

# Cause of Action and the Right to Know

## *A Formal Conceptual Analysis of the Texas Senate Bill 25 Case*

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**Abstract.** Bill 25 proposed by the Texas Senate in 2017 was created to eliminate the so-called ‘wrongful birth’ cause of action. This plan raised some questions about the ‘right to know’ and indirectly about rights in general. We provide a preliminary logical analysis investigating these questions by using deontic and epistemic logics within the theory of normative positions. This work contributes to the logic-based legal knowledge representation tradition, and to the formal conceptual analysis of legal rights studying the cause of action’s role in the debated relation between the Hohfeldian categories ‘claim-right’ and ‘power’.

**Keywords.** legal knowledge representation, deontic logic, normative positions

The Texas Senate Bill 25<sup>2</sup> was designed to abolish the ‘wrongful birth’ cause of action, that is to take away the possibility of parents who had given birth to seriously ill or disabled babies to sue doctors for failing to warn the parents about the serious health conditions at the foetal stage. While the bill never passed, it received international media attention. In her comments on the Bill [12]<sup>3</sup> and more general work on epistemic rights [13], Lani Watson assesses the controversy surrounding it as a debate over the existence of an epistemic right:

While the public debate surrounding Texas Senate Bill 25 was framed, predominantly, in terms of the language and rhetoric of the pro-life/pro-choice debate, the issue at the heart of the controversy is ultimately one of epistemic rights. Those opposing the bill argued that it would allow doctors to withhold information, or lie to, expectant parents about the health of an unborn fetus. The implicit assumption is that doing so would constitute some kind of harm or wrong. In the context of prenatal healthcare provision, expectant parents have a right to know certain facts about the health of an unborn fetus. By withholding, distorting, or failing to provide these facts, a doctor is unjustifiably disregarding her epistemic duty and so violating the parents’ right to know. (Watson [12], pp. 11-12)

In this paper, we combine existing tools from the logical theory of normative positions [11,8] with tools from epistemic logic to analyse the logical relationship between

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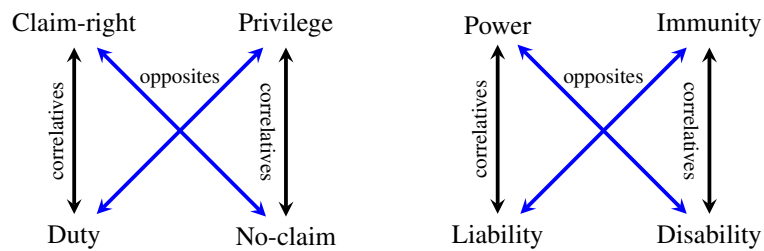
<sup>2</sup><https://legiscan.com/TX/bill/SB25/2017>

<sup>3</sup><https://www.law.ed.ac.uk/news-events/events/right-know-epistemic-rights-and-why-we-need-them-lani-watson>

the Hohfeldian categories of rights that underlie the Texas Bill debate. In particular, we study the logical structure of the parents' right to know as a normative position, and how the cause of action and its elimination relate to (claim-)rights.

## 1. Theoretical Background

The theory of normative positions originates from the legal theorist, W. N. Hohfeld [4], who differentiated between four atomic types of rights and their correlatives, four types of duties [8]:



Each atomic right position of an agent comes with a correlative duty position of another agent (which is taken in the formal literature as equivalence between one agent's right and the other agent's duty). A *claim-right* of an agent concerns the other agent's action, one that the counterparty, the duty-bearer has an obligation to do, and this obligation is directed to the right-holder—this is what Hohfeld calls a *duty* in the narrow sense. The Hohfeldian *privilege* to do something refers to the right-holder's own action as not being subject of a claim-right coming from the other agent. This is a relativized notion of what is called weak permission in the deontic literature.

The normative positions in the right square are considered higher order: the actions which one can have a power to are actions changing an (other) agent's normative positions. *Power* means this, as it is called in [8], *potential*: one's boss has a right to give new—work-related—tasks to her, that is, put duties on her, which means, she is *liable* to that. But only regarding work-related tasks and not, for example, baby-sitting task related the boss' child, he is *disable* to do that, does not have a power to meaning the employee's immunity in this regard. Fitch considered the positions in this square capacitative [2] as opposed to the deontic ones in the left square.

The literature often takes the capacitative positions to be dynamic: the potential to *change* someone's normative positions lead recent work on these positions to borrow from tools developed in dynamic epistemic logic [8,1]. In this paper, we use a simpler approach. Seeing to it that someone's normative positions change (in a given way, involved in the given action) is only *possible* with having the power to. Thus we describe of the capacitative positions using combinations of alethic, action and deontic operators: having a power means it is possible that the agent sees to it that a deontic state holds.

### 1.1. Definition of Claim-right and the relation between Claim-right and Power

Hohfeld considered the positions *sui generis*, so he didn't provide definitions of them, neither of what relation there is between the levels (squares). Makinson [7] provided

an admittedly preliminary, informal definition of ‘counterparties’ relying the seemingly obvious connection between the two levels of the positions ( $F$  is a given state of affairs):

$x$  bears an obligation to  $y$  that  $F$  under the system  $N$  of norms *iff* in the case that  $F$  is not true then  $y$  has the power under the code  $N$  to initiate legal action against  $x$  for non-fulfillment of  $F$

If this definition worked, it would provide a definitive relation between *duty*—and so claim-right—and power. But, whatever intuitive sounding this definition is, the right-to-left direction of the biconditional does not work: the fact that we have the power to initiate a legal action against someone does not imply that we had a claim-right against him in the first place [8]. If this was the case, the court would not need to carry out the proceeding: the fact of initiating the legal action would mean winning it. But sometimes people lose in court, exactly because that they did not have the claim-right originally.<sup>4</sup>

Markovich’s [8] work shares the Makinsonian insight that the key notion to understand what a claim-right is is *enforcement*, but leaves the notion of power out of the description: a duty to see to it that  $F$  and its unfulfillment, that is,  $\neg F$  together triggers a new duty of the judge toward the original right-holder to make it the case that the original duty bearer compensates for  $F$ . This description thus, however, leaves open how the power to initiate a legal action against the counterparty relates to this notion of enforcement and that of the claim-right. In this paper we complement it arguing that the power to initiate a legal action concerns *settling* whether  $\neg F$  is the case, and this plays a crucial role: it might be considered as affecting whether there is a (claim-)right at the first place.

## 1.2. Cause of action

The Texas Senate Bill 25 was about to eliminate a cause of action, namely the ‘wrongful birth’, meaning that the doctor fails to warn the parents about a serious illness of the fetus. The expression ‘cause of action’ refers to a set of facts that provides basis for the plaintiff to initiate a legal action. The plaintiff, of course, has specific goals with initiating a legal action: she wants enforcement, she wants a sentence which declares that the counterparty (the one whom she sued) didn’t fulfill his duty and that the judge put a duty on the counterparty (now defendant) to compensate for not fulfilling that original duty of him. But sometimes the judge sentences against the plaintiff and this doesn’t violate the judge’s duty. This is because the judge’s duty to enforce is not triggered by the plaintiff’s initiating the legal action, but by the fact that the judge sees it proved that the defendant did what the plaintiff claims and that this counts as not fulfilling his duty. The factual part of what needs to be proved is what indicated as cause of action. And the relation of the set of facts indicated as cause of action to the original duty of the defendant is that this set of facts realizes the contrary-to-duty statement. *If* the judge sees it proved that the defendant did what the plaintiff indicated as cause of action, then she sentences about his duty to compensate. But this declaration about being proved is needed. And this is regarding what the judge gets a duty by someone initiating a legal action: the judge has to *decide* whether what is put as cause of action indeed happened. That is, the judge’s duty concerns to either settle that the set of facts has been proved

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<sup>4</sup>Sergot [11] suggested to add “with some expectation of success” Makinson’s definition. Even if this approaches epistemic reality well, this amended definition still would not give us a precise relation between claim-rights and powers.

(defendant did what the plaintiff said he did), or to settle that it is not settled (that is, to declare that it hasn't been proved). It is important that the latter doesn't mean settling that the defendant didn't do what is indicated in the cause of action.

If a set of facts cannot be a cause of action, then it is not possible for someone (supposedly) having a claim-right to initiate a legal action requiring the judge to legally settle the given set of factual statements. In this case, the claim-right cannot be enforced as the needed declaration triggering the judge's duty to oblige the defendant's compensation cannot happen. It feels intuitive to say that in this case the right which would be a claim-right (to know whether the fetus is ill in the given case) *actually* doesn't exist. This is what is claimed in the Texas Senate Bill 25 case and what Makinson's definition intended to show. In what follows, we discuss some questions regarding the formalization of this relationship between a claim-right and the power to initiate a legal action—both in general and in this specific case.

## 2. Language and Semantics

We work with a propositional language extended with four modalities.

$$p \in \Phi \mid \varphi \wedge \psi \mid \neg\varphi \mid \mathbf{K}_a\varphi \mid \mathbf{O}_{a \rightarrow b}(\varphi/\psi) \mid E_a\varphi \mid \Box\varphi$$

Here  $a, b$  are elements of a finite set of agents  $A$ , and  $\Phi$  is a given, countable set of propositional letters.  $\mathbf{K}_a\varphi$  is the standard knowledge modality from epistemic logic, to be read as “agent  $a$  knows that  $\varphi$ ”.  $\mathbf{O}_{a \rightarrow b}(\varphi/\psi)$  is a directed conditional obligation, to be read as “given  $\psi$ ,  $a$  has a duty towards  $b$  that  $\varphi$ ”.  $E_a\varphi$  is an agency operator to be read as “agent  $a$  sees to it that  $\varphi$ ”, and  $\Box\varphi$  is a legal necessity operator to be read as “it is legally settled that  $\varphi$ ”.

This language is interpreted in Kripke models extended with a neighborhood function  $f_a$  for the agency operator.

**Definition 1 (Frames and Models)** A frame  $\mathfrak{F}$  for a given finite set  $A$  of agents is a tuple

$$\mathfrak{F} = \langle W, \{R_a, \leq_{a \rightarrow b}, f_a\}_{a, b \in A}, R_\Box \rangle$$

where  $W$  is a finite set of possible worlds,  $R_a$  is an equivalence relation on  $W$ ,  $\leq_{a \rightarrow b}$  and  $R_\Box$  are pre-orders (reflexive and transitive) relations on  $W$ , and  $f_a : W \rightarrow \wp\wp(W)$  is a neighborhood function. Write  $R_a(w)$  for  $\{v : wR_av\}$ , and similarly for  $R_\Box$ . We impose the following condition.

- (Success) For all  $w$  and  $X \in f_a(w)$ ,  $w \in X$ .

A model  $\mathcal{M}$  is a frame together with a valuation function  $V : \Phi \rightarrow \wp(W)$ . We write  $w <_{a \rightarrow b} v$  whenever  $w \leq_{a \rightarrow b} v$  but not  $v \leq_{a \rightarrow b} w$ ;  $w \equiv_{a \rightarrow b} v$  whenever  $w \leq_{a \rightarrow b} v$  and  $v \leq_{a \rightarrow b} w$ .

At a state  $w$ , the set of states  $R_\Box[w] = \{v : wR_\Box v\}$  captures what what is currently settled *in the eyes of the law*. Typically a legislation imposes stringent conditions, for instance in terms of admissible evidence, for recognizing that certain states of affairs hold. So not everything that is actually true at a given state needs to be legally settled.

On the other hand, given our semantics for the  $\square$  operator, the assumption that  $R_\square$  is reflexive entails that false propositions cannot be legally settled. Similarly, the condition that  $R_\square$  is transitive entails that if a proposition is legally settled, then it is legally settled that this proposition is legally settled. We do not, however, require  $R_\square$  to be symmetric. Imposing this would entail that whenever a proposition is not legally settled, it is legally settled that this proposition is not legally settled. This appears inaccurate for our intended interpretation: the judiciary might not have ruled on a certain fact without having settled that this fact is not settled.

**Definition 2 (Truth Conditions)** Let  $\mathfrak{M}$  be a model and  $w \in W$ . Write  $\|\varphi\|$  for  $\{w : \mathfrak{M}, w \models \varphi\}$ .

- $\mathfrak{M}, w \models E_a \varphi \Leftrightarrow \|\varphi\| \in f_a(w)$ .
- $\mathfrak{M}, w \models \square \varphi \Leftrightarrow \forall v \text{ such that } wR_\square v, \mathfrak{M}, v \models \varphi$
- $\mathfrak{M}, w \models K_a \varphi \Leftrightarrow \forall v \text{ such that } wR_a v, \mathfrak{M}, v \models \varphi$
- $\mathfrak{M}, w \models \mathbf{O}_{a \rightarrow b}(\varphi/\psi) \Leftrightarrow \forall v \in \max_{\leq_{a \rightarrow b}}(\|\psi\| \cap R_\square[w]), \mathfrak{M}, v \models \varphi$

where, for any  $X \subseteq W$ ,  $\max_{\leq_{a \rightarrow b}}(X) = \{w \in X : \neg \exists v \in X \text{ such that } w <_{a \rightarrow b} v\}$ .

These truth conditions are standard for the normal modalities  $K_a$  and  $\square$ , and the agency operator  $E_a$  is given the so-called *exact* neighborhood semantics [10]. The definition of conditional obligations is relativised to what is legally settled at a state. This provides a constrained version of the ‘‘ought implies can’’ principle:  $\diamond \psi \wedge \mathbf{O}_{a \rightarrow b}(\varphi/\psi) \rightarrow \diamond \varphi$ . This would not be the case if we only considered the most ideal states where the condition  $\psi$  is true, because at a given state it could be legally settled that  $\psi$  is false. Unconditional obligations can be defined in the usual way:  $\mathbf{O}_{a \rightarrow b} \varphi \Leftrightarrow \mathbf{O}_{a \rightarrow b}(\varphi/\top)$ .

### 3. Formal Analysis

We aim at capturing the logical structure of the parents’ right to know whether the fetus is healthy and this right’s relationship to the parents’ (lacking) power to initiate a legal action because of the doctor’s fail to warn about the illness. We analyse both component in turn, put them together.

#### 3.1. Right to know whether the fetus is ill

The parents’ claim-right can have multiple, non-equivalent logical representations [9]. Let  $p$  be the parents,  $d$  is the doctor, and *ill* for the proposition that the fetus is ill. As suggested in [5], a first, natural attempt at capturing a duty to (make someone) know *whether* something is the case is as a duty for the doctor to make it the case that either the parents know that the fetus is ill, or they know that the fetus is not ill:

$$\mathbf{O}_{d \rightarrow p}[E_d(\mathbf{K}_p(\text{ill})) \vee E_d(\mathbf{K}_p(\neg \text{ill}))]$$

The knowledge and the action operators being factive makes the disjuncts mutually exclusive. Now it is well known that disjunctive syllogism is limited within the scope of deontic operators: the fact that the fetus is ill, together with the disjunctive duty as specified above, do not entail that the doctor has a duty to inform the parents. Even the doctor

*knowing* that the fetus is ill does not entail that she has an unconditional duty to inform the parents. If, however, it is legally settled that the fetus is ill, then we get a form of disjunctive syllogism. The following is valid in the class of frames defined above.

$$\Box ill \wedge \mathbf{O}_{d \rightarrow p}[E_d(\mathbf{K}_p(ill)) \vee E_d(\mathbf{K}_p(\neg ill))] \rightarrow \mathbf{O}_{d \rightarrow p}E_d(\mathbf{K}_p(ill))$$

The same type of disjunctive syllogism applies, of course, whenever it is legally settled that the doctor knows that the fetus is ill. In fact, because knowledge is factive in our formalization, this formulation entails that the doctor's obligation to inform the parents that the fetus is ill holds *only* when the fetus is actually ill, and similarly if the fetus is not ill. That is, the state of the fetus is a necessary but not in itself a sufficient condition for the doctor to have a duty to inform the parents.

Our logical language of course allows to represent the fact that the doctor identifying the state of the fetus might not be a necessary but rather a sufficient condition for triggering the obligation to inform the parents about that very state. Identifying is itself a subtle epistemic action, which arguably does not always coincides with the doctor herself knowing whether the patient is ill.<sup>5</sup> Intuitively, however, identifying goes in most cases hand in hand with knowing, and so in this paper we will identify the former with the latter. This gives us the following the following pair of obligations:

$$\mathbf{O}_{d \rightarrow p}(E_d\mathbf{K}_p(ill)/K_d(ill)) \wedge \mathbf{O}_{d \rightarrow p}(E_d\mathbf{K}_p(\neg ill)/K_d(\neg ill))$$

Both these conditional obligations trigger unconditional ones *if it is legally settled* that the fetus is ill, or that the doctor knows it. In this case it is intuitively plausible that the doctor making a diagnosis regarding the state of the fetus is necessary and sufficient for it to be legally settled that the illness holds: this is a medical question, it can only be settled by a professional in the eye of law. So even though these conditional obligations do not trigger unconditional ones by the simple fact that the doctor knows the state of the fetus, they do if we consider her (epistemic) action as *making a diagnosis*, which is sufficient for our purpose here—we leave the analysis of the difference to future work.

### 3.2. Power to initiate a legal action

As discussed above about the cause of action, we take the power to initiate a legal action as a possibility to put a duty on judiciary to decide the case. That is, once the legal action is initiated, there is a claim-right of the parents against the judge to the effect that she, the judge, declares whether the relevant cause of action obtains, i.e. whether the doctor indeed failed to inform the parents of the medical status of the fetus. Following Markovich [8], we take this declaration to be a speech act through which the judge makes it legally settled that the cause of action obtains, or not. In the positive case, where the cause of action indeed obtains, this declaration can be captured by a combination of our agency and legal necessity operators, using  $j$  for the judiciary (or the given judge), and  $KW_d(\varphi)$  for the proposition that  $p$  knows whether  $\varphi$ , i.e.,  $K_p(\varphi) \vee K_p(\neg\varphi)$ .

$$E_j(\Box \neg E_d(KW_p(ill)))$$

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<sup>5</sup>Think for instance of a doctor knowing that the result of a perfectly reliable test are at hand, and passing them to the parents without herself looking at what the results actually are.

The negative case, where the cause of action does not obtain, is slightly more complex. Recall that  $\Diamond E_d(KW_p(ill))$  reads as "it is not legally settled that the doctor did not inform the parent's of the fetus' state." As we observed earlier, this is compatible with the judiciary not having ruled whether the doctor did in fact inform the parents. By declaring that the latter is not settled, the judge does something stronger in the sense of explicitly ruling that this fact is not legally settled. What the judge does in this case is not continuing the status quo, but rather to settle that it is not settled whether the doctor did not inform the parents. To capture this we thus use one more iteration of the legal necessity operator.

$$E_j(\Box \Diamond E_d(KW_p(ill)))$$

This, however, is not sufficient. The reader familiar with modal logic will have noticed that this  $\Diamond E_d(KW_p(ill))$  is in fact consistent with  $\Box E_d(KW_p(ill))$ , which says that it is legally settled that the doctor has informed the patient. To capture the constraint that it is genuinely not legally settled whether  $E_d(KW_p(ill))$ , one has to use a stronger version:

$$\Diamond E_d(KW_p(ill)) \wedge \Diamond \neg E_d(KW_p(ill))$$

This formulation nicely captures the idea that, legally speaking, neither  $E_d(KW_p(ill))$  nor its negation can be ruled out. Putting all this together, we get the following formalization of the parents' power to initiate a legal action:

$$\Diamond E_p(O_{j \rightarrow p}(E_j(\Box \neg E_d(KW_p(ill))) \vee E_j(\Box (\Diamond E_d(KW_p(ill)) \wedge \Diamond \neg E_d(KW_p(ill)))))$$

### 3.3. Power as necessary condition for claim-right

Following Watson [12], we take the core of the Texas Senate Bill 25 be that the parents do have a claim-right against the doctor to know the state of the fetus *only if* the wrongful birth exists as a cause of action, that is, the parents also have the power to initiate legal action with this reason. In other words, the claim-right entails the legal power to initiate legal action. This can be straightforwardly captured using material implication, with two versions corresponding to the two readings of the parents' claim-right that we presented earlier. Putting all this together, we get the following formalization of the parents' power to initiate legal action, with  $\mathbf{O}_{d \rightarrow p}(E_d \mathbf{K}_p(\pm ill)/K_d \pm ill)$  abbreviating the pair of conditional obligations discussed above.

$$\mathbf{O}_{d \rightarrow p}(E_d \mathbf{K}_p(\pm ill)/K_d \pm ill) \rightarrow \neg \Box \neg E_p(O_{j \rightarrow p}(E_j(\Box \neg E_d(KW_p(ill))) \vee E_j(\Box (\neg \Box \neg E_d(KW_p(ill)) \wedge \neg \Box E_d(KW_p(ill)))))$$

This relationship is not specific to the Texas Senate Bill 25 case. It has a great relevance in theory of legal rights and that of the normative positions. If we accept this connection as a crucial one regarding the mere existence of a right, then we can say that removing a cause of action generally means that there can be no one can have the respective claim-right in the first place.<sup>6</sup>

<sup>6</sup>An implication is not the only possible interpretation of this strong relationship between a claim-right regarding an action and the possibility to initiate a legal action for the settlement whether the action is done. One can argue that a right *means* the conjunction of a claim-right and the power to initiate the relevant a legal action, that is, each right in law is a molecular one involving at least two Hohfeldian positions.

#### 4. Conclusion and Further Work

We provided a preliminary formal analysis of the right(-related) concepts involved in the Texas Senate Bill 25 case and its public and philosophical reception. We believe that analyzing this case brings important considerations about the (deontic) logic-based representation of legal knowledge. On one hand, the questions around epistemic rights, especially the ‘right to know whether’ seems to be multifold and challenging requiring careful combination of deontic and epistemic logics. On the other hand, the relation between the different normative positions and its relevance in terms of defining and reasoning with rights is crucial in legal knowledge representation. We also find the intuitive step of identifying the cause of action as a contrary-to-duty statement an important one to take in understanding and formalizing this relation between the different levels of Hohfeldian rights. We have left several questions to further work such as the axiomatization of the validates in our class of frames; studying the differences of the logical behavior of the different formalizations; studying the consequences of using dynamic operators to capture power and “informing” in the (claim-)right to know; and, of course, using other theories of conditional obligations e.g. defeasible deontic logic [3] or input/output logics [6].

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