Better Language, Better Thought, Better Communication: The A-Hohfeld Language for Legal Analysis

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Abstract

A-HOHFELD is a representational language used in MINT (Multiple INTerpretation) Interpretation-Assistance (expert) systems for precisely expressing alternative structural interpretations of sets of legal rules. It draws heavily upon the fundamental legal conceptions formulated by Wesley N. Hohfeld at the dawn of the Twentieth Century. In the current version of A-HOHFELD the original conceptions have been modified and extended in seeking to define a language sufficiently robust to express all LEGAL RELATIONS and all changes in legal states of affairs. Hohfeld emphasized the use of fundamental legal conceptions in the analysis of judicial reasoning; elsewhere we have shown the use of A-HOHFELD for the analysis of sets of statutory rules, and here we illustrate its use in thinking about legal doctrine. This use of A-HOHFELD is offered as a possible example of where fluency in a more precise and complete language might have facilitated an earlier recognition of remedial alternatives that have apparently only recently been appearing in legal literature and judicial decisions. To the extent that A-HOHFELD so strengthens legal analysis, it further exemplifies how work on problems of artificial intelligence in computer science fruitfully feeds back to law and illustrates how precision in language contributes to thought as well as communication.

Introduction

The intellectual roots of A-HOHFELD are in Hohfeld's fundamental legal conceptions. Although the framework of analysis created by Hohfeld seems somewhat sketchy and crude in comparison with modern formalized languages, the objectives of clarity in thought and expression are similar. What is remarkable about the Hohfeldian scheme is just how well it did its job—how very little it needs to be changed to fully achieve the goals sought. That makes a description of the fundamental legal conceptions and the terminology used to express them an appropriate beginning to the story of A-HOHFELD. Subsequent efforts to formulate Hohfeld's framework as a formal system of logic in the second half of the Twentieth Century have clarified that aspects of the original analysis were incomplete and should be modified and extended in various ways. An account of these additions is useful and is included here. (However, discussion of a part of the fundamental legal conceptions that needs to be enriched will not be pursued here, but left for another occasion. But this should alert those interested that A-HOHFELD is still evolving.) (A&S86-93) This modified and extended version of Hohfeld deals with ideas that are similar to but different from the original fundamental legal conceptions; they are given a different name: LEGAL RELATIONS. (In the A-HOHFELD language, terms expressed in upper-case letters are defined terms.) The current version of A-HOHFELD, which consists of 40 definitions, is summarized briefly here. Finally, some recent and highly respected efforts by law and economics scholars to approach Property and Torts from a unified perspective, which have enlarged the legal vision of the universe of outcomes in legal disputes with the "famous fourth rule", are analyzed in A-HOHFELD terms. The redescription in A-HOHFELD leads to a magnification of the vision enlargement—with a vengeance!

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Hohfeld's Fundamental Legal Conceptions—Modified and Extended to Become LEGAL RELATIONS

In seeking to improve legal thought and expression, Hohfeld concluded: (HOH13, p30)

> ... the most promising procedure seems to consist in exhibiting all of the various relations in a scheme of "opposites" and "correlatives" and then proceeding to exemplify their individual scope and application in concrete cases.

He then proceeded to organize what he regarded as the eight fundamental legal conceptions into the famed tables of "opposites" and "correlatives". (HOH13, p30)

Jural Opposites	right no-right	duty privilege	power disability	liability immunity
Jural Correlatives	right duty	no-right privilege	power liability	disability immunity

On the importance of careful and precise use of terminology, Hohfeld quotes with approval John Chipman Gray and John Henry Wigmore: (HOH13, p30)

> The student of Jurisprudence is at times troubled by the thought that he is dealing not with things, but with words, that he is busy with the shape and size of counters in a game of logomachy, but when he fully realizes how these words have been passed and are still being passed as money, not only by fools and on fools, but by and on some of the acutest minds, he feels that there is work worthy of being done, if only it can be done worthily. (NATURE AND SOURCE OF THE LAW, p. viii, 1909)
>
> Every student of logic knows, but seldom realizes, the power and the actual historical influence of terms in moulding thought and in affecting the result of controversy. (28 HARVARD LAW REVIEW, 1914)

Hohfeld was particularly disturbed by ambiguous usage of the term "right" in legal discourse. He regarded such ambiguity as an impediment to clarity of thought and expression. (HOH13, pp28-9)

> One of the greatest hindrances to the clear understanding, the incisive statement, and the true solution of legal problems frequently arises from the express or tacit assumptions that all legal relations may be reduced to

> "rights" and "duties," and that these latter categories are therefore adequate for the purpose of analyzing even the most complex legal interests, such as trusts, options, escrows, "future" interests, corporate interests, etc. Even if the difficulty related merely to inadequacy and ambiguity of terminology, its seriousness would nevertheless be worthy of definite recognition and persistent effort toward improvement; for in any closely reasoned problem, whether legal or non-legal, chameleon-hued words are a peril both to clear thought and to lucid expression....
> As already intimated, the term "rights" tends to be used indiscriminately to cover what in a given case may be a privilege, a power, or an immunity, rather than a right in the strictest sense; and this looseness of usage is occasionally recognized by the authorities.

But the Hohfeldian enterprise was not merely the specification of precise terminology with precise relationships between the concepts represented, it also had a completeness dimension—a language for expressing all the legal relationships and all the changes in legal states of affairs that occur in legal discourse. He viewed the fundamental legal conceptions as "the lowest common denominators of the law". (HOH13, pp58-9)

> ... [A] general suggestion may be ventured as to the great practical importance of a clear appreciation of the distinctions and discriminations set forth. If a homely metaphor be permitted, these eight conceptions,—rights and duties, privileges and no-rights, powers and liabilities, immunities and disabilities,—seem to be what may be called "the lowest common denominators of the law." Ten fractions (1/3, 2/5, etc.) may, superficially, seem so different from one another as to defy comparison. If, however, they are expressed in terms of their lowest common denominators (5/15, 6/15, etc.), comparison becomes easy, and fundamental similarity may be discovered. The same thing is true as regards the lowest generic conceptions to which any and all "legal quantities" may be reduced.

Hohfeld frequently used examples from Property law to illustrate his proposed usage of fundamental legal conceptions terminology. The following are excerpts from his discussion of the right/duty and no-right/privilege combinations (the solely-deontic LEGAL RELATIONS from a more modern logical point of view). (HOH13, pp32-3)

> ... [I]f X has a right against Y that he shall stay off the former's land, the correlative (and equivalent) is that Y is under a duty toward X to stay off the place....
> ... In the example last put, whereas X has a right ... that Y, the other man, should stay off the land, he himself has the privilege of entering on the land; or in equivalent words, X does not have a duty to stay off. The privilege of entering is the negation of a duty to stay off....
> Thus, the correlative of X's right that Y shall not enter on the land is Y's duty not to enter; but the correlative of X's privilege of entering himself is manifestly Y's "no-right" that X shall not enter.

The examples indicate that these four fundamental legal conceptions are legal relationships between two persons and some behavior of one of them, i.e., either (1) right-holder, duty-holder, and behavior of duty-holder or (2) no-right-holder, privilege-holder, and behavior of privilege-holder. Some of the examples given of the power/liability and disability/ immunity conceptions point to a view of them as similar sorts of relationships involving two persons and the behavior of one of those persons. (HOH13, p49)

> ... [S]uppose A mails a letter to B offering to sell the former's land, Whiteacre, to the latter for ten thousand dollars, such letter being duly received. The operative facts thus far mentioned have created a power as regards B and a correlative liability as regards A.
> ... assuming that the land is worth fifteen thousand dollars, that particular legal quantity—the "power plus liability" relation between A and B—seems to be worth about five thousand dollars to B.
> (HOH13, p55) ... X, a landowner, has ... power to alienate to Y or to any other ordinary party. On the other hand, X has also various immunities as against Y, and all other ordinary parties. For Y is under a disability (i.e., has no power) so far as shifting the legal interest either to himself or to a third party is concerned; and what is true of Y applies similarly to every one else who has not by virtue of special operative facts acquired a power to alienate X's property. If indeed, a sheriff has been duly empowered by a writ of execution to sell X's interest, that is a very different matter: correlative to such sheriff's power would be the liability of X,—the very opposite of immunity (or exemption). It is elementary, too, that as against the sheriff, X might be immune or exempt in relation to certain parcels of property, and be liable as to others.

The B-power/A-liability and X-immunity/Y-disability conceptions of these examples seem to exactly parallel the two-person relations of the X-right/Y-duty and X-privilege/Y-no-right conceptions, although some of Hohfeld's other descriptive language points somewhat in the direction of the modification that occurs in the A-HOHFELD language. (HOH13, p55)

> Perhaps it will also be plain from the preliminary outline and from the discussion down to this point, that a power bears the same general contrast to an an immunity that a right does to a privilege. A right is one's affirmative claim against another, and a privilege is one's freedom from the right or claim of another. Similarly, a power is one's affirmative "control" over a given legal relation as against another; whereas an immunity is one's freedom from the legal power or "control" of another as regards some legal relation.

This comment clearly involves the notion of legal relation into the concept of legal power (and so, to liability, disability, immunity, as well), although still treating it as a person-person relationship the way that right/duty and no-right/privilege relations are person-person relationships. The A-HOHFELD language is different in this respect: the concept of POWER is defined to be a relationship between a person and a LEGAL RELATION, i.e., a person-LEGAL RELATION relationship, rather than being treated as a person-person relationship the way that Hohfeld did with the fundamental legal conceptions.

In A-HOHFELD the concept of POWER is defined contextually as follows:

POWER

"Person-p1 has POWER to create LEGAL RELATION-lr."

means

"1. LEGAL RELATION-lr is NOT so, AND

2. there is some state-of-affairs-s that, if brought about, will be treated by the legal system as an exercise of POWER to create LEGAL RELATION-lr, AND
3. it is naturally possible for Person-p1 to do s, AND
4. IF A. Person-p1 does s
THEN B. LEGAL RELATION-lr is created, AND
C. Person-p1's POWER to create LEGAL RELATION-lr is terminated."

Thus, the following is so:

IF 1. Person-p1 has POWER to create LEGAL RELATION-lr, AND
2. Person-p1 does s, AND
3. Person-p1's doing s is treated by the legal system to be an exercise of her POWER to create LEGAL RELATION-lr
THEN 4. Person-p1 has exercised her POWER to create LEGAL RELATION-lr, AND
5. LEGAL RELATION-lr is created, AND
6. Person-p1's POWER to create LEGAL RELATION-lr is terminated.

In the examples Hohfeld gives, when one person has a power, there seems to be just one other person who has a liability. In sharp contrast with this notion of power, in the A-HOHFELD language POWER concept there may be many other persons involved in the LEGAL RELATION that has the LIABILITY of being changed. For example:

IF Person-p1 has POWER1 to create the POWER2 of Person-p2 to create the POWER3 of Person-p3 to create the RIGHT of Person-p4 that Person-p5 to see to it that Situation-s is so,
THEN a LEGAL RELATION (namely, the POWER2 of Person-p2 to create the POWER3 of Person-p3 to create the RIGHT of Person-p4 that Person-p5 see to it that Situation-s is so) has a LIABILITY of being created by Person-p1.

There are four other persons (p2, p3, p4, and p5) involved in the POWER2 LEGAL RELATION that has a LIABILITY of being created by Person-p1 in this example. For some still different concepts of power by other Hohfeldian scholars, see Jones & Sergot (J&S91, J&S92), Kanger (KAN57, KAN92), Kanger & Kanger (K&K66), Lindahl (LIN77), Makinson (MAK86), Porn (POR70), and von Wright (VWR63).

In summary, the modification of Hohfeld's scheme of fundamental legal conceptions involves the following:

1. explicitly defining a corresponding set of terms,
2. signalling the defined terms by expressing them in upper-case letters,
3. converting the person-person relationship in the power/liability and disability/immunity concepts into a person-LEGAL RELATION relationship in the POWER/LIABILITY and DISABILITY/IMMUNITY LEGAL RELATIONS, which explicitly allows for multiple persons to be involved in the LEGAL RELATION that has the LIABILITY of being created, and
4. changing the name of the concepts being referred to from "fundamental legal conceptions" to "LEGAL RELATIONS".

In addition to this modification of Hohfeld's fundamental legal conceptions, there is in the A-HOHFELD language an extension also needed in order to achieve Hohfeld's goal of having a language that would amount to the "lowest common denominators" of legal discourse. If the fundamental legal conceptions in fact were such lowest common denominators, then every change in the legal state of affairs could be expressed in such terms. Although it would be very difficult indeed to prove as a matter of logic that the fundamental legal conceptions are such lowest common denominators, it would be simple to disprove such a claim by furnishing one convincing counter-example. The following is such a counter-example.

> Under an ordinary fire insurance contract between a farmer and an insurance company, the farmer lacks a power to create a duty of the insurance company to pay him the proceeds provided for in the policy. The only means by which such power can be created in terms of the fundamental legal conceptions is for some other legal person to have the power to create such a power in the farmer, and for that person to exercise that power. Suppose that lightning strikes the barn, and it burns down. By virtue of the provisions of the fire insurance policy, the farmer will clearly have the power to create the right that the insurance company pay him the proceeds of the policy. But this will not occur as a result of some other legal person having the power to create such a power of the farmer; it will have occurred as a result of some other means—some other means not provided for by fundamental legal conceptions analysis.

In the A-HOHFELD language the fundamental legal conceptions are extended to include CONDITIONAL LEGAL RELATIONS for each of the eight LEGAL RELATIONS that correspond to the fundamental legal conceptions. Thus, in A-HOHFELD there is a CONDITIONAL RIGHT, a CONDITIONAL DUTY, a CONDITIONAL NO-RIGHT, a CONDITIONAL PRIVILEGE, a CONDITIONAL POWER, a CONDITIONAL LIABILITY, a CONDITIONAL DISABILITY, and a CONDITIONAL IMMUNITY. The relationship of these added CONDITIONAL LEGAL RELATIONS to the modified fundamental legal conceptions is shown in Figure 1. The modified POWER/LIABILITY and DISABILITY/IMMUNITY LEGAL RELATIONS are themselves most appropriately regarded as CONDITIONAL LEGAL RELATIONS; they are the capacitive CONDITIONAL LEGAL RELATIONS. The newly-added ones in this extension of the fundamental legal conceptions are the noncapacitive CONDITIONAL LEGAL RELATIONS. The difference between these two types of CONDITIONAL LEGAL RELATIONS is that for the noncapacitive ones, the event that fulfills the condition of the CONDITIONAL LEGAL RELATION is an event that does NOT involve the action of a legal person, but the event that fulfills the condition of the capacitive ones is an event that does involve the action of a legal person.

Thus, in this taxonomy of LEGAL RELATIONS there are three general types of such relations: UNCONDITIONAL and CONDITIONAL, where the latter are, in turn, split into Capacitive and Noncapacitive. Each of the three types of LEGAL RELATIONS have a "deontic" part—the UNCONDITIONALS being solely deontic while the CONDITIONALS have a "conditional" part in addition to their deontic part. The concept of OBLIGATION (or its negation) that is incorporated into the definition of RIGHT/DUTY and NO-RIGHT/PRIVILEGE LEGAL RELATIONS is their deontic part, and one of these four is ultimately involved with each of the CONDITIONAL LEGAL RELATIONS. The conditional parts of the CONDITIONAL LEGAL RELATIONS have to do with the aspects that are

Legal Relations of the A-Hohfeld Language

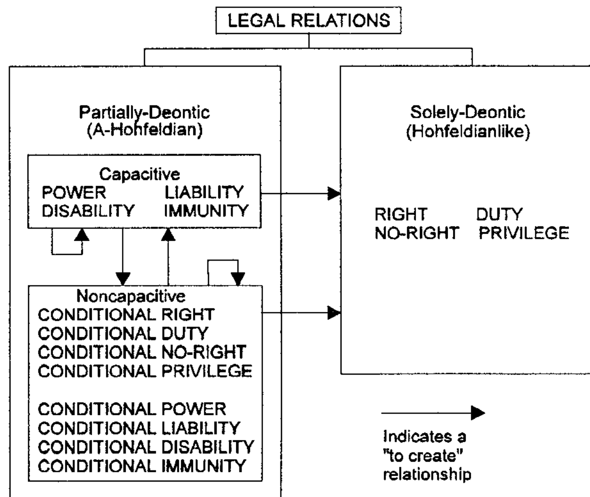

Figure 1

fulfilled when POWERS are exercised or conditions are satisfied. Among these three types of LEGAL RELATIONS there are six kinds of "to create" relationships:

1. Capacitive to create Solely-Deontic
2. Capacitive to create Capacitive
3. Capacitive to create Noncapacitive
4. Noncapacitive to create Solely-Deontic
5. Noncapacitive to create Capacitive
6. Noncapacitive to create Noncapacitive

Capacitive and Noncapacitive CONDITIONAL LEGAL RELATIONS can create themselves and all other LEGAL RELATIONS; Solely-Deontic LEGAL RELATIONS cannot create any other LEGAL RELATIONS.

Examples of each of these six types of "to create" relationships are the following:

1. POWERS to create RIGHTS
2. POWERS to create POWERS
3. POWERS to create CONDITIONAL POWERS
4. CONDITIONAL RIGHTS to create RIGHTS
5. CONDITIONAL POWERS to create POWERS
6. CONDITIONAL CONDITIONAL RIGHTS to create CONDITIONAL RIGHTS

But there are no:

RIGHTS to create RIGHTS or
RIGHTS to create POWERS or
RIGHTS to create CONDITIONAL RIGHTS
etc.

It is the concept of CONDITIONAL POWER in the A-HOHFELD language that takes care of the counter-example above. After the insurance contract has been created between the farmer and the insurance company, the farmer has a CONDITIONAL POWER to create the DUTY of the insurance company to pay the farmer the proceeds provided for by the policy. After the lighting strikes and the fire occurs, the condition of the CONDITIONAL POWER is fulfilled by the fire-occurrence (an event that does NOT involve the action of a legal person), and the farmer then has a POWER to create the insurance company's DUTY to pay him the proceeds. By filing a claim for payment (and thereby, exercising his POWER) the farmer can create the insurance company's DUTY to pay him the proceeds. This part of the extension of the fundamental legal conceptions analysis of Hohfeld to include CONDITIONAL LEGAL RELATIONS plugs an obvious omission in that analysis insofar as it seeks to be the "lowest common denominators" of all legal discourse. Similarly, with A-HOHFELD, one cannot logically prove that it provides lowest common denominators for all legal discourse—that it can account for all changes in legal states of affairs. Again, all that it takes to disprove that A-HOHFELD accounts for all changes is one counter-example, and all that is possible in terms of proving that it is complete in this sense is persuasive evidence that there are no such counter-examples. The best that we can offer in this regard is the senior author's challenges to colleagues and students in every law class that he has taught since the late 1950's to devise such a counter-example. The fact that in nearly forty years of such efforts to come up with a counter-example, there has not been a single situation discovered that could not be expressed in A-HOHFELDIAN terms seems at least to be strong evidence for the conclusion that even if it does not completely cover the totality of legal changes, the A-HOHFELD language covers enough to be of interest. In order to provide a defined language to minimize inadvertent ambiguity in the expression of the logical structure of legal rules (in situations where such minimization is desired) the fundamental legal conceptions have also been extended to include between-sentence connectives, within-sentence connectives, and deontic operators. The current version of the A-HOHFELD language includes the 40 defined terms summarized in the diagram of Figure 2.

In concluding this account of the modification and extension of Hohfeld's fundamental legal conceptions to transform them into the A-HOHFELD LEGAL RELATIONS, mention needs to be made of the curious lack of follow-up by Hohfeld of his recognition that there are changes in legal relations from means other that exercises of powers. Consider the following: (HOH13, pp44-5)

The 40 Defined Terms of the A-Hohfeld Language

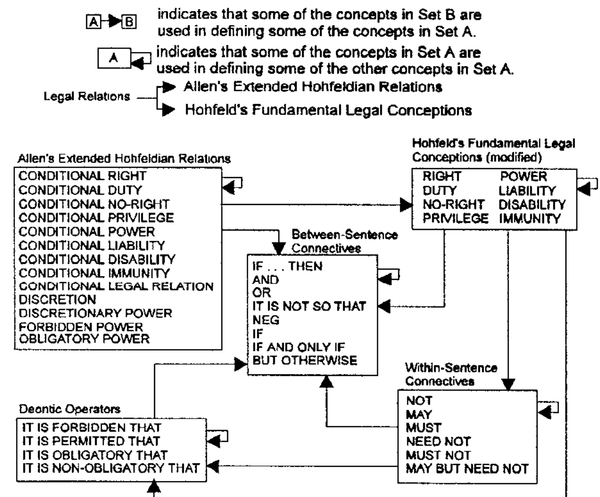

Figure 2

> A change in a given legal relation may result (1) from some superadded fact or group of facts not under the volitional control of a human being (or human beings); or (2) from some superadded fact or group of facts which are under the volitional control of one or more human beings. As regards the second class of cases, the person (or persons) whose volitional control is paramount may be said to have the (legal) power to effect the particular change of legal relations that is involved in the problem.This second class of cases—powers in the technical sense—must now be further considered. The nearest synonym for any ordinary case seems to be (legal) ability—the latter being obviously opposite of "inability" or "disability." The term "right," so frequently and loosely used in the present connection, is an unfortunate term for the purpose—a not unusual result being confusion of thought as well as ambiguity of expression.

Hohfeld then proceeds to a consideration of the second class of cases—to power and its associated fundamental legal conceptions—without ever returning to a consideration of the first class of cases. The first sentence of the passage above is the only mention in Hohfeld's writings of what in A-HOHFELD are the CONDITIONAL LEGAL RELATIONS. So, it is clear that Hohfeld is aware of the need to account for type-(1) changes in legal relations, but the scheme of fundamental legal conceptions accounts for only type-(2) changes—those involving exercises of powers.

For purposes of the discussion in the next section of some recent integrative efforts of courts and legal scholars, only some of the 40 currently defined terms of the A-HOHFELD language that express LEGAL RELATIONS are used—namely: RIGHT, PRIVILEGE, CONDITIONAL RIGHT, CONDITIONAL PRIVILEGE, and POWER. Therefore, only the definitions of these five will be included here (POWER above, and the other four below).

RIGHT

"Person-p1 has a RIGHT that Person-p2 do s."

means

"Person-p2 has a DUTY to Person-p1 to do s."

which, in turn, means

"IT IS OBLIGATORY THAT s be done for Person-p1 by Person-p2."

which, in turn, means operationally in terms of how the legal system will treat the matter

"IF A. IT IS NOT SO THAT Person-p2 does s for Person-p1,
THEN B. Person-p2 has violated her DUTY to Person-p1, AND
C. IF Person-p1 seeks remedy in the legal system by litigating,
THEN the legal system will provide a remedy to Person-p1 with respect to Person-p2."

PRIVILEGE

"Person-p1 has a PRIVILEGE with respect to Person-p2 to do s."

means

"IT IS NOT SO THAT Person-p1 has a DUTY to do NEG s for Person-p2."

which, in turn, means

"IT IS NOT SO THAT IT IS OBLIGATORY THAT NEG s be done for Person-p2 by Person-p1."

which, in turn, means operationally in terms of how the legal system will treat the matter

"1. IT IS NOT SO THAT
IF Person-p1 does s with respect to Person-p2,
THEN Person-p1 has violated her DUTY to do NEG s for Person-p2, AND
2. IT IS NOT SO THAT
IF Person-p1 does s with respect to Person-p2, AND Person-p2 seeks remedy in the legal system by litigating,
THEN the legal system will provide a remedy to Person-p2 with respect to Person-p1."

CONDITIONAL RIGHT

"Person-p1 has a CONDITIONAL RIGHT that Person-p2 do s."

means

"1. Person-p1 has a NO-RIGHT that Person-p2 do s, AND
2. there is an Event-e1 that the legal system will treat as fulfilling Condition-v, AND
3. it is naturally possible for Event-e1 to occur, AND
4. IF Event-e1 occurs, THEN Condition-v is fulfilled, AND
5. IF A. Condition-v is fulfilled,
THEN B. Person-p1's NO-RIGHT that Person-p1 do s is terminated, (which is another way of saying that Person-p1's RIGHT that Person-p2 do s is created), AND
C. Person-p1's CONDITIONAL RIGHT that Person-p2 do s is terminated."

CONDITIONAL PRIVILEGE

"Person-p1 has a CONDITIONAL PRIVILEGE with respect to Person-p2 to do s."

means

"1. Person-p1 has a DUTY to do NEG s for Person-p2, AND
2. there is an Event-e1 that the legal system will treat as fulfilling Condition-v, AND
3. it is naturally possible for Event-e1 to occur, AND
4. IF Event-e1 occurs, THEN Condition-v is fulfilled, AND
5. IF A. Condition-v is fulfilled,
THEN B. Person-p1's DUTY to do NEG s for Person-p2 is terminated (which is another way of saying that Person-p1's PRIVILEGE do s with respect to Person-p2 is created), AND
C. Person-p1's CONDITIONAL PRIVILEGE with respect to Person-p2 to do s is terminated."

A Second View of the Cathedral: An A-HOHFELD Rendition of a Pioneering Integration of Property/Tort/Inalienability Rules

Former Dean of the Yale Law School, Guido Calabresi, and his Harvard colleague, A. Douglas Melamed, undertook more than two decades ago to develop a framework of legal analysis that approaches Property and Torts law from a unified perspective, intended to be useful to both beginning students and sophisticated scholars. (C&M72, p1089) They examine two sets of circumstances with respect to "entitlements": (1) circumstances in which the legal system grants an entitlement, and (2) circumstances in which the legal system protects that entitlement by using property, liability, or inalienability rules. They use economic efficiency, wealth distributional preferences, and other justice considerations as criteria for determining whether to grant an entitlement. With respect to the second category of circumstances, they examine the application of property and liability

rules to a pollution problem to show how their model enables them to perceive relationships "which have been ignored by writers in [that field]". (C&M72, p1090)

Calabresi and Melamed discuss three rules that have been applied by courts in disputes between neighboring landowners about whether the activities of one of them should be characterized as pollution that is a nuisance. When these three rules are paraphrased and tabulated in the manner below, it is apparent that there is a fourth "missing" rule that is not included.

Rule 1 Pollutor-P must not pollute unless his Neighbor-N allows it (nuisance is found, and N may enjoin P from continuing to pollute).

			Choices	
Entitlement	Rule	Remedy	Sets Price / Damages	Decides Whether To Pay
N	Property	Injunction	N	P

A-HOHFELDIAN DESCRIPTION

N has a RIGHT that P NOT pollute, AND
N has POWER to create POWER of P (at a price set by N) to create a PRIVILEGE of P with respect to N to continue the pollution, AND
N has POWER to create a PRIVILEGE of P with respect to N to exercise the POWER of P that can be created by N, AND
N has a PRIVILEGE with respect to P to do Act-A, which will exercise both of N's POWERS.

Rule 2 Pollutor-P must pay Neighbor-N for the damages caused by his polluting activities, but he may continue polluting as long as he pays damages (nuisance is found, but the remedy is limited to damages).

			Choices	
Entitlement	Rule	Remedy	Sets Price / Damages	Decides Whether To Pay
N	Liability	Damages	Court	P

A-HOHFELDIAN DESCRIPTION

N has a RIGHT that P NOT pollute in the future, AND
N has a RIGHT that P pay damages for past pollution, AND
P has POWER to create the PRIVILEGE of P with respect to N to pollute in the future, AND
P has a PRIVILEGE with respect to N to exercise P's POWER by paying N the court-determined damages for polluting in the future.

Rule 3 Pollutor-P can continue the activities that Neighbor-N regards as pollution and can be stopped only if N pays him off (no nuisance is found, and there is no court-determined remedy).

			Choices	
Entitlement	Rule	Remedy	Sets Price / Damages	Decides Whether To Pay
P	Property	No Injunction	P	N

A-HOHFELDIAN DESCRIPTION

P has a PRIVILEGE with respect to N to continue the activities that N regards as pollution, AND
P has POWER to create POWER of N (at a price set by P) to terminate the PRIVILEGE of P with respect to N to continue the activities that N regards as pollution (in other words, to create a RIGHT of N that P NOT continue those activities), AND
P has POWER to create a PRIVILEGE of N with respect to P to exercise the POWER of N that can be created by P, AND
P has a PRIVILEGE with respect to N to do Act-a, which will exercise both of P's POWERS.

When the data of these three rules is reorganized into the tabulation of Figure 3, it is obvious that there is a "missing" Rule 4, and its characteristics are equally apparent. The Calabresi-Melamed model is indeed revealing!

Discovering the "Fourth" Rule by the Calabresi-Melamed Model

	Initial Entitlement	
Method of Protection	Neighbor	Pollutor
	RULE 1	RULE 3
Type of Rule:	Property	Property
Remedy:	Injunction	No Injunction
Sets Price/Damages:	N	P
Decides Whether to Pay:	P	N
	RULE 2	RULE 4
Type of Rule:	Liability	? Liability
Remedy:	Damages	? Damages
Sets Price/Damages:	Court	? Court
Decides Whether to Pay:	P	? N

Figure 3

Rule 4 Pollutor-P can continue the activities that Neighbor-N regards as pollution, but can be stopped if N pays him off the court-determined damages (entitlement to pollutor to pollute which is protected only by a liability rule; there is a court-determined remedy available to neighbor).

			Choices	
Entitlement	Rule	Remedy	Sets Price / Damages	Decides Whether To Pay
P	Liability	Damages	Court	N

A-HOHFELDIAN DESCRIPTION

P has a PRIVILEGE with respect to N to continue the activities that N regards as pollution, AND
P has a RIGHT that N pay damages as determined by the court for a reasonable amount of the costs of ceasing the pollution activities
N has POWER to terminate the PRIVILEGE of P with respect to N to continue the pollution activities (in other words, to create a RIGHT of N that P NOT continue those activities), AND
N has a PRIVILEGE with respect to P to exercise N's POWER to create the RIGHT of N that P NOT continue those pollution activities.

In retrospect, the uncovering of Rule 4 seems so very simple and obvious, but other distinguished legal commentators, Professors James E. Krier and Stewart J. Schwab, extoll it as an extraordinary rarity in a forthcoming article. (K&S94, p4)

> ... [R]ule four seems never to have occurred to a single legal scholar during all the centuries of common law commentary predating Calabresi and Melamed's discussion—a discussion, by the way, in which the authors

were quick to point out that "even legal writers as astute as Professor [Frank] Michelman have ignored this rule." (C&M, p1116) referring to (MIC71, p670)

An important thing to notice about all four of the above rules is that they all can be expressed precisely and completely in terms of RIGHTS, PRIVILEGES, and POWERS, which means that only the solely-deontic and capacitive LEGAL RELATIONS are needed for a complete description of these four rules. The non-capacitive (i.e., CONDITIONAL) LEGAL RELATIONS are not needed for such description. So much for the first part of this story. We now turn to a consideration of the the explosion in alternative resolutions that occur when the CONDITIONAL LEGAL RELATIONS that correspond to the solely-deontic ones above (i.e., CONDITIONAL RIGHT and CONDITIONAL PRIVILEGE) are brought into the picture.

The second part, presented in detail in the Krier and Schwab article, is a concurrent development in the Supreme Court of Arizona in a nuisance case that Krier and Schwab present as an example of the application of Rule 4. (SvW72) They indicate that Justice James D. Cameron's decision in Spur Industries, Inc. v. Del E. Webb Development Co. (K&S94, pp4-5)

> ... was handed down at about the same time that Calabresi and Melamed's article was handed over. (This simultaneity regarding an item as exotic and arcane as rule four must surely be one of the pithier events in the intellectual history of legal doctrine.)

In this Arizona case, Del Webb, the real estate developer plaintiff, brought an action to enjoin the defendant Spur's cattle-feeding operation. Persons encouraged by the developer to purchase homes in Sun City suffered damages in the form of odor and flies from the more than a million pounds of wet manure produced each day by the feeding of up to 30,000 cattle. The court found this to be an enjoinable public nuisance for such persons, but because the developer brought the people to the nuisance, the court found no wrongdoing on the part of Spur; nevertheless it granted an injunction to require Spur to move or shut down "because of a proper and legitimate regard of the courts for the rights and interests of the public". (SvW72, p186) However, the court also decided that for his role in bringing about the damages suffered, the developer should be required to "indemnify Spur for a reasonable amount of the cost of moving or shutting down". (SvW72, p186)

In the text of their article Krier and Schwab interpret this as an instance of the application of Rule 4: (K&S94, p5)

In the language of Calabresi and Melamed, Spur was entitled to pollute, but its entitlement, protected only by a liability rule, would be transferred to Del Webb upon payment of (judicially determined) compensation by the latter to the former. And that's rule four.

But then they question in a footnote whether it really exemplifies that rule. (K&S94, fn13)

> Is it? Rule four implies a choice in Del Webb to pay up or shut up, whereas the court's judgment implies that Del Webb must pay and that Spur must move.

Let's have a look at each of these two versions through the A-HOHFELD lens. First, the Rule 4 version.

1. Spur has a PRIVILEGE with respect to Webb to continue its cattle-feeding operation, AND
2. Spur has a RIGHT that Webb pay Spur a reasonable amount of the cost of moving or shutting down, AND
3. Webb has POWER to terminate Spur's PRIVILEGE with respect to Webb to continue its cattle-feeding operation (in other words, to create Webb's RIGHT that Spur move or shut down its cattle-feeding operation), AND
4. Webb has a PRIVILEGE to exercise his POWER.

These four parts exactly match Rule 4.

Next the footnote version, which turns out to be a combination of a part 2 of Rule 4 and a part 1 of Rule 1.

1. Spur has a RIGHT that Webb pay Spur a reasonable amount of the cost of moving or shutting down, AND
2. Webb has a RIGHT that Spur move or shut down its cattle-feeding operation.

Which interpretation is more appropriate: the Rule 4 version or the footnote version? It depends upon how the remanding order of the Arizona Supreme Court is interpreted. Does the court's order: (SvW, p186)

> It is therefore the decision of this court that the matter be remanded to the trial court for a hearing upon the damages sustained by the defendant Spur as a reasonable and direct result of the granting of the permanent injunction.

(1) make the granting of the permanent injunction dependent upon the developer's paying Spur a reasonable amount of the cost of moving or shutting down (Rule 4 version) or (2) make the granting of the injunction unconditional—independent of whether or not the developer actually fulfills the duty to pay Spur damages that the court determined (footnote version)? The court does not seem to say explicitly one way or the other; its order is elliptical in this respect. Readers are left to complete the elliptical statement in whichever of the following manners they regard as most appropriate.

> ... the permanent injunction [, which is to be granted upon payment by the plaintiff of those damages to the defendant].
>
> ... the permanent injunction [, which is to be granted whether or not payment by the plaintiff of those damages is made to the defendant].

How readers choose to complete it will determine which interpretation they choose. To us, the first interpretation seems more in the spirit of the rest of the court's opinion in this case with its emphasis upon Spur's lack of fault and Webb's contribution to the creation of the problem. However, resolving which choice is most appropriate is not the matter of greatest interest here with respect to this case. Rather, what is more of interest is the legal situation with respect to the persons that the court clearly was concerned about—namely the senior citizens of Sun City. Although they were not parties to this lawsuit (SvW, p183), Justice Cameron commented in his opinion for the Arizona Supreme Court: (SvW, p184)

> We have no difficulty, however, in agreeing with the conclusion of the trial court that Spur's operation was an enjoinable public nuisance as far as the people in the southern portion of Del Webb's Sun City were concerned.

Would such an injunction for Sun City residents, in a separate suit by them, be made subject to payment of damages by Webb to Spur? It is supposing that it would that gives rise to a description in A-HOHFELD terms that opens the door to vast panorama of remedies for consideration in such cases.

1. Spur has a PRIVILEGE with respect to Sun City residents to continue its cattle-feeding operation, AND
2. Spur has a RIGHT that Webb pay Spur a reasonable amount of the cost of moving or shutting down, AND

3. Webb has POWER to terminate Spur's PRIVILEGE with respect to the Sun City residents to continue its cattle-feeding operation (in other words, to create the Sun City residents' RIGHT that Spur move or shut down its cattle-feeding operation), AND
4. Webb has a PRIVILEGE to exercise his POWER, AND
5. (How is the interest of the residents before Webb pays the damages to be described?) the Sun City residents have a CONDITIONAL RIGHT that Spur move or shut down its cattle-feeding operation (where the fulfillment of the condition is Webb's exercise of its POWER).

The description of the Sun City residents LEGAL RELATIONS with respect to Spur before Webb pays the damages introduces CONDITIONAL LEGAL RELATIONS into the description of the legal state of affairs. Once thought is directed to thinking about the residents' CONDITIONAL RIGHT that Spur close or shut down, the question arises: What will fulfill that condition and create that RIGHT? In this instance, the hypothesized answer is: Webb's payment of damages to Spur. But is this the only conceivable circumstance that might be appropriately regarded as fulfillment of the condition of the CONDITIONAL RIGHT? How about: Residents' payment of damages to Spur? Residents' purchase of land where Spur's operation is located? Webb's providing an alternative location for Spur to conduct its operation and costs of moving? Residents' providing an alternative location for Spur to conduct its operation and costs of moving? Alternatives suggested by Spur to the court such as Webb's providing an alternative business opportunity to Spur, equivalent in value to reasonable costs of moving or shutting down, or whatever other alternatives that can be imagined by the parties that courts might regard as appropriate? Thinking about circumstances that might be appropriately regarded as fulfilling the condition of a CONDITIONAL RIGHT opens the door wide with respect to alternative arguments to be considered.

In a similar way, the thinking with respect to Rule 2 situations explodes when descriptions of it in terms of the the extended part of A-HOHFELD (the CONDITIONAL LEGAL RELATIONS part) are introduced. An equivalent way of expressing the third part of Rule 2 (P's POWER) is to describe it as:

P has a CONDITIONAL PRIVILEGE with respect to N for polluting in the future (where the fulfillment of the condition is the exercise of P's POWER).

This alternative (minus its parenthetical qualification) raises the question about other ways of creating P's PRIVILEGE with respect to N—other ways of fulfilling the condition of the CONDITIONAL PRIVILEGE besides the exercise of P's POWER (which is the only way of getting to P's PRIVILEGE in the original description).

Alternatives that might be satisfactory to both P and N in this situation as fulfilling the condition of the CONDITIONAL PRIVILEGE are the following (and readers can add their own):

P's planting and maintaining trees throughout the community

P's building and maintaining a hospital to treat victims of pollution

P's supporting costs of a health-maintenance organization for residents of the community

P's annual contribution to community's United Fund

P's building and maintaining a community recreation center

The essential point is that redescription of the legal state of affairs in terms of the CONDITIONAL LEGAL RELATIONS involved enlarges the domain of alternatives that might be considered by the parties involved as appropriate and preferred. This would enhance the probability of achieving what Harold D. Lasswell characterizes as "integrative solutions" to problems—ones that produce more preferred outcomes in terms of values to all parties involved. (L&M54, pp167-8)

> When each party can recognize its gains or losses in a controversy, we speak of "compromise" solutions. A standard example is splitting the difference between the high and low bid in a wage negotiation. There is, however, another type of solution which is characterized by the fact that the parties are unable to distinguish what they have 'won' or 'lost.' Such a solution is "integrative." In industrial relations an integrative solution is sometimes achieved in which a new framework of co-operation comes into being, and old bargaining points are no longer revived. Sometimes an arrangement is devised for joint management participation, or for a profit-sharing split in the annual take. ...
>
> Integrative solutions are continually being exemplified in smoothly operating families. New adjustments are made as children grow and parents decline. At any given level of equilibrium a system of compromise works well. If it is understood that everybody is to help in the household chores, a dispute may arise as to who makes the beds, or sweeps the floor, or cleans up the bathroom. The problem may be settled by working out a definite schedule of duties, designed to equalize both the time involved and the burden of the most disagreeable assignments. Minor disagreements are compromised within this framework. After operating smoothly for a while, however, this scheme may produce complaints and recriminations to a disruptive degree; it is time for a change, for a more contextual view to be taken. The gripes about the rules can be treated as symptoms of a growth process which has generated so many new perspectives that older compromises have become provocations. This situation may now be re-defined by giving each child a separate room, and making him wholly responsible for keeping it in shape and improving it. Squabbles about the older division of labor are now obsolete. Within the new framework energies find sources of gratification that were unattainable within the previous equilibrium. As issues arise in the new context they are at first compromised. Then the compromises become sources of strife, a new stage of growth has arrived, and a new integration is needed.

Having available a robust and precise language and acquiring the habit of using it for thought and expression can facilitate achievement of integrative solutions in the resolution of legal disputes by helping to focus attention upon alternatives that might not otherwise be considered. It may even be the case to some significant degree that the relative unavailability of CONDITIONAL LEGAL RELATIONS language has been a contributor to why "rule four seems never to have occurred to a single legal scholar during all the centuries of common law commentary ...." To the extent that A-HOHFELD contributes to the enrichment of legal analysis it also represents a theme pressed lately by Thorne McCarty in his analysis of the OWNERSHIP relation: intellectual currents flowing from work in artificial intelligence in computer science to law, rather than the more customary vice-

versa. (McC93) This is yet another illustration of how precision in language contributes to thought as well as communication.

It will be interesting to explore other areas of legal decisionmaking in terms of the CONDITIONAL LEGAL RELATIONS involved to see to what extent enlargement of vision occurs elsewhere. Among what we expect to encounter are situations that will afford opportunity to flesh out in greater detail the criteria for decision that Calabresi and Melamed subsume under "other justice considerations" by exploring the more detailed articulation in a Lasswellian approach for achieving the widest shaping and sharing of all human values—enlightenment, respect, affection, well-being, rectitude, and power—as well as wealth and skill. But that is work for another occasion.

Conclusion

The availability of a robust and precise language can influence the clarity and depth of thought as well as its communication to others. Mathematics and logic serve as such a language for science. The current version of A-HOHFELD described here aspires to fully achieve being the "lowest common denominators" of legal discourse—a relatively simple language in which all possible legal states of affairs and all possible changes from one legal state to another can be precisely and completely expressed. (Purported counter-examples will be warmly welcomed.) A-HOHFELD is currently being used by the authors as a representational language in building MINT systems (Multiple INTerpretation system-generating expert systems that generate dynamically Interpretation-Assistance systems for interpreting the expression of logical structure in sets of legal rules). Here it is used for describing a generalization of Calabresi and Melamed's pioneering efforts to approach Property and Torts from a unified perspective, both their Rule 2 and the celebrated missing Rule 4. Elsewhere, it has been used for analyzing court opinions, sets of legal rules, and legal doctrines. The extent to which the evolving A-HOHFELD language can contribute to enlargement of the vision of legal decisionmaking is still unfolding.

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