-1563 (2019)

A person against whom an action is pending or against whom a judgment has been rendered for the recovery of personal property who knowingly conceals, sells or disposes of such property with intent to hinder or delay execution of the judgment, or with like intent removes the property from the county in which it is located at the time of the commencement of the action or the rendition of judgment, is guilty of a class 6 felony.

Sometimes, Criminal Offense provisions will first state that an action is prohibited and then separately indicate that the offense rises to a criminal level, is the case in Text Sample 5.58, below. In cases such as these, the former subsection is categorized as a Criminal Offense, overriding the Prohibitions categorization.

Text Sample 5.58: AZ Rev. Stat. §11-702 (2019) (B)

- B. Members of the board of directors shall not have any direct or indirect financial interest in, or be employed in any capacity by, an entity with which the authority has a contractual or lessor-lessee relationship other than the Arizona board of regents or an institution under the jurisdiction of the board of regents. A violation of this section is a class 1 misdemeanor.

The reason for this is that prescribing a criminal offense necessarily prohibits the action as a prerequisite - but a prohibited action is not necessarily a criminal offense. This is confirmed by the *Penalty/Illegality Canon*, which explicitly states that a statute that penalizes an act makes it unlawful (Scalia & Garner, 2012, p. 295).

As is the case in Duties and Permissions, Criminal Offenses may also include conditional statements, as seen in Text Sample 5.59, below.

Text Sample 5.59: AZ Rev. Stat. §4-241 (2019) (Q)

- Q. A person who is at least eighteen years of age and who is an occupant of an unlicensed premises is guilty of a class 1 misdemeanor if the person knowingly hosts on the unlicensed premises a gathering of two or more persons who are under the legal drinking age and if the person knows that one or more of the persons under the legal drinking age are in possession of or consuming spirituous liquor on the unlicensed premises.

5.9 ‘Other’ functional types

5.9.1 Statutory provisions containing multiple functions

Statutory provisions were classified as ‘Other’ for a number of reasons. The most common reason was that a single provision clearly served two or more independent communicative functions that were related to each other in topic, but *not* sequential. These provisions most often comprised 2-4 sentences, each serving a different function (Text Samples

5.60 - 5.62). Occasionally, a single sentence served two independent communicative functions (Text Sample 5.62).

Text Sample 5.60: AZ Rev. Stat. §15-2062 (2019) (B)

(Duty + Duty + Permission)

B. The purchase of the securities shall be made by the state treasurer or bond trustee on authority of a resolution of the board. The treasurer or bond trustee shall act as custodian of all securities purchased. The securities may be sold on an order of the board.

Text Sample 5.61: AZ Rev. Stat. §12-1633 (2019) (A)

(Permission + Duty)

A. After issuance of an execution, any person indebted to the judgment debtor may pay to the officer holding the writ the amount of his debt or so much thereof as is necessary to satisfy the execution. The officer's receipt shall be a sufficient discharge for the amount so paid.

Text Sample 5.62: AZ Rev. Stat. §10-3810 (2019) (B)

(Permission + Prohibition)

B. The court that removes a director may bar the director from serving on the board for a period prescribed by the court, but in no event may the period exceed five years.

5.9.2 Statutory provisions serving a function not in the framework

Other provisions that were coded as ‘Other’ were those that simply were not represented by any of the existing functional types in the framework. They often served a clear function, and frequently constituted their own category in the initial drafts of the coding framework. However, pilot coding revealed that they were highly infrequent compared to the other functional types, and thus, it was hard to justify constituting an independent category for each of these functional types in the present study. The most common of these were civil penalties (Text Sample 5.63),

indication of freedom from liability (Text Sample 5.64), entitlement (Text Sample 5.65), eligibility (Text Sample 5.66), and application provisions (Text Sample 5.67).

Text Sample 5.63: AZ Rev. Stat. §25-520 (2019) (C)

(civil penalty)

- C. A person or entity that, without reasonable cause, fails to comply with the subpoena or that wilfully gives false information is subject to a civil penalty of not more than two hundred fifty dollars for each violation.

Text Sample 5.64: AZ Rev. Stat. §44-308 (2019) (D)

(freedom from liability)

- D. An issuer, the holder and any transfer agent or other person who acts pursuant to the instructions and on behalf of the issuer or holder in accordance with this section are not liable to the apparent owner and are indemnified against all claims of any person in accordance with section 44-310.

Text Sample 5.65: AZ Rev. Stat. §18-12 (2019) (E)

(entitlement)

- E. Members of the committee are not eligible to receive compensation but are eligible to receive reimbursement for expenses pursuant to title 38, chapter 4, article 2.

Text Sample 5.66: AZ Rev. Stat. §43-1504 (2019) (B)

(eligibility)

- B. A child is eligible to receive an educational scholarship or tuition grant under subsection A of this section if the child meets the criteria to receive a reduced price lunch but does not actually claim that benefit.

Text Sample 5.67: AZ Rev. Stat. §14-10813 (2019) (E)

(application provision)

- E. Subsection B, paragraphs 2 and 3 of this section apply only to a trustee who accepts a trusteeship on or after January 1, 2009, to an irrevocable trust

created on or after January 1, 2009 and to a revocable trust that becomes irrevocable on or after January 1, 2009.

It's important to note that these five types of statutory provisions could be treated as independent functional types in future versions of this framework. A discussion of this possibility as an avenue of future research is presented in the final chapter of this dissertation (Ch. 9, Sec. 9.5).

5.10 Conclusion

The development of the communicative function framework used in this study came with a number of challenging coding decisions. These decisions were made in part with the help of outside informants and in part based on the researcher's best judgment. This is not to say that the coding guidelines put forward in the present study are the sole 'correct' guidelines for this type of framework moving forward. In several of these cases, alternate coding guidelines could have been implemented. Researchers who are interested in the role of communicative function in statutory law would benefit from exploring alternate coding decisions for the 'Other' category in particular, which itself holds many distinct functional types of statutory provisions.

CHAPTER 6

Relationship between Functional Types and Titles in the Arizona State Code

6.1 An introduction to ‘titles’ in the Arizona State Code

Thus far, this dissertation has reported on the state of our cumulative knowledge of codified state law, the methodological steps of the present study, and a description of the corpus. Now that this information has been presented, this dissertation will report on the first analysis that was carried out to describe the functional types of statutory provisions. This analysis is qualitative in nature and does not concern the linguistic characteristics of the texts. Instead, the analysis focuses on the relationship between the functional types of statutory provisions identified in this study and titles in the Arizona State Code.

‘Titles’ in the state code represent broad subject headings under which a codified law is classified (Cornell Law School, n.d.). When a bill is passed through the state legislature and signed into law by the governor, the law is added to the state code, which is organized into the pre-existing titles representing different subject matter, such as Education, Environment, and Taxation. ‘Codification’ refers to the arrangement of the new laws into the code by organizing them under the proper title.

Due to the nature of state law, there is not a standardized set of titles that are used across states. The number of titles that the state code is organized into, and subject matter of those titles, is up to the discretion of the state. Even so, a majority of the subject matter represented by titles is recurring across states, regardless of the exact language used to name the title. For example, titles concerning topics such as the Armed Forces, Education, Public Health, Domestic Relations, and Agriculture are common across states. This is not only due to the fact that these topics are

important across the United States, but that states have generally done a fair amount of borrowing from one another in the creation of their state codes.

In this chapter, the interplay between the functional types of statutory provisions in the Arizona State Code and the titles that they are organized into will be explored. The non-linguistic analysis in this chapter will focus on the proportion of the statutory provisions in each title that represent each functional type of provision identified in the present study. An analysis of the recurring patterns in the proportional breakdown of functional types in the 47 titles is presented in Section 6.3. The findings of this chapter are synthesized in Section 6.4.

6.2 Distribution of statutes and subsections across titles in the Arizona State Code

The 47 titles in the Arizona State Code are presented below in Table 6.1. When the initial sample of 1,000 statutes was taken from the Arizona State Code, texts were sampled in a balanced manner in order to ensure that all 47 titles were equally represented in the sample. However, because statutes comprise variable numbers of subsections, the number of statutory provisions representing each title also varies. Table 6.1 presents the names of the titles in the Arizona State Code, the number of statutes originally sampled from each title to compile the corpus, the resulting number of statutory provisions representing each title (“No. of subsections per title”), and the average number of subsections per statute.

Table 6.1
Distribution of statutes and subsections across titles

Title No.	Title	No. of statutes per title	No. of subsections per title	Avg. no. of subsections per statute
1	General Provisions	18	28	2
2	<i>(Repealed)</i>			
3	Agriculture	22	49	2
4	Alcoholic Beverages	23	100	4

5	Amusement and Sports	22	98	4
6	Banks and Financial Institutions	22	60	3
7	Bonds	12	16	1
8	Child Safety	22	70	3
9	Cities and Towns	21	98	5
10	Corporations and Associations	21	50	2
11	Counties	21	57	3
12	Courts and Civil Proceedings	22	68	3
13	Criminal Code	22	64	3
14	Trusts, Estates, and Protective Proceedings	22	61	3
15	Education	22	48	2
16	Elections and Electors	21	77	4
17	Game and Fish	22	51	2
18	Information Technology	22	50	2
19	Initiative, Referendum, and Recall	22	67	3
20	Insurance	21	54	3
21	Juries	21	50	2
22	Justice and Municipal Courts	22	46	2
23	Labor	21	63	3
24	<i>(Repealed)</i>			
25	Marital and Domestic Relations	21	64	3
26	Military Affairs and Emergency Management	22	49	2
27	Minerals, Oil and Gas	22	63	3
28	Transportation	22	70	3
29	Partnership	21	80	4
30	Power	21	56	3
31	Prisons and Prisoners	22	60	3
32	Professions and Occupations	21	95	5
33	Property	21	52	2
34	Public Buildings and Improvements	22	91	4
35	Public Finances	21	52	2
36	Public Health and Safety	21	70	3
37	Public Lands	22	75	3
38	Public Officers and Employees	21	64	3
39	Public Records, Printing, and Notices	20	50	3
40	Public Utilities and Carriers	22	71	3
41	State Government	21	87	4

42	Taxation	23	69	3
43	Taxation of Income	21	58	3
44	Trade and Commerce	22	57	3
45	Waters	21	64	3
46	Welfare	21	67	3
47	Uniform Commercial Code	22	61	3
48	Special Taxing Districts	21	45	2
49	The Environment	22	77	4
	TOTAL	1,000	2,972	3

Title 7 (Bonds) is represented by the smallest number of texts in the corpus ($n=16$) as the title itself only holds twelve total statutes. Title 4 (Alcoholic Beverages) contains the largest number of texts ($n=100$). A majority of the titles are represented by 60-80 statutory provisions.

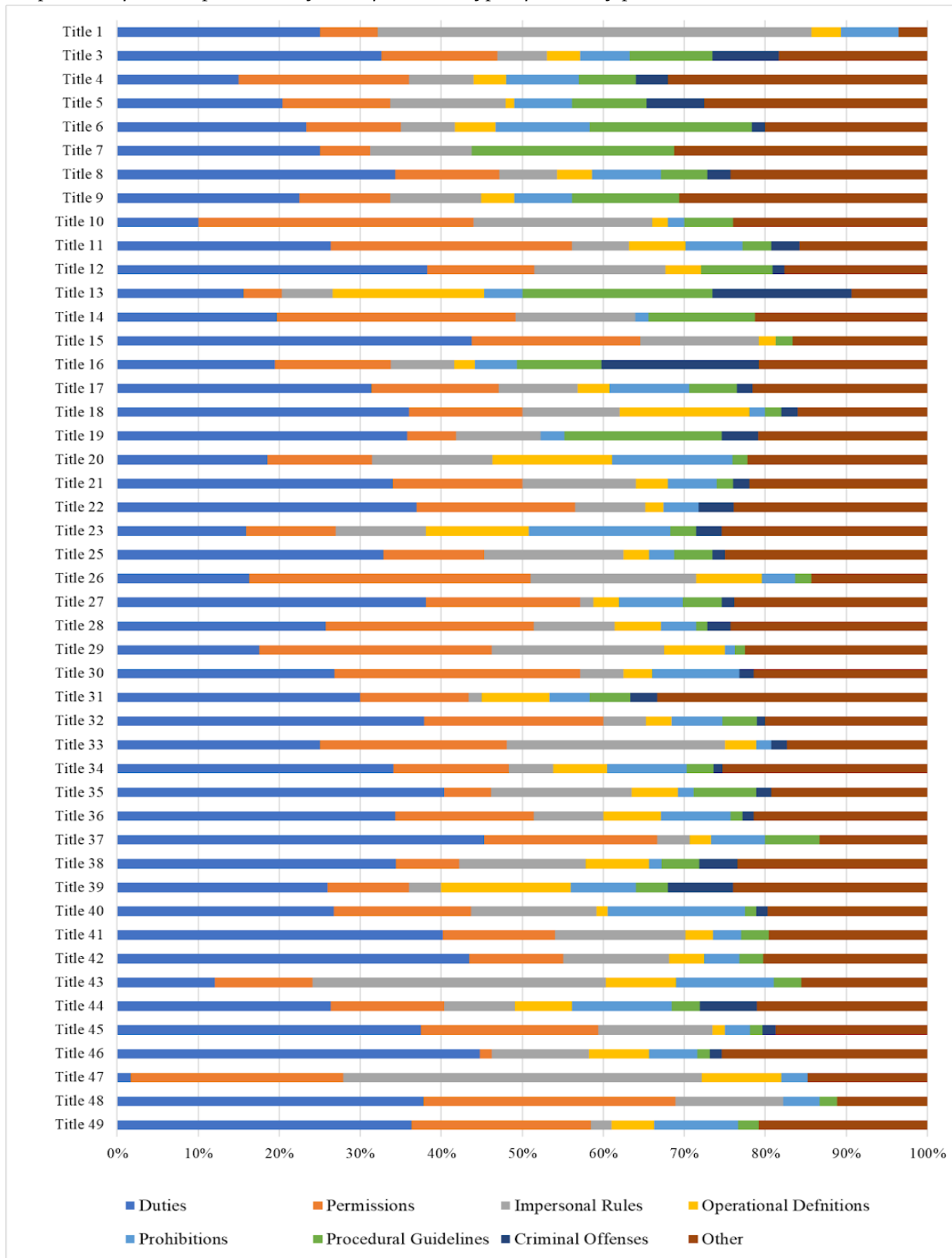
The following section (6.3) will present the proportional distribution of the functional types of statutory provisions within each of the 47 titles, followed by an analysis of recurring patterns in the proportional breakdown of functional types in the titles (Sections 6.3.1-6.3.3).

6.3 Distribution of communicative functions within titles

Figure 6.1 is a visual representation Table 6.1, displaying the proportion of the statutory provisions in each title that serve each of the functional types. Each bar in the figure below represents one of the 47 titles, as seen above, and each color within the titles represents a functional type of statutory provision. As seen in Figure 6.1, a few general patterns emerge in the distribution of functional types within the titles. First, while Duties and Permissions (blue and orange bars) naturally take up larger proportions of the titles (as the two most frequently appearing functional types in the corpus), there are a selection of titles that *predominantly* feature a combination of these two functional types. In some cases, the combined presence of Duties and Permissions accounts for over 60% of the statutory provisions in the title (Title 48, Title 37, Title 15, Title 32).

Figure 6.1

Proportion of titles represented by each functional type of statutory provision

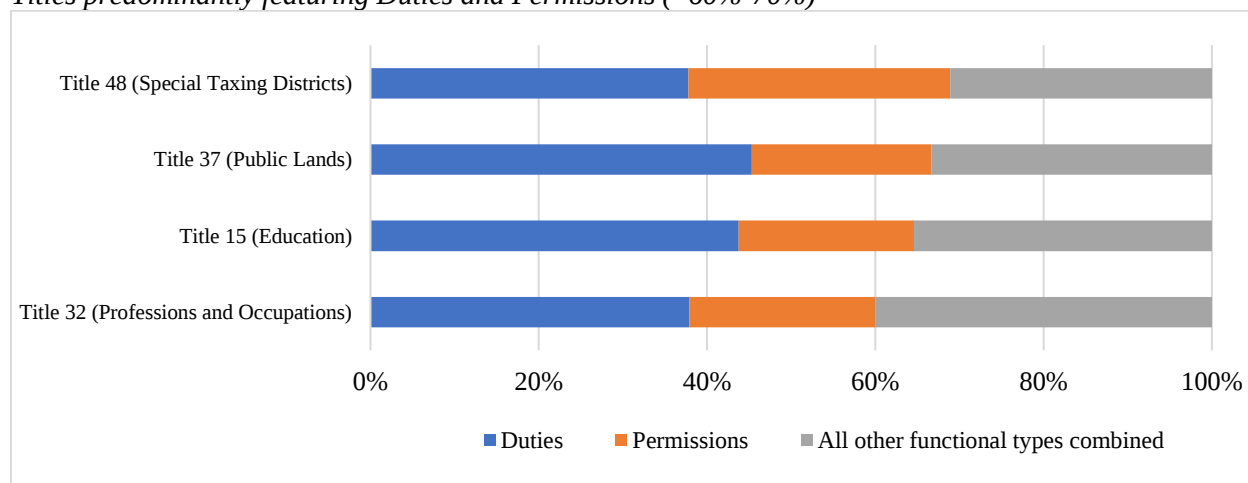


Next, there are a selection of titles that predominantly feature Impersonal Rules. While there are only three of these titles (Title 1, Title 43, Title 47), this pattern is notable as Impersonal Rules are *significantly* less common in other titles, sometimes barely present (e.g., Titles 31 and 49). Finally, there are a selection of titles that display a relatively even distribution of all seven functional types (e.g., Title 13, Title 23, Title 44). These are generally marked by a substantial increase in the appearance functions that are less common in the corpus overall, including Procedural Guidelines, Operational Definitions, and Criminal Offenses. The following sections (6.3.1 - 6.3.3) will take a closer look at each of these patterns of distribution in turn.

6.3.1. Titles featuring Duties and Permissions

The four titles with the highest proportion of statutory provisions representing Duties and Permissions include Title 48 (Special Taxing Districts), Title 37 (Public Lands), Title 15 (Education), and Title 32 (Professions and Occupations) (Figure 6.2). In these four titles, Duties and Permissions represent 60 – 70% of the provisions in the title. The following sections (Sec. 6.3.1.1 - 6.3.1.4) will take a closer look at the role of the Duties and Permissions provisions in each of these titles.

Figure 6.2
Titles predominantly featuring Duties and Permissions (~60%-70%)



6.3.1.1 Title 48 - Special Taxing Districts. ‘Special Taxing Districts’ in Arizona refer to political subdivisions that are governed by an elected board. The current Special Taxing Districts in the state of Arizona include County Road Improvement districts, Domestic Water Improvement districts, Fire districts, Hospital districts, Sanitary districts, and Street Lighting Districts (Coconino County Arizona, n.d.).

Unsurprisingly, Duties and Permissions in Title 48 are nearly all directed at *the board*, *the director* or *the district*. The Duties in this title primarily pertain to three topics: (1) managing money/funds, (2) writing reports, budgets, plans, or other formal documents (Text Sample 6.1), and (3) managing programs (Text Sample 6.2).

Text Sample 6.1: AZ Rev. Stat. §48-1308 (2019) (A)

A. The board shall issue an annual financial report showing the receipts and expenditures of all monies and the district's assets and liabilities at the end of the fiscal year.

Text Sample 6.2: AZ Rev. Stat. §48-5310 (2019)

The director of the department of transportation shall develop and annually update as a component of the five year transportation facilities construction program provided in section 28-6954 the use of monies expected to accrue to the county's regional transportation fund as provided in this article that are dedicated for street and highway purposes and that are in the state highway system.

All of the Duties are the ‘Government obligation’ subtype (see Ch. 5, Sec. 5.2.1) which prescribe obligatory duties to government officials, entities, or institutions that are associated with the specific governmental role.

Permissions are almost entirely directed at *the board*, with a select few pertaining to *the district*. These texts pertain to similar topics, primarily documents (entering into contracts,

revoking permits) and money (spending district money as necessary, issuing bonds) (Text Sample 6.3). Several of the Permissions also pertain to land, for example, acquiring land or entering a property for a certain purpose (Text Sample 6.4).

Text Sample 6.3: AZ Rev. Stat. §48-3221 (2019)

The board of directors of an irrigation district may, when expedient, issue refunding bonds to refund the bonded indebtedness of the district.

Text Sample 6.4: AZ Rev. Stat. §48-2664 (2019) (B)

B. The board, its agents and employees may enter upon any land to make surveys and may locate necessary drainage works and lines for any canals, sluices, water-gates, sites and embankments, and the necessary branches thereof on any land which is deemed suitable for such location.

Like Duties, Permissions in Title 48 are generally aimed at government officials, entities, or institutions.

The other five functional types are barely represented in Title 48. In the 45 statutory provisions in this title, there are six Impersonal Rules, two Prohibitions, and one Procedural Guideline. Nearly all of the Impersonal Rules pertain to bonds (Text Sample 6.5):

Text Sample 6.5: AZ Rev. Stat. §48-150 (2019) (A)

A. Bonds issued under this article and bearing the signatures of officers in office on the date of the signing thereof shall be valid and binding obligations, notwithstanding that before delivery and payment thereof any and all of the persons whose signatures appear thereon have ceased to be officers of the district issuing the bonds.

The Prohibitions in Title 48 pertain to the distribution of money (AZ Rev. Stat. §48-4204-D) and the interpretation of the provision itself (i.e., *this section shall not be construed*

as...) (AZ Rev. Stat. §48-1067-C). There are no Criminal Offenses or Operational Definitions in Title 48.

6.3.1.2 Title 37 - Public Lands. Title 37 concerns Public Lands, which are areas (both land and water) that are collectively owned by citizens of the state, and managed by government agencies (Arizona’s Bureau of Land Management). Like Title 48, Duties in Title 37 prescribe sets of duties associated with government-held positions and institutions, such as *the governor, the state forester, the committee, the commissioner, the department, and the board of supervisors*. Examples of these duties include administering programs, enforcing rules and other laws, and managing funds (Text Sample 6.6). In contrast to Title 48, around half of the Duties from Title 37 (Public Lands) read as the ‘Requirements’ subtype of the function (**see Ch. 5, Sec. 5.2.2**), which prescribe actions to individuals/institutions contingent upon a particular situation (Text Sample 6.7).

Text Sample 6.6: AZ Rev. Stat. §37-1015 (2019) (B)

- B. Subject to legislative appropriation, the department shall distribute five thousand dollars annually to each natural resource conservation district with an established education center for the purpose of developing and implementing an environmental education program that is conducted in a balanced manner, that is based on current scientific information and that includes a discussion of economic and social implications.

Text Sample 6.7: AZ Rev. Stat. §37-372 (2019) (D)

- D. If the legislature appropriates insufficient monies to make the full payment determined under this section for a fiscal year, the commissioner shall proportionately reduce the payments to all counties under this section according to the amount appropriated.

Permissions provisions in Public Lands give powers to government officials/institutions (e.g., *the commissioner, the state land department*) to take a number of different actions. The two most common are: (1) overseeing, approving, or compiling a variety of formal documents, such as permits, leases, and contracts (Text Sample 6.8), and (2) conducting inspections of various ongoing projects, or investigations (Text Sample 6.9).

Text Sample 6.8: AZ Rev. Stat. §37-105 (2019) (A)

- A. The state land department, with the approval of the governor, may make contracts for and on behalf of the state with the United States or an irrigation district organized and existing under the laws of the state, which is served wholly or partially by a federal reclamation project, to include lands owned by the state or belonging to any institution of the state within the project and to agree to pay as much of the cost of the project as becomes due on account of such lands.

Text Sample 6.9: AZ Rev. Stat. §37-1406 (2019) (D)

- D. An agent of the department of revenue who is also a law enforcement agent or investigator may conduct inspections pursuant to section 37-1405, subsection G.

In the 75 texts in this title, the other five functional types were quite rare. There are five Prohibitions, five Procedural Guidelines, three Impersonal Rules, and two Operational Definitions. The Prohibitions in Title 37 regulate the ways in which land is acquired and the ways in which laws are construed. The few Procedural Guidelines are varied in focus, including topics such as conducting hearings and investigating arson. Impersonal Rules concerned the composition of a government committee, and the rate of payment for acquired land. There are no Criminal Offenses in Title 37.

6.3.1.3 Title 15 – Education. Statutory provisions in Title 15 pertain to Education.

Duties and Permissions in Title 15 are primarily directed at government education officials, schools, or school boards. As is an emerging theme in titles dominated by Duties and Permissions, these provisions primarily concern the management of money, including budgeting, appropriations, and financial transactions (Text Samples 6.10 - 6.13), and are often tied to documentation (budgets, financial reports, etc.). A large majority of the provisions of both functional types are directed at *the board* (referencing the governing board of the school district).

Text Sample 6.10 (Duty): AZ Rev. Stat. §15-1324 (2019)

The board shall prepare and file:

1. An annual report to the governor with a detailed statement of the cost of maintaining the school which shows in detail every financial transaction, a complete record of the conditions and work of the school, and including reports by the superintendent and chief medical officer.
2. An estimate for the use of the legislature of appropriations necessary for the support of and for needed improvements to the school, and also a report of the operation of the school for the preceding year.

Text Sample 6.11 (Duty): AZ Rev. Stat. §15-1825 (2019) (B)

- A. Each community college and university shall report on December 31 and June 30 of each year to the joint legislative budget committee the total number of students who applied and the total number of students who were not entitled to tuition waivers (. . .) or any other type of financial assistance that is subsidized or paid in whole or in part with state monies (. . .)

Text Sample 6.12 (Permission): AZ Rev. Stat. §15-724 (2019) (A)

- B. The governing board may include in its proposed school district budget finances required for the purchase of textbooks, subject matter materials and supplementary books for the use of registered high school pupils.

Text Sample 6.13 (Permission): AZ Rev. Stat. §15-1142 (2019)

The governing board of any school district may:

1. Establish and operate a community school program in any school in its school district.
2. Budget and expend from the maintenance and operation section of the budget, as defined in section 15-903, to employ a qualified director necessary for each school or combination of schools engaged in community school programs (. . .)

In the 48 total statutory provisions in Title 15, only nine represented other functional types of statutory provisions. There were seven Impersonal Rules, one Operational Definition, and one Procedural Guideline. The Impersonal Rules provisions cover a variety of topics, including the composition of a governing board for a school in a military reserve (AZ Rev. Stat. §15-465.01-A), the terms of employment for a teacher who has transferred schools (AZ Rev. Stat. §15-547), and the validity of a bond (AZ Rev. Stat. §15-1486), among others. The Operational Definition in this title defined terminology related to personnel, namely, “board”, “eligible group”, “employer,” and the Procedural Guideline pertained to a hearing for the proposed cancellation of unsold bonds. This title did not contain any Prohibition or Criminal Offense statutory provisions.

6.3.1.4 Title 32 - Professions and Occupations. Title 32 pertains to Professions and Occupations in Arizona. The title itself consists of ‘chapters’ which hold laws pertaining to different occupations; for example, barbers, certified public accountants, podiatry, and contractors. Duties in Title 32 are distinct from Titles 48, 37, and 15 as they are primarily aimed at individuals in non-government positions. In Title 32, Duties prescribe requirements for conduct in specific circumstances, as opposed to obligations. While *the department* and *the*

director appear somewhat infrequently, individuals such as *the applicant, the lienholder, the patient, a health professional* and *a physician* are far more common.

While these provisions are distinct in the agent that they pertain to, the content of the Duties and Permissions in Title 32 are consistent with the previous three titles: money and various forms of documentation (Text Samples 6.13 - 6.15). Permissions look much the same, focused on topics such as charging fees, entering into agreements, and licensure; however, over half of the Permissions provisions pertain to a specific govt. entity: *the board* (referring to the board of barbers) (Text Sample 6.15).

Text Sample 6.13 (Duty): AZ Rev. Stat. §32-1822 (2019) (B)

- B. An applicant must submit with the application the nonrefundable application fee prescribed in section 32-1826 and pay the prescribed license issuance fee to the board at the time the license is issued.

Text Sample 6.14 (Duty): AZ Rev. Stat. §32-1978 (2019) (B)

- B. A person making a retail sale of a finished drug product containing any quantity of dextromethorphan must require and obtain proof of age from the purchaser before completing the sale, unless the person making the sale reasonably presumes the purchaser to be at least twenty-five years of age based on the purchaser's outward appearance.

Text Sample 6.15 (Permission): AZ Rev. Stat. §32-1822 (2019) (D)

- D. The board may deny a license for any unprofessional conduct that would constitute grounds for disciplinary action pursuant to this chapter or as determined by a competent domestic or foreign jurisdiction.

Of the 95 statutory provisions in Title 32, there were only 19 provisions serving functions other than Duties or Permissions: six Prohibitions, five Impersonal Rules, four Procedural Guidelines, three Operational Definitions, and one Criminal Offense. The Prohibitions

provisions prohibited a range of actions by those in particular occupations (Text Samples 6.16 – 6.17).

Text Sample 6.16: AZ Rev. Stat. §32-325 (2019) (E)

- E. Instructors shall not apply their time to private practice with or without compensation in a school or during school hours.

Text Sample 6.17: AZ Rev. Stat. §32-1871 (2019) (B)

- B. An osteopathic physician may not dispense a schedule II controlled substance that is an opioid, except for an implantable device or an opioid that is for medication-assisted treatment for substance use disorders.

The Impersonal Rules in this title also pertain to a mixture of topics, including prescribing a date of expiration for a license (AZ Rev. Stat. §32-1396-A), and indications of when a complaint is *effective* and *complete* (AZ Rev. Stat. §32-1551-L). Notably, this is the only title of the four examined in this section that holds a Criminal Offense. This is likely related to the fact that statutory provisions in this title more often pertain to the dealings of non-governmental individuals. Indeed, the lone Criminal Offense in the four titles analyzed in this section pertains to the actions of a practitioner of veterinary medicine (Text Sample 6.18):

Text Sample 6.18: AZ Rev. Stat. §32-2238 (2019) (A)

- A. A person is guilty of a class 1 misdemeanor who:
1. Practices veterinary medicine or surgery under an assumed name.
 2. Falsely impersonates another practitioner.
 3. Fraudulently obtains a veterinary medical diploma, license or record of registration (. . .)

6.3.1.5 Summary. The four titles with the largest combined proportion of Duties and Permissions, including Title 48 (Special Taxing Districts), Title 37 (Public Lands), Title 15 (Education), and Title 32 (Professions and Occupations) share a few general characteristics. Most

notably, they concern broad areas in which government officials, entities, and institutions have important roles to play. This was further evidenced by the pervasive reference to such agents (*the board, the district, the commission*, etc.). Duties and Permissions in these titles generally concerned two topics: financial dealings (e.g., budgets, fees, appropriation of funds, and bonds) and various forms of documentation (e.g., writing and managing contracts, and writing reports).

Functions that were notably less common in titles of these types included Procedural Guidelines, Operational Definitions, and in particular, Criminal Offenses. Only a single Criminal Offense provision appeared in these four titles. The conclusion that can be drawn from this pattern is that Duties and Permissions overwhelmingly appear in contexts in which the government (an official or entity) has a certain level of authority and a role to play.

6.3.2 Titles featuring Impersonal Rules

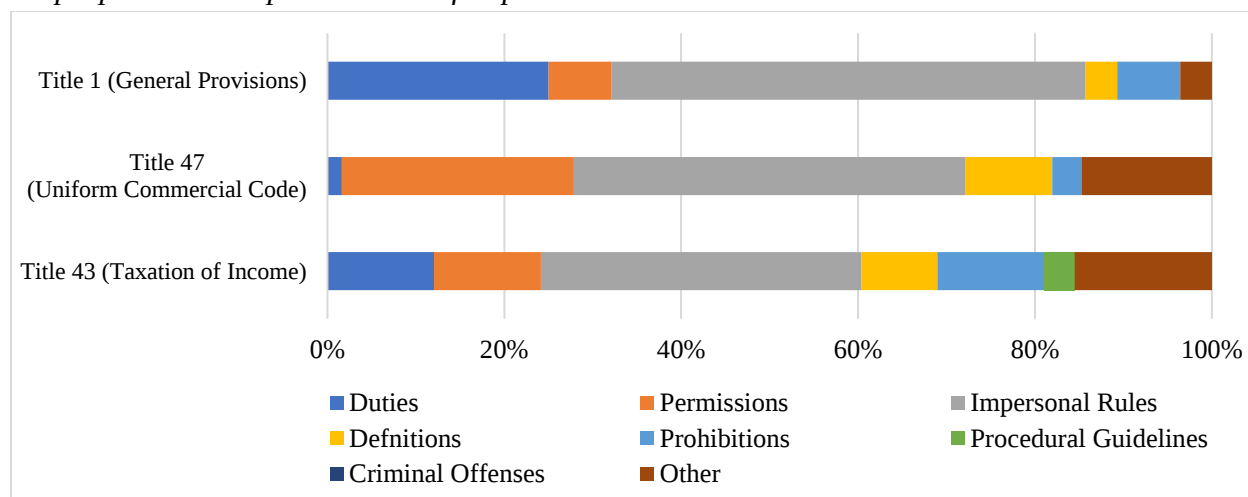
While Impersonal Rules tend to account for roughly the same proportion of statutory provisions in most of the titles (~5 – 10%) there are three titles that are disproportionately dominated by this functional type. Impersonal Rules account for 53.6% of the provisions in Title 1 (General Provisions), 44.3% in Title 47 (Uniform Commercial Code), and 36.2% in Title 43 (Taxation of Income).

The drastic increase in Impersonal Rule provisions in these three titles corresponds with a decrease in the proportion of other functional types in the titles. In reference to Figure 6.3, below, it can be seen that in Title 47, Duties provisions are the most substantially reduced in number. In addition to this, Procedural Guidelines, Operational Definitions, and Prohibitions make up a very small proportion of the provisions in these titles. Title 43 is the only title of the three that contains a Procedural Guideline provision, and not one of the three titles contains a Criminal Offense provision. This suggests that (unsurprisingly), when Impersonal Rules are

particularly dominate, the title infrequently sees provisions related to criminal matters or task completion. The following sections (6.3.2.1 – 6.3.2.3) provide an analysis of these titles followed by a brief synthesis of the interpretation of this proportional distribution (Sec. 6.3.2.4).

Figure 6.3

Disproportionate representation of Impersonal Rules within titles



6.3.2.1. Title 1 - General Provisions. General Provisions refer to “instructions pertaining to contracts in general” (Law Insider, n.d.). This makes them a good fit for Impersonal Rules, which do not prescribe, modify, or regulate human behaviors, but instead, prescribe rules related topics not concerned with human-conduct. In Title 1, nearly all of the Impersonal Rules pertain to laws themselves -- setting boundaries in application (Text Sample 6.19), indicating when a law takes effect (Text Sample 6.20), or providing additional details about the laws (Text Sample 6.21).

Text Sample 6.19: AZ Rev. Stat. §1-248 (2019) (C)

A repealing act shall not affect:

1. Any law funding the territorial or state debt.
2. Any law authorizing the issuance of, funding of, or payment of principal or interest on, territorial bonds, bonds of the state, bonds of an agency,

institution, department or political subdivision of the state, or bonds of a county, city, town or municipal corporation (. . .)

Text Sample 6.20: AZ Rev. Stat. §1-103 (2019)

Each and all of the laws and statutes as herein contained and hereby enacted shall take effect and be in force on and after twelve o'clock noon on January 9, 1956, except where a later effective date is expressly provided in any section of these Revised Statutes, the later effective date shall prevail.

Text Sample 6.21: AZ Rev. Stat. §1-212 (2019)

Except as provided in section 47-1107, headings to sections, source notes, reviser's notes and cross references are supplied for the purpose of convenient reference and do not constitute part of the law.

This 'laws-about-laws' theme in Title 1 is fairly consistent across other functional types as well. Duties provisions, which make up the next largest proportion of Title 1, almost entirely pertain to the interpretation of laws in the code, in particular, prescribing the ways in which laws are construed (Text Sample 6.22). The same holds true for Prohibitions in Title 1, which *prohibit* laws from being construed in a particular manner (Text Sample 6.23):

Text Sample 6.22 (Duty): AZ Rev. Stat. §1-211 (2019) (C)

C. The rule of the common law that penal statutes shall be strictly construed has no application to these Revised Statutes. Penal statutes shall be construed according to the fair import of their terms, with a view to effect their object and to promote justice.

Text Sample 6.23 (Prohibition): AZ Rev. Stat. §1-104 (2019) (A)

A. The adoption and enactment of these Revised Statutes shall not be construed to repeal or in any way to affect or modify:

1. Any special, local or temporary laws.
2. Any law making an appropriation. (. . .)

Permissions provisions also pertain to other laws, primarily giving the power to alter them. This is demonstrated in Text Sample 6.24, below.

Text Sample 6.24 (Permission): AZ Rev. Stat. §1-242 (2019) (D)

D. The rejection of daylight saving time as provided for in this section may be changed by future legislative action.

There are no Procedural Guideline or Criminal Offense provisions in Title 1.

6.3.2.2. Title 47 - Uniform Commercial Code. The Uniform Commercial Code governs commercial transactions and financial contracts in the state. Impersonal Rules in this title largely pertain to legally-binding agreements and documentation, including contracts, sales, claims, and statements (Text Samples 6.25 – 6.26).

Text Sample 6.25: AZ Rev. Stat. §47-7509 (2019)

Whether a document of title is adequate to fulfill the obligations of a contract for sale, a contract for lease or the conditions of a letter of credit is determined by chapter 2, 2A or 5 of this title.

Text Sample 6.26: AZ Rev. Stat. §47-9512 (2019) (C)

C. A financing statement that is amended by an amendment that adds collateral is effective as to the added collateral only from the date of the filing of the amendment.

A number of Impersonal Rules also prescribe rules pertaining to security interests (Text Samples 6.27 and 6.28).

Text Sample 6.27: AZ Rev. Stat. §47-9314 (2019) (B)

B. A security interest in deposit accounts, electronic chattel paper, letter-of-credit rights or electronic documents is perfected by control under section 47-7106,

47-9104, 47-9105 or 47-9107 when the secured party obtains control and remains perfected by control only while the secured party retains control.

Text Sample 6.28: AZ Rev. Stat. §47-9316 (2019) (H)

H. The following rules apply to collateral to which a security interest attaches within four months after the debtor changes its location to another jurisdiction:

1. A financing statement filed before the change pursuant to the law of the jurisdiction designated in section 47-9301, paragraph 1 or section 47-9305, subsection C is effective to perfect a security interest in the collateral if (. . .)

Permissions are the second most common functional type of statutory provision in Title 47, which is disproportionately frequent compared to Duties. This is in stark contrast to the rest of the titles in the Arizona State Code, in which Duties are the most dominant function. Permissions in Title 47 pertain to a number of different non-governmental agents: *the buyer, the lessee, a person, a tender*, etc. These statutory provisions authorize individuals to take certain actions when participating in business transactions (Text Sample 6.29).

Text Sample 6.29: AZ Rev. Stat. §47-2604 (2019)

Subject to the provisions of section 47-2603 on perishables if the seller gives no instructions within a reasonable time after notification of rejection the buyer may store the rejected goods for the seller's account or reship them to him or resell them for the seller's account with reimbursement (. . .)

Operational Definitions are the next most common functional type of statutory provision in this title ($n=6$), all of which define terms related to documentation in a sale; for example, *agreement, contract, and termination* (AZ Rev. Stat. §47-2106). Prohibitions ($n=2$) also pertain to agreements and contracts. Criminal Offenses are not present in Title 47.

6.3.2.3. Title 43 - Taxation of Income. This particular title was born of the Arizona Income Tax Act of 1978 (as indicated in the first statute in this title, AZ Rev. Stat. §43-101). As the title of this act suggests, the statutes in Title 43 pertain to taxes imposed on the income of individuals and businesses in the state of Arizona.

As is reflected in the dominance of Impersonal Rules in this title, Title 43 provisions overwhelmingly do not pertain to human action; instead, they prescribe rates and rules, covering topics such as standard tax deductions and tax credit rates, and indicating what qualifies as taxable income and what does not (Text Samples 6.30 – 6.32).

Text Sample 6.30: AZ Rev. Stat. §43-1091 (2019) (B)

- B. Income of a nonresident from the wages or salary received by the nonresident employee who is in this state on a temporary basis for the purpose of performing disaster recovery from a declared disaster during a disaster period as defined in section 42-1130 is not considered income from sources within this state.

Text Sample 6.31: AZ Rev. Stat. §43-1041 (2019) (I)

- I. For taxable years beginning from and after December 31, 2018, the standard deduction allowed under subsection A of this section shall be increased by the amount equal to twenty-five percent of the total amount of a taxpayer's charitable deductions that would have been allowed if the taxpayer elected to claim itemized deductions under section 43-1042 rather than elect the standard deduction.

Text Sample 6.32: AZ Rev. Stat. §43-1097 (2019) (A)

- A. During the tax year in which a taxpayer changes from a resident to a nonresident, Arizona taxable income shall include all of the following:
 - 1. All income and deductions realized or recognized, or both, depending on the taxpayer's method of accounting, during the period the individual was

a resident, and any income accrued by a cash basis taxpayer prior to the time the taxpayer became a nonresident of this state.

2. All income and deductions earned in Arizona or derived from Arizona sources after the time the taxpayer became a nonresident of this state.

Duties, which account for seven of the total 58 statutory provisions in Title 43, pertain most often to the responsibilities of The Department of Revenue. Examples of these duties include administering funds and adjusting rates for inflation. In contrast, Permissions and Prohibitions are directed almost entirely at the taxpayer. They are used to indicate which tax credits and standard deductions a taxpayer may or may not take under specified circumstances (Text Samples 6.33 - 6.34).

Text Sample 6.33: AZ Rev. Stat. §43-1041 (2019) (F)

- F. Except as provided in subsection G of this section, a change of an election to take, or not to take, the standard deduction for any taxable year may be made after the filing of the return for that year.

Text Sample 6.34: AZ Rev. Stat. §43-1041 (2019) (D)

- D. In the case of a husband and wife, the standard deduction provided for in subsection A of this section is not allowed to either if the taxable income of one of the spouses is determined without regard to the standard deduction.

Operational Definitions in Title 43 define particular types of income or people, for example *married person* (AZ Rev. Stat. §43-1002) and *income-producing activity sales* (AZ Rev. Stat. §43-1147-E). As with the other two titles, Title 43 holds no Criminal Offense statutory provisions.

6.3.2.4 Summary. The titles that hold a disproportionately high number of Impersonal Rules provisions, Title 1 (General Provisions), Title 47 (Uniform Commercial Code), and Title

43 (Taxation of Income), share three distinct characteristics. First, there is a focus on *rules* as opposed to tangible events or actions. General Provisions in particular displayed a ‘laws-about-laws’ theme, including, for example, provisions that set boundaries of application or indicate specific dates that laws go into effect. The other two characteristics are a focus on financial matters and on legally-binding documents. The focus on financial matters was particularly characteristic of Titles 47 and 43. Title 43 focused on tax rates, taxable income, and deductions, while Title 43 focused on security interest and financial contracts and agreements.

This focus on rules and documentation as opposed to actions is reflected in the total absence of both Procedural Guidelines and Criminal Offenses, which directly pertain to human action.

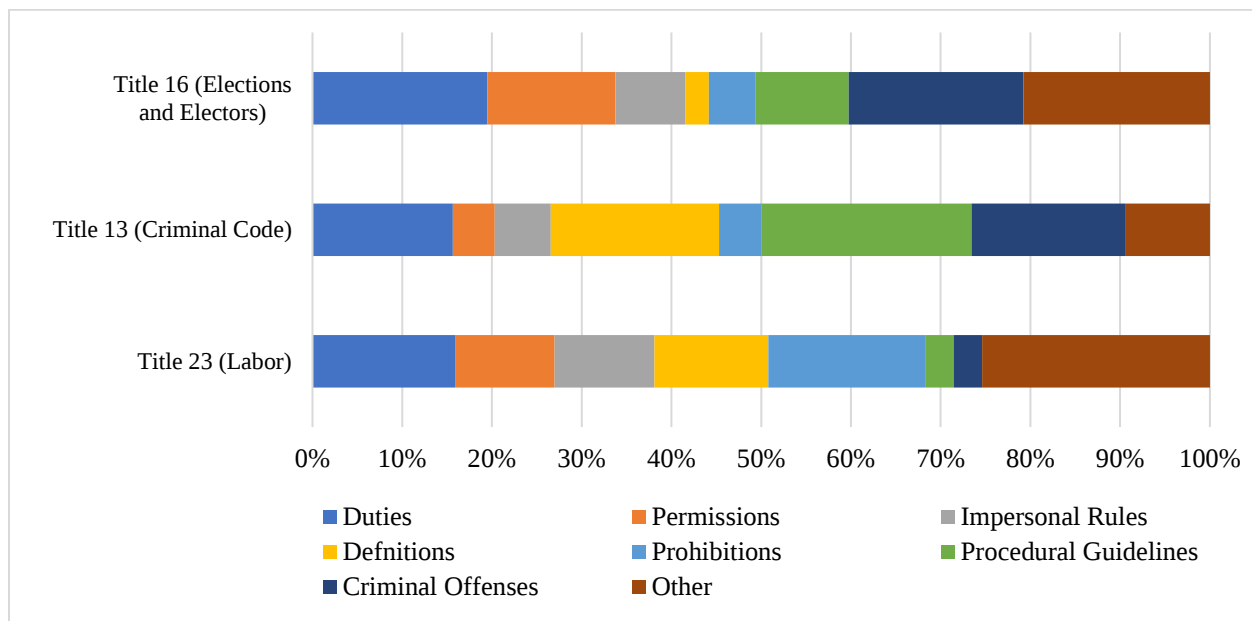
6.3.3 Titles with representation of all functional types

The final pattern of the distribution of functional types within titles is one in which all types are relatively equally represented. This is not to say that their use is necessarily proportionate, but they are relatively proportionate compared to the other patterns of distribution described above (i.e., Duties/Permissions dominant, Impersonal Rules dominant).

Even when the distribution of functions is not particularly proportionate, these titles are unique in that all seven functions are represented. The most notable difference in these titles is the increased presence of functions such as Procedural Guidelines, Prohibitions, and Criminal Offenses. There are several examples of this type of distribution, including Title 4 (Alcoholic Beverages), Title 6 (Banks and Financial Institutions), Title 13 (The Criminal Code), Title 16 (Elections and Electors), and Title 23 (Labor). The following sections will focus analysis on three of these titles: Titles 16, Title 13, and Title 23 (Figure 6.4) (sections 6.3.3.1-6.3.3.3), and will end with a brief summary of this pattern of proportional distribution (section 6.3.3.4).

Figure 6.4

Titles represented by all functional types



6.3.3.1. Title 16 - Elections and Electors. Title 16 holds laws pertaining to elections more generally and the role of electors in these elections. Criminal Offenses and Duties are the most frequently appearing functional types of statutory provisions in this title. Duties in Title 16 directly assign context-specific responsibilities to government officials participating in state elections (Text Samples 6.35 - 6.36). Duties are prescribed to a number of different individuals who have important, official roles in elections; for example, *the county recorder, the inspector of the election, a precinct committeeman, and the governor.*

Text Sample 6.35: AZ Rev. Stat. §16-822 (2019) (E)

E. The minimum duties of a precinct committeeman shall be to assist the precinct committeeman's political party in voter registration and to assist the voters of that political party to vote on election days. (. . .)

Text Sample 6.36: AZ Rev. Stat. §16-581 (2019) (A)

A. If the board of supervisors determines that a polling place is inaccessible to elderly persons or persons with disabilities, it shall provide for alternative

voting according to procedures established by the chief election officer of the state pursuant to the voting accessibility for the elderly and handicapped act (. . .)

Criminal Offenses in this title predominantly relate to two topics: voter fraud (Text Sample 6.37) and monetary contributions to candidates (Text Sample 6.38). These provisions are nearly always directed at *a person* and *any person*.

Text Sample 6.37: AZ Rev. Stat. §16-1002 (2019)

A person who counterfeits a ballot, or who circulates or gives to another a counterfeit ballot, knowing at the time that the ballot has not been issued pursuant to the election laws of the state, is guilty of a class 5 felony.

Text Sample 6.38: AZ Rev. Stat. §16-1022 (2019) (C)

C. It is unlawful for any person to make a contribution or expenditure using money or anything of value secured by physical force, job discrimination or financial reprisal, including threats of any force, discrimination or reprisal. A person who violates this subsection is guilty of a class 6 felony.

It should be noted that the prominent use of Criminal Offenses in this title is influenced by two particular statutes (AZ Rev. Stat. §16-1005 and AZ Rev. Stat. §16-1022) which account for a large majority of the 15 Criminal Offense provisions in this title.

Procedural Guidelines and Permissions in Title 16 pertain to similar topics. Both functional types, for example, have provisions pertaining to voting under unusual circumstances (i.e., overseas voting) (AZ Rev. Stat. §16-103-A) and the processes for challenging some aspect of an election. In the case of this latter topic, Title 16 has a Permissions provision that authorizes electors to challenge a candidate based on questions of qualification (AZ Rev. Stat. §16-351-B) and a Procedural Guidelines provision that describes the process of challenging early votes (AZ Rev. Stat. §16-522-D).

Impersonal Rules provisions in Title 16 prescribe rules for elections, for example, the program used to recount votes (AZ Rev. Stat. §16-664-C) and the required method for determining the number of polling places (Text Sample 6.39).

Text Sample 6.39: AZ Rev. Stat. §16-248 (2019) (B)

- B. The number of polling places for the presidential preference election is to be determined according to the number of active registered voters as of January 1 of the year of the presidential preference election.

There are only five Prohibitions in Title 16, which function to put limits on those able to file nomination papers (Text Sample 6.40) and regulate the corruption of voters and electors (Text Sample 6.41).

Text Sample 6.40: AZ Rev. Stat. §16-312 (2019) (D)

- D. Except in cases where the liability is being appealed, the filing officer shall not accept the nomination paper of a write-in candidate for state or local office if the person is liable for an aggregation of one thousand dollars or more in fines, penalties, late fees or administrative or civil judgments,

Text Sample 6.41: AZ Rev. Stat. §16-1014 (2019) (A)

- B. It is unlawful for a person, directly or indirectly, by himself or through any other person knowingly:
 - 1. To treat, give, pay, loan, contribute, offer or promise money or other valuable consideration, or to give, offer or promise an office, place or employment, or to promise or to procure or endeavor to procure an office, place or employment, to or for a voter, or to or for any other person, to induce the voter to vote or refrain from voting at an election for any particular person or measure, or to induce the voter to go to the polls, or remain away from the polls at an election, or on account of the voter having voted or refrained from voting for any particular person or

measure, or having gone to the polls or remained away from the polls at an election. (. . .)

Finally, Operational Definitions in Title 16 frequently concern phrases as opposed to terms, such as *significant decrease in voter turnout* (AZ Rev. Stat. §16-204.01-D) and *persons with disabilities* (in reference to access to polling locations) (AZ Rev. Stat. §16-581-B).

6.3.3.2. Title 13 - Criminal Code. The Criminal Code comprises a body of laws that regulate the way in which crimes are punished. The most frequently appearing functional type of statutory provision in the Criminal Code is Procedural Guidelines, which makes it unique from the other titles. This is closely followed Operational Definitions, Criminal Offenses and Duties, which appear in almost identical proportions in the title.

Procedural Guidelines in the Criminal Code overwhelmingly pertain to judicial proceedings, particularly in the courtroom (Text Sample 6.42) and procedures concerning the management of particular populations (e.g., individuals in juvenile corrections). There are also an assortment of other Procedural Guidelines pertaining to highly specific contexts, for example how to make a citizen's arrest (Text Sample 6.43).

Text Sample 6.42: AZ Rev. Stat. §13-4253 (2019) (B)

B. The court, on motion of the prosecution, may order that the testimony of the minor be taken outside the courtroom and be recorded for showing in the courtroom before the court and the finder of fact in the proceeding. Only those persons permitted to be present at the taking of testimony under subsection A may be present during the taking of the minor's testimony, and the persons operating the equipment shall be confined from the minor's sight and hearing as provided by subsection A. The court shall permit the defendant to observe and hear the testimony of the minor in person but shall ensure that the minor cannot hear or see the defendant. The court shall also ensure that: (. . .)

Text Sample 6.43: AZ Rev. Stat. §13-3900 (2019)

A private person who has made an arrest shall without unnecessary delay take the person arrested before the nearest or most accessible magistrate in the county in which the arrest was made, or deliver him to a peace officer, who shall without unnecessary delay take him before such magistrate. The private person or officer so taking the person arrested before the magistrate shall make before the magistrate a complaint, which shall set forth the facts showing the offense for which the person was arrested. If, however, the officer cannot make the complaint, the private person who delivered the person arrested to the officer shall accompany the officer before the magistrate and shall make to the magistrate the complaint against the person arrested.

Duties in Title 16 pertain to similar topics, most notably, requirements prescribed to specific individuals in court, or the court itself. Examples of this include requiring the court to order blood testing as petitioned (AZ Rev. Stat. §13-610-J) and requiring witnesses to appear in court when subpoenaed (Text Sample 6.44).

Text Sample 6.44: AZ Rev. Stat. §13-4074 (2019) (A)

A. A witness who has been subpoenaed to appear in a criminal action shall appear as directed and at any additional times as the court directs without further subpoena, until finally discharged by the court.

In the Criminal Code, Criminal Offenses mostly concern human-to-human offenses, such as armed robbery and various forms of abuse and extortion (Text Sample 6.45).

Text Sample 6.45: AZ Rev. Stat. §13-3623 (2019) (D)

D. A person who intentionally or knowingly engages in emotional abuse of a vulnerable adult who is a patient or resident in any setting in which health care, health-related services or assistance with one or more of the activities of daily living is provided or, having the care or custody of a vulnerable adult,

who intentionally or knowingly subjects or permits the vulnerable adult to be subjected to emotional abuse is guilty of a class 6 felony.

Operational Definitions are frequently used in the Criminal Code due to the need to define criminal acts (e.g., *emotional abuse*, *extortion*) (Text Sample 6.46). Operational Definitions from the Criminal Code are also frequently used to define human roles, such as *juror*, *vulnerable adult*, and *active member* (Text Sample 6.47).

Text Sample 6.46: AZ Rev. Stat. §13-3623 (2019) (F)

F. For the purposes of this section:

1. “Abuse”, when used in reference to a child, means abuse as defined in section 8-201, except for those acts in the definition that are declared unlawful by another statute of this title and, when used in reference to a vulnerable adult, means: (a) Intentional infliction of physical harm. (b) Injury caused by criminally negligent acts or omissions. (c) Unlawful imprisonment, as described in section 13-1303. (d) Sexual abuse or sexual assault. (. . .)

Text Sample 6.47: AZ Rev. Stat. §13-4501 (2019)

In this chapter, unless the context otherwise requires:

1. “Clinical liaison” means a mental health expert or any other individual who has experience and training in mental health or developmental disabilities and who is qualified and appointed by the court to aid in coordinating the treatment or training of individuals who are found incompetent to stand trial. (. . .)

Prohibitions, Permissions, and Impersonal Rules are all much less common in the Criminal Code. Notably, there are only four Prohibitions. Permissions in the Criminal Code give authority to individuals in particular roles to take action in the case of a criminal matter. For

example, in the sample text below, the correctional officer is authorized to use certain means to prevent a prisoner from taking a number of different actions (Text Sample 6.48):

Text Sample 6.48: AZ Rev. Stat. §13-414 (2019)

A correctional officer as defined in section 41-1661 may use all reasonable and necessary means including deadly force to prevent the attempt of a prisoner sentenced to the custody of the state department of corrections to:

1. Escape from custody or from a correctional facility.
2. Take another person as a hostage.
3. Cause serious bodily harm to another person.

Impersonal Rules in Title 16 proclaim certain truths; for example: *The regulation of remote stun guns and authorized remote stun guns is a matter of statewide concern* (AZ Rev. Stat. §13-3117-C), and (. . .) *it is an affirmative defense to a prosecution that/if...* (AZ Rev. Stat. §13-1804-B).

6.3.3.3. Title 23 – Labor. Title 23 contains labor laws, which function to protect employees and applicants from discrimination, harassment, and unfair treatment in the workplace (Labor Laws and Issues, n.d.). Of the three titles covered in this section that exhibit the use of all seven functional types, Title 23 displays the most equal distribution of these types.

Prohibitions account for the highest proportion of the provisions in this title. Prohibitions in Title 23 protect employees by prohibiting employers from requiring unnecessary or burdensome tasks or documentation (Text Samples 6.49 - 6.50). It is uncommon to see provisions in Title 23 that prohibit the general public from taking specific action.

Text Sample 6.49: AZ Rev. Stat. §23-373 (2019) (E)

- E. An employer may not require, as a condition of an employee's taking earned paid sick time, that the employee search for or find a replacement worker to cover the hours during which the employee is using earned paid sick time.

Text Sample 6.50: AZ Rev. Stat. §23-392 (2019) (G)

G. Notwithstanding subsection E of this section, an alternate work period established by the director of the department of public safety for the purpose of determining overtime compensation shall not exceed twenty-eight days or one hundred sixty hours.

Duties provisions in Title 23 are aimed at employers and other entities with authority over a work force (e.g., *the division*). They function to put in place requirements for things such as sick time, posting minimum wage orders, and promoting a healthy workplace (Text Samples 6.51 - 6.52).

Text Sample 6.51: AZ Rev. Stat. §23-323 (2019)

Every employer subject to a minimum fair wage order, whether directory or mandatory, shall keep a copy of the order posted in a conspicuous place where minors are employed. Employers shall be furnished copies of orders on request without charge.

Text Sample 6.52: AZ Rev. Stat. §23-432 (2019) (A)

A. The division shall adopt definitions, regulations and standards necessary for the operation of the program in a manner that will promote safe and healthy workplaces throughout this state. Standards for the program shall include the following requirements for participation:

1. Upper management leadership and active and meaningful employee involvement.
2. Systematic assessment of occupational hazards.
3. Comprehensive hazard prevention, mitigation and control programs.
4. Employee safety and health training.
5. Safety and health program evaluation by the division to ensure that a workplace continuously meets the standards and regulations.

Permissions in Title 23 are few in number and primarily authorize actions for employees to help empower them (e.g., using paid sick time, overtime compensation, etc.). This is also the case for Impersonal Rules, which cover a variety of topics, ranging from the circumstances under which a workplace is exempt from inspection (AZ Rev. Stat. §23-432-E) to the official end date of a government program (AZ Rev. Stat. §23-432-G). As with the Criminal Code, Operational Definitions in Title 23 are overwhelmingly used to define particular humans and entities, for example *commission*, *person with a disability*, and *employee*.

Procedural Guidelines and Criminal Offenses are the two least common functional types of statutory provisions in Title 23, each with only two provisions. Both Procedural Guideline provisions pertain to legal proceedings, one concerning the intentional employment of an unauthorized alien (AZ Rev. Stat. §23-212.01-B) and the other concerning the appointment of a guardian ad litem when the claimant is a minor or incompetent person (AZ Rev. Stat. §23-1066-A).

6.3.2.4 Summary. The titles in the Arizona State Code that contain relatively equal proportions of the seven functional types of statutory provisions share a few things in common: (1) they concern subject matter that requires the involvement of both the general public and the government (with a particular focus on the role of the public), and (2) they tend to concern high-stakes contexts. Overall, these titles are marked by their immediate applicability to the government *and* the general public, which contributes to the variety of different functional types of statutory provisions in the title. For example, both the general public and the government play a large role in Elections (Title 16). Elections are highly structured, controlled, and planned, meaning that there will naturally be an increase in Duties and Procedures. Because elections are

so heavily regulated and controlled (and are so high-stakes), Prohibitions and Criminal Offenses are also more frequently occurring in the title.

The Criminal Code (Title 13) is, of course, highly applicable to the lives of all private citizens. Criminal Offenses have potentially enormous impacts on lives and livelihoods of the general public. In addition to this, the Criminal Code contains many statutory provisions related to judicial proceedings. Like elections, judicial proceedings come with a set of strict rules and procedures, and pertain to individuals with the authority and power to make decisions.

Title 23 (Labor) was slightly different from the other two titles displaying this type of distribution of functional types, in that the predominant theme was the protection of employees. Still, the theme of applicability to the general public is clearly consistent with this title as well.

In conclusion, where there are high-stakes events, there are bound to be rules and procedures; where there is active human involvement on a large scale, there are bound to be predetermined roles and duties for certain individuals. Human involvement on a large-scale also lends itself to the prohibition of actions, and criminal offenses.

6.4 Synthesis and Conclusion

This chapter has focused on the relationship between functional types of statutory provisions and titles in the Arizona State Code. The aim of this chapter was to describe the proportional distribution of the functional types of statutory provisions within each of the 47 titles, and to interpret the patterns that emerged. There are three overarching patterns that emerged in the distribution of the functional types within titles: (1) titles dominated by the combined presence of Duties and Permissions, (2) titles that hold disproportionately high numbers of Impersonal Rules, and (3) titles that hold provisions representing all functional types of statutes.

Titles predominantly featuring Duties and Permissions (i.e., Special Taxing Districts, Public Lands, Education, Professions and Occupations) tend to concern financial matters, in particular those pertaining to a smaller proportion of the population: government officials, entities, and institutions. These financial matters included budgets, fees, bonds, appropriation of funds, etc. The second theme of these titles included a focus on official, legal forms of documentation, such as contracts, agreements, and reports. The overarching theme of these titles was the shared context in which the government had some authoritative role to play.

Titles predominately featuring Impersonal Rules (i.e., General Provisions, Uniform Commercial Code, Taxation of Income) also often concerned financial matters, and shared a focus on *rules* rather than *events* or *human actions*. The titles held laws that frequently pertained to topics such as tax rates, dates, contracts, and boundaries of the application and interpretation of the laws themselves.

Titles that demonstrated a relatively equal distribution of all seven functional types of statutory provisions (i.e., Elections and Electors, the Criminal Code, Labor) pertained to matters that required extensive participation by the public. Because there was a focus on the role of the public, functional types such as Duties and Permissions that accounted for a large proportion of the provisions in most of the titles throughout the code were drastically reduced in number, meaning that the proportions of the other functional types were larger. When the titles concerned the actions of the general public (i.e., Labor, Elections), there was more room, for example, for Prohibitions and Criminal Offenses.

The in-depth analysis of the eleven titles presented in this chapter provides us with a strong preliminary understanding of the relationship between functional types of statutory provisions and titles in the Arizona State Code. With this in mind, the present study will now

move on from the description of the relationship between functional types of statutory provisions and titles, and turn to a quantitative, linguistic description of these functional types. The following chapter will focus in particular on the pervasive lexico-grammatical features associated with each functional type of statutory provision.

CHAPTER 7

Key Feature Analysis of Functional Types of State Statutory Law

7.1 Introduction

The present study has thus far focused on identifying functional types of statutory provisions and providing a qualitative, non-linguistic description of the relationship between the functional types provisions and the titles in the Arizona State Code. In this chapter, the focus will turn to the linguistic description of these functional types of statutory provisions with the aim of investigating register-internal linguistic variation. As such, this chapter will analyze the extent to which functional types of statutes exhibit systematic patterns of lexico-grammatical variation.

To investigate potential patterns of lexico-grammatical variation, key feature analysis is employed (Biber & Egbert, 2018). Key feature analysis takes a set of lexico-grammatical features and identifies those that are markedly more frequent in one register or text type (the ‘target’ corpus) relative to one or more other registers or text types (the ‘reference’ corpus). In this way, the analysis reveals which lexico-grammatical features are distinctive or characteristic of a target register. To allow for the analysis of patterns of lexico-grammatical features between the seven functional types of statutory provisions, this study conducts a key feature analysis for each of the functional types in turn.

This chapter will present the results of these key feature analyses along with a discussion of the findings. Section 7.2 will provide a background of key feature analysis and past literature employing the method. Section 7.3 will describe the process of conducting a key feature analysis (Sec. 7.3.1), the modification the corpus for the analysis (necessary to control for text length) (Sec. 7.3.2) and feature selection (Sec. 7.3.3). Sections 7.4.1 - 7.4.7 will report results and

analysis for each of the seven key feature analyses, and Section 7.5 will synthesize and discuss these findings.

7.2 Background

Key feature analysis was first introduced by Biber & Egbert (2018) as a method of describing lexico-grammatical variation in language on the searchable web (see also Egbert & Biber, 2023). In their book *Register Variation Online*, Biber and Egbert challenged the traditional notion of a ‘register’, which was historically regarded as a major textual category with overt external indicators. The searchable web is most often void of external indicators of register (Biber & Egbert, 2018, p. 9) making it a prime target for the examination of both situational and lexico-grammatical variation within the domain.

For the key feature analysis, Biber and Egbert used the Corpus of Online Registers of English (CORE), which they sampled from the larger Corpus of Global Web-based English (GloWbE). Texts were individually coded for both their communicative purpose (e.g., to narrate, to give an opinion, to give instructions) and the specific sub-register that they belonged to (e.g., news reports, travel blogs, obituaries). Through key feature analyses of web registers, they uncovered distinct lexico-grammatical patterns between sub-registers.

Methodologically modeled after the key feature analyses conducted by Biber and Egbert (2018), Wood (2022) later conducted a key feature with the goal identifying the features that make statutory law distinct from other registers that citizens are exposed to on an everyday basis (motivated by the Plain Language Movement). This study conceptualized ‘register’ in the traditional way - as a culturally-recognized text category that is identified by a set of overt external characteristics (Biber, 2019). In this study, a corpus of statutory law served as the target corpus, which was compared to a reference corpus of several registers from CORE (i.e., news

reports, sports reports, encyclopedia articles, and historical articles). Plenty was learned about the distinctive lexico-grammatical characteristics of statutory law as an independent register; for example, the markedly high use of non-finite dependent clauses compared to other forms of popular written language, and interestingly, the absence of nominalization as a pervasive feature. Notably, Wood identified a substantial 18 key features for statutory law with the medium – large effect size range ($d > .50$) when compared to other forms of popular written language.

The key feature analyses in this chapter will offer insight into which, and to what extent, specific functional types of statutory provisions have the greatest influence on the keyness of the features identified by Wood (2022). The comparison between the findings by Wood (2022) and the findings of this study will demonstrate the types of valuable information that can be gained by looking at register-internal variation. A comparison of these findings will be presented in more detail in the synthesis and conclusion section of this chapter (sec. 7.5.3).

7.3 Methodology

7.3.1 Conducting a key feature analysis

A key feature analysis is used to compare two text types, registers, or corpora to one another in order to identify pervasive lexico-grammatical characteristics associated with the target texts. Key feature analysis makes use of the mean rates of occurrence and standard deviations of each linguistic feature in the two corpora to calculate Cohen's d effect sizes. Rates of occurrence for features are normed to account for differences in corpus size.

In the formula used to calculate Cohen's d , seen below, the mean rate of occurrence for the feature in the target corpus (M_2) is subtracted from the mean rate of occurrence of that feature in the reference corpus (M_1). This value is then divided by the pooled standard deviation (calculated using SD_1 and SD_2) in order to standardize results (Biber & Egbert, 2018, p.45). The

Cohen's d formula used to calculate an effect size for each lexico-grammatical feature is as follows:

$$d = \frac{M_1 - M_2}{SD_{\text{pooled}}}$$

where:

$$SD_{\text{pooled}} = \sqrt{\frac{SD_1^2 + SD_2^2}{2}}$$

The resulting Cohen's d value of each feature represents the 'keyness' of that feature. A large positive Cohen's d value indicates that the feature appears with a markedly higher frequency in the target corpus, while a large negative Cohen's d value indicates that the feature appears with a markedly lower frequency in the target corpus. Cohen's d values approaching zero indicate that the feature is used with a relatively similar frequency in the two corpora. In accordance with Cohen's (1977) benchmarks, d values will be interpreted as such:

<i>Cohen's d effect sizes</i>	
> ± 0.80	large
> ± 0.50	medium
> ± 0.20	small

According to Cohen (1977), features with d values $< \pm 0.20$ are not considered 'key'. This cut-off has been adopted for the key features analyses conducted in this chapter in accordance with Cohen (1977).

Seven key feature analyses were conducted in this study; one for each of the functional type of statutory revision. This means that for each key feature analysis, one functional type serves as the target corpus, and the remaining functional types, combined, serve as the reference

corpus. This allows for the identification of the lexico-grammatical features that are characteristic of each functional type. While a key feature analysis was not conducted with the ‘Other’ group as a target corpus (as they do not represent a cohesive type of subsection serving a unique function) these provisions were included in the reference corpus for all other analyses as they *do* represent a collection of functions served by statutory law.

7.3.2 Modification of the corpus for analysis

The first step to conducting the key feature analyses for this study was to modify the corpus in order to remove texts that were distinctly short in length. Short texts are generally considered less than ideal for lexico-grammatical analyses that rely on normed frequency counts, due to the fact that means and standard deviations rely upon repeated occurrences of lexico-grammatical features (Liimatta, 2022). As lexico-grammatical features cannot be counted on to appear frequently in short texts, they will pose problems for the use of a statistical technique such as key feature analysis (Clarke, 2022).

Because the corpus used in this study contains a large number of texts that are short in length, a threshold was set to exclude distinctly short texts from analysis. To determine the minimum number of words that a text could contain to be included in the analysis, means and standard deviations were calculated for two different thresholds: (1) texts >25 words and <50 words in length, and (2) texts >50 words in length. These means and standard deviations were then compared to one another to check the extent to which text length affected the values. It was determined that there were minimal differences in these values, demonstrating that a lower threshold for text length could be set. The final corpus used for the key feature analyses, which included all texts above 25 words in length, is presented in Table 7.1.

Table 7.1*Modified corpus for key feature analysis*

	No. of texts	No. of words
Duties	726	51,218
Permissions	423	31,348
Impersonal Rules	284	17,203
Procedural Guidelines	167	23,277
Prohibitions	164	10,678
Operational Definitions	141	22,224
Criminal Offenses	68	4,252
Other	600	58,475
TOTAL	2,573	218,675

7.3.3 Feature selection

To select lexico-grammatical features for analysis, previous literature was first consulted to ensure that features considered ‘typical’ of statutory language by our current understanding, such as modal verbs, dependent clauses, and the passive voice, were retained for analysis. These decisions were made primarily with reference to Goźdz-Roszkowski (2011) and Wood (2022), as the two studies that have conducted lexico-grammatical analysis of the register of statutory law.

Exploratory data analysis was used to select a majority of the features. In this method, the potential for a feature to be meaningful is determined empirically by examining its frequency in the corpus. If a feature rarely appears in both the target *and* the reference corpus, this is indication that the feature will not contribute to the analysis in a meaningful way. This method of selecting features is useful as it removes the researcher’s intuition about the relevance of particular features in the domain, and avoids prematurely removing potentially meaningful features.

Feature selection also entailed making decisions about which feature to select when there was overlap between two different features. For example, overall counts for *to*- and *that*- verb complement clauses were selected for analysis in place of an overall count for verb complement clauses, as this would allow for a more fine-grained analysis. Sometimes the reverse was preferable, however, as selecting features at a level that was too fine-grained hindered interpretability (as the features did not appear with enough consistency in the texts). In cases such as these, the overarching feature was selected. For example, individual normed frequency counts are automatically generated by the Biber Tagger TagCount program for *to*- adjective complement clauses controlled by a variety of semantic domains (e.g., evaluative, affective, and certainty adjectives). Because the occurrence of each of these individual features was not frequent enough in the texts, the normed frequency count for all *to*- adjective complement clauses combined was selected as a feature for analysis.

Finally, frequency counts were calculated for two features that do not appear in the typical output provided by the TagCount program. The first feature is the *-ing* complement clause preceded by a preposition. This feature was briefly introduced in Chapter 4, Section 4.6, where it was identified in the tag-checking and fixing process. It was included as a feature of investigation based on its frequent appearance in the corpus.

The second feature added to the analysis is called ‘definition connectors.’ In a pilot key feature analysis, both mental verbs and verbs of existence were key in Operational Definitions with large effect sizes. In looking at the texts to interpret the pervasiveness of these two features, it was found that the keyness of mental verbs was attributed entirely to the appearance of the verb *means* in the definitions, and the keyness of verbs of existence was attributed entirely to the verb *includes*. Because these two features displayed the same discourse function, which was not

consistent with their usual interpretation in other registers, these normed rates of occurrence for the two features were combined, and the new feature was given the name ‘definition connectors’ to reflect their discourse function in Operational Definition provisions. In total, the 56 lexico-grammatical features presented in Table 7.2, below, were selected to include in the key feature analyses.

Table 7.2

Lexico-grammatical features for key feature analyses

Feature category	Feature	Example feature
Verbs	modals of possibility	<i>may, can, might, could</i>
	modals of prediction	<i>shall, will, would</i>
	modals of necessity	<i>must, ought, should</i>
	present tense verb	<i>testify, bribe, accuse</i>
	past tense verb	<i>adjudicated, filed</i>
	perfect aspect	<i>has been, have been</i>
	progressive aspect	<i>trying, accusing</i>
	agentless passive verb	<i>the amendment was passed</i>
	<i>by</i> passive	<i>the bill was signed by the governor</i>
	infinitive verb	<i>to certify, to file</i>
	definition connectors	<i>means, includes, involves</i>
	verbs of causation	<i>let, permit</i>
	public verb	<i>assert, complain, testify</i>
	suasive verbs	<i>command, insist</i>
	activity verbs	<i>go, take, move</i>
	<i>be</i> verb	<i>be, am, is, was, being</i>
	<i>have</i> verb	<i>have, having, had</i>
Nouns	human nouns	<i>governor, judge, plaintiff</i>
	proper nouns	<i>Secretary of State, Arizona</i>
	process nouns	<i>meeting, trial</i>
	technical nouns	<i>arraignment, acquittal, dissent</i>
	common nouns	<i>affidavit, contract, agency, district, (all nouns except proper)</i>
	abstract nouns	<i>information, guilt, dispute, fact</i>
	place nouns	<i>courtroom, property</i>
	pre-modifying nouns	school district, state treasurer
	nominalization	<i>knowledge, application</i>

Dependent clauses	<i>that</i> verb complement clause	<i>if</i> court [determines] that the company violated the terms of the agreement...
	<i>that</i> noun complement clause	The document shall include [a statement] that the known place of business is also discontinued.
	<i>to-</i> verb complement clause	the director may [deny, revoke or refuse] to renew the license...
	<i>to-</i> noun complement clause	After notice on a petition for [permission] to resign...
	adjective complement clause	It is [unlawful] to participate in a financial transaction for...
	<i>that</i> relative clause	the court may make [any further order] that may be appropriate...
	<i>wh-</i> relative clause	any [person] who contracts directly with members of the general public...
	<i>wh-</i> pied-piping relative clause	“Agency placement adoption” means [an adoption proceeding] in which one or more of the requisite consents...
	<i>-ing</i> post-nominal modifiers	the person injured shall submit [a complaint] to the board outlining the circumstances...
	<i>-ing</i> complement preceded by a preposition	On finding that a situation described in the testimony exists for any taxable year or years...
	<i>-ed</i> passive post-nominal modifier	the bill signed by the governor...
Adverbials	adverbs	knowingly, intentionally
	<i>*doesn't include downtoner/time/place adverbs</i>	
	adverbs of time	annually, quarterly, later
	adverbs of place	everywhere, around
	subordinating conjunction - conditional	<i>if, unless</i>
	subordinating conjunction - causative	<i>because</i>
	subordinating conjunction - other	<i>as, except, until</i>
Other	adverb - downtoner	<i>nearly, only</i>
	prepositions	<i>in, on, by, at</i>
	clausal coordinating conjunction	Any person who coerces or offers a bribe to manipulate...
	phrasal coordinating conjunction	The judge considered the documentary evidence and spoken testimony.

attributive adjectives	<i>legislative body, federal court</i>
predicative adjectives	<i>The agreement is void.</i>
pronoun <i>it</i>	<i>the holder of that security interest must exercise its right against...</i>
3 rd person pronoun	<i>he, she</i>
nominal pronoun	<i>someone, everything</i>
definite articles	<i>the</i>
indefinite articles	<i>a/an</i>
word count	-

As previously noted, because the aim of this chapter is to describe the frequent and pervasive lexico-grammatical features uniquely associated with each functional type, seven key feature analyses were conducted. For each of these analyses, one of the seven functional types served as the target corpus, and the remaining functional types served as the reference corpus. The following sections (7.4.1 - 7.4.7) report on the results of these key feature analyses.

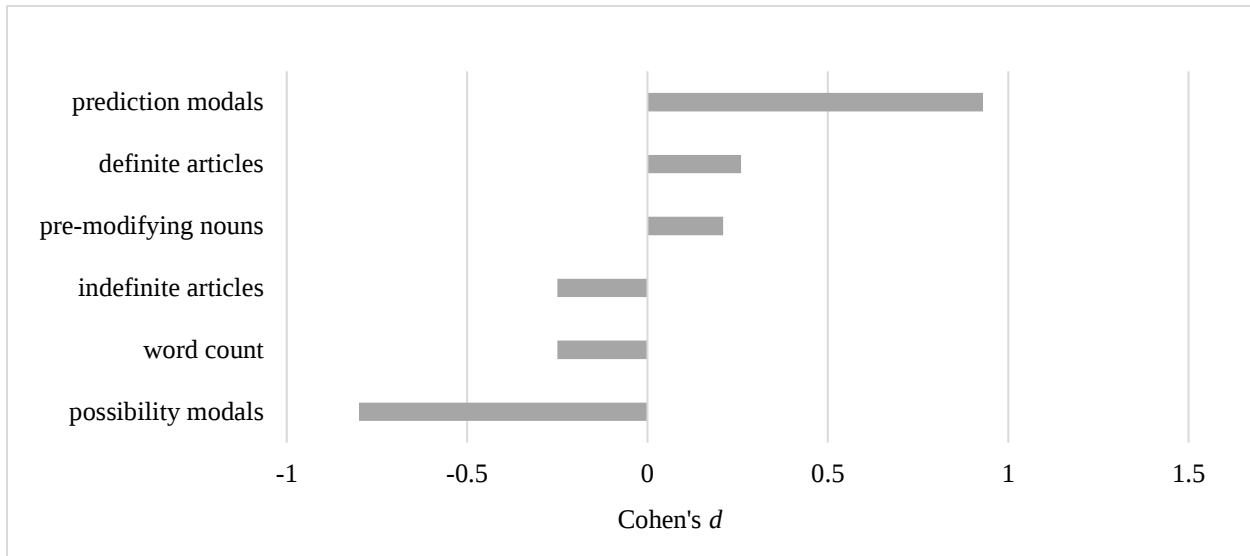
7.4 Results and Analysis

7.4.1 Duties

There are three key features in the Duties sub-corpus above the Cohen's *d* cut off of $> \pm .20$. Relative to the combined reference corpus of the other functions, Duties rely heavily on the use of prediction modals (primarily, *shall*) to prescribe obligatory actions ($d = .93$). This is in contrast with possibility modals (*may, might, could*) which are key in the reference corpus ($d = -.80$), indicating that they are markedly less common in Duties. Definite articles and pre-modifying nouns are also key in Duties, though with small effect sizes of $d = .26$ and $d = .21$, respectively.

Figure 7.1

Key grammatical features for Duties



Duties rely on prediction modals, in particular, *shall*, to express obligation. As mentioned in Chapter 3, *shall* is considered one of the hallmark features of legislative writing (Hiltunen, 1990; Caliendo, 2004; Gibová, 2011). The use of *shall* in Duties is deontic, rather than performative (as is the primary function in Operational Definitions and Impersonal Rules). It is used to prescribe duties to government officials, entities, and institutions, which are associated with the role that that official, entity, or institution plays. Examples of this use can be seen in Text Samples 7.1 and 7.2, below (modal verbs **bolded**).

Text Sample 7.1: AZ Rev. Stat. §30-104 (2019)

The authority **shall** cooperate with the state land department and the director of water resources in the duties and functions of the department and the director relating to this chapter. The authority **shall** also cooperate with the director of water resources in the planning of the hydroelectric power generation aspects of the development and use of the state's water resources.

Text Sample 7.2: AZ Rev. Stat. §36-466 (2019) (B)

B. The committee **shall**:

1. Annually select a chairperson and vice-chairperson from among its members.
2. Advise the department on the use and renewal of standing orders.
3. Conduct regular meetings at the call of the chairperson or a majority of the committee members.

Definite article *the* is also key in the Duties sub-corpus. This feature is key with a small effect size ($d=.26$), making it much less distinctive in this functional type of statutory provision compared to the modal verb *shall*. Definite article *the* is likely key due to the fact that the duties prescribed are generally highly restrictive in scope, concerning specific, individuals, items and entities. This corresponds with the markedly lower use of indefinite articles (key in the reference corpus at $d= -.25$). Note the pervasive use of definite articles in the provision below (**bolded**), which are used to communicate a high level of specificity in terms of the entities and items that the statute pertains to.

Text Sample 7.3: AZ Rev. Stat. §31-416 (2019) (A)

- A. Any officer of **the** department of corrections or any officer authorized to serve criminal process within this state, to whom **the** warrant provided by section 31-415 is delivered, shall execute **the** warrant by taking **the** paroled prisoner or offender on community supervision and returning him to **the** prison, within **the** time specified in the warrant.

The tendency for Duties to make markedly more frequent use of definite articles is also due to the fact that these types of statutes are most often directed at specific and singular governmental individuals and institutions of which there is only one (e.g., *the* president). Note in Text Sample 7.4, below, that *the* (**bolded**) is used to refer almost exclusively to single government individuals and institutions, such as *the governor*, *the state*, *the army*, and *the air force* (underlined).

Text Sample 7.4: AZ Rev. Stat. §26-122 (2019) (C)

- C. The numerical strength, composition, distribution, organization, arms, uniforms, equipment, training and discipline of **the** federally recognized national guard shall be prescribed by **the** governor in conformity with the allocation of units to **the** state by **the** department of **the** army and **the** department of **the** air force of **the** United States.

Duties rely on pre-modifying nouns ($d=.21$) for the purpose of specificity. This often results in layers of pre-modification, as demonstrated below in Text Samples 7.5 (pre-modifying nouns **bolded**). Note that a single head noun may take multiple pre-modifying nouns (e.g., *the school facilities revenue bond proceeds fund*).

Text Sample 7.5: AZ Rev. Stat. §15-2062 (2019) (A)

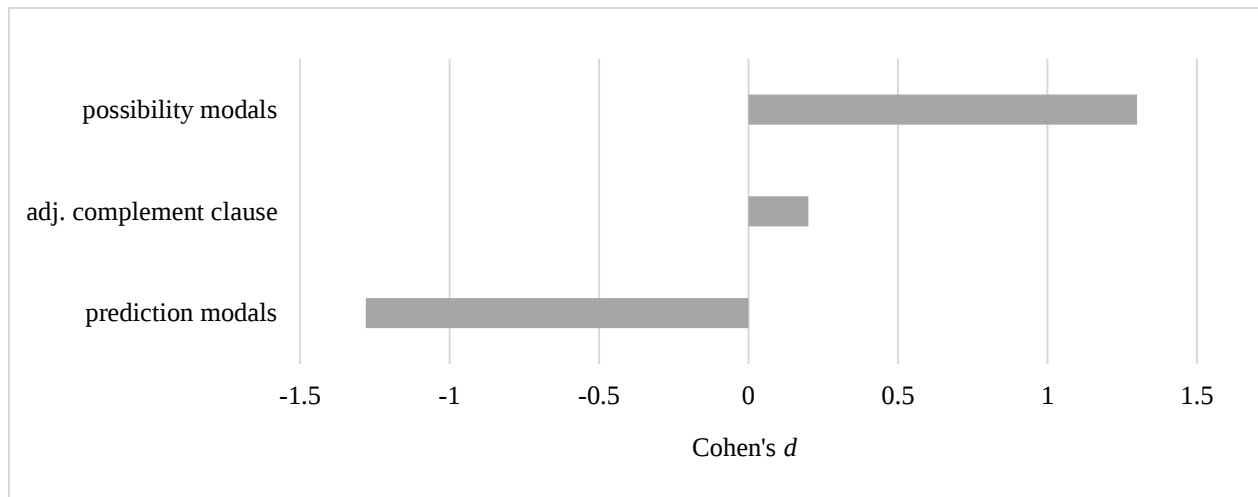
- A. On notice from the **school facilities** board, the **state** treasurer or **bond** trustee shall invest and divest monies in either the **school facilities revenue bond proceeds** fund or the **school facilities revenue debt service** fund in any of the following:
1. Obligations issued or guaranteed by the United States or any of the **senior** debt of its agencies, sponsored agencies, corporations, sponsored corporations or instrumentalities.
 2. **State, county** or municipal bonds issued in this state on which the payments of interest have not been deferred.
 3. **Investment** agreements and repurchase agreements collateralized by investments described in paragraph 1.

7.4.2 Permissions

There are two key features in the Permissions sub-corpus: possibility modals, with a large effect size of $d=1.30$, and adjective complement clauses, with a small effect size of $d=.20$.

Figure 7.2

Key grammatical features for Permissions



Possibility modal verbs are used to express permission, possibility, and ability. Permissions rely primarily on the modal verb *may* to authorize actions (appearing in 95% of the texts). Other modal verbs used to express ability and possibility (e.g., *can*, *could*, *might*) are highly infrequent in Permissions (*can* appearing in only four texts, *might* appearing in three, and *could* appearing in no texts). The use of *may* to express permission is demonstrated in Text Sample 7.6 (verb phrase **bolded**), in which an agent is authorized to enter into a contract.

Text Sample 7.6: AZ Rev. Stat. §34-201 (2019) (M)

M. Notwithstanding section 34-221, any agent **may enter** into a guaranteed energy cost savings contract with a qualified provider for the purchase of energy cost savings measures without complying with this article and **may procure** a guaranteed energy cost savings contract through the competitive sealed proposal process prescribed in title 41, chapter 23 or any similar competitive proposal process adopted by the agent.

In Permissions, adjective complement clauses are used with an evaluative function (*necessary*, *appropriate*, *satisfactory*), which is one of the three major semantic domains of adjectives that control this clausal construction (Biber et. al., 1999, p. 671). The most common of

the controlling adjectives is *necessary*, which is used as a qualification for the authorization to act (see Text Sample 7.7; clause underlined).

Text Sample 7.7: AZ Rev. Stat. §5-1106 (2019) (A)

A. The authority may:

1. Acquire land or construct, finance, furnish, improve, market or promote the use of existing or proposed major league baseball spring training facilities that are located in the authority and other structures, utilities, roads, parking areas or buildings necessary for full use of the training facilities for sports and other purposes.
2. Do all things **necessary or convenient** to accomplish the purposes described in this subsection.

It is important to note that the keyness of this feature should be interpreted with caution, as the feature is not widely dispersed across the texts in this sub-corpus (appearing in only ~11% of the texts). It does imply, however, that the feature is highly *infrequent* in the rest of the functional types of statutory provisions, meaning that it is not a particularly characteristic feature of statutory law, in general.

Modal verbs of predication are the only key feature in the reference corpus with a large effect size of $d=-1.28$. This is unsurprising, as prediction modals, particularly *shall*, are used in a variety of other functional types of statutory provisions, both with deontic uses (Duties, Procedural Guidelines) and performative uses (Definitions, Impersonal Rules). Permissions provisions, on the other hand, are not concerned with obligation or prediction.

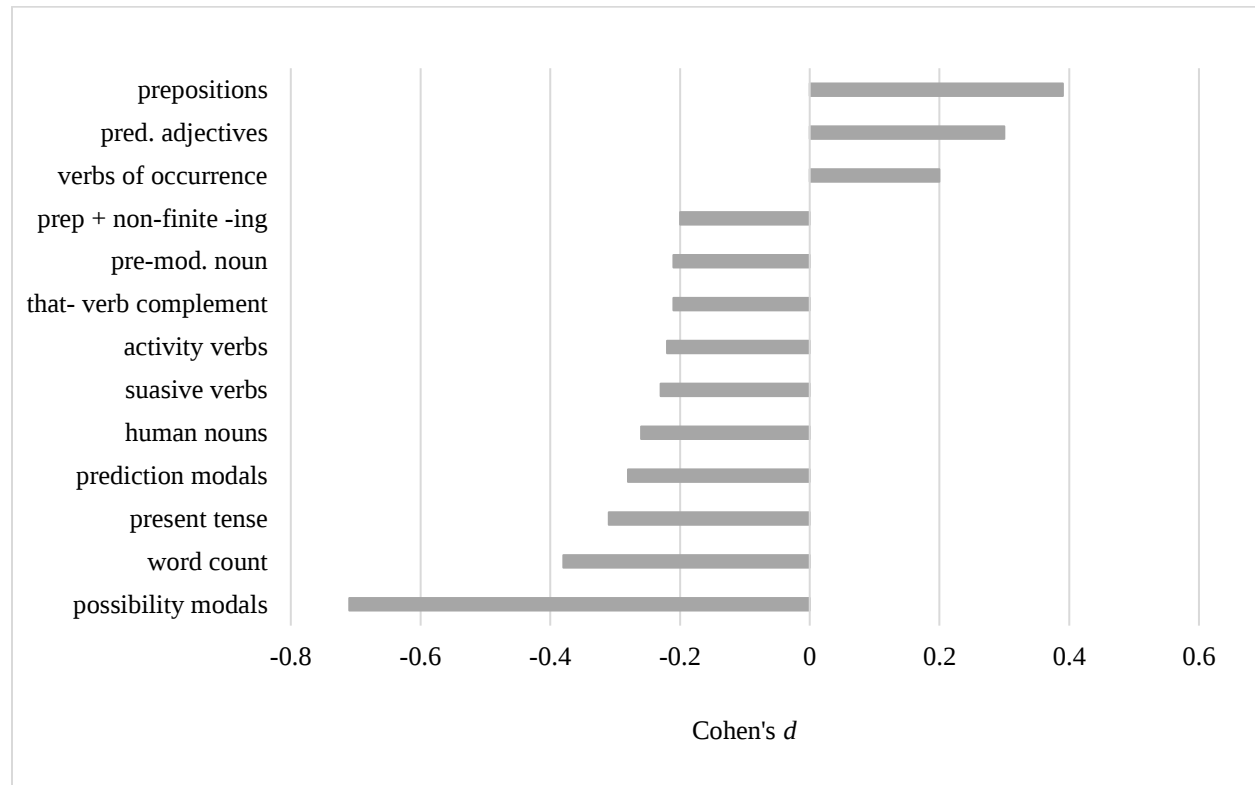
7.4.3 Impersonal Rules

There are three key features for Impersonal Rules, all with small effect sizes. Relative to the other functional types of statutory provisions, Impersonal Rules rely most heavily on prepositions (suggesting phrasal language) ($d=.39$), predicative adjectives ($d=.30$), and verbs of

occurrence ($d=.20$). While there are only three key features for this functional type, there are nine features that are key in the reference corpus, ranging from small to large effect sizes.

Figure 7.3

Key grammatical features for Impersonal Rules



The pervasiveness of prepositions in the Impersonal Rules sub-corpus is associated with informational writing, used for the purpose of compressing information into noun phrases, as opposed to presenting the information in elaborated clausal structures (Biber & Egbert, 2018, p.95). This is demonstrated in Text Sample 7.8, below, which makes use of twelve prepositions, some appearing as prepositional verbs (e.g., *consists of*, *reassigned to*) and some heading prepositional phrases (e.g., *of the United States*) to describe the organization of the national guard and qualifications to be a part of it.

Text Sample 7.8: AZ Rev. Stat. §26-122 (2019) (D)

D. The inactive national guard consists **of** commissioned, warranted and enlisted personnel relieved **from** assignment **to** the national guard **by** the adjutant general, or **at** their own request, **under** regulations prescribed **by** the department **of** national defense **of** the United States, and not reassigned **to** another component **of** the armed forces **of** the United States.

Predicative adjectives ($d=.30$) appear with copular verbs to describe the state of inanimate objects in the subject position (*X is void*, *X is ineffective*). The description of inanimate objects in particular is characteristic of Impersonal Rules, which rarely speak of humans, and never regulate human action. Examples of this use of predicative adjectives can be seen below in Text Samples 7.9 – 7.11 (adjectives underlined).

Text Sample 7.9: AZ Rev. Stat. §47-9512 (2019) (E)

E. An **amendment** is ineffective to the extent it:

1. Purports to delete all debtors and fails to provide the name of a debtor to be covered by the financing statement; or
2. Purports to delete all secured parties of record and fails to provide the name of a new secured party of record.

Text Sample 7.10: AZ Rev. Stat. §44-2000 (2019)

Any condition, stipulation or provision binding any person acquiring any security to waive compliance with this chapter or chapter 13 of this title or of the rules of the commission is void.

Text Sample 7.11: AZ Rev. Stat. §47-9610 (2019) (F)

F. **A record** is sufficient to disclaim warranties under subsection E if it indicates " There is no warranty relating to title, possession, quiet enjoyment or the like in this disposition" or uses words of similar import.

Verbs of occurrence (*become, increase*) ($d=.20$) are used with a copular function to describe *changes* in the state of things. For example, in the text sample below, *become* is used to describe a change in the state of the goods (becoming covered by a certificate of title) and a change in the state of the security interest (becoming unperfected).

Text Sample 7.12: AZ Rev. Stat. §47-9316 (2019)

Except as otherwise provided in subsection E of this section, a security interest in goods covered by a certificate of title that is perfected by any method under the law of another jurisdiction when the goods ***become*** covered by a certificate of title from this state remains perfected until the security interest would have ***become*** unperfected under the law of the other jurisdiction had the goods not ***become*** so covered.

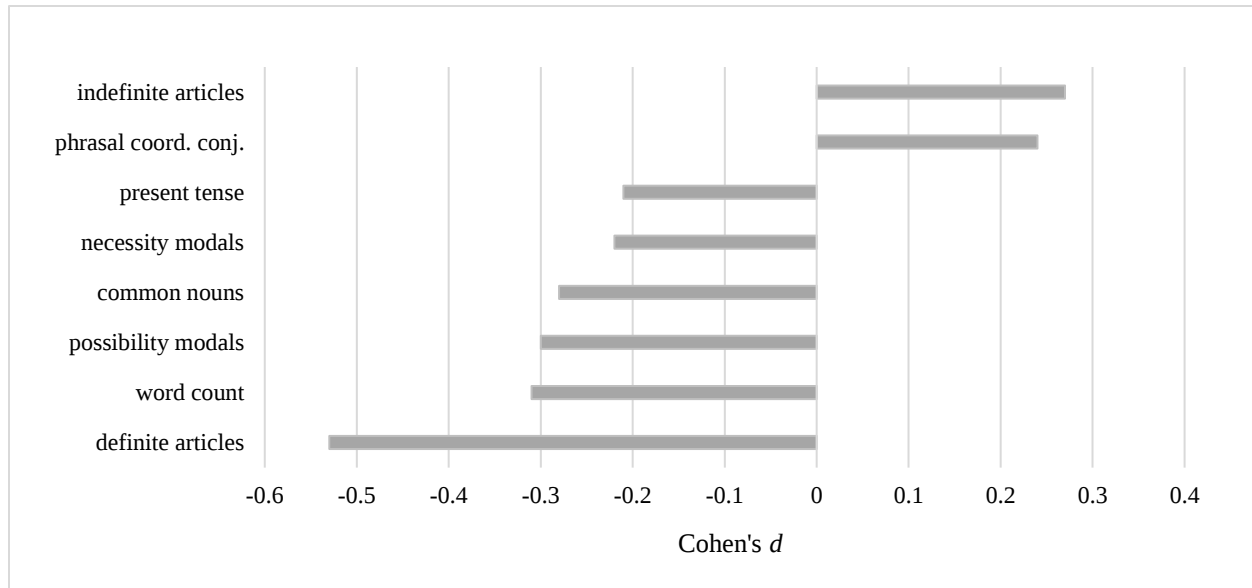
With only three key features, all of which have small effect sizes, Impersonal Rules are less lexico-grammatically distinct than other functional types of statutory provisions. However, there are ten negative key features in the reference corpus, one with a large effect size. Two of these features are modal verbs: possibility modals ($d=-.71$) and prediction modals ($d=-.28$). Prediction modals have the lower effect size of the two likely due to the occasional appearance of performative uses of *shall* (*the action shall be an original proceeding*). The other negative key features are also verb-associated (i.e., non-finite *-ing* clause, *that*- verb complement clause, activity verbs, suasive verbs), reflecting the lack of human action-related content in provisions of this functional type. Finally, and unsurprisingly, human nouns had a small effect size of $d=.26$.

7.4.4 Prohibitions

There are only two key features in the Prohibitions sub-corpus, both with small effect sizes: indefinite articles ($d=.27$) and phrasal coordinating conjunctions ($d=.24$).

Figure 7.4

Key grammatical features for Prohibitions



Prohibitions rely on indefinite articles to indicate inclusiveness of the prohibition. It is much less common for a prohibition to target a specific individual (though not unheard of), which would likely correspond with the more frequent use of definite articles (key in the reference corpus). Text Sample 7.13 demonstrates this use of indefinite articles to indicate inclusiveness of the agents or items (*a person, an authorized stun gun, a law enforcement officer, a government issued identification*) (**bolded**). When definite articles are used, they are used to refer back to an object mentioned somewhere in the preceding text.

Text Sample 7.13: AZ Rev. Stat. §13-3117 (2019) (A)

A. It is unlawful for **a person** or entity to do any of the following:

1. Sell **an authorized remote stun gun** without keeping an accurate sales record as to the identity of the purchaser with the manufacturer of the authorized remote stun gun. The identification that is required by this paragraph shall be verified with **a government issued identification**. This requirement does not apply to secondary sales.

2. Knowingly use or threaten to use a remote stun gun or an authorized remote stun gun against a law enforcement officer who is engaged in the performance of the officer's official duties.

Phrasal coordinating conjunctions ($d=.24$) are also used for the purpose of inclusiveness.

In Text Sample 7.14, below, phrasal coordinating conjunctions are used to be inclusive as to who or what the statute pertains to (**bolded**).

Text Sample 7.14: AZ Rev. Stat. §37-132 (2019) (C)

- C. The commissioner **or** any deputy **or** employee of the department shall not have, own or acquire, directly **or** indirectly, any state lands **or** the products on any state lands, any interest in or to such lands **or** products, **or** improvements on leased state lands, or be interested in any state irrigation project affecting state lands.

The five features that are markedly less frequent in Prohibitions include definite articles, two types of modal verbs (possibility and necessity), the present tense, and word count. Of these, definite articles have the largest effect size (medium effect; $d=-.53$). The remainder of the negative key features have small effect sizes. Definite articles are markedly less frequent in Prohibitions likely because a majority of the prohibitions in the corpus are targeted at the general public. This means that definite article *the* is less likely to appear, as it indicates specificity of the referent.

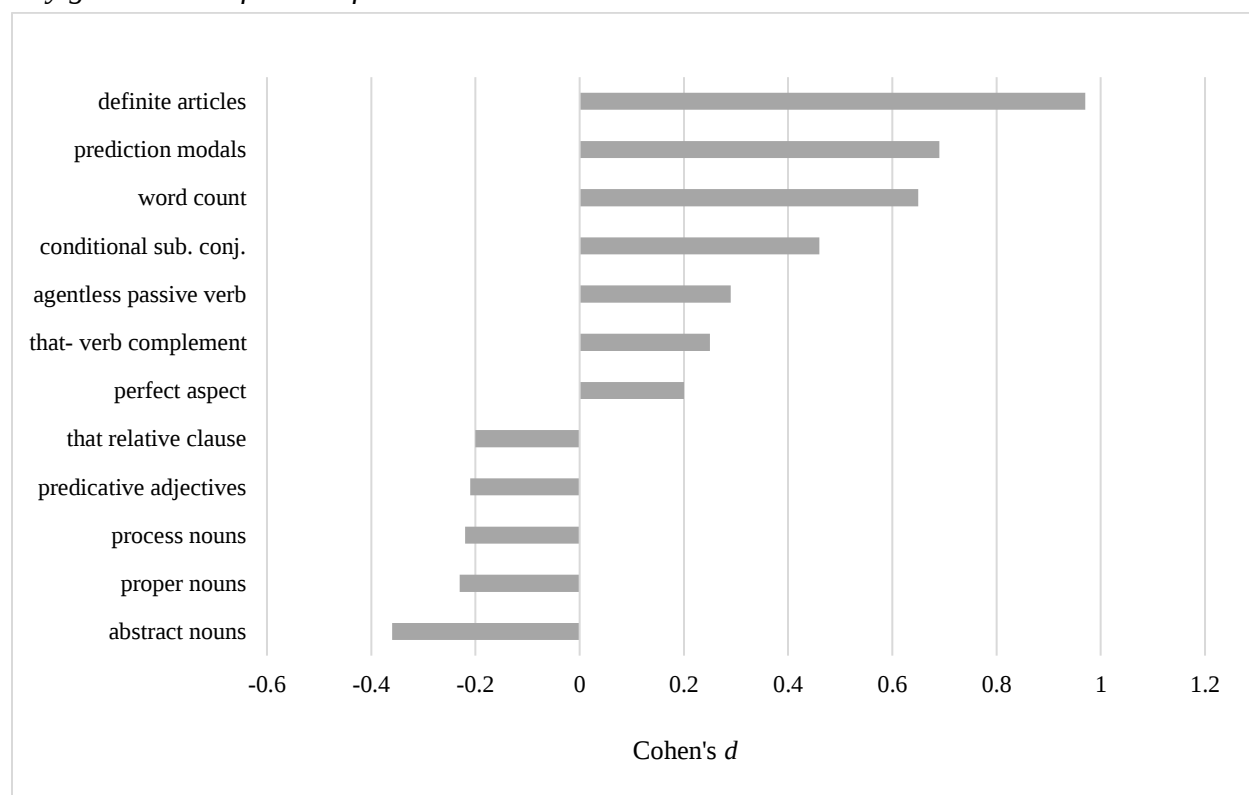
7.4.5 Procedural Guidelines

Procedural Guidelines have seven key features, one with a large effect size (definite articles, $d=.97$), one with a medium effect size (prediction modals, $d=.69$), and the remainder with small effect sizes. The features that are key with small effect sizes indicate that the texts are

highly clausal (conditional subordinating conjunctions, $d=.46$; *that*- complement clauses, $d=.25$), and longer in length relative to the other functional types (word count, $d=.65$).

Figure 7.5

Key grammatical features for Procedural Guidelines



As was the case with Duties, definite articles are markedly more frequent in Procedural Guidelines due to the highly specific context under which guidelines are prescribed. These statutes apply to specific individuals and institutions in specific situations, and are therefore, not written with a high level of inclusivity. This is demonstrated in the text sample below (7.15), which uses definite articles to identify the specific agents/items that the statute applies to (*the person, the submitting entity, the department of health services, the test, the test results, the health implications, the last known name and address of the individual*) (article **bolded**).

Text Sample 7.15: AZ Rev. Stat. §13-1415 (2019) (E)

E. **The** submitting entity or **the** department of health services shall notify **the** person tested of the results of **the** test conducted pursuant to subsection B of this section and shall counsel **the** person regarding **the** health implications of **the** results. If the submitting entity does not notify **the** person tested of **the** test results, **the** submitting entity shall provide both **the** name and last known address of record of **the** person tested and **the** test results to **the** department of health **services** or a local health department for notification purposes.

Prediction modals ($d=.69$), particularly, *shall*, are relied upon in Procedural Guidelines to assign a specific role or task to the agents in the given situation (communicating obligation of the act). *Shall* frequently appears multiple times in a single Procedural Guideline because the provisions often reference multiple agents with various roles (a defining feature of this functional type). Text Sample 7.16 demonstrates this, prescribing guidelines for three different agents (a mental health expert, the clerk of the court, and a defense attorney) using modal verb *shall* (verb phrase **bolded**).

Text Sample 7.16: AZ Rev. Stat. §8-291.10 (2019) (A)

A. The mental health expert who consults with the restoration program **shall** **submit** a written report to the court before any hearing that is held pursuant to this section. The clerk of the court **shall seal** and **file** the original report. The mental health expert **shall provide** a copy of the report to the defense attorney for redaction. Within twenty-four hours after receiving a copy of the report, the defense attorney **shall provide** copies of the redacted report to the state and the court. A report **shall be filed** as follows:

1. Every sixty days.
2. Whenever the mental health expert believes the juvenile is competent to proceed.

3. Whenever the mental health expert believes that there is no substantial probability that the juvenile **will regain competency** before the expiration of the order for participation in a competency restoration program.
4. Fourteen days before the expiration of the maximum term of the restoration order.

The appearance of conditional subordinating conjunctions (*if, unless*) ($d=.46$) reflect one of the defining characteristics of Procedural Guidelines: the description of contingencies. In addition to this, these conditional subordinating conjunctions are used to describe the circumstances under which the guidelines take effect. In otherwards, they describe the context of the guideline. The conditional subordinator *if* is particularly common. Text Sample 7.17 displays the use of multiple embedded conditional clauses controlled by subordinators *if* and *unless* (clause **bolded** and *italicized*). The tendency to embed multiple conditional clauses within one another also likely contributes to the high word count, which has a medium effect size of $d=.65$.

Text Sample 7.17: AZ Rev. Stat. §3-2155 (2019) (C)

C. ***If the division has reason to believe that*** any marking or labeling or the size or form of any container in use or proposed for use with respect to any article is false or misleading in any particular, it may direct that such use be withheld ***unless the marking, labeling or container is modified*** in such manner as the associate director prescribes so that it will not be false or misleading. ***If the person using or proposing to use the marking, labeling or container does not accept the determination of the division,*** such person may request a hearing, but the use of the marking, labeling or container shall, ***if the division so directs,*** be withheld pending a hearing and final determination by the director. Any such determination by the director shall be conclusive ***unless,*** within thirty days after receipt of notice of the final determination, ***the person adversely affected appeals to the superior court.***

Agentless passives (used when the agent is either unknown or unimportant) are used in Procedural Guidelines to describe past actions/events that brought about the context in which the guidelines take effect. It is rarely important to know *who* was responsible for the situation that necessitated the procedures. In Text Sample 7.18, for example, the agentless passive constructions are used to refer to what happened *before* the present situation, that the procedure is contingent upon. This includes the fact that the person was placed on probation, sentenced, detained, and convicted by the court (passives **bolded**).

Text Sample 7.18: AZ Rev. Stat. §13-610 (2019) (B)

- B. Within thirty days after a person **is placed on** probation and **sentenced** to a term of incarceration in a county jail detention facility or **is detained** in a county juvenile detention facility, the county detention facility shall secure a sufficient sample of blood or other bodily substances for deoxyribonucleic acid testing and extraction from the person if the person **was convicted of** or adjudicated delinquent for an offense listed in this section. The county detention facility shall transmit the sample to the department of public safety.

That-verb complement clauses ($d=.25$), which serve the purpose of completing a meaning relationship with a preceding dependent clause, are largely responsible for describing the actions taken by the agents in Procedural Guidelines. In Text Sample 7.19, for example, the verbs *recommends*, *directs*, and *orders* are reliant upon the complement clauses that they control (underlined) to have meaning. In this particular provision, they are necessary to describe exactly what actions are carried out (i.e., what is recommended in a certificate, what action is directed by the judge, etc.)

Text Sample 7.19: AZ Rev. Stat. §13-4092 (2019) (C)

- C. If the certificate **recommends** that the witness be taken into immediate custody and delivered to an officer of the requesting state to assure his

attendance in the requesting state, such judge may, in lieu of notification of the hearing, **direct** that such witness be forthwith brought before him for the hearing; and the judge at the hearing being satisfied of the desirability of such custody and delivery, for which determination the certificate shall be prima facie proof of such desirability may, in lieu of issuing subpoena or summons, **order** that the witness be forthwith taken into custody and delivered to an officer of the requesting state.

Procedural Guidelines rely on the perfect aspect ($d=.20$) to indicate that there is a sequential chain of events, which is another defining feature of this functional type of statutory provision. Procedural Guidelines describe actions that happen at multiple points in time and are dependent upon one another to take place. Perfect aspect accomplishes this by indicating that an action has previously taken place. Notice the use of the perfect aspect to communicate the sequential nature of the actions in Text Sample 7.20.

Text Sample 7.20: AZ Rev. Stat. §27-1296 (2019) (B)

B. Within sixty days after receiving a complete application, the inspector shall release all or part of the financial assurance except for any amount that is necessary to perform the reclamation measures identified in the reclamation plan. After the reclamation measures **have been performed**, the remaining financial assurance shall be released, except that ten per cent shall be retained for the costs of care, monitoring and one reseeding, if necessary, for areas that **have been revegetated**. The inspector shall release the retained monies after a period of not more than three growing seasons after the supplemental management or other man-induced inputs **have been finally removed** or as otherwise provided in section 27-1292, subsection B.

There are five key features with negative effects sizes: abstract nouns ($d=-.36$), process nouns ($d=-.22$), proper nouns ($d=-.23$), predicative adjectives ($d=-.21$), and *that*- relative clauses

($d = -.22$). Notably, all of these features are nominal in nature, while Procedural Guidelines are focused on human action. It is unsurprising to see these nominal key features in the reference corpus as nouns and verbs typically appear on opposite ends of the oral/literate dimension (Biber, 2014). Verbs tend to be associated with oral discourse and narrative discourse, and nouns tend to be associated with literate and informational discourse.

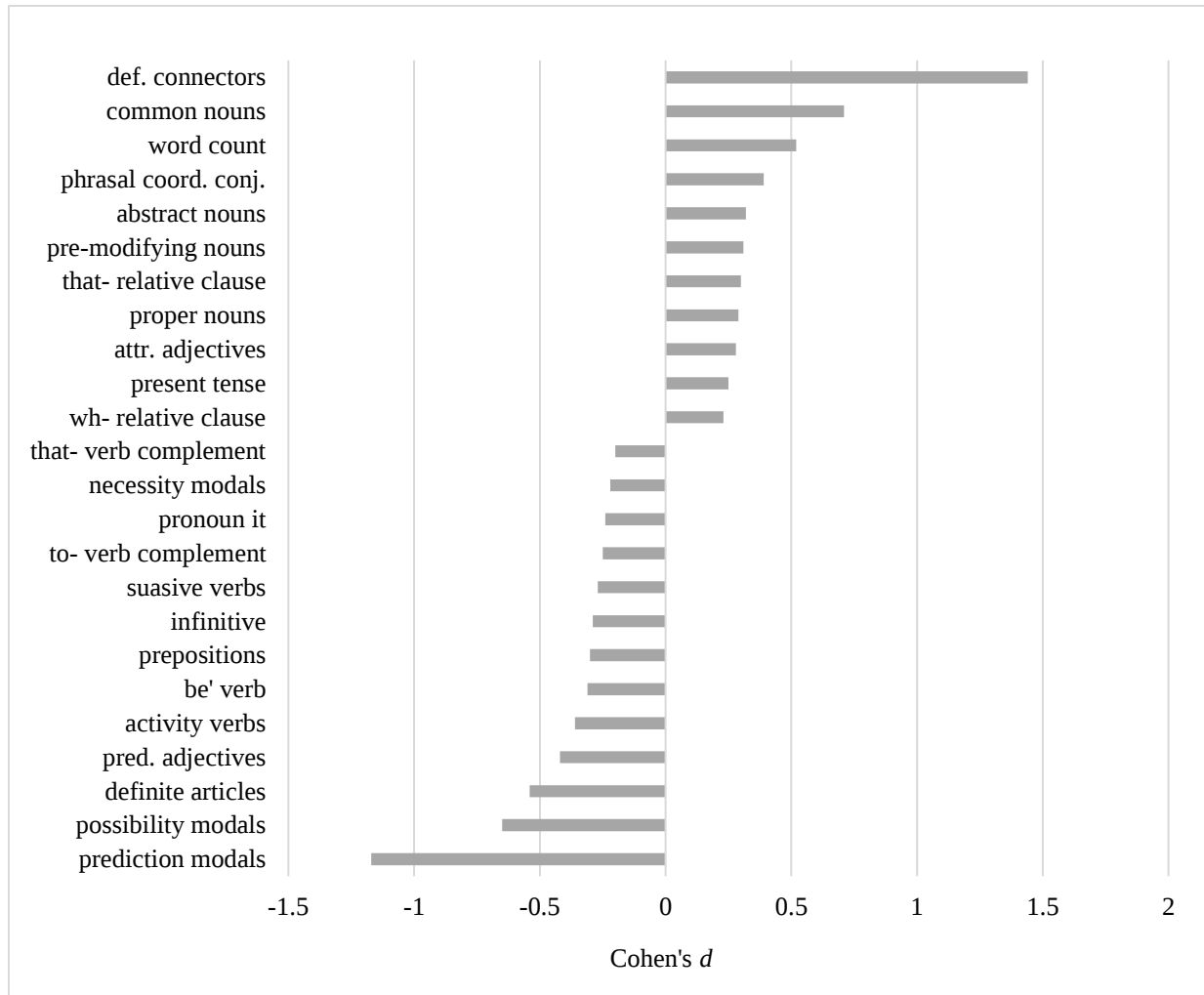
Predicative adjectives and *that*- relative clauses, also key in the reference corpus, are relatively less common in Procedural Guidelines as they are primarily used for description and identification, neither of which are prominent in texts prescribing a set of procedures.

7.4.6 Operational Definitions

There are 11 key features above the $> \pm .20$ cut off for Operational Definitions. The feature with the highest keyness value is definition connectors (e.g., *means*, *includes*) ($d = 1.44$), which is a narrow category of words that function to connect the target term or phrase to its definition or description (e.g., *X means Y*; *X includes Y and Z*; *X involves Y and Z*). Operational Definitions are markedly longer in length than the other functional types, as evidenced by the medium effect size of word count ($d = .52$). The remainder of the key features in the Operational Definitions sub-corpus have small effect sizes, including phrasal coordinating conjunctions ($d = .39$) (indicating the use of series and lists) and various semantic domains of nouns (abstract nouns, $d = .32$; proper nouns, $d = .29$). Operational Definitions are the most descriptive of the functional types, making use of a number of features used for detail, description, and identification, such as pre-modifying nouns ($d = .31$), attributive adjectives ($d = .28$), *that*- relative clauses ($d = .30$), and *wh*- relative clauses ($d = .23$). Finally, Operational Definitions make markedly higher use of the present tense when compared to other communicative function types ($d = .25$).

Figure 7.6

Key grammatical features for Operational Definitions



Definition connectors ($d=1.44$) (e.g., *means*, *includes*) are pervasive in Operational Definitions as they serve as the connector between a term and its definition in nearly all texts (95% of the texts in the sub-corpus). *Includes* is used to define a term based on a list of items that it encompasses, while *means* is used to connect a term to a description or equate a term to a list of other items. *Includes* is also often negated, used to indicate what is excluded from the definition or description of the term. The word *involved* is also used as a definition connector, though with lower frequency (see Text Sample 7.21).

Text Sample 7.21: AZ Rev. Stat. §44-1565 (2019)

In this article, unless the context otherwise requires:

1. “Beer” **means** any beverage obtained by the alcoholic fermentation, infusion or decoction of barley malt, hops or other ingredients not drinkable, or any combination of them. Beer **does not include** spirituous liquor.
2. “Franchise” **means** a commercial relationship between a supplier and a wholesaler which **includes** all of the following:
 - a. A commercial relationship of definite duration or continuing indefinite duration is **involved**.
 - b. A grant to the wholesaler of the right to offer, sell and distribute (. . .)
3. “Good cause” **means** failure by the supplier or the wholesaler to comply with the provisions of an agreement as delineated therein, which provisions are not unconscionable. Good cause **does not include** failure or refusal on the part of the wholesaler or supplier to engage in any trade practice, conduct or activity which would result in (. . .)

The reliance on nouns (common nouns, $d=.71$, abstract nouns, $d=.32$) in Operational Definitions can be attributed to two characteristics of these texts: (1) inclusiveness when clarifying what qualifies as a target term (resulting in lists), and (2) repetition of those lists. Text Sample 7.22, below, demonstrates these two characteristics in its definition of an *occupational licensing requirement*. Note first the inclusiveness: several series of nouns are favored over a single term (*a rule, regulation, practice, or policy; an occupation, trade or profession*). Definitions often list all possible variations in terminology in this way in order to ensure that a statute cannot be misconstrued. This often results in lists of nouns that the lay person may see as near synonyms.

We can also see in the text sample below that every time the text refers back to that series of items, *all* items in the series are re-named in order to avoid the implication that the statute no longer applies to some of the items. Consider, for example, if the second mention of an

occupation, trade or profession did not include the word *profession*. In this case, one must assume that this particular piece of the statute no longer applies to a *profession*. In Text Sample 7.22, these two characteristics of definitions (inclusiveness and repetition) result in the mention of the series *occupation, trade or profession* three times in this subsection alone (all series **bolded**).

The abundance of nouns in Operational Definitions goes hand in hand with the markedly higher use of phrasal coordinating conjunctions ($d=.39$) which appear every time the provision includes a series of nouns. This is also demonstrated in Text Sample 7.22 which includes ten phrasal coordinating conjunctions (underlined).

Text Sample 7.22: AZ Rev. Stat. §9-842 (2019) (I)

I. For the purposes of this section, “occupational licensing requirement”:

1. Means:

- a. A **rule, regulation, practice or policy** that is adopted by a **city or town** and that allows an individual to use an occupational title or work in a lawful **occupation, trade or profession** or a regulatory requirement that prevents an individual from using an occupational title or working in a lawful **occupation, trade or profession**.
- b. A fee or tax that a **city or town** imposes on an individual to use an **occupational title or work** in a lawful **occupation, trade or profession**.

2. Does not include:

- a. A **business license, facility license, building permit or zoning and** land use regulation.
- b. Any **license or regulation** that is required by federal law.

Operational Definitions rely on relative clauses in order to identify a referent and provide further information about a target term, or an aspect of it. Relative clauses can be either

restrictive, which function specifically to identify the intended referent of the head noun, or non-restrictive, which add elaborating details about a referent when it is assumed that it has already been identified (Biber et al., 2000, p.602).

That relative clauses are key in Operational Definitions with a small effect size of $d=.30$, and *wh*-relative clauses (relativizers *which*, *who*, *whom*, *whose*, and *where*) are key with a small effect size of $d=.23$. In Operational Definitions, relative clauses are often used to carry the content of the definition itself, as they add qualifying details about the target term. For example, in the Text Sample 7.23, below, the term is first introduced: *Finished drug product means a drug* (. . .), and the defining characteristics then appear in the relative clause modifying *drug* (**bolded**).

Text Sample 7.23: AZ Rev. Stat. §32-1978 (2019) (G)

G. For the purposes of this section:

1. “Common carrier” means any [person] **that holds itself out to the general public** as a provider for hire of the transportation of merchandise, whether or not the person actually operates the vehicle (. . .)
2. "Finished drug product" means a [drug] **that is legally marketed** under the federal food, drug, and cosmetic act and **that is in finished dosage form**.
3. "Unfinished dextromethorphan" means [dextromethorphan in any form, compound, mixture or preparation] **that is not a finished drug product**.

Text Sample 7.24, below, uses *wh*- relative clauses to list a set of qualifying descriptions of *a person* that are necessary to be considered *a qualified client* (clauses **bolded**).

Text Sample 7.24: AZ Rev. Stat. §23-901.07 (2019) (B)

B. For the purposes of this section, “qualified client” means [a person with a disability] **who is enrolled in a vocational training program with a nonprofit organization, who works as part of this program** for the

nonprofit organization or for another person under a contract with the nonprofit corporation and **who receives compensation for the work** from the nonprofit organization.

Operational Definitions rely on pre-modifying nouns ($d=.31$) and attributive adjectives ($d=.28$) for the purpose of description, in particular, to add qualifying details about a term. These two features are typically associated with literate discourse and condensed language, as demonstrated in Operational Definitions, where they function to fit as much information as possible into a small space, contributing to the dense nature of this functional type. Note that these effect sizes are small, meaning that while they are still distinctive of Operational Definitions, they are less distinctive than features such as definition connectors, high word count, and common nouns. This is to be expected, as all statutes have historically been associated with dense language (Bhatia, 1993; Hiltunen, 2012).

Pre-modifying nouns are used in Operational Definitions to clarify which *type* of the term is being discussed. In Text Sample 7.25, notice the number of pre-modifying nouns that are necessary to specify which type of *university*, *district*, *court*, *network*, and *system* the definition is referring to. Notice also that head nouns (underlined) that are not pre-modified by another noun, are pre-modified by an attributive adjective (*italicized*). Many head nouns take both an attributive adjective and a pre-modifying noun.

Text Sample 7.25: AZ Rev. Stat. §38-448 (2019) (D)

D. For the purposes of this section: (. . .)

2. “**Information** infrastructure” means **telecommunications**, **cable** and **computer** networks and includes the internet, the **world wide** web, usenet, **bulletin board** systems, *on-line* systems and **telephone** networks.

The present tense key in Operational Definitions ($d=.25$) because one of the primary functions of the present tense is to state a general truth or state of being. As this is what Operational Definitions seek to do (state an unchanging, general truth), they rely heavily on the present tense.

There are 13 features with large negative effect sizes. These negative features primarily represent verb-associated language (*to-* and *that-* verb complement clauses, the infinitive, *be* verbs, activity verbs, suasive verbs, and modal verbs). All three semantic domains of modal verbs are markedly less frequent in Operational Definitions than in the other functional types: necessity modals ($d=-.22$), possibility modals ($d=-.65$), and prediction modals ($d=-1.17$). The contrast between verb-associated language in the rest of the functional types vs. the nominal language in Operational Definitions can be attributed to the fact that Operational Definitions do not directly regulate human actions. Instead, they are concerned with the description and identification of objects, people, and ideas.

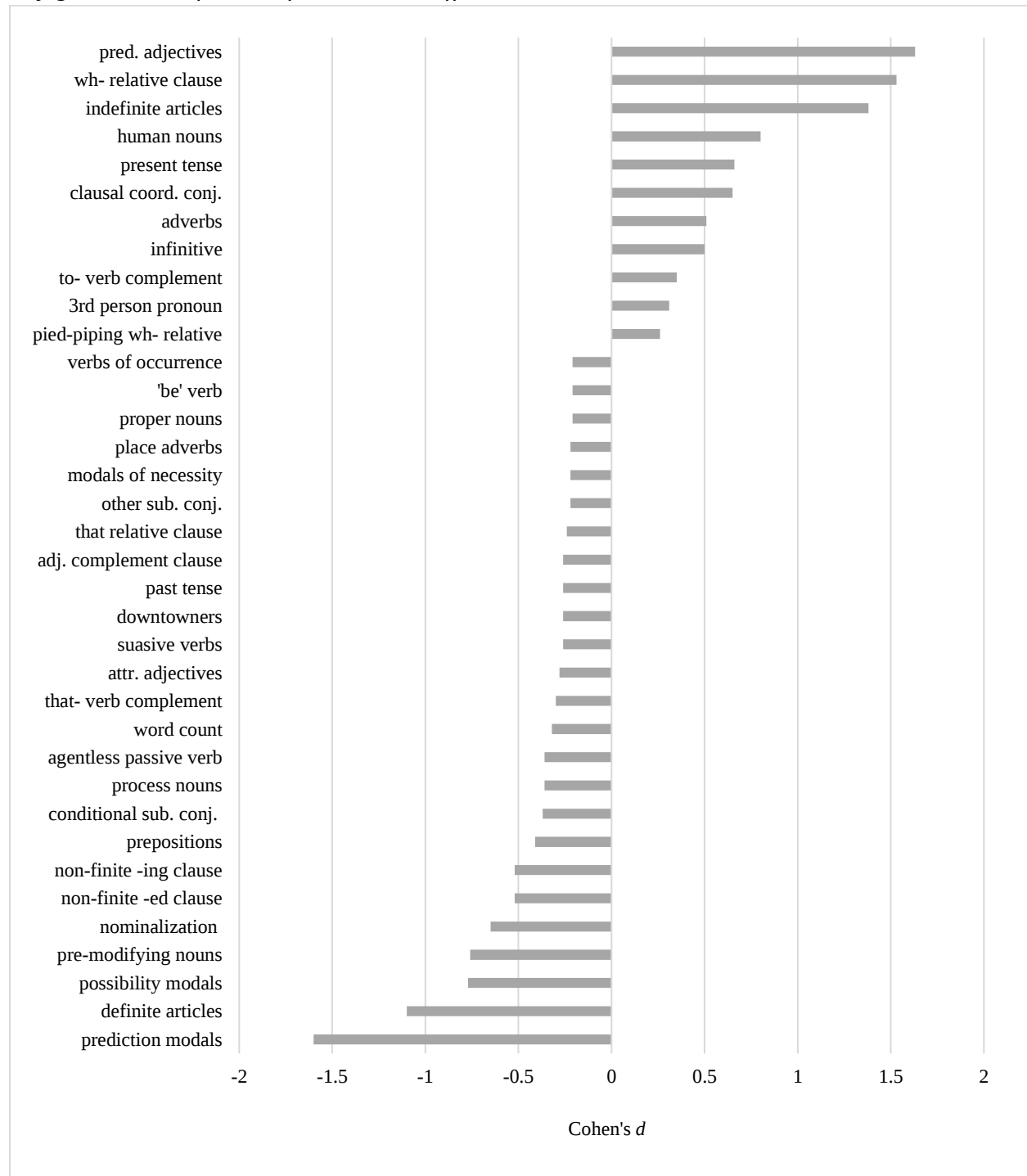
7.4.7 Criminal Offenses

Criminal Offenses has 11 key features, making it the most lexico-grammatically distinct functional type. Notably, this functional type is distinct in that eight of these eleven key features are strongly key with medium-large effect sizes. This is in sharp contrast with several of the other functional types of statutory provisions that predominantly have features that are weakly key, or *only* have features that are weakly key (i.e., Prohibitions, Impersonal Rules). There is also a distinctly large number of negative key features in the reference corpus ($n=25$). Of these, three have large effect sizes, five have medium effect sizes, and 18 have small effect sizes.

The analysis in this section will focus on the eight features with medium-large effect sizes, including the infinitive ($d=.50$), adverbs ($d=.51$), clausal coordinating conjunctions

($d=.65$), present tense ($d=.66$), human nouns ($d=.80$) indefinite articles ($d=1.38$), *wh*- relative clauses ($d=1.53$), and predicative adjectives ($d=1.63$).

Figure 7.7
Key grammatical features for Criminal Offenses



Predicative adjectives have the largest effect size largely due to the formulaic sequence: *X is guilty of*. Because a large majority of Criminal Offenses use this bundle to introduce the level of the offense (a misdemeanor, a felony, etc.), the feature appears markedly more frequently in this functional type (appearing in 89% of the texts in the sub-corpus). A less common sequence: *X is unlawful*, is used to explicitly indicate that an action is prohibited before prescribing the criminal offense. Both of these uses can be seen in Text Sample 7.26, below (**bolded**).

Text Sample 7.26: AZ Rev. Stat. §16-1022 (2019) (A)

A. It **is unlawful** for a corporation, limited liability company or labor organization to make a contribution to a candidate committee. A corporation, limited liability company or labor organization that violates this subsection **is guilty** of a class 2 misdemeanor. The individual through whom the violation is effected **is guilty** of a class 6 felony. This subsection does not apply to a committee that is incorporated or organized for limitation of liability.

Criminal Offenses use indefinite articles *a/an* ($d=1.38$) in a similar way as Prohibitions: to indicate inclusiveness. The use of indefinite articles reflects the fact that the offense is considered criminal for all citizens. This is demonstrated below in Text Sample 7.27, which implies that any person who uses any type of fraudulent or false instrument is guilty of the offense (indefinite articles **bolded**).

Text Sample 7.27: AZ Rev. Stat. §4-241 (2019) (N)

N. **A person** who is under the legal drinking age and who uses **a fraudulent or false written instrument** of identification or identification of another person or uses **a** valid license or identification of another person to gain access to **a licensed establishment** is guilty of **a class 1 misdemeanor**.

Wh- relative clauses ($d=1.53$) are primarily used in Criminal Offenses to describe the criminal offense itself. The *wh-* clause most often uses the relativizer *who* to modify *a person*, *persons*, or *adult*. The content of the clause is then used to describe what the person has done (the content of the offense). This use of the *wh-* relative clause is demonstrated in Text Sample 7.28, below (underlined). The use of *wh-* relative clauses with prepositional fronting, which is key with a small effect size ($d=.26$), is seen in Text Sample 7.29. In this construction, the preferred *wh-* relativizer is often *which*.

Text Sample 7.28: AZ Rev. Stat. §13-3623 (2019) (D)

D. **A person** who intentionally or knowingly engages in emotional abuse of a vulnerable adult who is a patient or resident in any setting in which health care, health-related services or assistance with one or more of the activities of daily living is provided or, having the care or custody of a vulnerable adult, who intentionally or knowingly subjects or permits the vulnerable adult to be subjected to emotional abuse is guilty of a class 6 felony.

Text Sample 7.29: AZ Rev. Stat. § 12-1563

A person against whom an action is pending or against whom a judgment has been rendered for the recovery of personal property who knowingly conceals, sells or disposes of such property with intent to hinder or delay execution of the judgment, or with like intent removes the property from **the county** in which it is located at the time of the commencement of the action or the rendition of judgment, is guilty of a class 6 felony

Clausal coordinating conjunctions ($d=.72$) are often associated with the long-winded, multi-clausal nature of statutory writing (Tiersma, 1999). In Criminal Offenses, they are used primarily in two ways: (1) to connect two verbs together to be exact, thorough, and clear about the scope of the prohibited action (e.g., *holds or conducts*), or (2) to connect two full clauses

together that each contain an independent offense. Both of these uses are seen in Text Sample 7.30, below. Note that in this text sample, a clausal coordinating conjunction is also used to connect two *wh*-relative clauses (i.e., *any person who X or who Y*).

Text Sample 7.30: AZ Rev. Stat. §5-115 (2019) (D)

D. Any person who *holds* **or** *conducts* any racing meeting **or** *operates* an additional wagering facility without first complying with the provisions of this article, **or** any person who fails to submit to a drug test as directed by stewards **or** who violates any other provision of this article for which no other penalty is prescribed, is guilty of a class 2 misdemeanor.

Criminal Offenses rely on adverbs ($d=.51$) to describe the manner in which an action is carried out. Usually, this relates to intent or knowledge. This is seen below in Text Sample 7.31, which indicates that the perpetrator must have *knowingly* committed the act. This is important, as it indicates that if the act was *not* done knowingly, the offense is not criminal. While reference to intent or knowledge is the most common use (i.e., *knowingly*, *intentionally*), other adverbs, such as *unlawfully* and *fraudulently*, are used to describe the manner in which an action is committed. The occasional ‘archaic’ adverb (Williams, 2007) that remains in statutes from historical drafting also appears in the text sample below (e.g., *therein*, *thereof*).

Text Sample 7.31: AZ Rev. Stat. §16-1016 (2019)

A person is guilty of a class 5 felony who:

1. Not being entitled to vote, **knowingly** votes.
2. **Knowingly** votes more than once at any election.
3. **Knowingly** votes in two or more jurisdictions in this state for which residency is required for lawful voting and the person is not a resident of all jurisdictions in which the person voted. (. . .)
4. **Knowingly** votes in this state in an election in which a federal office appears on the ballot and votes in another state in an election in which a

federal office appears on the ballot and the election day for both states is the same date.

5. **Knowingly** gives to an election official two or more ballots folded **together**.
6. **Knowingly** changes or destroys a ballot after it has been deposited in the ballot box.
7. **Knowingly** adds a ballot to those **legally** cast at any election, by **fraudulently** introducing the ballot into the ballot box either before or after the ballots **therein** have been counted.
8. **Knowingly** adds to or mixes with ballots **lawfully** cast, other ballots, while they are being canvassed or counted, with intent to affect the result of the election, or to exhibit the ballots as evidence on the trial of an election contest.
9. **Knowingly** and **unlawfully** carries away, conceals or removes a poll list, ballot or ballot box from the polling place, or from possession of the person authorized by law to have custody **thereof**.

As is the case for Operational Definitions, Criminal Offenses make use of the present tense to state general truths and unchanging situations. The present tense is also likely markedly more common in Criminal Offenses because of the tendency to name series of actions (see Text Sample 7.32). As noted above, this is often done to minimize the possibility that an individual can argue that a statute doesn't apply to their act, based on variability in terminology/meaning. These present tense verbs are often presented in a numbered list format (Text Sample 7.33).

Text Sample 7.32: AZ Rev. Stat. §5-391 (2019) (G)

- G. A person is guilty of a class 6 felony who knowingly **removes, defaces, obliterates, changes, alters** or **causes** to be removed, defaced, obliterated, changed or altered a factory, engine, serial, outdrive, lower unit, power trim or hull identification number or mark on a watercraft.

Text Sample 7.33: AZ Rev. Stat. §13-3403.01 (2019) (B)

- B. A person who violates this section is guilty of a class 5 felony unless the court **does** either of the following:
1. **Enters** a judgment of conviction for a class 1 misdemeanor and **makes** disposition accordingly.
 2. **Places** the person on probation in accordance with chapter 9 of this title and **refrains** from designating the offense as a felony or misdemeanor until the probation is terminated. (. .)

Criminal Offenses often use infinitive clauses to describe the offense when the action is the subject, as opposed to the person (in which *wh*-relative clauses are favored, as noted above). This is demonstrated in the first two infinitive clauses in Text Sample 7.34 (underlined).

Text Sample 7.34: AZ Rev. Stat. §17-339 (2019) (B)

- B. The **failure** to make such return within thirty days shall automatically cancel the license dealer's license, and intentional **failure** to comply with the provisions of this section is a class 1 misdemeanor. Any license dealer who makes a false or fraudulent return or report or who **fails** to submit returns, reports or all due and unremitted fees as required under this section with the intent of defrauding the department is guilty of a class 6 felony.

Twenty-five features have negative effect sizes. Those with the highest keyness values include predication modals ($d=-1.11$), possibility modals ($d=-.77$) and definite articles ($d=1.10$). The markedly infrequent use of definite articles, as previously mentioned in this section, can be attributed to the fact that definite articles narrow the scope by identifying specific entities or individuals as referents, whereas Criminal Offenses aim for inclusivity of the referent.

Other features with negative effect sizes include embedded clausal constructions such as the non-finite *-ed* and *-ing* post-nominal modifiers, subordinating conditional clauses, *that*-verb complement clauses and adjective complement clauses.

7.5 Synthesis: Patterns of lexico-grammatical variation

7.5.1 Patterns of use among functional types of statutory provisions

This analysis has demonstrated that, as hypothesized, a great deal of lexico-grammatical variation exists within the register of statutory law, and these systematic patterns of variation can be attributed to the communicative function of the statutes.

First, there appears to be a clear divide between functional types that are informational in nature and focus on the description of things, people, and concepts, and functional types that are less descriptive and more focused on human actions. The features associated with this distinction are summarized in Table 7.3, below.

Table 7.3

Informational/descriptive functional types vs. action-focused functional types

	Functional Types	Example positive key features	Example negative key features
Informational/ descriptive	Operational Definitions	• <i>wh-</i> relative clauses	• <i>that</i> verb complement clauses
	Impersonal Rules	• <i>that</i> relative clauses	
	Criminal Offenses	• human nouns	• suasive verbs
	Prohibitions	• proper nouns	• activity verbs
		• attributive adjectives	• modal verbs
Human action-focused	Procedural Guidelines	• modal verbs	• indefinite articles
	Duties	• subordinating	• abstract nouns
	Permissions	• conjunctions	• process nouns
		• definite articles	• <i>that</i> relative clauses

Operational Definitions and Impersonal Rules represent the former type of statutory provision, likely because these two functional types of statutory provisions are unrelated to the direct regulation of human actions (i.e., prohibiting actions, mandating actions). As such, both types display markedly lower use of verb-associated features compared to the other functional types, which is evidenced through the extensive lists of negative key features. In their negative key feature lists, they share *that*- verb complement clauses, suasive verbs, activity verbs, and various

modal verbs, all of which indicate some level of human involvement. In addition to this, these two functional types display markedly higher use of features associated with informational language, such as attributive adjectives, *wh*- and *that* relative clauses, nouns, and prepositions. Criminal Offenses also display the use of these informational, descriptive features (predicative adjectives and *wh*-relative clauses being the two features with the highest keyness values); however, they do not exhibit the same lack of verbal constructions seen in the other two functional types. Non-finite infinitive clauses (in particular, *to*- verb complement clauses) and the present tense are also key in the Criminal Offenses sub-corpus (though with much smaller effect sizes). This use of a mixture of informational language and verbs in Criminal Offenses is not surprising, as this functional type represents a sort of middle-ground between action-focused and description-focused functional types. While Criminal Offenses speak exclusively *about* human action through the *description* of the actions, they do not prescribe or authorize actions.

In contrast to these functional types are those that focus on human actions, as evidenced primarily through the markedly higher use of various semantic domains of modal verbs and the absence of verb-associated language on the negative key feature lists. Procedural Guidelines, Permissions, and Duties all make use of at least one semantic domain of modal verb, with medium-large effect sizes. For both Duties and Permissions, this feature was the dominant feature of only 2-3 total key features. For these three functional types, Permissions relied on modals of possibility ($d=1.30$) while Duties and Procedural Guidelines relied on modals of prediction ($d=.69$ and $d=.93$, respectively). Duties and Procedural Guidelines, which predominantly assign roles to specific individuals in particular situations, also share definite articles as a key feature. Procedural Guidelines are the model example of this type of involvement and action-focused provision. Along with definite articles and prediction models,

Procedural Guidelines also exhibit the use of the passive voice and perfect aspect. Amongst the negative key features in Procedural Guidelines were many of those that were key in Operational Definitions and Impersonal Rules: *that* relative clauses, predicative adjectives, and nouns.

Overall, Operational Definitions and Procedural Guidelines appear to be the two individual functional types that are most different from one another. They also most clearly represent the descriptive vs. action-focused distinction between functional types of statutory provisions, with several of their negative and positive key features swapped in position.

7.5.2 Lexico-grammatically distinct functional types of statutory provisions

Findings from these key feature analyses demonstrate that some functional types are considerably more lexico-grammatically distinct than others. Operational Definitions, Criminal Offenses and Procedural Guidelines are the most distinct of the functional types, ranging from 7-11 key features each with small-large effect sizes. Operational Definitions and Criminal Offenses are particularly distinctive with 11 key features each and a considerable number of negative key features (13 in Operational Definitions, 26 in Criminal Offenses). The remainder of the functional types are notably less distinct. Prohibitions, Impersonal Rules, Duties, and Permissions each rely on only a handful of key features (ranging from 2-3) with small effect sizes. The exception to this are Duties and Permissions, each of which have one clear defining feature with a large effect size (see sec. 7.5.1, above). Prohibitions and Impersonal Rules are particularly less distinct, relying on *only* weakly key features. Prohibitions are the most extreme case, with only two key features, both of which have effect sizes less than .30. Note that Biber and Egbert (2018) chose a $d \geq .30$ inclusion criterion for their key feature analyses of web language. If this criterion had been adopted in the present study, this functional type would not have any keywords.

The distinctiveness of Operational Definitions and Criminal Offenses suggest that these functional types potentially rely on a narrow set of highly formulaic sequences, which is indicated by the number of medium-large effect sizes of the features, coupled with the considerable number of negative key features (indicating markedly lower use). There is further evidence for this hypothesis in the following chapter, which reports on the results of the keyword analyses for the functional types (see Chapter 8, Sec. 8.4.2 and 8.4.3).

While it may at first appear that the considerably smaller number of key features for Duties, Impersonal Rules, and Prohibitions can be attributed to a low word count (as evidenced by the negative d value for word count in these three functions), Criminal Offenses debunks this theory. In Criminal Offenses, the exact opposite is true. Word count is a negative key feature for this functional type (indicating lower word count), yet, it has the largest number of key features overall *and* the largest number of strongly key features. This is also further evidence of an extremely high level of formulaicity for this functional type, relying on a small number of recurring sequences, such as, *X is guilty of Y*.

7.5.3 A comparison to key features in past literature

The findings of this chapter also provide insight into the findings reported by Wood (2022), who identified a large number of characteristic key features of statutory law as a complete register. Table 7.4 presents the key features of statutory law found by Wood (2022) when compared to a corpus of non-legal written language. Note that 25 key features in total ($d \geq .25$) were identified in this study. The table below is limited to the key features reported in the study with medium-large effect sizes.

Table 7.4*Key features of statutory law (Wood, 2022)*

key feature	<i>d</i>
prepositions	1.84
phrasal coordinating conjunction	1.64
process nouns	1.42
abstract nouns	1.41
prediction modals	1.39
non-finite <i>-ed</i> clause	1.35
suasive verbs	1.31
<i>by</i> passive	1.14
clausal coordinating conjunction	1.10
agentless passive verb	1.04
definite articles	1.03
human nouns	1.01
conditional subordinating conjunction	0.92
<i>wh-</i> relative clause ('pied piping')	0.91
place nouns	0.80
verbs of causation	0.78
quantity nouns	0.63
technical nouns	0.54

When comparing the key features of each functional type to the key features of statutory law found by Wood (2022), it appears that the keyness of some of the features in the register may be in part attributed to specific functional types of statutory provisions, as the features appear more frequently in certain types of provisions relative to others.

Table 7.5, below, presents the key features of statutory law identified by Wood (2022) compared to a reference corpus of non-legal written language that are markedly more common in particular functional types of statutory provisions relative to others. This information is important because it indicates that while the features below may be markedly more common in

statutory language as a whole compared to non-legal written language, they are not equally represented in *all* statutory language.

Table 7.5

Key features of statutory law associated with specific functional types of statutory provisions

Functional Type	Key feature
Procedural Guidelines	subordinating conjunction - conditional definite articles agentless passive verb predication modals
Criminal Offenses	<i>wh</i> - pied-piping relative clause causal coordinating conjunctions human nouns
Duties	definite articles predication modals
Operational Definitions	abstract nouns phrasal coordinating conjunctions
Impersonal Rules	prepositions
Prohibitions	phrasal coordinating conjunctions

Also important are the lexico-grammatical features identified as key in statutory law by Wood (2022) that were not key in any of the functional types of statutory provisions. Because Wood identified this selection of features as key in the register, and the results of this study indicate relatively equal use of same select between the seven functional types, we can say that they are characteristic of statutory law as a *whole*. Four features can be described in this way: technical nouns, place nouns, verbs of causation, and *by* passives.

7.6 Conclusion

The findings from the key feature analyses of functional types of statutory provisions presented in this chapter indicate that making claims about features that are characteristic of a

register as a whole may not be painting the full picture of that register, which is a recurring theme in this study.

The results of these key feature analyses will be revisited again briefly in Chapter 9, where they will be synthesized with the results from the analysis in Chapters 6 and 8. The following chapter will present the results of the keyword analyses conducted to examine lexical variation between the functional types of statutory provisions.

CHAPTER 8

Keyword Analysis of Functional Types of State Statutory Law

8.1 Introduction

While the previous chapter focused on patterns of lexico-grammatical variation, the present chapter will describe patterns of lexical variation between the functional types of statutory provisions. A text dispersion keyword analysis was used to identify pervasive lexical items associated with each functional type (Egbert & Biber, 2019). Like key feature analysis, keyword analysis is used to identify words that are more pervasive in a target register or text type relative to another. In this way, the results of a keyword analysis tell us about the ‘aboutness’ of the target register. In the keyword analyses conducted in this chapter, pervasiveness is measured in terms of the dispersion of words across the texts in a corpus (see sec.8.3.1).

Section 8.2 will provide a brief description of previous literature that has used keyword analysis to examine lexis in legislative language. The following section (sec. 8.3) will describe the methodology used to conduct the keyword analyses in this study. This will start with a description of the difference between text dispersion keyword analysis (as the method employed in the present study) and traditional corpus frequency keyword analysis (sec. 8.3.1). The remainder of the methodology section will cover the use of log-likelihood to calculate keyness scores (sec. 8.3.2), generating keyword lists (sec. 8.3.3), determining the number of keywords to interpret (sec. 8.3.4), and classifying keywords (sec. 8.3.5). Section 8.4 will then present the results of the keyword analysis for each function, and Section 8.5 will synthesize the findings from the analyses.

8.2 The use of keyword analysis in past legislative research

Traditional keyword analysis (referred to as corpus frequency keyword analysis by Egbert & Biber, 2019) treats the corpus as the unit of observation, taking into account the total number of tokens within the corpus as a whole. First described by Scott (1997) as a way to identify words that occur with ‘unusual’ frequency, keyword analysis has been widely used to study a number of different registers. It has been infrequently used, however, to study legislative language -- reported in only three studies, to the best of the researcher’s knowledge (Caliendo et al., 2005; Goźdz-Roszkowski, 2011; Giczela-Pastwa, 2019). Giczela-Pastwa used a keyword analysis to examine the difference between Polish legal acts and UK legislation for the purposes of translation. Due to the substantial difference in research aims (and target register) between Giczela-Pastwa’s study and the present study, this section will focus on the former two studies. Caliendo et al. (2005) conducted several keyword analyses to compare different registers of secondary E.U. legislation, including regulations, directives, and decisions. Of these, regulations are perhaps the most similar to the target register in the present study, as they represent binding legislative acts that must be applied and abided by across the E.U. Interestingly, Caliendo et al. found that regulations lacked terms linked to a specific function performed in the legal text (p.397), and were instead performative in nature (p.401). Caliendo et al. attributed this to the fact that the registers of comparison (i.e., directives and decisions) are restrictive in their implementation and applicability, while regulations do not have such restrictions. This results, in particular, in performative uses of *shall* (e.g., *this regulation shall enter into force on its publication...*). As such, *shall* can be used to reference regulations that are applicable and familiar to all member states.

Goźdz-Roszkowski (2011) used keyword analysis to identify patterns of lexical variation between different legal registers (referred to ‘genres’ by Goźdz-Roszkowski), including U.S. legislation, law journal articles, briefs, contracts, professional articles, opinions, and textbooks. Like this dissertation, seven keyword analyses were conducted, one for each of the registers compared to a combined reference corpus of the rest. Goźdz-Roszkowski proposed that legislation keywords could be classified into six types: keywords marking internal organization (e.g., *section, paragraph, title, chapter*), keywords denoting legal instruments (e.g., *act, code, document, plan*), time/place/text-deixis keywords (e.g., *beginning, date, end, following*), keywords changing or modifying other provisions (e.g., *inserting, streaming amending*), institutional keywords (e.g., *agency, commission, entity*) and general language keywords (e.g., *conservation, education, health*). Goźdz-Roszkowski found that, compared to the keyword results from the other registers, legislation was the only register to include keywords denoting different textual units, such as *section, subsection, and paragraph*. Not only were these words key, they were amongst the top keywords in the corpus. These results will be revisited in the discussion section of this chapter where they will be compared to the results of the keyword analyses from the present study

It is important to note that findings by Caliendo et al. (2005) and Goźdz-Roszkowski (2011) reflect a *corpus frequency keyword analysis*, which, as previously mentioned, measures frequency by the number of times word appears in the full corpus. In contrast, this study makes use of text dispersion keyword analysis, which measures frequency in terms of the number of texts a word appears in. The distinction between these two types of keyword analysis will be described in the following section, which introduces the methodology for the present chapter.

8.3 Methodology

8.3.1 *Text dispersion keyword analysis vs. Corpus frequency keyword analysis*

In traditional keyword analysis (corpus frequency keyword analysis) the “keyness” of a word can be understood as the degree to which the word appears with a statistically higher or lower frequency in a target register, corpus, or text type (Baker, 2004). This type of keyword analysis has been criticized because it focuses only on the number of times a word appears in a full corpus, meaning that text boundaries (and therefore, the texts themselves) do not actually matter for the analysis (Egbert & Biber, 2019). With this, the researcher must assume that the keywords are evenly distributed across the corpus.

In response to this, Biber and Egbert (2018) introduced ‘text dispersion’ keyword analysis as a way of accounting for the dispersion of tokens across a corpus. In contrast to corpus frequency keyword analysis, a text dispersion keyword analysis identifies words that occur in statistically more *texts* in a target corpus when compared to a reference corpus (Egbert & Biber, 2019, p.85). The overall frequency of a token is not taken into consideration at all, and the statistical frequency is calculated based on the number of texts the word appears in at least once. This method of measuring keyness has several benefits: First, we can treat the text as a unit of observation, meaning that we no longer need to assume that keywords are distributed evenly across a corpus. Second, we can speak more accurately and authoritatively on the ‘aboutness’ of a particular register, because we can trust that a statistically higher frequency is not accounted for by a single text that is inflating the frequency count. As explained by Egbert and Biber, text dispersion keyword analysis tells us something about the *content-generalisability* of the results, or, the degree to which a keyword is representative of, and meaningful for, the entire target corpus (p.79).

This method of keyword analysis is preferable for this study due to certain peculiarities of the domain. Repetition of lexis is common in statutes, as words are frequently repeated in a text for the purposes of being thorough and precise. This means that in a corpus frequency keyword analysis, we would *expect* to see inflation of keyness values, particularly in Operational Definitions where this type of repetition is highly common. Text Sample 8.1, below, is an example of the type of statutory provision that would be highly problematic for a corpus frequency analysis. Note that in this subsection, the phrases *city or town*, and *occupation, trade or profession* are repeated multiple times.

Text Sample 8.1: AZ Rev. Stat. §9-842 (2019) (I)

I. For the purposes of this section, " occupational licensing requirement":

1. Means:
 - a. A rule, regulation, practice or policy that is adopted by a *city or town* and that allows an individual to use an *occupational title* or work in a lawful occupation, *trade or profession* or a regulatory requirement that prevents an individual from using an *occupational title* or working in a lawful *occupation, trade or profession*.
 - b. A fee or tax that a *city or town* imposes on an individual to use an *occupational title* or work in a lawful *occupation, trade or profession*.

8.3.2 Using log-likelihood to measure keyness

A text dispersion keyword analysis is conducted by first counting the number of texts that a word occurs in in a target and reference corpus. These counts are then compared using a log-likelihood statistic, which determines the extent to which a word is used in a statistically higher number of texts in a target corpus than in a reference corpus (Biber & Egbert, 2018, p.23). Using log-likelihood is beneficial for measuring keyness as it minimizes the influence of counts that are particularly high. In addition to this, the log-likelihood statistic estimates probabilities more

accurately when counts are low (Egbert and Biber, 2019, p.84). The formula used to calculate G^2 (the log-likelihood statistic) is:

$$G^2 = 2 \sum_i O_i \ln \left(\frac{O_i}{E_i} \right)$$

where O_i is the observed number of texts where the word occurs in the target and reference corpus, and E_i is the expected number of texts where the word occurs in the target and reference corpus. E_i is calculated through the following formula, where N_i is the total number of texts in the target and reference corpora:

$$E_i = \frac{N_i \sum_i O_i}{\sum_i N_i}$$

This formula was implemented using a Python script, which counts the number of texts that each word occurs in in both corpora, and then calculates the log-likelihood statistic for each word type.

8.3.3 Generating keyword lists

To generate keyword lists for each functional type, a single directory was first created to hold all 2,972 texts in the corpus. Files were renamed in this directory using a Python script to indicate which functional type the file belonged to. To do this, an abbreviated name of the functional type was added to the beginning of each file name (e.g., ‘OpDef_’, ‘Duty_’, ‘Prohib_’). A second Python script was then used to loop through the files, open each one, and identify and tally the word types in the target corpus and reference corpus separately. The Python script then used these counts to complete the likelihood formula provided above, and generate

the keyword lists for each function in turn. The Python script formatted output for each of the seven keyword analyses into a separate Excel sheet. In the output, keywords were ordered from largest to smallest. The Python script was edited very slightly for each keyword analysis such that the script would recognize the files comprising the target texts by the modified file name.

8.3.4 Determining the number of keywords to interpret

Once the keyword lists were created, a log-likelihood critical value of 3.84 was adopted in accordance with a 0.05 *p*-value as suggested by Rayson (2008) (see <https://ucrel.lancs.ac.uk/llwizard.html>, supported by Lancaster University). Words with keyness values not meeting this critical value were not interpreted. A minimum threshold was set such that words were only retained on the keyword lists if they occurred in at least 5% of the texts in the target corpus. This was necessary as, occasionally, a “0” count for a word in the reference corpus would result in a high keyness value for a word in the target corpus, even if the word did not appear in a particularly large number of texts. As the functional types of statutory provisions in this study varied greatly in size (ranging 83 - 856 texts), using a percentage cutoff allowed for consistency in what was considered ‘key’.

While both Goźdz-Roszkowski (2011) and Biber & Egbert (2018) had long keyword lists, there were far fewer words that were statistically key in the analyses carried out in this study. In the former two studies, the researchers simply selected the top 100 words from each of the keyword lists to interpret. In the present study, only two of the seven functional types of statutory provisions exceeded 100 words. For consistency, all of the words that were key by both the critical value and dispersion cutoffs for all seven functional types were interpreted. This resulted in a fairly lengthy classification process in particular for Procedural Guidelines and Operational Definitions, each of which held over 100 keywords ($n=142$, $n=116$). The fact that

the number of keywords for each function was so varied is itself a significant finding in this study, and which will be revisited in the discussion section of this chapter.

8.3.5 Classifying keywords

The next step of a keyword analysis is to interpret the keywords by proposing topical classifications. This process tends to result in what Goźdz-Roszkowski (2011) calls *ad hoc labels*, which are neither air-tight nor completely clear cut (p.55). At times, words may not clearly fit into a category, or may seem to fit into more than one when their context is examined through concordance lines or collocation. In such cases, the present study adopted a few classification guidelines to help with consistency: first, if concordance lines revealed that a word was used frequently in two different contexts (for example, elections and court), the word was placed in both categories, in parentheses. If one of these was clearly the dominant use, only the secondary use was put in parentheses. Second, if a word either: (a) appeared relatively equally in numerous contexts, or (b) was the only keyword of its type, it was categorized as ‘Other’.

8.4 Results

The number of keywords meeting both the 3.84 log-likelihood critical value and the 5% dispersion cutoff varied greatly between functional types (see Table 8.1). There are over 100 keywords for Procedural Guidelines ($n=142$) and Operational Definitions ($n=116$) which is in stark contrast with the remaining functions.

Table 8.1

Number of keywords per functional type

Functional Type	No. of total keywords
Procedural Guidelines	142
Operational Definitions	116
Criminal Offenses	28
Permissions	17

Prohibitions	16
Duties	15
Impersonal Rules	4

Keyword lists for all seven functional types, including words and keyness values (G^2) can be found in Appendix D. The following sections will present the results and discussion for each keyword analysis conducted (8.4.1 - 8.4.7). These analyses will be presented in the order that they appear in the table above, beginning with the functions with the largest keyword lists.

8.4.1 Procedural Guidelines

There are 142 key words for Procedural Guidelines, which are classified into the following nine groups: People, Formal Procedural Steps, Money, Documents, Judicial Proceedings, Time Deixis, Quantity/Comparison, Reference to the Code, and Other.

Table 8.2

Procedural Guidelines keywords

Category	Keywords
People	<i>secretary, officer, board, person, persons, general, he, his, county</i>
Formal Procedural Steps	<i>notice, notify, shall, transmit, determines, provide, issue, determination, certified, determine, held, make, made, review, issued, give, may, fails, prescribed, process, request, provided, have, proposed, testing, report, approval, taken, against, receiving, submit, submitted</i>
Money	<i>pay, payment, receipt, deposit, (amount)</i>
Documents	<i>copy, application, mail, written, original, electronic, forth, (first), (notice), (petition)</i>
Judicial Proceedings	<i>proceedings, legal, filed, filing, charge, hearing, finds, file, petition, court, attorney, order, recorder, appeal, superior, affidavit, appear, record</i>
Time Deixis	<i>days, after, ten, within, thirty, upon, before, until, on, time, continue, first, last, date, period, five, when, final, day, least</i>
Quantity/Comparison	<i>less, than, total, sufficient, sample, full, number, amount, same, (least)</i>
Reference to the Code	<i>listed, pursuant, subsection, offense</i>

Other	<i>if, been, no, such, it, that, was, each, would, will, be, at, also, is, an, for, and, which, its, without, to, in, any, has, those, into, from, by, but, other, or, with, thereof, safety, address, place, public, a, so</i>
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The ‘People’ category in Procedural Guidelines holds keywords that make reference to both the public and to government officials and entities. The government officials and entities in this group include *secretary, officer, board, and general*. While both *officer* and *board* can be used to refer to non-governmental positions, concordance lines indicate that *officer* is most frequently used in the context of *hearing officer* or *receiving officer*, and *board* is most often used to refer to government entities such as *the board of health, the county board of supervisors, and the county board of directors*. *General* has also been classified in the ‘People’ category as concordances show that *general* collocates with *attorney* a majority of the time. *County* is conditionally placed in this group as around half of the uses in Procedural Guidelines are in reference to the title of a government entity or official, for example, *the country recorder* and *the county board of health*.

The other half of the keywords in the ‘People’ category refer to the general public. This includes *persons* and pronouns *he* and *his*. Concordance lines reveal that *persons* is regularly the head of a post-modifying *-ing* or *-ed* clause used to identify the referent; for example, *persons signing the argument* and *persons permitted to be present*. It’s unsurprising to see key pronouns in this functional type of statutory provision, as repeated reference to the various agents participating in a situation are common (Text Sample 8.2; pronouns **bolded**).

Text Sample 8.2: AZ Rev. Stat. §3-376 (2019) (B)

B. A person who believes **he** has been discriminated against in violation of this section may, within one hundred eighty days after the violation, file a complaint with the attorney general. On receipt of the complaint, the attorney

general may investigate as **he** deems appropriate. If, after investigation, the attorney general determines that this section has been violated, **he** may bring an action in superior court against any alleged violator.

The ‘Formal Procedural Steps’ category holds words that describe steps in an official government process, for example: *a meeting shall be **held**, the municipality shall **issue**, and the committee shall **report** its findings*. These words tend to be fairly generic, and can be used in a number of different contexts (e.g., *give, provide, issue, request, made, review, taken, notify, held*) (Text Samples 8.3 - 8.4; **bolded**).

Text Sample 8.3: AZ Rev. Stat. §27-927 (2019) (C)

- C. If the inspector **determines** that the change is substantial the inspector shall:
1. **Notify** the owner or operator of the decision within fifteen days after **receiving** the **notice**.
 2. Require the owner or operator to **submit** an amendment to the plan for **approval**. The inspector shall approve or disapprove the amended plan within ninety days after **receiving** the amended plan. (. . .)

Text Sample 8.4: AZ Rev. Stat. §32-1407 (2019) (B)

- B. If the licensing boards decide without resorting to arbitration which board or boards shall conduct the investigation, the board or boards conducting the investigation shall **transmit** all investigation materials, findings and conclusions to the other board with which the physician is licensed. The board or boards shall **review** this information to **determine** if disciplinary action shall be **taken** against the physician.

Notice, as a noun, is also classified as a formal procedural step as it commonly appears with another formal procedural step (*give*) to form the collection *give notice* (Text Sample 8.5; **bolded**).

Text Sample 8.5: AZ Rev. Stat. §37-332 (2019) (B)

- B. Unless the commissioner has asked the local governing body for a general or comprehensive plan amendment that would include public notification and hearing (. . .) the commissioner **shall give notice** of intent to classify the lands as suitable for urban planning or conservation purposes (. . .)

While the modal verb *shall* cannot be considered a formal step on its own, it has been classified in this group as it appears as an auxiliary preceding a large number of the lexical verbs in this category that represent the formal procedural steps.

There are several other keywords in Procedural Guidelines that could be classified as formal procedural steps, but have been classified into more topic-specific groups. In particular, there is a fair bit of overlap between ‘Formal Procedural Steps’ and ‘Judicial Proceedings’ (e.g., *file, filing, petition*). In these cases, the more topically-specific classification of a keyword was favored over the more general Procedural Steps category.

‘Time Deixis’ keywords are prominent in Procedural Guidelines, including words such as *after, before, until, upon, on, final, first, and last*. Also included in this category are numerical indicators (e.g., *thirty, ten, five*) which concordance lines demonstrate are used most often to reference specific amounts of time. In Procedural Guidelines, Time Deixis keywords are used to indicate that there is an order to the actions presented in the text. Such temporal markers, specifically keywords such as *before, after, when, and until*, explicitly communicate ordered steps, as seen in Text Sample 8.6, below (**bolded**).

Text Sample 8.6: AZ Rev. Stat. §23-1066 (2019) (A)

- E. When it appears to the commission that a claimant for compensation or death benefits is a minor or incompetent person, the commission may, **upon** motion of any party to the proceedings or **upon** its own motion, appoint a trustee or guardian ad litem to appear for and represent the minor or incompetent person

(. . .) The bond shall be approved by the commission, and the trustee or guardian shall not be discharged from liability **until** he files an account with the commission or with the superior court in the county in which the minor or incompetent person resides, and **until** the account, **after** due notice, is approved.

The keyword *least* is also classified in this category as it appears in the collocation *at least* in every occurrence in the sub-corpus, and refers to time almost exclusively (e.g., *at least six days before, at least annually*).

‘Quantity’ keywords are a small category (e.g., *less, than, total*), which tend to refer to amounts of money, as seen in Text Samples 8.7 - 8.8, below (**bolded**).

Text Sample 8.7: AZ Rev. Stat. §9-1116 (2019)

The trustee shall first give such notice of the sale as the sheriff gives upon the sale of real property on execution. The lots shall be sold separately, no lot shall be sold for **less than** ten dollars, and the lots shall not exceed seven thousand square feet.

Text Sample 8.8: AZ Rev. Stat. §34-502 (2019)

When the state board of education or the superintendent of public instruction determines that the school district or charter school is in compliance with subsection A of this section, the department of education shall restore the **full** amount of state aid payments to the school district or charter school.

The keyword categories that pertain more closely to the topical themes found in Procedural Guidelines include ‘Documents’, ‘Money’, and ‘Judicial Proceedings’. Of these, Judicial Proceeding keywords are by far the most regularly occurring.

Examination of concordance lines reveal that it is very common for Procedural Guidelines to be prescribed in the context of court. Most often, these guidelines concern either a trial, or the process of filing documents in court (there is some overlap between ‘Documents’ and

‘Judicial Proceedings’ keywords). Usually, the guidelines for court procedures are prescribed in the context of contingencies. This is demonstrated in the two provisions below, one of which describes the actions a court must take should a petition be withdrawn or denied (Text Sample 8.9, **bolded**), and one which describes what the parties involved must do if a witness fails to appear (Text Sample 8.10, **bolded**).

Text Sample 8.9: AZ Rev. Stat. §8-118 (2019)

In any case in which the **petition** is withdrawn or denied the **court** shall **order** the removal of the child from the proposed adoptive home if the court **finds** that such removal is in the child's best interest. If such removal is ordered, the **court** shall vest temporary **legal** custody in an agency with power to remove the child and to plan for the child's welfare. (. . .)

Text Sample 8.10: AZ Rev. Stat. §12-2212 (2019) (B)

B. If a witness fails to **appear** at the time and place designated in the subpoena, or fails to answer questions relating to the matter about which the officer is authorized to take testimony, or fails to produce a document, the officer may, by **affidavit** setting forth the facts, apply to the **superior court** of the county where the **hearing** is held, and the **court** shall thereupon proceed as though such failure had occurred in an action pending before it.

It isn’t particularly surprising that courtroom and judicial procedures are a topical focus of Procedural Guidelines, as this area of law is often associated with strictly controlled procedural steps (e.g., filing of paperwork, approval of documents, etc.). Courtroom trials are known for requiring strict adherence to these conventional steps.

‘Money’ and ‘Documentation’ are both recurring themes in Procedural Guidelines, that often (though not always) appear within the context of judicial procedures. These two categories contain far fewer keywords than others on this list. ‘Money’ includes *pay*, *payment*, *receipt*,

deposit, and *amount* and ‘Documentation’ includes *copy*, *application*, *mail*, *written*, *original*, and *electronic*. Note the text samples below, in which the discussion of both money and documentation appear in the larger context of a judicial procedure (Text Sample 8.11, **bolded**) and in an election (Text Sample 8.12, **bolded**).

Text Sample 8.11: AZ Rev. Stat. §9-518 (2019) (F)

F. Upon **payment** of the **amount** of the judgment into court within the time provided, the city or town shall make **application** to the court for an order permitting it to take possession of, and use and operate the plant and property of the public utility (. . .). Upon filing the **application** a time shall be fixed by the court for a hearing to determine the probable fair and equitable value of such additions, betterments, improvements and extensions, and **written notice** of such hearing shall be given to the public utility and other defendants (. . .). On the day fixed for the hearing, the court (. . .) shall direct that upon **deposit** of money, or the posting of a bond with good and sufficient sureties, in the amount so determined, the city or town shall be let into the possession and full use of the plant and property of the public utility described in (. . .).

Text Sample 8.12: AZ Rev. Stat. §19-124 (2019) (A)

A. (. . .) Not later than forty-eight days preceding the regular primary election a person may file with the secretary of state an argument advocating or opposing any measure with respect to which the referendum has been invoked (. . .) if sponsored by a political committee it shall contain the sworn statement of the committee's chairman or treasurer. Each argument filed shall also be submitted to the secretary of state in **electronic** format. **Payment** of the **deposit** required by subsection E of this section or reimbursement of the payor constitutes sponsorship of the argument for purposes of this subsection.

Keywords in the ‘Other’ category include a large number of function words. Several of the function words that are key in the ‘Other’ category are consistent with the key features that

were identified for Procedural Guidelines in the previous chapter (see Ch. 7, sec. 7.4.5).

Keyword *if*, for example, represents the key feature of conditional subordinating conjunctions.

As discussed in the key feature analysis, *if* often functions to communicate ordered steps, as the action described in the clause preceding *if* will only take place *after* the action in the *if* clause takes place (or vice-versa). Concordance lines demonstrate that *if* is most often used to introduce contingencies as opposed to describing a setting in which the procedure takes place (*if* clause **bolded**).

Text Sample 8.13: AZ Rev. Stat. §37-1305 (2019) (E)

- E. The state forester shall process and pay claims for reimbursement for wildland fire suppression services, including claims for personnel hours, used supplies and reasonable and negotiated costs of damage to equipment that exceeds normal wear and tear, as follows: (. . .)
3. For any valid claim other than for federal reimbursement, **if there is insufficient funding in the fire suppression revolving fund**, the holder of the unpaid claim shall be issued a certificate pursuant to section 35-189.

Other key function words include *has* and *been*, both of which indicate use of perfect aspect, which is also a key feature in the Procedural Guidelines sub-corpus. Like subordinating conjunction *if*, *has* and *been* collocating to form the perfect aspect communicates that there is an order of events. Notably, while the perfect aspect key feature did not distinguish between present and past perfect (e.g., *have/has been* vs. *had been*), the keyness of *has* in the keyword analysis suggests that present perfect is relatively more common in Procedural Guidelines. Note the two text samples below, which use present perfect to describe an action that happened in the past but has present consequences.

Text Sample 8.14: AZ Rev. Stat. §9-471 (2019) (D)

- D. The annexation shall become final after the expiration of thirty days after the adoption of the ordinance annexing the territory by the city or town governing body, provided the annexation ordinance **has been** finally adopted in accordance with procedures established by statute (. . .)

Text Sample 8.15: AZ Rev. Stat. § 3-376 (2019) (B)

- B. A person who believes he **has been** discriminated against in violation of this section may, within one hundred eighty days after the violation, file a complaint with the attorney general. On receipt of the complaint (. . .)

The key function word *that* appears in a number of different clausal constructions, including *that* noun- and verb-complement clauses, and post-nominal relative clauses. *That* verb complement clauses were a key feature in the Procedural Guidelines sub-corpus (see Ch. 7, sec. 7.4.5). The text samples below (8.16 – 8.18) demonstrate the many uses of *that*- as a relativizer and complementizer.

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Text Sample 8.16: AZ Rev. Stat. §8-291.10 (2019) (A)

- A. The mental health expert who consults with the restoration program shall submit a written report to the court before any [hearing] **that is held pursuant to this section.** (. . .) A report shall be filed as follows:
1. Every sixty days.
 2. Whenever the mental health expert believes the juvenile is competent to proceed.
 3. Whenever the mental health expert [believes] **that there is no substantial [probability] that the juvenile will regain competency** before the expiration of the order for participation in a competency restoration program.

Text Sample 8.17: AZ Rev. Stat. §6-634 (2019) (B)

- B. (. . .) the licensee shall provide the consumer with [a refund or credit of the precomputed finance charges] that apply to all of the fully unexpired months of the precomputed consumer loan as originally scheduled, or if deferred, as deferred, and that follow the installment date nearest to the date of the prepayment.

Text Sample 8.18: AZ Rev. Stat. §34-502 (2019) (G)

- G. If the state board of education or the superintendent of public instruction [determines] that a school district or charter school is in violation of subsection A of this section, the state board of education or the superintendent of public instruction shall notify [the school district or charter school] that it is in violation of subsection A of this section. If the state board of education or the superintendent of public instruction [determines] that the school district or charter school has failed to comply with subsection A of this section within sixty days after a notice has been issued (. . .)

The keyness of *that* verb complement clauses is also reflected in the large number of key verbs in this sub-corpus.

Key modal verbs *would* and *will* also reflect the results of the key feature analysis, in which predication modals had a medium effect size of $d=.69$. This sets Procedural Guidelines apart from the other functional types in its use of modal verbs, as the pervasiveness of prediction modals in other sub-corpora was reflected almost entirely in the use of the word *shall*. Unlike the use of *shall*, the use of *will* in Procedural Guidelines appears in a mixture of both deontic (Text Sample 8.19) and performative uses (Text Sample 8.20), as seen below (underlined).

Text Sample 8.19: AZ Rev. Stat. §4-201 (2019) (E)

- E. If the city or town or the county recommends approval of the license a hearing is not required unless the director, the board or any aggrieved party requests a

hearing on the grounds that the public convenience and the best interest of the community **will not be substantially served** if a license is issued.

Text Sample 8.20: AZ Rev. Stat. §3-2155 (2019) (C)

- C. If the division has reason to believe that any marking or labeling (. . .) is false or misleading in any particular, it may direct that such use be withheld unless the marking, labeling or container is modified in such manner as the associate director prescribes so that it **will not be false or misleading**.

Would is generally used to describe a hypothetical event or situation, as seen in Text Samples 8.21 and 8.22, below.

Text Sample 8.21: AZ Rev. Stat. §44-308 (2019) (A)

- A. On filing the report prescribed in section 44-307, the holder of property that is presumed abandoned shall pay, deliver or cause to be paid or delivered to the department the property described in the report as unclaimed. If the property is an automatically renewable deposit and a penalty or forfeiture in the payment of interest **would result**, the time for compliance is extended until a penalty or forfeiture **would no longer result**.

Text Sample 8.22: AZ Rev. Stat. § 9-471 (2019) (A)

- A. The public hearing shall be held in accordance with title 38, chapter 3, article 3.1, except that, notwithstanding section 38-431.02, subsections C and D, the following notices of the public hearing to discuss the annexation proposal shall be given at least six days before the hearing: (. . .) (d) Notice by first class mail with an accurate map of the territory proposed to be annexed sent to each owner of the real and personal property as shown on the statement furnished pursuant to subsection G of this section that **would be subject to taxation by the city or town in the event of annexation** in the territory proposed to be annexed.

Content words in the ‘Other’ category *public*, *safety*, *address*, and *place* have been categorized here because they appear in numerous contexts. *Public*, for example, is used throughout to modify a number of other nouns (*public records*, *public safety*, *public buildings*, *public hearing*), but never to refer to *the public* (hence, it not appearing in the ‘People’ category).

8.4.2 Operational Definitions

Operational Definitions has 116 keywords classified into the nine groups: Government Entities/Institutions, People, Business, Health, Identification/Description, Definition Words, Relationship between two or more items or concepts, Miscellaneous Items, and Other (Table 8.3).

Table 8.3
Operational Definitions Keywords

Category	Keywords
Government Entities and Institutions	<i>subdivision, governmental, agency, entity, political, arizona, government, town, body, federal, agent, state, city, municipal, united, district, states</i>
People	<i>individual, person, person's, employee, member, organization, who</i>
Business	<i>corporation, partnership, business, trade, licensed, association, commercial, sale, limited, contract, agreement, service</i>
Health	<i>physical, services, disability, mental, health, care, insurance, medical, plan</i>
Identification/description Definition words	<i>used, owned, established, authorized, designated, related means, includes, purposes, meaning, defined, this, article, same, include, section, including, chapter, title, purpose, by, law, adopted, following, prescribed, context, requires, otherwise, unless, except</i>

Relationship between two or more items or concepts	<i>whether, more, both, another, other, one, either, part, direct, less, combination, result</i>
Miscellaneous items	<i>code, system, vehicle, electronic, security, facility, support</i>
Other	<i>for, any, that, through, an, or, those, which, but, as, in, are, has, does, right, legal, control, duly, act, land, property, support</i>

Operational Definitions has a category representing human agents as did the previous functional type. However, unlike Procedural Guidelines, which reference specific government officials (*secretary, officer, board, [attorney] general*), the Operational Definition ‘People’ keywords reference the general public. This includes keywords such as *individual, employee, person, personal, person's*, and *member*. The word *individual* frequently appears as a part of a series along with other non-governmental entities in order to indicate inclusivity (Text Sample 8.23), or is post-modified by a *wh-* relative clause containing a set of characteristics used to narrow the scope of the definition and clarify *which* individuals are considered under the umbrella of the target term (Text Sample 8.24).

Text Sample 8.23: AZ Rev. Stat. §6-141 (2019)

In this article, unless the context otherwise requires: (. . .)

3. “Controlling person” means any person directly or indirectly in control of a bank, trust company or savings and loan association.
4. “Person” means an **individual**, corporation, partnership, association, trust, agency or any similar entity. (. . .)

Text Sample 8.24: AZ Rev. Stat. §20-336 (2019)

In this article, unless the context otherwise requires:

1. “Certified application counselor” means an **individual** who is licensed pursuant to this article and who is authorized by the United States department of health and human services to perform the activities and

duties of a certified application counselor as described by 45 Code of Federal Regulations section 155.225 (. . .)

While this group of keywords contains select words that could potentially be used in reference to a government official (e.g., *member*), concordance lines indicate that these terms regularly refer to individuals in non-governmental roles. Note the uses of *member* in the text samples below.

Text Sample 8.25: AZ Rev. Stat. §38-921 (2019) (B)

B. For the purposes of this section:

“Active **member**” means a member who satisfies the eligibility criteria of the state retirement system or plan and who is currently making member contributions to or receiving credited service from the state retirement system or plan.

Text Sample 8.26: AZ Rev. Stat. §3-2801 (2019)

In this chapter, unless the context otherwise requires:

“Juror” means any person who is a **member** of any impaneled jury or grand jury, and includes any person who has been drawn or summoned to attend as a prospective juror.

The ‘Government Entities and Institutions’ category holds adjectives used to modify governmental entities, such as *political*, *federal*, and *governmental*, and the names of the government entities themselves (*arizona*, *united*, *states*, *state*, *agency*). Notably, many of these keywords collocate with one another: *governmental agency*, *governmental entity*, *political subdivision*, *state agency*. These terms are often post-modified for specificity, as seen in Text Samples 8.27 and 8.28, below.

Text Sample 8.27: AZ Rev. Stat. §16-204.01 (2019)

For the purposes of this section:

1. “**Political subdivision**” means any **governmental entity** operating under the authority of this state and governed by an elected body, including (. . .)

Text Sample 8.28: AZ Rev. Stat. §49-831 (2019)

In this article, unless the context otherwise requires:

2. “Agency” means this state or a **state agency**, county, municipality or **political subdivision**. (. . .)

‘Definition Words’ is the largest group of keywords in Operational Definitions. This category largely reflects formulaic sequences that appear in all Operational Definitions provisions. Specifically, the terms *means*, *includes*, *including*, *same*, and *meaning* (the latter two collocating with one another) are used regularly in formulaic sequences to equate a term or phrase to its definition (*X means...*; *X has the same meaning as...*). The formulaic sequence *For the purposes of this section* is an introductory phrase found regularly in Operational Definitions provisions. Note also that *this* has been categorized in ‘Definition Words’ due to its role in this formulaic sequence, as well as the scarcity of reference to objects by their demonstrative pronouns in Operational Definitions. See the opening excerpts of the three statutory provisions below, all of which use some combination of the keywords listed above to introduce the term and then connect it to its definition.

Text Sample 8.29: AZ Rev. Stat. §42-5042 (2019) (B)

B. For the **purposes of this section**:

1. “Lodging accommodation” has the **same meaning** prescribed in section 42-5076. (. . .)

Text Sample 8.30: AZ Rev. Stat. §5-562 (2019) (L)

L. For the **purposes of this section**:

1. “Person” **means** (. . .) Person **includes** any department, commission, agency or instrumentality of this state, including any county, city or town

and any agency or instrumentality of this state or of a county, city or town.
(. . .)

‘Conditional indicators’ is a sub-group of ‘Definition Words’. It comprises four words forming a formulaic sequence that is frequently used to introduce a definition: *Unless the context otherwise requires* (Text Sample 8.31).

Text Sample 8.31: AZ Rev. Stat. §28-440 (2019)

In this article, **unless the context otherwise requires:**

1. “Bulk records” **means** multiple records that are retrieved collectively from the department's database as a result of a single request. (. . .)

The two topically-oriented groups of keywords in Operational Definitions include ‘Business’ and ‘Health’. Keywords in ‘Business’ cover a range of topics, a majority of which appear in the context of the exchange of money (Text Samples 8.32 – 8.34). This group includes keywords such as: *partnership, service, corporation, trade, business, and commercial*.

Text Sample 8.32: AZ Rev. Stat. §30-801 (2019)

In this chapter, unless the context otherwise requires: (. . .)

8. “Retail electric customer” means a person that purchases electricity for that person's own use, including use in that person's **trade** or **business**, and not for resale, redistribution or retransmission. (. . .)
19. “**Service** territory” means the geographic area in which a public power entity or public service **corporation** owns, operates, controls or (. . .)

Text Sample 8.33: AZ Rev. Stat. §47-2106 (2019) (A)

- A. In this chapter, unless the context otherwise requires, “**contract**” and “**agreement**” are limited to those relating to the present or future **sale** of goods. “**Contract for sale**” includes both a present **sale** of goods and a **contract** to sell goods at a future time. (. . .)

Text Sample 8.34: AZ Rev. Stat. §49-83 (2019)

In this article, unless the context otherwise requires: (. . .)

4. “Consumer of newsprint” means a person who uses newsprint in a **commercial** printing operation or in a **commercial** publishing operation. 5. “Disposition” means the transportation, placement, reuse, **sale**, donation, transfer or temporary storage (. . .)

Concordance lines reveal that when the keyword *service* appears, it is often part of a noun-noun sequence such as *service corporation* and *cable service* (see Text Sample 8.32, above). In contrast, *services* collocates with words related to health, such as *health services* and *medical services*.

Keywords in ‘Health’ nearly always relate to health benefits and insurance. This includes *disability, mental, physical, health, case, insurance, plan, medical* and *services*. It is logical that this topic would appear in Operational Definitions, as inclusion and exclusion criteria are often needed to determine when an individual qualifies for specific health care services (Text Samples 8.35 - 8.36).

Text Sample 8.35: AZ Rev. Stat. §18-131 (2019)

In this article, unless the context otherwise requires:

1. “**Disability**” means a **physical** or **mental** impairment that substantially limits one or more major life activities and includes having a record of or being regarded as having such an impairment.

Text Sample 8.36: AZ Rev. Stat. §20-2501 (2019)

In this chapter, unless the context otherwise requires: (. . .)

12. “Utilization review” means a system for reviewing the appropriate and efficient allocation of inpatient hospital resources, inpatient **medical services** and outpatient surgery **services** that are being given or are proposed to be given to a patient, and of any **medical**, surgical and **health**

care services or claims for **services** that may be covered by a **health care** insurer depending on determinable contingencies, including (. . .)

As was seen in the ‘Government Entities and Institutions’ category, many keywords in the ‘Health’ category collocate with one another (e.g., *health care services*, *physical disability*, *medical insurance*).

The ‘Identification/Description’ keyword group is small, including a selection of verbs that frequently head post-nominal *-ed* modifying clauses for the purpose of identification or description of a person or thing (Text Samples 8.37 – 8.38). This category holds keywords such as: *owned*, *used*, *designated*, and *established*.

Text Sample 8.37: AZ Rev. Stat. §31-341 (2019)

In this article, unless the context otherwise requires:

1. “Correctional facility” means any place **used** for the confinement or control of a person: (a) Charged with or convicted of an offense; or (b) Held for extradition; (. . .)

Text Sample 8.38: AZ Rev. Stat. §13-2801 (2019)

In this chapter, unless the context otherwise requires: (. . .)

2. “Official proceeding” means a proceeding heard before any legislative, judicial, administrative or other governmental agency or official **authorized** to hear evidence under oath.

Keywords in ‘Relationship between two or more items or concepts’ pertain to one of four different types of relationships between two things: (1) comparative (*less*, *more*) (Text Sample 8.39), (2) pairing two things together (*both*, *another*, *combination*) (Text Sample 8.40), (3) distinction between two things (*other*, *either*, *part*) (Text Sample 8.41), and (4) cause and effect relationships (*direct*, *result*) (Text Sample 8.42). These keywords are frequent in Operational

Definitions, as defining a term, item, object or concept often involves describing its relationship with something else (whether alike or different).

Text Sample 8.39: AZ Rev. Stat. §49-831 (2019)

In this chapter, unless the context otherwise requires: (. . .)

16. “Public power entity”: (. . .)

b. Does not include:

1. A city or town with a population of **less** than seventy-five thousand persons according to the most recent United States decennial census that does not elect by official action to sell electric generation service in the service territory of another electricity supplier.

Text Sample 8.40: AZ Rev. Stat. §8-101 (2019)

In this article, unless the context otherwise requires: (. . .)

10. “Petitioner” includes **both** petitioners under a joint petition (. . .)

Text Sample 8.41: AZ Rev. Stat. §18-422 (2019)

For the purposes of this section:

1. “Authorized third-party electronic service provider” means an entity that has executed a written agreement with a state agency and that is authorized by the state agency to provide electronic transmission services between the state agency, private citizens, **other** government agencies and public and private entities in this state (. . .).

Text Sample 8.42: AZ Rev. Stat. §13-4501 (2019)

In this chapter, unless the context otherwise requires: (. . .)

2. “Incompetent to stand trial” means that as a **result** of a mental illness, defect or disability a defendant is unable to understand the nature and object of the proceeding or to assist in the defendant's defense (. . .).

‘Miscellaneous items’ represent a set of content words that appear in a variety of different contexts, but most frequently reference some sort of item or intangible object. Keywords in this category include: *code*, *system*, *vehicle*, *electronic*, *security*, *facility*, and *personal*. These keywords most often appear as either pre-modifying adjectives or in noun-non sequences: *access code*, *zip code*, *merit system*, *tracking system*, *electronic* images, *electronic* signature, *vehicle* data, *vehicle* title, *social security* number, *security* code, *detention facility*, *correctional facility*, *personal* telephone number, *personal* information, and *personal* email address.

The ‘Other’ category contains both content words and function words. The content words categorized as ‘Other’ include: *has*, *right*, *legal*, *control*, *duly*, *act*, *property* and *land*. They have been categorized as much because they appear in a number of different contexts. For example, *duly* appears in the context of business-related matters (*duly* licensed wholesaler), health-related contexts (*duly* licensed in the field of eye-care), and elections (*duly* elected or appointed).

Several function words that are key in the ‘Other’ category are consistent with results from the key feature analysis. Keywords that have a key feature counterpart include: *that* (*that* relative clauses), *which* (*wh*- relative clauses), *or* (phrasal coordinating conjunctions), and *does*, *has*, and *are* (present tense).

Both *which* and *that* are consistent with the keyness of the relative clause constructions in Operational Definitions. This indicates that the keyness of *wh*- relative clauses was perhaps most affected by *which* as opposed to the number of other *wh*- relativizers (e.g., *who*, *when*, *where*). Concordance searches also indicate that *which* appears in a surprising number of pied-piping relative clause constructions as opposed to *wh*- subject position relative clauses or *wh*- object position without prepositional fronting. Of the occurrences of *which* in Operational Definitions, 42% appeared with propositional fronting (Text Samples 8.42 and 8.43). The pied-piping

construction was not key in Operational Definitions, but this suggests that it was fairly frequent in this sub-corpus, regardless.

Text Sample 8.42: AZ Rev. Stat. §27-930 (2019) (E)

- E. For purposes of this section, “trade secret” means information **to which all of the following apply**: 1. A person has taken reasonable measures to protect the information from disclosure and the person intends to continue to take those measures. (. . .)

Text Sample 8.43: AZ Rev. Stat. §33-1202 (2019)

In the condominium documents, unless specifically provided otherwise or the context otherwise requires, and in this chapter: (. . .)

3. “Articles of incorporation” means the instrument **by which an incorporated association or unit owners' association is formed and organized** under this state's corporate statutes.

While present tense is a key feature in Operational Definitions, the only present tense verbs that are key are *has*, *does*, and *are*, all of which are primary verbs as opposed to lexical verbs. The relative absence of lexical verbs and presence of the three primary verbs is consistent with the lack of reference to human actions in Operational Definitions. These three present tense verbs can serve either a main verb and auxiliary verb function. In Operational Definitions, *are* and *does* are used primarily with an auxiliary function (e.g., *X does not include Y*). *Are* appears with an auxiliary function in ~76% of the occurrences, and, consistent with the keyness of *that* and *wh-* relative clauses, appears in a relative clause over half of the time (57%). In contrast, *has* is used primarily as main verb (~60% of the time), primarily in the introductory clause: *X has the same meaning as Y*.

In addition to these function words that reflect the key feature analysis, the large number of nouns that are key (appearing in multiple keyword categories), such as *combination*, *device*,

association, agency, entity, partnership, trade, disability, and context, is consistent with the keyness of common nouns in Operational Definitions ($d=.71$). Similarly, both pre-modifying nouns ($d=.32$) and attributive adjectives ($d=.28$) are features of Operational Definitions, which is consistent with the large number of collocating keywords previously referenced (e.g., *government entity, political subdivision, physical disability*).

8.4.3 Criminal Offenses

There are 28 words that meet both the keyness critical value and the dispersion cutoff for Criminal Offenses, which are classified into the following seven categories: People, Proclamation of Guilt, Manner of Action, Elections, Physical Harm, Other Illegal Acts, and Other.

Table 8.4
Criminal Offenses keywords

Category	Keywords
People	<i>person, he, his, who</i>
Proclamation of Guilt	<i>class, misdemeanor, felony, offense, violates, violation, guilty, provision, unlawful, is</i>
Manner of Action	<i>knowingly, intent</i>
Elections	<i>unvoted, voted, ballot</i>
Physical Harm	<i>physical, injury</i>
Other Illegal Actions	<i>fails, makes, consideration</i>
Other	<i>having, any, another, custody</i>

As is the case for Operational Definitions, ‘People’ keywords in Criminal Offenses refer solely to the general public, without mention of specific governmental individuals or entities. This can be attributed in part to the fact that the Criminal Offense provisions generally apply to all citizens of a state, not select individuals. Criminal Offense provisions directed at individuals in government-held positions do exist, but are much less common.

Keywords in ‘People’ include *person*, *he*, and *his*. The latter two keywords are consistent with the keyness of 3rd person pronouns in this sub-corpus, as identified in the key feature analysis. It is interesting, though not surprising, that both pronouns refer to male agents (this is also the case in Procedural Guidelines), as historically, the male pronoun is used to refer to all individuals regardless of gender. There is, in fact, a canon titled the *Gender/Number Canon*, which states that “masculine includes feminine (and vice-versa)” (Scalia & Garner, 2012, p. 129).

‘People’ is applied relatively loosely to the other two keywords in this category. *Who* has been placed in the ‘People’ category as the word is solely used in this sub-corpus for the purpose of modifying *person* in the description of a criminal act.

The largest keyword category in Criminal Offenses is ‘Proclamation of Guilt’. This category is similar to the ‘Definition Words’ category found in the Operational Definitions keyword analysis, as nearly all of these words fit into a collection of formulaic sequences. These sequences inform the reader that the action rises to the level of a criminal offense. This includes keywords such as: *violates* (e.g., *any person who violates this section...*), *violation* (e.g., *violation of this section is a...*), *guilty* (e.g., *is guilty of...*), *provision* (e.g., *who violates any provision...*), and *unlawful* (e.g., *it is unlawful to...*) (Text Sample 8.44, **bolded**).

Text Sample 8.44: AZ Rev. Stat. §38-443 (2019)

A public officer or person holding a position of public trust or employment who knowingly omits to perform any duty the performance of which is required of him by **law is guilty** of a **class 2 misdemeanor** unless special **provision** has been made for punishment of such omission.

Intent and *knowingly* are both key in the category ‘Manner of the Action’. These keywords are important in Criminal Offenses because they clarify that knowledge and intent to

commit the action is a condition of guilt (see Text Sample 8.45). The keyness of *knowingly* aligns with the keyness of adverbs in the key feature analysis.

Text Sample 8.45: AZ Rev. Stat. §44-1212 (2019)

A commission merchant, broker, agent, factor or consignee who **knowingly** and with **intent** to defraud makes to his principal or consignor a false statement concerning the price obtained for, or the quality or quantity of property consigned or entrusted to him for sale, is guilty of a class 2 misdemeanor.

The two topically-oriented keyword categories in Criminal Offenses are ‘Elections’ and ‘Physical Harm’. Keywords in ‘Elections’ include *unvoted*, *voted*, and *ballot*. This is consistent with the findings of Chapter 5, which showed that in Title 16 (Elections and Electors), Criminal Offenses accounted for the largest proportion of the provisions. ‘Elections’ keywords appear most frequently in the context of fraudulent voting, for example, voting more than once or interfering with other citizens’ votes (Text Sample 8.46).

Text Sample 8.46: AZ Rev. Stat. §16-1005 (2019) (D)

D. It is unlawful to possess a **voted** or **unvoted ballot** with the intent to sell the **voted** or **unvoted ballot** of another person. A person who violates this subsection is guilty of a class 5 felony.

Unsurprisingly, ‘Physical harm’ is another theme in Criminal Offense provisions (Text Sample 8.47). The two words in this category are *physical* and *injury*, which collocate within one another in all but two instances.

Text Sample 8.47: AZ Rev. Stat. §13-3623 (2019) (A)

A. Under circumstances likely to produce death or serious **physical injury**, any person who causes a child or vulnerable adult to suffer **physical injury** (. . .)
3. If done with criminal negligence, the offense is a class 4 felony.

‘Other Illegal Acts’ is also a small category, containing only three keywords: *fails*, *makes* and *consideration*. *Fails* and *makes* are categorized as such because they can be used to describe a wide variety of different offenses; in other words, a person can fail to do almost an unlimited number of things. Text Samples 8.48 - 8.50 demonstrate this, each prescribing a criminal offense for failing to complete some action.

Text Sample 8.48: AZ Rev. Stat. §3-468.05 (2019) (C)

C. A person who knowingly **fails to pay** or remit any monies due or collected as required in this article is guilty of a class 2 misdemeanor.

Text Sample 8.49: AZ Rev. Stat. §17-339 (2019) (B)

B. (. . .) Any license dealer who makes a false or fraudulent return or report or **who fails to submit returns**, reports or all due and unremitted fees (. . .)

Text Sample 8.50: AZ Rev. Stat. §45-1607 (2019)

Any person conducting weather control or cloud modification operations without first having procured a license as provided by this article (. . .) who knowingly **fails to file any report or evaluation** required by this article (. . .) is guilty of a class 3 misdemeanor.

Text Samples 8.51 - 8.52 demonstrate this same varied use of *makes* to describe a number of different criminal actions.

Text Sample 8.51: AZ Rev. Stat. §38-840.11 (2019)

A person who knowingly **makes** any false statement or who falsifies or permits to be falsified any record of the EODC disability program with an intent to defraud the EODC disability program is guilty of a class 6 felony.

Text Sample 8.52: AZ Rev. Stat. §18-104 (2019) (D)

D. The director, any member of the director's staff or any employee who knowingly divulges or **makes** known in any manner not permitted by law any

particulars of any confidential record, document or information is guilty of a class 5 felony.

Consideration is a keyword in this category as concordance lines reveal that it is used frequently as a legal term of art that is distinct from its colloquial use, defined as: “a promise, performance, or forbearance bargained by a promisor in exchange for their promise” (Cornell Law School, n.d.) (See Text Sample 8.53, below).

Text Sample 8.53: AZ Rev. Stat. §33-458 (2019)

A person who, after selling, bartering or disposing of, or, after executing a bond or agreement for the sale of land, again knowingly and with intent to defraud previous or subsequent purchasers, sells, barter or disposes of, or executes a bond or agreement to sell, barter or dispose of the same land or any part thereof to any other person for a valuable consideration, is guilty of a class 4 felony.

The ‘Other’ keyword category comprises three words: *any*, *having*, and *another*. *Any* is key as it is frequently used preceding *person* (also key), as an indication of inclusivity of the referent of an offense. In four of the five occurrences of *having* in Criminal Offenses, the word appears as the controlling verb of a post-nominal *-ing* clause, as seen below in Text Sample 8.54, where it modifies the noun phrase *any person*.

Text Sample 8.54: AZ Rev. Stat. §13-3623 (2019) (B)

B. Under circumstances other than those likely to produce death or serious physical injury to a child or vulnerable adult, [any person] who causes a child or vulnerable adult to suffer physical injury or abuse or, having the care or custody of a child or vulnerable adult, who causes or permits the person or health of the child or vulnerable adult to be injured (. . .)

8.4.4 Permissions

Permissions has 17 keywords that are categorized into five types: People, Authorized Actions, Conditions of Action, Reference to the Code, and Other.

Table 8.5

Permissions keywords

Category	Keywords
People	<i>board, director, agent, party</i>
Authorized Actions	<i>authorized, may, issue, into conduct</i>
Conditions of Authorization	<i>reasonable, necessary, if</i>
Reference to the Code	<i>rules, adopted</i>
Other	<i>any, its, either</i>

Keywords in the ‘People’ category include *board, director, agent, and party*. In legal contexts, the word *party* often refers to a person or group of people in some type of agreement, which was confirmed through the examination of concordance lines, where it most often appeared in the context of business and court (Text Samples 8.55 – 8.56).

Text Sample 8.55: AZ Rev. Stat. §5-1067 (2019)

If the respondent is not the prevailing **party**, the court may assess against the respondent all direct expenses and costs incurred by the attorney general and law enforcement officers who act pursuant to section 25-1065 and 25-1066.

Text Sample 8.56: AZ Rev. Stat. §47-9610 (2019) (A)

A. After default, a secured **party** may sell, lease, license or otherwise dispose of any or all of the collateral in its present condition or following any commercially reasonable preparation or processing.

Director and *board* represent positions of authority. The term *director* was followed by the verb phrase, *may* + lexical verb in a majority of the concordance lines; for example, *may allow, may adopt, may conduct, may deny, may employ, may establish, and may give*. *Agent* had

the highest keyness value in the ‘People’ keyword category, and frequently appeared in the noun phrases: *registered agent* and *statutory agent*.

Permissions keywords in ‘Authorized Actions’ are similar to Criminal Offense keywords in ‘Other Illegal Acts’ as they are somewhat generic and can be used in a wide variety of contexts. For example, the keyword *issue* can be used in a number of different provisions because an authority figure can *issue* an almost unlimited number of documents (Text Samples 8.57-8.59). The function word *may* is classified in this category as it is the indicator of deontic permission in this sub-corpus.

Text Sample 8.57: AZ Rev. Stat. §12-2212 (2019) (A)

A. When a public officer is authorized by law to take evidence, he **may issue subpoenas**, compel attendance of witnesses and production of documentary evidence, administer oaths to witnesses (. . .)

Text Sample 8.58: AZ Rev. Stat. §48-3221 (2019)

The board of directors of an irrigation district may, when expedient, **issue refunding bonds** to refund the bonded indebtedness of the district.

Text Sample 8.59: AZ Rev. Stat. §42-17110 (2019) (C)

C. The city or town **may issue warrants** pursuant to sections 9-247 through 9-250 to pay necessary expenses, which shall be redeemed when monies become available in the next fiscal year.

The function word *into* has been categorized in ‘Authorized Actions’ as concordance lines demonstrate that the use of *into* overwhelmingly collocated with the word *enter* which formed a phrasal verb that was used to authorize a number of different actions. This includes: *enter into agreements* (AZ Rev. Stat. §30-656-A), *enter into a consent agreement* (AZ Rev. Stat. §32-1551-E), *enter into an operating agreement* (AZ Rev. Stat. §11-1402-A), *enter into*

contracts (AZ Rev. Stat. §48-1039-A), *enter into intergovernmental agreements* (AZ Rev. Stat. §48-1039-B), *enter into rental agreements* (AZ Rev. Stat. §33-1342-B). Concordance lines show that in the 41 occurrences of the word *into*, 32 appear as a part of the phrasal verb *enter into*.

Keywords in ‘Conditions of Authorization’ include *reasonable*, *necessary*, and *if*. *Reasonable* and *necessary* are used to qualify authorizations based on the appropriateness of the act (Text Samples 8.60 – 8.61). Concordance lines show that *necessary* frequently heads *to*-adjective complement clauses, which is one of the two key features in the Permissions key feature analysis.

Text Sample 8.60: AZ Rev. Stat. §6-1007 (2019) (A)

- A. Any person authorized by this chapter or by rules adopted pursuant to this chapter to apprehend persons subject to this code or for trial may do so on **reasonable** belief that an offense has been committed and that the person apprehended committed it.

Text Sample 8.61: AZ Rev. Stat. §49-287.03 (2019) (A)

- A. The department may conduct a remedial investigation and feasibility study of a scored site or portion of the site to assess conditions on the site or portion of the site and to evaluate alternative potential remedies to the extent **necessary** to select a final remedy in a manner consistent with (. . .)

If, while closely associated with the temporal contingencies that frequently appear in Procedural Guidelines provisions, is also a keyword in the Permissions sub-corpus. *If* has a slightly different function in Permissions, however, as it is not used to introduce a contingency (i.e., an unforeseen event that cannot be predicted with certainty), but to introduce the context or situation in which the provision is situated. For example, in Text Sample 8.62, below, the action is authorized under the circumstances that a city or town that is more than four miles from the

county seat. In Text Sample 8.63, the authorization takes place under the circumstances that a cat or dog is unfit for sale.

Text Sample 8.62: AZ Rev. Stat. §25-127 (2019) (A)

A. *If* a city or town is more than four miles from the county seat, the clerk of the superior court may allow the clerk of the city or town or the city or town court clerk to issue marriage licenses (. . .)

Text Sample 8.63: AZ Rev. Stat. §44-1799.05 (2019) (C)

C. *If* a cat or dog is unfit for sale pursuant to subsection A, the purchaser may elect one of the following remedies:

1. Return the animal to the pet dealer for a refund of the purchase price, including transaction privilege, sales or similar excise tax. (. . .)

‘Reference to the Code’ includes the keywords *rules* and *adopted*. These two keywords frequently collocate with one another (e.g., *rules adopted by...*; *rules adopted pursuant to...*), and regularly appear in a small set of binomials and formulaic sequences (i.e., *rules and regulations*; *adopted under this article*). Text Samples 8.64 - 8.65 demonstrate these uses.

Text Sample 8.64: AZ Rev. Stat. §30-672 (2019) (I)

I. **Rules adopted** pursuant to this chapter may provide for (. . .)

Text Sample 8.65: AZ Rev. Stat. §1-863 (2019) (B)

B. The board may adopt necessary **rules and regulations** for the enforcement of any code **adopted under this article**, provided that any such **rules** (. . .)

8.4.5 Prohibitions

There are 16 keywords for Prohibitions, which are classified into five types: People, Money, Illegal Acts, Conditions of Prohibition, and Other.

Table 8.6*Prohibitions keywords*

Category	Keywords
People	<i>employee, person</i>
Money	<i>pay, receive, exceed</i>
Illegal Acts	<i>construed, shall, not, unlawful</i>
Conditions of Prohibition	<i>unless, except, knowingly</i>
Other	<i>act, any, no, or</i>

The ‘People’ category holds the keywords *person* and *employee*. Like Criminal Offenses, the ‘People’ category only holds general public keywords because prohibited acts are usually not prohibited only for specific individuals. The exception to this is when the individual serves a specific government role, and the prohibition is not relevant to the general public.

When Prohibitions reference employees, they less frequently prohibit the employee themselves from acting. Instead, they put in place prohibitions to protect employees from other individuals, employers, or circumstances (Text Samples 8.65 - 8.66).

Text Sample 8.65: AZ Rev. Stat. §23-373 (2019) (E)

- E. An employer may not require, as a condition of an **employee's** taking earned paid sick time, that the **employee** search for or find a replacement worker to cover the hours during which the employee is using earned paid sick time.

Text Sample 8.66: AZ Rev. Stat. §46-406 (2019) (C)

- C. (. . .) This section shall not be construed to impose a duty on an officer, agent or **employee** of this state to discharge a responsibility or to create any right in a person or group if the discharge or right would require an expenditure of state monies in excess of the expenditure authorized by legislative appropriation for that specific purpose.

The keywords in the ‘Money’ category are unique from money-related keywords in other functional types in that they do not refer to specific items (*funds, monies, security, interest*).

Instead, these keywords refer directly to the actions of giving and receiving money (*pay*, *receive*), as seen in Text Sample 8.68, below.

Text Sample 8.68: AZ Rev. Stat. §16-1014 (2019) (A)

- A. It is unlawful for a person, directly or indirectly, by himself or through any other person knowingly: (. . .)
2. To advance or **pay** or cause to be **paid**, money or other valuable consideration to or for the use of any other person with the intent that it, or any part thereof, be used (. . .) to knowingly pay or cause to be **paid** money or other valuable thing to any person in discharge or repayment of money (. . .)
 3. To **receive**, agree or contract for, before, during or after an election provided by law, money, gifts, loans or other valuable consideration, office, place or employment for himself or other person (. . .)

‘Illegal Acts’ keywords include *construed*, *shall*, *not*, and *unlawful*. *Construed* has been classified as such because it appears in Prohibitions solely to prohibit unintended interpretations of particular provisions. This is the sole context in which the keyword appears in this functional type (Text Sample 8.69).

Text Sample 8.69: AZ Rev. Stat. §46-406 (2019) (C)

- C. This section shall not be **construed** to impose a duty on an officer, agent or employee of this state to discharge a responsibility or to create any right in a person or group if the discharge or right would require (. . .)

Both *shall* and *not* are classified in ‘Illegal Acts’, as this is the collocation used to indicate that an act is prohibited in a majority of the Prohibitions provisions. The clause *it is unlawful to* another common way that acts are prohibited in these provisions, and for this reason, *unlawful* has also been classified in ‘Illegal Acts’.

As the title suggests, the category ‘Conditions of Prohibition’ holds a small set of keywords that introduce exceptions to, or conditions of, prohibited acts. This includes *unless*, *except*, and *knowingly* (Text Samples 8.70 - 8.71).

Text Sample 8.70: AZ Rev. Stat. §45-1447 (2019)

The director shall not disburse any monies appropriated pursuant to this chapter or any special appropriations for flood control **unless** and until a public agency has in writing assumed the obligations of maintenance and provided this state and, if applicable, the federal government with written indemnification from damages due to the construction of flood control projects.

Text Sample 8.71: AZ Rev. Stat. §3-2609 (2019)

No person may manufacture or distribute commercial feed in this state without a commercial feed license from the division, **except** that no license is required of persons distributing only: (. . .) 3. Bulk commercial feed in the form received from a licensee and labeled as required with label information furnished by the licensee, **except** for net weight statement.

‘Other’ keywords for Prohibitions include *any*, *or*, *no*, and *act*. The keyness of function words *any* and *or* correspond with the keyness of indefinite articles and phrasal coordinating conjunctions in the Prohibitions sub-corpus (see Ch. 7, Sec. 7.4.4). *Act* is used either in reference to the code (e.g., *at the time this act becomes effective*; AZ Rev. Stat. §1-104-A) or in the title of a specific historical act (e.g., *the railroad retirement act of 1974*; AZ Rev. Stat. §23-791-B).

8.4.6 Duties

There are 15 keywords for Duties, which are classified into five groups: Government Entities, Duties, Money, Time, and Other.

Table 8.7*Duties keywords*

Category	Keywords
Government Entities	<i>department, state, county</i>
Duties	<i>shall, provide, determine, make, program, report</i>
Money	<i>monies, fund</i>
Time	<i>year</i>
Other	<i>each, and, all</i>

Keywords in the ‘Government Entities’ category include only higher-level government entities, including *county*, *state*, and *department*. In contrast with the Permissions sub-corpus, there are no specific government officials in this keyword category (e.g., *director*). *Department* has the highest keyness value of these three words, well above the 3.84 critical value cutoff for the log-likelihood statistic (23.60). Concordances show that *the department* is prescribed a range of both high-level duties associated with the role of the entity, and more situation-specific requirements (Text Samples 8.72 – 8.74).

Text Sample 8.72: AZ Rev. Stat. §36-2225 (2019) (A)

- A. **The department shall develop** and administer a statewide emergency medical services and trauma system to implement the Arizona emergency medical services and trauma system plan.

Text Sample 8.73: AZ Rev. Stat. §2-13353 (2019) (C)

- C. Except as provided in subsection D and notwithstanding any other law, **the department shall adjust** depreciation schedules for use by the assessors to determine the valuation of personal property valued under this article that was or is initially assessed during or after tax year 2012 as follows:
1. For the first tax year of assessment (. . .)

Text Sample 8.74: AZ Rev. Stat. §46-297.01 (2019) (C)

- C. If a recipient uses more than ten percent of the recipient's electronic benefit transfer card balance in a six-month period on out-of-state purchases, **the department shall schedule** an interview with the recipient to determine whether there is fraud.

The 'Duties' keyword category holds several lexical verbs that can be used in a number of different contexts (i.e., *provide*, *make*, *determine*). Like the use of *fails* in Criminal Offenses, these verbs are used to describe several different actions in this sub-corpus; for example, *provide* assistance, *provide* support, *provide* notice, *make* information available, *make* contributions, and *make* an effort (see Text Sample 8.75). *Shall* is also a key in this category, as this modal verb is used to communicate that the act is obligatory. This is in accordance with the key feature analysis in the previous chapter which revealed that prediction modals were the top key feature for Duties, with a large effect size (verb phrases **bolded**).

Text Sample 8.75: AZ Rev. Stat. §46-702 (2019) (B)

- B. Each year the department **shall provide** a list or lists of the names, addresses and if applicable, telephone numbers of all eligible recipients to each local exchange telephone company. The local exchange telephone company **shall determine** from the list those recipients to which the company provides service.

Program and *report* are also key in this keyword category, as concordances show that many of the duties prescribed to government officials pertain to overseeing various government programs (Text Samples 8.76 - 8.77) and documenting information (Text Samples 8.78 – 8.79). While *report* sometimes appeared as a verb, it was primarily used as a noun in the Duties sub-corpus.

Text Sample 8.76: AZ Rev. Stat. §38-618 (2019) (G)

G. An approved **program** **shall** notify the director of the department of administration or the president of the Arizona board of regents when it makes any substantive changes to the approved **program**.

Text Sample 8.77: AZ Rev. Stat. §38-672 (2019) (C)

- C. For each **program** established pursuant to this section, this state and each political subdivision of this state **shall** compile the following data:
1. The total number of public safety employees who have participated in the **program**.
 2. The average number of visits per public safety employee. (. . .)

Text Sample 8.78: AZ Rev. Stat. §35-123 (2019)

The governor's office of strategic planning and budgeting shall prepare and distribute a separate **report** on or before February 1 of each year on all nonappropriated monies. The **report** shall include actual receipts and expenditures for the prior fiscal year and estimates of receipts and expenditures for the current fiscal year and the next fiscal year.

Text Sample 8.79: AZ Rev. Stat. §13-610 (2019) (H)

- H. The department of public safety shall do all of the following:
1. Conduct or oversee through mutual agreement an analysis of the samples that it receives pursuant to subsections K, L and O of this section.
 2. Make and maintain a **report** of the results of each deoxyribonucleic acid analysis. (. . .)

Two keywords were classified into the 'Money' category: *fund* and *monies*. This category was small, frequently pertaining to the allocation of money in government-established (or maintained) funds (Text Sample 8.80).

Text Sample 8.80: AZ Rev. Stat. §41-114 (2019) (A)

- A. The human trafficking victim assistance **fund** is established consisting of **monies** received pursuant to sections 9-500.10 and 32-4260. The director shall administer the **fund** for the purposes prescribed in this section.

The ‘Time’ category holds only the keyword *year*. This keyword usually appears in the context of communicating a time-frame in which a duty must be carried out (Text Sample 8.81).

Text Sample 8.81: AZ Rev. Stat. §48-1308 (2019) (B)

- B. The board shall prepare an annual budget of proposed revenues and expenditures at least sixty days before the beginning of the fiscal **year**.

8.4.7 Impersonal Rules

As the smallest set of keywords, the Impersonal Rules sub-corpus only has four that meet both the keyness log-likelihood critical value of 3.84 and the dispersion cutoff of 5%. These are categorized into three groups: Money, Description, and Other. As is a defining feature of this functional type, there are no keywords that reference human beings, government officials, or characteristics of these people.

Table 8.8

Impersonal Rules keywords

Category	Keywords
Money	<i>security, interest</i>
Description	<i>is</i>
Other	<i>jurisdiction</i>

Two of these keywords pertain to money: *security* and *interest*. Of these, *security* has the highest keyness value, appearing in a number of different contexts concerning money (*economic security, federal social security*, etc.). For around half of the instances of *security*, it is a collocate of the other keyword, *interest* (Text Samples 8.82 – 8.83). It also frequently appears

alongside the word *jurisdiction* (Text Sample 8.83), although this is likely due to the influence of a single statute (AZ Rev. Stat. §47-9316-C) which comprises seven provisions, all classified in this sub-corpus.

Text Sample 8.82: AZ Rev. Stat. §33-1372 (2019) (A)

A. A lien or **security interest** on behalf of the landlord in the tenant's household goods is not enforceable unless perfected before the effective date of this chapter.

Text Sample 8.83: AZ Rev. Stat. §47-9316 (2019) (C)

C. A possessory **security interest** in collateral, other than goods covered by a certificate of title and as-extracted collateral consisting of goods, remains continuously perfected if:

1. The collateral is located in one **jurisdiction** and subject to a security interest perfected under the law of that **jurisdiction** (. . .)

While the keyword *jurisdiction* frequently appears in provisions pertaining to security interests (Text Sample 8.83), it also appears in various other contexts, as seen in Text Sample 8.84, below.

Text Sample 8.84: AZ Rev. Stat. §17-491 (2019) (A)

A. The livestock loss board is established to address the depredation of wolves on livestock operations. The livestock loss board consists of the following members: (. . .)

6. One member who is a faculty member at a university under the **jurisdiction** of the Arizona board of regents, who has expertise in agricultural and life sciences and who is appointed by the president of the senate.

‘Description’, while only containing a single keyword (*is*), is perhaps the most defining keyword category for Impersonal Rules. *Is* is used in Impersonal Rules to describe the state of

something or equate an object (tangible or intangible) to something else (Text Samples 8.85 - 8.86). The keyness of *is* is also consistent with the keyness of verbs of occurrences in the Impersonal rules sub-corpus, as identified in the previous chapter (see Ch. 7, Sec. 7.4.3).

Text Sample 8.85: AZ Rev. Stat. §2-1551 (2019) (L)

L. Notice of a complaint and hearing is effective by a true copy of it being sent by certified mail to the doctor's last known address of record in the board's files. Notice of the complaint and hearing is complete on the date of its deposit in the mail.

Text Sample 8.86: AZ Rev. Stat. §10-127 (2019) (A)

A. A stamp affixed to a copy of a document filed by the commission, bearing the signature of the executive director of the commission, which may be in facsimile or electronic form, and the seal of the commission, is conclusive evidence that the original document is on file with the commission.

8.5 Synthesis: Patterns of lexical variation

8.5.1 Patterns of use among functional types

A handful of notable similarities (and differences) in keyword categories emerged between functional types of statutory provisions. There are three recurring keyword categories that appear in more than one of the functional types: Humans/Entities/Institutions, Money, and Conditions of Action. All of the functional types of statutory provisions have a keyword category referencing humans and/or government entities or institutions, with the exception of Impersonal Rules. There are three different variations of this category: (1) reference to government entities and institutions only, (2) reference to the general public only, and (3) reference to a mixture of government officials and the general public (but not entities or institutions). Duties have a distinct ‘Government Entities and Institutions’ keyword category, including keywords such as

department, county and *state*, with no mention of the general public. This category is also void of any reference to government officials (i.e., *secretary, director*), instead referencing only higher-level institutions. In contrast, Criminal Offenses and Prohibitions have ‘People’ categories which hold keywords such as *person, employee*, and *he*. Neither of these two functions make reference to any government official, entity, or institution. Permissions and Procedural Guidelines both have collective ‘People’ categories which include references to the general public (e.g., *person*) and government officials (e.g., *secretary, director*).

Operational Definitions have two categories pertaining to human agents: a ‘Government Entities and Institutions’ category (e.g., *body, government, subdivision, federal, state*) and a ‘People’ category (e.g., *individual, person, member, employees*). Operational Definitions also have the largest number of human/institution related keywords of any function, by a wide margin. Between the two keyword categories mentioned above, Operational Definitions has 25 human/institution keywords, accounting for around 20% of the keywords in the functional type. This suggests a focus on defining human roles over objects or concepts. The functional type of statutory provision with the next highest number of human/entity/institution-related keywords is Procedural Guidelines, with only eight total keywords of this type.

Functional types of statutory provisions with a ‘Money’ keyword category include Duties, Prohibitions, Impersonal Rules and Procedural Guidelines. This keyword category is small for all four functions, with varied contextual focuses. The keywords for Duties and Impersonal Rules concern highly specific topics, Duties pertaining to the administration and management of government money within funds (*monies, fund*), and Impersonal Rules pertaining to security interests (*security, interest*). The ‘Money’ keywords for Procedural Guidelines and Prohibitions are much more generic and applicable in different contexts;

Procedural Guidelines using keywords such as *pay*, *payment*, *receipt*, *deposit*, and *amount*, and Prohibitions using keywords such as *pay*, *receive*, and *exceed*.

Two functional types of statutory provisions have a keyword category related to conditions. In Permissions, there is a ‘Conditions of Authorization’ category, which include words such as *reasonable*, *necessary*, and *if*, and in Prohibitions, there is a ‘Conditions of Prohibition’ category, which includes *unless* and *except*. In addition to these two functional types, Operational Definitions has a subset of keywords best described as ‘Conditional Indicators’ within the larger category of ‘Definition Words’. This subset includes *context*, *requires*, *otherwise*, *unless*, and *except*.

While such similarities emerged in the keyword categories, there were also unique themes that were associated with each functional type of statutory provision. Table 8.9, below, lists the keyword categories that are unique to each functional type of statutory provision.

Table 8.9

Keyword categories unique to each functional type

Function	Unique keyword classification
Procedural Guidelines	Judicial Proceedings
	Time Deixis
	Formal Procedural Steps
	Quantity/Comparison
Operational Definitions	Business
	Health
	Relationship between two or more items or concepts
	Identification/Description
	Definition Words
Criminal Offenses	Proclamation of Guilt
	Elections
	Physical Harm
Permissions	Authorized Actions
Duties	Duties

Prohibitions	Illegal Acts
Impersonal Rules	Description

8.5.2 Lexically distinct functional types

As seen in the key feature analyses in Chapter 7, some functional types of statutory provisions have substantially more keywords than other functional types, making them somewhat more lexically distinct. This is particularly true for Operational Definitions and Procedural Guidelines, each of which had 100 keywords. This is in sharp contrast to the remainder of the functions - ranging from 28 keywords (Criminal Offenses) to four keywords (Impersonal Rules).

As described by Keller (2021), more keywords indicate greater lexical specificity as a greater number of word types are “meaningfully contingent upon the situation of the register” (p.125). The lexical distinctiveness of Procedural Guidelines and Operational Definitions in particular can be attributed to their applicability to a range of topics and circumstances. Procedural Guidelines and Operational Definitions will appear in a number of different contexts, pertaining to a number of different people, objects, documents, and actions (this is true for Operational Definitions in particular).

8.5.3 Keyword findings compared to past literature

Additional insight can be gained from a comparison of the results in the present chapter to the results of Goźdz-Roszkowski’s (2011) keyword analysis of legislation. Three of Goźdz-Roszkowski’s six keyword categories for legislation also appeared in the present study. The first is Goźdz-Roszkowski’s keyword group ‘Time/Place/Text-Deixis (*beginning, date, end, following*)’ (p.55), which mirrors the fairly large ‘Time Deixis’ category in Procedural Guidelines. Keywords from Goźdz-Roszkowski’s ‘Institutional’ keyword category (*agency,*

commission, entity) were found in the keyword analyses for Duties and Operational Definitions. Finally, keywords from Goźdz-Roszkowski's 'Keywords marking internal organization' category (*section, paragraph, title, chapter*) were key in both Permissions and Procedural Guidelines, categorized as 'Reference to the Code'.

Drawing concrete conclusions about this comparison must be done with caution, as these two studies measured keyness through slightly different statistical analyses. While Goźdz-Roszkowski measured keyness based on frequency within the entire corpus (corpus frequency analysis; see Sec. 8.2.2), the present study measured keyness through dispersion of words across texts. However, as discussed in the previous chapter, a comparison of these results does indicate that certain words that are key in the register of statutory law when compared to other types of legal language are not necessarily equally characteristic of *all* statutory law. Some of these keywords are markedly more common in certain types of statutory provisions compared to others and cannot be said to reflect statutory law as a whole. This is the case, for example, with Text Deixis keywords (e.g., *subsection*) that are characteristic of Permissions and Procedural Guidelines in particular.

8.6 Conclusion

The following chapter will synthesize findings from Chapters 6, 7, and 8, which presented the proportional distribution of functional types in the titles of the Arizona State Code, and described the lexical and lexico-grammatical characteristics of functional types of statutory provisions. In Chapter 9, findings from these analyses will be synthesized into a few key take-aways from the present study. The chapter will also briefly address limitations of the present study, applications to legal interpretation, and avenues of further research for the register of statutory law.

CHAPTER 9

Discussion and Conclusion

9.1 Overview of the study

The primary goal of this study was to examine the extent to which there are systematic patterns of lexico-grammatical and lexical variation within the register of United States state statutory law. More specifically, this study investigated the role that the communicative function of a statutory provision plays in this linguistic variation. Due to the enormity of the domain, the state of Arizona was selected for analysis and a corpus of 1,000 statutes from the Arizona State Code was compiled.

The first half of this study focused on the development of a communicative function framework representing functional types of state-level statutory provisions. The final communicative function framework consisted of seven functional types: Duties, Permissions, Impersonal Rules, Operational Definitions, Prohibitions, Procedural Guidelines and Criminal Offenses. This framework was evaluated for reliability with an independent coder, and achieved a Cohen's kappa coefficient of .97 (near perfect agreement). The individual subsections of each of the 1,000 statutes were manually coded for the communicative function that they served. This resulted in a corpus of 2,972 texts organized into seven sub-corpora representing the functional types of statutory provisions. The corpus was annotated using the Biber Tagger and the annotations were checked for both precision and recall to measure the accuracy at which the tagger annotated statutory language.

The latter half of the study focused on describing patterns of variation between the functional types of statutory provisions. First, qualitative, non-linguistic analysis was carried out to investigate the relationship between functional types of statutory provisions and titles in the

Arizona State Code. The aim of this analysis was to investigate the proportion of the statutory provisions in each title that serve each functional type. Following this, lexico-grammatical and lexical analyses were carried out in order to investigate patterns of linguistic variation. To examine lexico-grammatical variation, a key feature analysis was carried out for each functional type of statutory provision. In each analysis, the texts from one functional type of statutory provision served as the target corpus, and the remaining statutory provisions from the other sub-corpora were combined to serve as the reference corpus. Text dispersion keyword analysis was then used to examine lexical variation between the functional types of statutory provisions. Findings of these two analyses reveal extensive linguistic variation within the domain of statutory law based on the function that the statutory provision serves.

The following section will provide a summary of the major findings of this study (Sec. 9.2). The chapter will then present concrete legal applications of these findings with a focus on the ways in which the consideration of function may aid in statutory interpretation (Sec. 9.3). The chapter ends with a short section covering limitations of the study (Sec. 9.4), potential avenues of future research (Sec. 9.5), and concluding remarks (Sec. 9.6).

9.2 Summing up: Linguistic variation in state statutory law

This study has demonstrated that, contrary to how we have historically treated statutory language, the register of statutory law is not linguistically homogeneous. The domain is both lexically and lexico-grammatically varied, and these patterns of variation are systematic and related to the communicative function of the statutory provision. Furthermore, functional types of statutory provisions vary in the extent to which they are both lexically and lexico-grammatically distinct from the other functional types of provisions.

Table 9.1 presents an overview of what we have learned from this study about the way in which functional types of statutory provisions differ from one another linguistically. For each function, the following information is provided: (a) the percent of the corpus represented by each functional type (out of a total of 2,972 texts), (b) the key features for each functional type, and (c) the total number of keywords and names of the keyword categories that are unique to each functional type of statutory provision.

Table 9.1

Summary of findings from the present study

Communicative Function	% of corpus	Key features	No. of keywords and Unique keyword categories
Duties	29%	• prediction modal verb • definite articles • pre-modifying nouns	15 keywords • Duties
Permissions	17%	• possibility modal verb • adjective complement clause	17 keywords • Authorized actions
Impersonal Rules	13%	• prepositions • predicative adjectives • verbs of occurrence	4 keywords • Description
Prohibitions	7%	• indefinite articles • coordinating phrasal conjunctions	16 keywords • Illegal acts
Procedural Guidelines	5%	• definite articles • prediction modals • word count • subordinating conjunctions - conditional • agentless passive • <i>that</i> verb complement clause • perfect aspect	142 keywords • Formal procedural steps • Time Deixis • Quantity/Comparison • Judicial Proceedings

Operational Definitions	5%	• definition verb connectors • common nouns • word count • phrasal coordinating conjunctions • abstract nouns • pre-modifying nouns • <i>that</i> relative clause • proper nouns • attributive adjectives • present tense • <i>wh</i>- relative clause	116 keywords • Business • Health • Identification/description • Definition words • Relationships between concepts
Criminal Offenses	3%	• predicative adjectives • <i>wh</i>- relative clause • indefinite articles • human nouns • present tense • clausal coordinating conjunctions • adverbs • infinitive • <i>to</i>- verb complement clause • 3rd person pronoun • <i>wh</i>- pied-piping clause	28 keywords • Proclamation of Guilt • Elections • Physical Harm
Other	21%	-	-

Findings indicate that Duties ($n=856$) and Permissions ($n=505$) are the most common functional types of statutory provisions by a wide margin. Together, they account for around 45% of the texts in the corpus. Impersonal Rules are the third most common functional type ($n=375$). This is notable as Impersonal Rules are the only functional type of statutory provision identified in the present study that has not appeared in past legal literature.

The second major finding pertains to the relationship between functional types of statutory provisions and the subject matter represented by titles in the Arizona State Code. Titles related to the financial dealings of government entities and institutions made substantially higher use of Duties and Permissions subsections (60-70%). Titles focusing on dates, rates, documents, and the enactment of laws relied primarily on Impersonal Rules, and titles that concerned a range of topics requiring active involvement from both government officials/entities and the general public (e.g., Elections, Labor) tended to make use of many different functional types of statutory provisions, in relatively equal proportions. While Impersonal Rules are perhaps one of the least lexically and lexico-grammatically distinct of the seven functional types, they were the *most* distinct in their proportional use in titles across the Arizona State Code. ~20% of the Impersonal Rules in the corpus were distributed between 3 of the 47 titles. They accounted for between 35% - 55% of the subsections in each of those three titles.

Another major finding in the present study is that while the functional types of statutory provisions are linguistically varied, some types are more linguistically distinct than others. Linguistic analysis indicates that Procedural Guidelines, Operational Definitions and Criminal Offenses are the most linguistically distinct of the seven functional types, with the top three largest numbers of both keywords and key features their respective analyses. There are a few potential interpretations of this distinctiveness. In terms of the lexico-grammatical distinctiveness of these functional types, there is a notably high degree of formulaicity, marked by the presence of a handful of repeated formulaic structures (e.g., [*a person*] who X is guilty of Y) that likely come from the need to be consistent, precise, and exact in language that is used in high stakes contexts. The lexical distinctiveness of Operational Definitions and Procedural Guidelines can

potentially be attributed to the wide range of contexts that require definitions and guidelines for procedures.

9.3 Legal Applications

As the interpretation of statutory language is at the heart of the judicial system in the United States, the finding that the domain is not linguistically homogeneous holds implications for the task of legal interpretation. The following section (9.3) will describe what these findings mean for the legal world, and the ways in which we can put this knowledge to use.

9.3.1 *Applications to statutory interpretation*

9.3.1.1 Related-Statutes Canon. When tasked with interpreting a law, there is sometimes debate over the ‘best’ meaning of individual words, phrases, or grammatical constructions that can have multiple meanings. To determine the meaning that is most consistent with past interpretations of similar language, judges frequently rely on the Canons of Construction, which are rules of thumb written to guide in the interpretation of contested language.

The findings from this study are relevant to one canon in particular, called the Related-Statutes Canon. The Related-Statutes Canon suggests that, where possible, statutes dealing with the same subject matter, or, “*in pari materia*” (translated to ‘in like matter’) should be interpreted harmoniously (Scalia & Garner, 2012, p. 252). In their description of this canon, Scalia and Garner (2012) write:

“Statutes”, Justice Felix Frankfurter once wrote, “cannot be read intelligently if the eye is closed to the considerations evidenced in affiliated statutes.” Part of the statute’s context is the *corpus juris* of which it forms a part, and this corpus can

be dauntingly substantial. What is required, according to a British judge, is a “conspectus of the entire relevant body of the law *for the same purpose*. (. . .) The critical questions are these: just how affiliated must ‘affiliated’ be, and what purposes are the same? (pp. 252-253)

While Scalia and Garner’s initial interpretation of the Canon highlights the importance of topical content in legal interpretation (“laws dealing with *the same subject matter* (. . .) should be treated harmoniously”) (p. 252), they explicitly mention *purpose* in the excerpt above (“what is required (. . .) is a conspectus of the entire relevant body of law for *the same purpose*”) (p. 253). This suggests that statutory provisions related by both subject *and* function should be considered “affiliated” under this Canon. Even so, the application of this Canon has thus far only extended to subject matter. With this in mind, the aim of the following section is to demonstrate, in concrete terms, how consideration of function stands to contribute to the interpretation of contested language.

9.3.1.2 Case Study: ‘state’ across functional types. This section presents a case study that looks at variation in the grammatical patterns of use for the word ‘state’ across functional types of statutory provisions. Importantly, this case study stops short of determining whether the variation in grammatical patterns affects the *meaning* of the word ‘state’, which is beyond the scope of this dissertation. Instead, the aim of this case study is simply to demonstrate that the grammatical role of target words in a sentence can vary systematically depending on the functional type of statutory provision they appear in. Past research has demonstrated that differences in the grammatical role of a word is often an important factor in determining the meaning of that word. For example, Ren et al. (2020) found that the use of the term ‘cases’ as a shell noun (e.g., ‘cases + *wh*- clause’: **cases** *where there may be no special grounds for*

suspecting an escape...) was an important factor in determining the meaning of the term ‘cases’ in Article III of the Constitution (p. 559). Similarly, Cunningham & Egbert (2020) found that a determining factor in the meaning of the term “emoluments” in Article I of the Constitution was the pre-modification or post-modification of the target term. More specifically, they identified that pre-modification by adjective (e.g., *official emolument*) and post-modification by prepositional phrase (*emolument for...*) were distinguishing factors (p. 9).

Within this in mind, this case study compares the grammatical role of the word ‘state’ in two functional types of statutory provisions: Duties and Criminal Offenses. Duties was selected as the first functional type of statutory provision as ‘state’ was identified as a keyword in the Duties sub-corpus (see Ch. 8, Sec. 8.4.6). Criminal Offenses was selected as the comparison sub-corpus based on the linguistic distinctiveness of this particular functional type revealed in the present study. The aim here was to investigate whether this lexical and lexico-grammatical distinctiveness extended to a distinctive grammatical use of a specific target term.

To investigate variation in the grammatical role of ‘state’ in the two types of statutory provisions, *AntConc* was used to locate all occurrences of the word in each sub-corpus. The concordance lines were compiled into an Excel file for analysis. For each functional type, the concordances were sorted based on the grammatical role of ‘state’ in the sentence it appeared in.

In the Duties sub-corpus, the most notable finding was that the word ‘state’ was used as a pre-modifying noun in nearly half of the occurrences in the sub-corpus (~44%). The term most often appeared either modifying the head noun of a prepositional phrase, or as the subject or direct object of the sentence (see Table 9.2).

As a pre-modifying noun, ‘state’ modified a wide variety of head nouns, including government positions/titles (e.g., *state treasurer*), the names of government entities (e.g., *state*

parks board), and a variety of common nouns (e.g., *state schools*). Examples of this pre-modification are presented in Table 9.3

Table 9.2

Grammatical role of ‘state’ in Duties

		% of sub-	Example hits
		corpus	
Prep. phrase	Pre-mod. noun	26%	<i>...all special plate administration fees in the state highway fund established by...</i>
	Not a pre-mod. noun	34%	<i>The state department shall act as the official agency for the state...</i>
Proper noun	“Secretary of State”	11%	<i>The Secretary of State shall make available by electronic means...</i>
Subject or DO	Pre-mod. noun	18%	<i>Any state building that undergoes a major renovation...</i>
	Not a pre-mod. noun	4%	<i>...the state is called upon to replace or pay for the property...</i>
Verb		6%	<i>guidelines that state the criteria for use...</i>
Other		1%	<i>...Issuing, in the event of inaccessibility of the governor, a state-of-emergency proclamation...</i>

Table 9.3

Sample hits of ‘state’ as a pre-modifier in the Duties

<i>state treasurer, state employee*, state forester, state fire marshal, state land commissioner, state mine inspector, state officers, state registrar, state comptroller, state agenc*, state board of education, state department, state government, state parks board, state board of pharmacy, state committee, state gaming agency, state emergency council, state retirement system, state land*, state general fund, state library, state trust, state hospital, state recognition, state general plan, state highway,, state lottery, state fire code, state capital, state standards, state fund*, state building, state authorization, state schools, state aid, state archives, state legislation</i>

In stark contrast to its use as a pre-modifier in Duties, the word ‘state’ was never used with a pre-modifying function in the Criminal Offenses sub-corpus. Instead, the term is used overwhelmingly as the head noun of a prepositional phrase (87% of the occurrences) (see Table 9.4). This is compared to only the 34% of occurrences in the Duties sub-corpus that functioned as a head noun of a prepositional phrase (see Table 9.2).

Table 9.4

Grammatical role of ‘state’ in Criminal Offenses

Use		% of sub-corpus	Example hits
Prep. phrase	Pre-mod. noun	0%	-
	Not a pre-mod.	87%	<i>Any person who is employed by a state or local government entity and who...</i>
Direct object	Pre-mod. noun	0%	-
	Not a pre-mod.	13%	<i>(...) to impair or alter the normal operation of simulcast broadcasts (...) with the intent to defraud or injure the state...</i>

Variation in the grammatical role of a word across functional types is important to consider when investigating the meaning of a contested word or phrase. The results above suggest that if one was tasked with determining the meaning of the word ‘state’ in a contested Criminal Offense law, 87% of the uses in the entire body of Criminal Offense laws would serve an identical grammatical role (the head noun of a prepositional phrase). If one looked at the use of the word in the entire body of Duties, however, only 34% of the occurrences would serve the same grammatical role. In other words, there is a 67% chance that the individual would be looking at uses of the word serving an entirely different grammatical role. As previously mentioned, past research has demonstrated that differences in the grammatical role served by a term can affect the meaning of that term. As we can see that this type of variation is associated with functional

types of provisions, this case study has demonstrated that, as the Related-Statutes Canon seems to imply, considering statutory provisions affiliated by function may provide information that helps determine the meaning of contested language.

With this in mind, the following section describes concrete steps that can be taken to make the analysis of functional types accessible to those interpreting contested statutory language.

9.3.2 Application of the framework to legal research

The functional classification of statutory provisions developed in the present study represents a potentially powerful tool that lawyers, judges, and linguists can employ when faced with contested language. When tasked with putting together a case or interpreting a legal text, lawyers conduct “legal research”, which is the process of retrieving relevant information to support legal decision-making (Introduction to Legal Research, n.d.). To do this, lawyers often use legal databases such as *Westlaw* or *LexisNexis*, which provide extensive coverage of various types of legal documents such as case law and statutes. Typically, the process of retrieving relevant information for a case is carried out through the following steps: (1) reference to secondary sources that describe or interpret the law (e.g., law review articles and other scholarly writing), (2) reference to primary sources that establish the law (e.g., case decisions or legislative acts), and (3) a process called “shepardizing” (term coined by *LexisNexis*) or “keyciting” (term coined by *Westlaw*) which gives lawyers to access to documents that reference or cite the particular statute in question (Introduction to Legal Research, n.d.).

Applying the functional classification of statutory provisions to the larger domain of state statutory law would provide extra search capabilities for lawyers when they search other statutes for relevant information about a term or phrase. To do this, a machine-based classifier could be

developed to assign functional classifications to the entire body of state law (based on the training set coded in the present study). With a functional classification assigned to every state law, databases such as *Westlaw* and *LexisNexis* could incorporate a search function into the interface that would allow lawyers to conduct more refined searches. For example, a lawyer dealing with a criminal offense law would be able to narrow a search to other criminal offense laws that use similar language or cite the law in question. While the aim of such websites is generally to access *full* coverage of the documents that reference the target statute (so as not to miss any potentially useful information), this search capability would allow lawyers to conduct a second, supplemental search for those statutes that are most closely affiliated with their target statute. Citing a statute that is closely aligned with the statute in question in terms of the function that it serves has the potential to strengthen the argument that the lawyer intends to make. In the case of a judge tasked with selecting the ‘best’ interpretation of a law, looking at a target domain that closely matches the statute in question may help to support the ruling.

These same search capabilities could be applied to publicly available online corpora accessed by linguists. The entirety of the statutes in CorUSSS could be annotated for their functional type in the form of meta-data. This would allow linguists to conduct searches in CorUSSS that are filtered by function.

Notably, these applications will require that the communicative function framework is evaluated for reliability when applied to the larger domain of state statutory law, and refined where necessary. While there is no reason to believe that functional types of statutory provisions will greatly vary from state to state, it’s necessary to confirm that the functional types in the present framework apply beyond Arizona statutes. This will also require that the communicative function meta-data and the search capabilities are integrated into the interfaces mentioned above.

9.4 Limitations

One limitation of this study concerns the coding process. While the functional type of statutory provision was easy to identify a majority of the time, there were occasional provisions that were challenging to classify as a single functional type. In these cases, coding relied on the primary coder's best judgement. It is possible, however, that a different individual may have made an alternate decision. In addition to this, the primary coder does not have formal education in reading statutory law, which makes it possible that legal terms of art were misunderstood. While I am confident in the quality and accuracy of the coding, it is possible that a small selection of provisions would be coded differently if the process was repeated.

The second limitation of the study is that, regardless of efforts to address instances of low precision and recall in the annotation phase (see Ch. 4, Sec. 4.6), accuracy remained low for select features. In particular, recall was problematic for five of the 32 title features evaluated: phrasal and clausal conjunctions (.24 and .68, respectively), non-finite *to*- verb complement clauses (.36), noun complement clauses (.60), and adjective complement clauses (.69). This is not viewed as a substantial problem for the study, but a lower-level issue associated only with a small number of select features. Importantly, the overall average precision and recall measures for the 32 total features that were checked in the tag-fixing process remained satisfactorily high, at .95 for precision, and .85 for recall.

9.5 Future Research

This research lays the foundation for a number of avenues of future research. Future research can build off of the methodology and findings of the present study in two ways: (1) focusing on adaptations of this dissertation in its current form in order to expand our current knowledge of statutory law (e.g., addressing limitations; revisiting the communicative function

framework), and (2) focusing on legal applications of the findings in this study (mentioned above in Sec. 9.3.2).

For the former avenue of future research, the functional types of statutory law could be revisited. This dissertation represents the first attempt to empirically classify statutory texts by their function, but this was not the primary aim of the study. Future research could explore alternate coding guidelines for some of the particularly challenging coding decisions (described in Ch. 5), or increasing the number of functional types in the framework to account for those that appear less frequently in statutory law, overall. For this latter goal, revisiting the large group of provisions that were classified as ‘Other’ in the present study would be an interesting place to start. The ‘Other’ group accounted for ~21% of the texts in the corpus. Because provisions classified as ‘Other’ did not represent a homogenous functional type provision, but a conglomerate of multiple independent types, they were not the focus of linguistic description in the present study. There are most certainly other functional types of statutory provisions classified as ‘Other’ that could constitute their own group in a different study.

Next, future research could focus on the application of the functional type classifications to the larger domain of state law, as discussed above in section 9.3.2. The communicative function framework created in the present study was developed specifically to reflect Arizona state law. With this in mind, an important next step is to empirically evaluate the validity of the functional classifications for the other 50 states, and adjust the framework where necessary. A similar process will need to be undertaken to create a framework that is applicable to the United States Federal Code.

Another avenue of research is to examine the effect that other situational characteristics may have on linguistic variation in the register. As seen in the situational analysis of statutory

law presented in Ch. 2, Table 2.1, there are several other situational characteristics of the register that have the potential to affect linguistic variation, for example, topic (i.e., titles), the recipient of the statutory provision (e.g., general public, government official), and the time of enactment. These three situational characteristics exhibit an extensive amount of variation within the register of statutory law, and may reveal valuable information about the language of the register.

Finally, while this study treated subsections of statutes as texts for analysis, future studies could examine the linguistic characteristics of statutory law by treating complete statutes as the unit of observation. This dissertation did not breach the topic of what conglomerates of these subsections look like in their respective statutes. It is possible that patterns of co-occurrence exist amongst functional types, or that patterns exist in the order in which different functional types are presented in a statute.

9.6 Conclusion

This study has contributed to register variation research, and the field of applied linguistics more broadly, by providing further evidence of the existence of functional correspondence at the text level (Biber & Egbert, 2023). This study represents only the sixth of its type in the last five years that has attempted to describe the extent to which texts from a single culturally-recognized register exhibit situational and/or linguistic variation (others include Biber & Egbert, 2018; Biber et al., 2020; Biber et al. 2021; Goulart, 2022; Goulart et al., 2022). Along with these studies, the present study has demonstrated that texts belonging to a particular register category (identifiable by overt external characteristics), can display a wide range of both situational and linguistic variation.

This study also contributes to the interdisciplinary field of Law and Corpus Linguistics, which is constantly seeking to integrate the use of corpus linguistic methods into statutory

interpretation where appropriate. As this study has demonstrated that there are systematic patterns of linguistic variation between statutory provisions affiliated by function, we may be able to use this knowledge to further refine our methods of interpretation.

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Appendix A: Arizona State Code

Title No.	Title
1	General Provisions
3	Agriculture
4	Alcoholic Beverages
5	Amusement and Sports
6	Banks and Financial Institutions
7	Bonds
8	Child Safety
9	Cities and Towns
10	Corporations and Associations
11	Counties
12	Courts and Civil Proceedings
13	Criminal Code
14	Trusts, Estates, and Protective Proceedings
15	Education
16	Elections and Electors
17	Game and Fish
18	Information Technology
19	Initiative, Referendum, and Recall
20	Insurance
21	Juries
22	Justice and Municipal Courts
23	Labor
25	Marital and Domestic Relations
26	Military Affairs and Emergency Management
27	Minerals, Oil and Gas
28	Transportation
29	Partnership
30	Power
31	Prisons and Prisoners
32	Professions and Occupations
33	Property
34	Public Buildings and Improvements
35	Public Finances
36	Public Health and Safety
37	Public Lands
38	Public Officers and Employees
39	Public Records, Printing, and Notices
40	Public Utilities and Carriers

41	State Government
42	Taxation
43	Taxation of Income
44	Trade and Commerce
45	Waters
46	Welfare
47	Uniform Commercial Code
48	Special Taxing Districts
49	The Environment
	TOTAL

Appendix B: Statute sample (per title)

Title	No. of Statutes	Universal Citation
1	18	1-101, 1-102, 1-103, 1-104, 1-20, 1-211, 1-212, 1-216, 1-217, 1-242, 1-244, 1-245, 1-248, 1-251, 1-252, 1-303, 1-304, 1-401
3	22	3-108, 3-114, 3-121, 3-149, 3-205.02, 3-239, 3-376, 3-406, 3-411, 3-426, 3-443, 3-445, 3-459, 3-468.05, 3-1204, 3-1296, 3-1305, 3-1775, 3-2011, 3-2155, 3-2609, 3-3106
4	23	4-118, 4-120, 4-201, 4-201.01, 4-202, 4-203.01, 4-204, 4-205.0, 4-205.12, 4-210.01, 4-210.02, 4-212, 4-214, 4-22, 4-227.01, 4-241, 4-242.01, 4-243.01, 4-247, 4-249, 4-25, 4-250.01, 4-262
5	22	5-115, 5-230, 5-2345-321, 5-3445-345, 5-391, 5-392, 5-399, 5-399.03, 5-405, 5-415, 5-538, 5-552, 5-562, 5-564, 5-601, 5-837, 5-1106, 5-1134, 5-1136, 5-1138
6	22	6-129, 6-131.01, 6-141, 6-354, 6-386, 6-405, 6-410, 6-465, 6-493, 6-503, 6-508, 6-554, 6-607, 6-634, 6-635, 6-639, 6-837, 6-841, 6-1106, 6-1112, 6-1257, 6-1307
7	12	7-101, 7-102, 7-103, 7-104, 7-105, 7-106, 7-107, 7-108, 7-109, 7-110, 7-121, 7-122
8	22	8-101, 8-118, 8-131, 8-164, 8-232, 8-265, 8-291.01, 8-291.07, 8-291.10, 8-301, 8-309, 8-328, 8-347, 8-356, 8-365, 8-388, 8-390, 8-451, 8-502, 8-514, 8-544, 8-1195
9	21	9-204, 9-250, 9-441.06, 9-461.10, 9-462.05, 9-463, 9-471, 9-499.09, 9-508, 9-518, 9-522, 9-553, 9-835, 9-836, 9-838, 9-842, 9-917, 9-952, 9-963, 9-1116, 9-1451
10	21	10-127, 10-503, 10-626, 10-701, 10-725, 10-811, 10-1420, 10-1634, 10-1806, 10-2017, 10-2104, 10-2246, 10-2259, 10-3303, 10-3613, 10-3640, 10-3807, 10-3810, 10-3856, 10-3863, 10-11902
11	21	11-112, 11-257, 11-267, 11-269.10, 11-269.13, 11-293.01, 11-351, 11-407, 11-414, 11-505, 11-561, 11-581, 11-681.0111-702, 11-863, 11-1005, 11-1020, 11-1025, 11-1402, 11-1805, 11-1915
12	22	12-113, 12-114, 12-120.04, 12-123, 12-135, 12-168, 12-404, 12-523, 12-559, 12-586, 12-653.02, 12-1289, 12-1507, 12-1562, 12-156312-1588, 12-1633, 12-1861, 12-2105, 12-2212, 12-2456, 12-3008
13	22	13-414, 13-610, 13-1415, 13-1428, 13-1801, 13-1804, 13-1904, 13-2322, 13-2513, 13-2801, 13-3014, 13-3117, 13-3403.01, 13-3607, 13-3623, 13-3831, 13-3847, 13-3900, 13-4074, 13-4092, 13-4253, 13-4501
14	22	14-1310, 14-2502, 14-2506, 14-3601, 14-3810, 14-3913, 14-4401, 14-5103, 14-5108, 14-5212, 14-5401, 14-5401.01, 14-5431, 14-5433, 14-6303, 14-7668, 14-10102, 14-10401, 14-10808, 14-10813, 14-10903, 14-13111
15	22	15-111, 15-135, 15-186.01, 15-219, 15-243, 15-249.04, 15-271, 15-465.01, 15-547, 15-724, 15-756.09, 15-854, 15-1000, 15-1030, 15-1142, 15-1324, 15-1486, 15-1606, 15-1625, 15-1825, 15-2062, 15-2086
16	21	16-103, 16-204.0116-204.02, 16-248, 16-312, 16-351, 16-406, 16-535, 16-552, 16-563, 16-581, 16-664, 16-674, 16-822, 16-100216-1005, 16-1009, 16-1014, 16-1016, 16-1021, 16-1022
17	22	17-237, 17-248, 17-251, 17-262, 17-288, 17-29117-298, 17-308, 17-310, 17-313, 17-315, 17-333, 17-338, 17-339, 17-361, 17-401, 17-421, 17-454, 17-457, 17-481, 17-491, 17-501
18	22	18-102, 18-103, 18-104, 18-121, 18-131, 18-201, 18-302, 18-303, 18-305, 18-

		401, 18-422, 18-501, 18-503, 18-504, 18-521, 18-541, 18-542, 18-551, 18-552, 18-602, 18-605, 18-608
19	22	19-102.01, 19-111, 19-118.01, 19-119.02, 19-121.01, 19-121.02, 19-122, 19-124, 19-127, 19-141, 19-161, 19-201, 19-205.02, 19-206, 19-208.01, 19-208.03, 19-208.04, 19-208.05, 19-214, 19-217, 19-222, 19-232
20	21	20-101, 20-113, 20-229, 20-266, 20-281, 20-296, 20-336, 20-363, 20-466.03, 20-486.03, 20-487, 20-1018, 20-1095.02, 20-1404.03, 20-1553, 20-1557, 20-1559, 20-1691.04, 20-2119, 20-2501, 20-3215
21	21	21-101, 21-102, 21-121, 21-122, 21-131, 21-132, 21-211, 21-233, 21-301, 21-302, 21-312, 21-331, 21-336, 21-401, 21-403, 21-404, 21-405, 21-406, 21-409, 21-410, 21-416
22	22	22-112, 22-117, 22-119, 22-122, 22-123, 22-133, 22-135, 22-202, 22-215, 22-217, 22-220, 22-223, 22-224, 22-301, 22-303, 22-355, 22-401, 22-403, 22-421, 22-424, 22-514, 22-515
23	21	23-212.01, 23-323, 23-340, 23-373, 23-392, 23-401, 23-416, 23-428, 23-432, 23-493.09, 23-501, 23-601, 23-608, 23-618.01, 23-657, 23-79123-808, 23-901.07, 23-1066, 23-1073, 23-1322
25	21	25-127, 25-201, 25-217, 25-301, 25-311, 25-318.01, 25-403.06, 25-403.08, 25-505, 25-511, 25-514, 25-520, 25-528, 25-807, 25-813, 25-906, 25-1004, 25-1007, 25-1067, 25-1243, 25-1337
26	22	26-122, 26-154, 26-175, 26-182, 26-233, 26-304, 26-320, 26-401, 26-404, 26-1007, 26-1014, 26-1021, 26-1022, 26-1034, 26-1044, 26-1045, 26-1053, 26-1056, 26-1061, 26-1070, 26-1071, 26-1076
27	22	27-105, 27-252, 27-318, 27-341, 27-353, 27-354, 27-364, 27-421, 27-424, 27-503, 27-515, 27-534, 27-570, 27-658, 27-659, 27-921, 27-922, 27-927, 27-930, 27-951, 27-1230, 27-1296
28	22	28-440, 28-664, 28-1594, 28-2064, 28-2166, 28-2263, 28-2406, 28-2459, 28-3103, 28-3221, 28-3308, 28-4072, 28-4131, 28-5243, 28-5611, 28-6772, 28-7000, 28-7502, 28-7760, 28-8133, 28-8418, 28-8525
29	21	29-103, 29-314, 29-367, 29-601.01, 29-783, 29-848, 29-1026, 29-1041, 29-1064, 29-1082, 29-2305, 29-3102, 29-3104, 29-3116, 29-3201, 29-3210, 29-3405, 29-3709, 29-3802, 29-3910, 29-4001
30	21	30-101, 30-104, 30-106, 30-123, 30-123.01, 30-129, 30-193, 30-203, 30-221, 30-222, 30-228, 30-652, 30-656, 30-672, 30-683, 30-684, 30-689, 30-692, 30-703, 30-801, 30-802,
31	22	31-107, 31-124, 31-127, 31-129, 31-145, 31-161, 31-206, 31-222, 31-229.01, 31-234, 31-251.01, 31-281, 31-285, 31-332, 31-341, 31-342, 31-404, 31-411, 31-416, 31-442, 31-444, 31-467.06
32	21	32-142, 32-151, 32-325, 32-328, 32-1396, 32-1407, 32-1453, 32-1551, 32-1646, 32-1822, 32-1871, 32-1978, 32-2074, 32-2119, 32-2238, 32-2602, 32-2609, 32-2610, 32-2616, 32-3075, 32-3212,
33	21	33-226, 33-413, 33-439, 33-458, 33-982, 33-1006, 33-1032, 33-1121, 33-1202, 33-1205, 33-1215, 33-1225, 33-1246, 33-1257, 33-1312, 33-1324, 33-1342, 33-1372, 33-1403, 33-1472, 33-1501
34	22	34-104, 34-201, 34-202, 34-221, 34-246, 34-251, 34-255, 34-256, 34-258, 34-301, 34-321, 34-401, 34-451, 34-454, 34-455, 34-456, 34-471, 34-502, 34-602, 34-607, 34-608, 34-612
35	21	35-114, 35-121, 35-123, 35-143, 35-147, 35-150, 35-174, 35-182, 35-193.02, 35-302, 35-318, 35-323.01, 35-405, 35-427, 35-466.01, 35-468.04, 35-468.07, 35-502, 35-504, 35-704, 35-1209

36	21	36-101, 36-334, 36-408, 36-428, 36-466, 36-473, 36-479, 36-495.06, 36-560, 36-730, 36-852, 36-1102, 36-1402, 36-1636, 36-1692, 36-1751, 36-2174, 36-2225, 36-2351, 36-2930.04, 36-3708
37	22	37-101, 37-105, 37-132, 37-175, 37-257, 37-287.01, 37-331.02, 37-332, 37-335.04, 37-341, 37-372, 37-412, 37-620.03, 37-903, 37-909, 37-1015, 37-1053, 37-1126, 37-1129, 37-1305, 37-1383, 37-1406
38	21	38-234, 38-291, 38-297, 38-313, 38-386, 38-443, 38-448, 38-618, 38-672, 38-716, 38-729, 38-773, 38-811, 38-815, 38-840.01, 38-840.11, 38-843.03, 38-862, 38-870.01, 38-921, 38-951
39	20	39-101, 39-102, 39-103, 39-121.01, 39-121.03, 39-121.04, 39-122, 39-123, 39-123.01, 39-124, 39-126.01, 39-127, 39-128, 39-142, 39-143, 39-144, 39-161, 39-201, 39-202, 39-205
40	22	40-207, 40-221, 40-247, 40-253, 40-281, 40-326, 40-334, 40-340, 40-356, 40-360.32, 40-360.42, 40-401, 40-408, 40-426, 40-461, 40-1005, 40-1114, 40-1123, 40-1126, 40-1133, 40-1140, 40-1206
41	21	41-101.03, 41-114, 41-164, 41-171, 41-191.05, 41-191.06, 41-511.25, 41-1092.09, 41-1093.04, 41-1532, 41-1609.06, 41-1843, 41-1966.02, 41-2826, 41-2952, 41-3023.07, 41-3803, 41-4006, 41-4010, 41-4062, 41-5510
42	23	42-1126, 42-1152, 42-2073, 42-3010, 42-3354, 42-5041, 42-5042, 42-5165, 42-5205, 42-6006, 42-1100442-12008, 42-13203, 42-13257, 42-13353, 42-13452, 42-15052, 42-16214, 42-17053, 42-17110, 42-18353, 42-19111, 42-19160
43	21	43-107, 43-211, 43-221, 43-242, 43-308, 43-324, 43-328, 43-1002, 43-1041, 43-1073.01, 43-1085, 43-1091, 43-1097, 43-1133, 43-1147, 43-1155, 43-1202, 43-1361, 43-1366, 43-1504, 43-1604
44	22	44-141, 44-287, 44-308, 44-1212, 44-1219, 44-1231.01, 44-1282, 44-1375.02, 44-1460.04, 44-1522, 44-1551, 44-1565, 44-1675, 44-1710, 44-1741, 44-1799.0444-1799.05, 44-1822, 44-1973, 44-2000, 44-3291, 44-7013
45	21	45-106, 45-417, 45-469, 45-476, 45-562, 45-576.05, 45-613, 45-1005, 45-1217, 45-1331, 45-1447, 45-144845-1449, 45-1607, 45-1943, 45-1944, 45-2107, 45-2423, 45-2621, 45-2624, 45-2652
46	21	46-136, 46-137, 46-138.02, 46-139, 46-141, 46-171, 46-210, 46-216, 46-253, 46-295, 46-297.01, 46-300, 46-30146-311, 46-321, 46-33146-406, 46-452, 46-702, 46-703, 46-804
47	22	47-2A208, 47-2A220, 47-2A513, 47-2106, 47-2203, 47-2326, 47-2604, 47-2616, 47-2712, 47-2720, 47-3604, 47-4110, 47-5101, 47-7508, 47-7509, 47-8115, 47-8206, 47-9208, 47-9314, 47-9316, 47-9512, 47-9610
48	21	48-150, 48-151, 48-245, 48-302, 48-502, 48-1039, 48-1067, 48-1307, 48-1308, 48-1405, 48-1541, 48-1703, 48-2411, 48-2664, 48-3221, 48-3648, 48-4204, 48-5174, 48-5310, 48-6409, 48-6435
49	22	49-245.02, 49-287.03, 49-335, 49-360, 49-403, 49-46049-471.06, 49-487, 49-510, 49-542.03, 49-584, 49-723, 49-813, 49-831, 49-834, 49-903, 49-969, 49-1056, 49-1071, 49-1103, 49-1277, 49-1302
TOTAL	1,000	

Appendix C: Corpus organized by functional type

Duties Statutory Provisions				
§1-211-A	§12-2456-E	§16-248-E	§19-121-02-B	§22-202-B
§1-211-B	§12-2456-F	§16-312-B	§19-121-02-C	§22-217-A
§1-211-C	§12-404-C	§16-351-E	§19-121-02-D	§22-220-A
§1-216-A	§13-1415-A	§16-406	§19-122-D	§22-220-D
§1-251	§13-1415-C §13-	§16-535-A	§19-124-B	§22-224
§1-304-B	1415-F	§16-563	§19-124-F	§22-301-B
§1-401	§13-3014	§16-581-A	§19-127-A	§22-355
§10-2259-B	§13-3847	§16-664-B	§19-127-B	§22-421-A
§10-3810-C	§13-4074-A	§16-822-E	§19-141-C	§22-424-B
§10-3863-C	§13-4074-B	§16-822-F	§19-141-F	§22-424-C
§10-626-B	§13-4092-B	§17-262-B	§19-161-A	§22-515-A
§10-701-A	§13-610-H	§17-288-A	§19-161-C	§23-1073
§11-1005-B	§13-610-J	§17-288-B	§19-208-01-B	§23-212-01-C
§11-1020	§14-10808-D	§17-298-C	§19-208-05-A	§23-212-01-E
§11-1025-A	§14-10813-A	§17-313-A	§19-208-05-B	§23-212-01-G
§11-1805-D	§14-10813-B	§17-313-B	§19-214-B	§23-323
§11-1805-H	§14-10903	§17-313-C	§19-214-C	§23-373-A
§11-1915-D	§14-13111	§17-333-A	§20-101-A	§23-373-C
§11-293-01-A	§14-2502-A	§17-333-D	§20-1557-A	§23-432-A
§11-293-01-C	§14-3601	§17-339-A	§20-1557-D	§23-432-B
§11-293-01-D	§14-5103-D	§17-361-B	§20-1559-C	§23-432-C
§11-407-A	§14-5212-B	§17-361-D	§20-1691-04-A	§25-1004-B
§11-407-B	§14-5433-B	§17-481-B	§20-266	§25-1004-C
§11-414-B	§14-5433-C	§17-491-B	§20-363-A	§25-1007
§11-561-B	§14-5433-D	§17-491-D	§20-363-B	§25-1243
§11-681-01-B	§15-111	§17-491-F	§20-363-D	§25-127-B
§11-702-D	§15-1324	§18-102	§20-486-03-A	§25-127-C
§12-113-D	§15-1625-A	§18-103	§21-121-A	§25-1337-B
§12-113-E	§15-1825-B	§18-104-B	§21-122	§25-1337-F
§12-113-G	§15-1825-C	§18-121-B	§21-131-A	§25-311-A
§12-114-A	§15-2062-A	§18-121-C	§21-131-B	§25-403-06-B
§12-120-04-A	§15-219-A	§18-121-D	§21-132	§25-505-B
§12-120-04-B	§15-219-B	§18-302	§21-301-A	§25-505-D
§12-120-04-D	§15-219-C	§18-303-A	§21-301-B	§25-520-B
§12-120-04-E	§15-243-B	§18-303-B	§21-302-A	§25-520-G
§12-123-A	§15-249-04	§18-305-B	§21-302-B	§25-528-B
§12-135-C	§15-271-A	§18-305-C	§21-302-C	§25-528-C
§12-135-D	§15-271-B	§18-305-D	§21-331-A	§25-807-G
§12-135-E	§15-271-C	§18-401-C	§21-409-A	§25-807-J
§12-135-F	§15-271-D	§18-422-C	§21-409-B	§25-813
§12-1562-C	§15-271-E	§18-602	§21-409-C	§25-906-A
§12-1588-A	§15-465-01-A	§18-608-A	§21-409-D	§25-906-B
§12-1588-B	§15-465-01-D	§18-608-B	§21-410-A	§26-1045-A
§12-2105-A	§15-756-09-A	§18-608-C	§21-416	§26-1053
§12-2105-B	§15-756-09-C	§19-102-01-A	§22-112	§26-1070-A
§12-2105-C	§15-854-A	§19-111-B	§22-117-A	§26-122-C

§12-2456-A.	§16-204-01-B	§19-111-C	§22-117-B	§26-154
§12-2456-B	§16-204-01-C	§19-119-02	§22-117-C	§26-233-B
§12-2456-C	§16-248-A	§19-121-01-E	§22-117-D	§26-304-B
§12-2456-D	§16-248-C	§19-121-01-F	§22-123	§26-304-C
§27-1230-B	§16-248-D	§19-121-02-A	§34-104-A	§27-1230-A
§27-1230-C	§29-3709-E	§31-467-06-A	§34-104-E	§35-504-G
§27-1230-E	§29-3709-F	§31-467-06-B	§34-201-I	§36-1692-A
§27-252-B	§29-3910-C	§32-1396-B	§34-202-A	§36-1692-B
§27-318-C	§29-783	§32-1396-C	§34-202-B	§36-2174-B
§27-341-A	§3-108-B	§32-1396-D	§34-221-E	§36-2174-D
§27-341-B	§3-114-A	§32-142-A	§34-221-K	§36-2225-A
§27-341-D	§3-1204-A	§32-142-B	§34-258	§36-2930-04-B
§27-353-B	§3-1204-B	§32-142-C	§34-401-A	§36-2930-04-F
§27-421	§3-1775	§32-1551-G	§34-451-A	§36-334-A
§27-424-A	§3-2011-B	§32-1551-I	§34-451-B	§36-334-D
§27-424-B	§3-2011-C	§32-1551-J	§34-451-C	§36-3708-A
§27-515-E	§3-205-02-C	§32-1551-K	§34-451-D	§36-3708-C
§27-570-A	§3-3106	§32-1822-B	§34-451-E	§36-466-B
§27-658-A	§3-376-C	§32-1871-D	§34-454-A	§36-466-C
§27-658-B	§3-406-A	§32-1871-E	§34-454-B	§36-466-E
§27-922-A	§3-411-A	§32-1871-G	§34-454-C	§36-466-F
§27-927-A	§3-411-B	§32-1978-B	§34-471-A	§36-495-06-A
§27-927-E	§3-443-B	§32-2074-A	§34-471-B	§36-495-06-B
§27-927-F	§3-443-C	§32-2074-B	§34-502-A	§36-560-A
§27-930-A	§3-445-B	§32-2074-D	§34-502-B	§36-560-E
§27-930-C	§30-104	§32-2119-A	§34-502-D	§36-560-H
§27-951-A	§30-106-A	§32-2119-B	§34-502-E	§36-730-A
§28-2064-B	§30-106-C	§32-2602-A	§34-602-B	§36-852-A
§28-2166-F	§30-123-01	§32-2602-B	§34-602-C	§36-852-F
§28-2166-G	§30-203-B	§32-2602-C	§34-602-D	§36-852-G
§28-2263	§30-652	§32-2602-D	§34-602-E	§37-1015-A
§28-2406-B	§30-672-K	§32-2609-B	§34-607-B	§37-1015-B
§28-2459-C	§30-672-L	§32-2609-C	§34-608-B	§37-1015-C
§28-2459-E	§30-672-M	§32-2616-A	§34-608-E	§37-1015-D
§28-2459-F	§30-683-C	§32-2616-D	§34-612-A	§37-1053-A
§28-3103-B	§30-692-F	§32-2616-E	§35-114-A	§37-1053-C
§28-3103-C	§30-703	§32-3212-A	§35-114-B	§37-1126-B
§28-3221-L	§30-802-A	§32-3212-B	§35-1209	§37-1129-B
§28-3308	§30-802-B	§32-325-A	§35-123	§37-1305-B
§28-4072-A	§30-802-C	§32-325-C	§35-143-A	§37-1305-C
§28-5243-B	§31-107	§32-325-G	§35-143-B	§37-1305-G
§28-5611-B	§31-145-B	§32-328-A	§35-147-A	§37-132-A
§28-664-A	§31-161-C	§32-328-B	§35-150-A	§37-1383-A
§28-6772-B	§31-206-B	§33-1006-A	§35-150-C	§37-1406-A
§28-7760-B	§31-222-A	§33-1006-B	§35-182	§37-175
§29-1026-A	§31-229-01-A	§33-1006-C	§35-193-02-C	§37-257-B
§29-1026-D	§31-229-01-B	§33-1032-A	§35-318-C	§37-287-01-A
§29-2305-A	§31-281-A	§33-1032-B	§35-318-D	§37-331-02-B
§29-2305-B	§31-281-C	§33-1032-C	§35-323-01-A	§37-331-02-C
§29-3201-B	§31-281-D	§33-1215-A	§35-405	§37-331-02-D

§29-3210-A	§31-285-B	§33-1215-B	§35-427-E	§37-332-C
§29-3210-C	§31-285-C	§33-1246-A	§35-502-A	§37-332-D
§29-3709-B	§31-342-A	§33-1324-A	§35-504-B	§37-332-F
§29-3709-C	§31-411-F	§33-1501-D	§35-504-D	§37-372-A
§29-3709-D	§31-416-A	§33-1501-F	§35-504-F	§37-372-D
§37-412-B	§31-442-A	§33-1501-H	§44-1375-02-D	§37-372-E
§37-412-C	§4-227-A	§41-1966-02-C	§44-1460-04	§46-295-A
§37-620-03-A	§4-241-A	§41-2826-C	§44-1675	§46-295-C
§37-620-03-B	§4-241-J	§41-3803-B	§44-1710-B	§46-295-D
§37-903-B	§4-241-S	§41-3803-D	§44-1799-04-A	§46-297-01-A
§37-909-A	§4-242-01-B	§41-3803-I	§44-1799-05-B	§46-297-01-C
§37-909-B	§4-242-01-C	§41-3803-J	§44-1799-05-D	§46-300-B
§37-909-C	§4-262	§41-4006-C	§44-1799-05-E	§46-300-D
§38-297	§40-1005-B	§41-4010-A	§44-1799-05-F	§46-321-A
§38-313-A	§40-1123-C	§41-4062-B	§44-1799-05-G	§46-321-B
§38-386-B	§40-1123-F	§41-4062-C	§44-1973-C	§46-321-E
§38-448-C	§40-1140-B	§41-4062-E	§44-287-A	§46-321-F
§38-618-B	§40-1140-E	§41-511-25-B	§44-287-B	§46-321-G
§38-618-C	§40-207-A	§41-5510	§44-308-E	§46-321-I
§38-618-G	§40-207-C	§42-1152-C	§44-3291-A	§46-331-B
§38-672-A	§40-281-E	§42-13203-A	§45-1005-A	§46-331-C
§38-672-C	§40-326-A	§42-13203-E	§45-1005-B	§46-331-D
§38-716	§40-326-B	§42-13257	§45-1331-A	§46-406-A
§38-729-B	§40-340-A	§42-13353-A	§45-1448-A	§46-406-B
§38-729-C	§40-360-32-E	§42-13353-B	§45-1448-B	§46-452-A
§38-729-E	§40-360-32-F	§42-13353-C	§45-1449	§46-702-B
§38-729-H	§40-401-A	§42-13452-C	§45-1944	§46-703-A
§38-773-E	§40-401-D	§42-16214-B	§45-2107	§46-703-C
§38-815-B	§40-401-E	§42-17053-A	§45-2423-A	§47-9208-B
§38-815-C	§40-401-F	§42-17110-B	§45-2624-A	§48-1308-A
§38-815-D	§40-408-B	§42-18353-A	§45-2624-B	§48-1308-B
§38-840-01-A	§40-408-C	§42-18353-C	§45-2624-C	§48-1405
§38-840-01-C	§41-101-03-A	§42-19111-B	§45-417-B	§48-1541
§38-843-03	§41-1092-09-D	§42-19160-A	§45-469-B	§48-1703
§38-870-01-C	§41-1093-04-B	§42-2073-A	§45-469-L	§48-2411-A
§39-101-A	§41-1093-04-C	§42-2073-D	§45-469-P	§48-2411-C
§39-101-B	§41-1093-04-E	§42-3010-A	§45-476-A	§48-245
§39-102	§41-1093-04-F	§42-3010-B	§45-476-B	§48-2664-A
§39-121-01-B	§41-1093-04-H	§42-3010-C	§45-476-D	§48-302-A
§39-121-01-C	§41-1093-04-J	§42-3354-A	§45-576-05-A	§48-302-B
§39-121-03-C	§41-114-A	§42-3354-B	§45-613-A	§48-3648-A
§39-121-04-A	§41-114-B	§42-3354-C	§45-613-B	§48-3648-C
§39-122-C	§41-1609-06-A	§42-3354-D	§45-613-C	§48-5310
§39-128-A	§41-1609-06-C	§42-3354-E	§45-613-D	§48-6409-A
§39-143-A	§41-1609-06-E	§42-3354-G	§46-136-B	§48-6435-A
§39-202-A	§41-164-A	§42-5041-A	§46-138-02-B	§48-6435-B
§39-202-B	§41-164-B	§42-5041-E	§46-139	§49-1056-C
§39-205-B	§41-164-E	§42-5041-F	§46-141-B	§49-1071-C
§4-201-A	§41-171-B	§42-5205-C	§46-141-D	§49-1277-B
§4-201-D	§41-191-05-A	§43-1041-H	§46-141-G	§49-1277-C

§4-201-I	§41-191-05-B	§43-1085-C	§46-141-H	§49-287-03-B
§4-203-01-B	§41-191-05-C	§43-1366	§46-141-M	§49-287-03-C
§4-203-01-D	§41-191-05-D	§43-1504-A	§49-335	§49-287-03-D
§4-205-08-H	§41-1966-02-B	§43-1504-F	§49-360-A	§49-287-03-E
§4-227-01-B	§4-205-08-J	§43-1604	§43-211-B	§49-287-03-F
§49-360-B	§6-841-A	§5-391-B	§9-508-B	§8-451-B
§49-360-D	§7-101	§5-399-A	§9-518-H	§8-514-B
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§33-1342-C	§37-1305-H	§4-205-08-F	§42-16214-A	§46-141-L
§33-1472-B	§37-1305-I	§4-205-12-B	§42-17053-B	§46-295-B
§33-1501-G	§37-132-B	§4-210-01-A	§42-17110-D	§46-297-01-B
§33-1501-J	§37-1383-D	§4-210-02-A	§42-18353-B	§46-300-A
§33-439-B	§37-1406-C	§4-210-02-B	§42-19111-D	§46-300-C
§34-104-D	§37-287-01-B	§4-214-B	§42-19160-C	§46-321-C

§34-104-F	§37-287-01-C	§4-227-01-A	§42-2073-C	§46-321-D
§34-201-A	§37-620-03-C	§4-241-B	§42-3354-F	§46-452-C
§34-201-H	§38-448-A	§4-241-C	§42-5042-A	§46-702-A
§34-201-J	§5-562-H	§9-471-K		
§34-201-K	§5-564-A	§9-471-L		
§34-201-L	§5-601-A	§9-471-N		
§34-221-A	§5-601-E	§9-471-P		
§47-2a208-B	§5-601-G	§9-471-Q		
§47-2a220-A	§5-837-C	§9-499-09-A		
§47-4110-A	§6-1112-A	§9-508-D		
§47-8115	§6-129-E	§9-518-A		
§47-9208-A	§6-131-01-A	§9-518-B		
§47-9314-C	§6-405-A	§9-518-C		
§47-9316-I	§6-465-A	§9-518-G		
§47-9512-F	§6-465-F	§9-835-A		
§47-9610-B	§6-607-B	§9-835-D		
§48-1067-B	§6-607-D	§9-835-F		
§48-4204-A	§6-607-E	§9-835-I		
§48-4204-C	§6-639	§9-835-N		
§48-4204-F	§6-837-A	§9-842-D		
§48-6409-B	§6-837-B	§9-842-H		
§49-1056-A	§7-102	§9-952		
§49-1056-B	§7-103-A	§5-345-E		
§49-1071-E	§7-104	§5-391-C		
§49-1277-A	§7-105-B	§5-391-D		
§49-1277-F	§7-107	§5-391-E		
§49-245-02-A	§8-1195-D	§5-392-B		
§49-360-G	§8-1195-F	§5-415-A		
§49-360-H	§8-265-A	§5-415-B		
§49-471-06-D	§8-291-01-B	§5-552-A		
§49-487-A	§8-291-07-B	§5-562-A		
§49-487-C	§8-291-07-C	§9-1451-J		
§49-542-03-D	§8-291-10-B	§9-250		
§49-834-C	§8-291-10-G	§9-461-10-C		
§49-834-F	§8-291-10-H	§9-462-05-C		
§49-834-G	§8-309-C	§9-471-C		
§49-903-A	§8-309-D			
§5-1106-C	§8-347-D			
§5-1106-E	§8-388			
§5-1134-B	§8-502-A			
§5-1136-B	§8-502-B			
§5-115-A	§8-502-G			
§5-115-C	§8-514-E			
§5-115-F	§9-1116-B			
§5-321-D	§9-1451-A			
§5-321-J	§9-1451-B			
§5-321-L	§9-1451-C			
§5-345-C	§9-1451-D			
§5-345-D	§9-1451-I			

Appendix D: Keyword lists and keyness values

Permissions Keywords

Keyword	Keyness value (G ²)
may	470.16
necessary	32.01
issue	15.97
conduct	12.68
any	12.53
rules	10.68
agent	10.25
authorized	9.65
reasonable	8.92
board	8.18
adopted	7.05
into	7.03
if	4.55
its	4.31
either	4.30
party	4.11
director	3.80

Duties Keywords

Keyword	Keyness value (G ²)
shall	250.19
each	31.05
fund	25.22
department	23.60
report	17.53
provide	14.56
monies	12.08
determine	10.03
year	9.71
program	9.56
and	8.60
make	6.89
all	6.61
state	5.79
county	4.22

Impersonal Rules Keywords

Keyword	Keyness value (G²)
security	14.72
is	7.82
interest	6.00
jurisdiction	5.73

Prohibitions Keywords

Keyword	Keyness value (G²)
not	69.88
unlawful	56.81
construed	48.46
no	22.61
any	21.59
unless	19.79
knowingly	10.88
act	10.23
exceed	8.45
except	6.92
pay	5.50
employee	5.01
or	4.87
receive	4.30
person	4.22
shall	4.20

Operational Definitions Keywords

Keyword	Keyness value (G²)
means	547.43
context	326.66
requires	220.79
includes	182.18
purposes	172.24
otherwise	133.09
unless	104.29
meaning	81.43
defined	59.87
individual	58.10
this	55.90
article	55.69

<i>Operational Definitions keywords</i>	
<i>(continued)</i>	
same	33.54
governmental	33.51
physical	32.91
include	32.46
subdivision	31.67
has	30.38
person	30.37
control	30.27
agency	28.47
section	26.59
corporation	26.13
used	24.97
partnership	24.84
services	23.18
disability	23.07
duly	22.40
combination	22.40
whether	21.93
business	21.30
entity	21.23
mental	20.83
trade	20.83
licensed	20.13
including	20.07
political	19.96
owned	19.79
does	19.73
another	18.84
association	17.88
result	17.63
commercial	17.58
for	17.54
arizona	17.30
personal	16.84
who	16.70
person's	16.32
health	15.23
other	15.22
contract	15.00
medical	14.93
municipal	14.54
organization	14.09

<i>Operational Definitions keywords</i>	
<i>(continued)</i>	
system	13.27
code	13.03
service	12.87
federal	12.87
direct	12.73
vehicle	12.15
electronic	12.14
which	12.12
prescribed	12.06
limited	11.78
but	11.75
employee	11.55
member	11.22
as	10.91
in	10.87
part	10.67
legal	9.83
district	9.67
designated	9.08
agreement	8.97
sale	8.95
security	8.90
government	8.85
any	8.62
related	8.58
that	8.55
care	8.54
purpose	8.47
property	8.38
title	8.25
agent	8.22
facility	7.88
insurance	7.88
through	7.76
an	7.59
one	7.40
state	7.32
or	7.05
both	7.02
more	6.93
town	6.69
body	6.65

<i>Operational Definitions keywords</i> (continued)	
chapter	6.65
those	6.39
united	6.39
following	6.16
land	5.56
are	5.48
city	5.17
adopted	5.13
act	5.09
right	5.09
support	4.79
plan	4.61
either	4.52
established	4.50
less	4.38
states	4.19
except	4.14
authorized	4.03
law	3.94
by	3.86

Criminal Offenses Keywords	
Keyword	Keyness value (G²)
class	379.78
guilty	361.72
misdemeanor	197.75
felony	194.34
knowingly	153.88
violates	97.85
who	81.20
person	47.02
unvoted	44.12
intent	36.08
voted	35.52
is	27.05
makes	25.77
ballot	23.15
unlawful	22.62
provision	19.73
physical	17.05
fails	15.37
violation	14.04

<i>Criminal Offenses keywords (continued)</i>	
injury	12.29
another	9.88
consideration	9.86
custody	9.03
any	6.08
having	5.52
he	5.24
his	4.92
offense	3.82

Procedural Guidelines Keywords	
Keyword	Keyness value (G²)
days	128.51
after	112.47
if	76.66
within	68.93
notice	51.33
copy	40.35
thirty	39.88
been	36.45
hearing	36.27
notify	34.61
ten	33.54
no	33.05
shall	32.16
transmit	30.66
sufficient	30.52
date	29.57
sample	29.24
finds	29.04
held	27.63
submit	26.32
file	26.05
upon	25.88
before	25.65
until	25.51
on	24.15
approval	24.09
time	23.89
petition	23.79
court	23.62
at	23.55

Procedural Guidelines Keywords
(continued)

also	23.43
mail	23.19
has	22.94
receipt	22.83
appear	21.91
attorney	21.90
written	21.73
was	21.38
made	21.19
appeal	20.37
county	20.04
continue	19.53
taken	18.73
submitted	18.34
be	18.26
filing	18.21
testing	18.21
recorder	18.05
amount	17.71
listed	17.60
order	17.57
review	17.37
which	17.01
day	16.78
determination	16.53
would	16.39
each	15.51
subsection	15.26
than	15.24
issue	14.98
that	14.86
first	14.27
deposit	14.06
last	14.01
make	13.99
is	13.43
an	13.35
for	13.16
determines	12.76
provide	12.60
final	12.17
and	12.12

<i>Procedural Guidelines Keywords</i>	
<i>(continued)</i>	
determine	12.09
fails	11.84
give	11.63
will	11.60
receiving	11.52
application	11.33
payment	10.97
affidavit	10.95
full	10.92
filed	10.66
original	10.62
process	10.62
issued	10.62
its	10.51
without	10.49
number	10.26
secretary	10.20
his	10.20
it	9.77
may	9.62
such	9.58
charge	9.55
certified	9.50
forth	9.42
pay	9.38
proceedings	9.30
legal	9.28
proposed	8.62
he	8.37
officer	8.29
place	8.15
with	8.11
board	8.04
prescribed	8.02
offense	7.91
less	7.62
when	7.16
thereof	6.91
electronic	6.79
provided	6.73
superior	6.73
report	6.71

<i>Procedural Guidelines Keywords</i>	
<i>(continued)</i>	
to	6.69
address	6.56
total	6.39
into	6.19
record	6.17
from	6.17
public	6.03
by	5.91
have	5.81
but	5.78
other	5.78
safety	5.64
or	5.60
least	5.26
request	4.97
general	4.96
same	4.91
persons	4.75
five	4.42
those	4.33
a	4.21
in	4.14
period	4.10
any	4.05
against	3.96
pursuant	3.94
person	3.93
so	3.88
