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ANALOGICAL REASONING AS TRANSLATION: THE
PRAGMATICS OF TRANSIVITY**

ABSTRACT. This paper attempts to examine the underlying structure of analogical reasoning in decision making. The immediate (but not exclusive) context is the form of reasoning commonly seen as prevalent in common-law judicial decision making. Following Wittgenstein and Strawson the paper identifies the problem of the *contingency of transitivity of analogical relations* as a serious impediment to analogical reasoning. It then proceeds to offer a method of *translation* that delineates the borders of contingency and analyticity of transitivity in such cases, as well as proposes how these borders may be manipulated. The theoretical insight is to treat analogical relations anaphorically, as “propredicates”. Accordingly, the translation involves constructive functional transformation from the form of meaning as continuum to the form of meaning as n-chotomies. Greimasian semiotics are then critically applied to examine in what sense “translation” – in this specific sense – can count as the “deep structure” of analogical/transitive reasoning, and what such a claim entails in terms of linguistic ideology. Although the model of translation is formal it is not acontextual, and must be supplemented by *importation* of constitutive practical considerations (i.e. norms) from concrete decision-making contexts. As such this is a case study of the pragmatic functions of formalization – a conception that may seem alien to some. When determining which states-of-affairs are deemed compatible, the formal model is shown to serve as a framework to what eventually becomes a pragmatic device.

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1. ANALOGICAL REASONING

How is a manufacturer A's liability for injury resulting from a defective vehicle¹ *like* that of manufacturer B's liability concerning a defective lamp,² and that *like* manufacturer C's liability concerning a decomposed snail in a bottle of ginger-ale?³ Clearly this type of reasoning, fundamental to common law, rests a great deal on what "like" means, and how any decision-making system uses "likeness-based" argumentation, or in its more common name analogical reasoning. Analogical reasoning figures in various decision-making contexts; in judicial decision-making it is a predominant form and was claimed at times to underline all legal reasoning.⁴ Kaufmann's thesis, that the prevailing distinction between (teleological) interpretation and analogy is a mirage because the style of formal "application" always conceals an analogical argument "dropped like a large heavy stone spreading ever-widening ripples across the smooth surface of methodology and *Rechtslehre*," according to one commentator.⁵ Analogy seemed (but only seemed) to find a calmer position in common law traditions, where many consider HLA Hart's interpretative model to have articulated familiar descriptive notions.⁶ To recall, Hart focused on

¹ See *MacPherson v. Buick* 217 N.Y. 382, 111 N.E. 1050 (1916); but also *Cadillac v. Johnson* 221 Fed. 801; C.C. A 2nd, 1915.

² See *Blacker v. Lake* 106 L.T. 533 (1912), but also *Longmeid v. Holliday* 155 Eng. Rep. 752 (1851).

³ See *Donoghue v. Stevenson* [1932] A.C. 562.

⁴ While "judicial decision-making" is used throughout this paper interchangeably with "adjudication" it is not an incidental choice of words. Of the various aspects of adjudication, this paper focuses on the organization of judicial reasoning and language in its decision-making dimension. It may be noted that in this specific context analogy seems to have been studied less than in others.

⁵ So much so at least in Germany, where Kaufmann's work was published – the context being a jurisprudence that works from rather clear distinctions between interpretation and *Rechtsfindung*. See Arthur Kaufmann, *Analogie und "Natur der Sache": Zugleich ein Beitrag zur Lehre vom Typus* (Heidelberg: Decker und Müller, 1982 (2nd ed. Rev.) [1965]) translated as "Analogy and 'The Nature of Things': A Contribution to the theory of Types", 8 *Journal of the Indian Law Institute* (1966), 358–401; Giuseppe Zaccaria, "Analogy as Legal Reasoning: The Hermeneutic Foundation of the Analogical Procedure", in Patrick Nerhot (ed.) *Legal Knowledge and Analogy: Fragments of Legal Epistemology, Hermeneutics, and Linguistics* (Dordrecht and Boston: Kluwer Law and Philosophy Library, 1991), 42.

⁶ For clarification's sake, this study does *not* work from Hartian premises. For Hart's model of interpretation and the Hart-Fuller debate see H.L.A. Hart, "Positivism and The Separation of Law and Morals", 71 *Harvard Law Review* (1958), 593; *The concept of Law* (Oxford: Clarendon Press, 1961); Lon Fuller, "Positivism and Fidelity to Law – a Reply to Professor Hart", 71 *Harvard Law Review* (1958), 630.

the meaning of concept-words that he described in metaphorical terms as consisting of a “core” and a “penumbra” of meaning; the core is paradigmatic, the penumbra relative to the core by way of analogy. The model’s pragmatic nature is essential: unlike realist approaches to natural kinds and their semantic treatment,⁷ Hart insisted that core meanings are conventional and transient; it is a mistake to think of his model as strictly semantic in its relation to meaning and analogy. (Then again, this does not fully respond to Fuller’s critique of the model’s other quality, its contended independence from such contextual elements as legislative history and policy considerations.⁸ A reconstruction of Fuller’s critique shows that it is exactly the penumbra’s analogical relation to the core that cannot be conceived in analytic, or “autonomous” terms alone.) Whatever merit Kaufmann’s and similar claims may possess, the pivotal role of the form of analogical reasoning in common law⁹ has been quite widely recognized,¹⁰

⁷ For the realist position on semantics see Hilary Putnam, *Mind, Language and Reality* (Philosophical Papers, vol. 2, Cambridge: Cambridge University Press 1975); Saul Kripke, *Naming and Necessity* (Cambridge, MA: Harvard University Press, 1972). For some legal applications of the realist position on semantics and critiques thereof see David O. Brink, “Semantics and Legal Interpretation (Further Thoughts)”, *Canadian Journal of Law and Jurisprudence* 2(2): 181–191 (1989); D.M. Patterson, “What Was Realism? A Reply to David Brink”, *Canadian Journal of Law and Jurisprudence* 2(2): 193–195 (1989); Andrei Marmor, *Interpretation and Legal Theory* (Oxford: Oxford University Press, 1992); Jonathan Yovel, “Overruling Rules?” *Pragmatics and Cognition* 4(2): 347–366 (1996).

⁸ See Fuller, *supra* note 6.

⁹ While this study does not aim to characterize common law traditions specifically, nor to set them aside on the matter of analogy in regard to other legal traditions, it nevertheless draws on common law’s institutional history for its examples and illustrations. The “deep structure” of the process of “translation” in the specific sense discussed below is certainly not restricted to common law argumentative styles.

¹⁰ See Edward Levi’s classic treatise *An Introduction to Legal Reasoning* (Chicago: Chicago University Press, 1949); Cass R. Sunstein, “Analogical Reasoning” 106 *Harvard Law Review* 741 (footnotes 1–3 offer comprehensive bibliographical notes on discussions of analogical reasoning); Nerhot, *supra* note 5; Z. Bankowski, I. White and U. Hahn (eds.) *Informatics and the Foundations of Legal Reasoning* (Dordrecht and Boston: Kluwer Law and Philosophy Library, 1995). Richard Posner comments – disapprovingly – that “The heart of legal reasoning as conceived by most modern lawyers is reasoning by analogy”, *The Problems of Jurisprudence* (Cambridge, MA: Harvard University Press, 1990), 86. See also Salmond, *infra* note 24, 183–188.

severely criticized,¹¹ and is lately regaining powerful – yet critical – advocates.¹²

However, as much as analogy has been and is discussed in jurisprudential and philosophical literature, it is not as generally recognized that the structure of analogical reasoning, especially as manifested in common law practices, is very much based on the concept of *transitivity*. The transitivity of analogical predicates is itself a troubling problem for both logicians and cognitive scientists,¹³ thus a main difficulty (that of contingency) of

¹¹ According to Posner, analogical reasoning has “No definite content or integrity; it denotes an unstable class of disparate reasoning methods.” See Posner, *supra* note 12. Jan Broekman criticizes analogy from quite a different perspective, as a “prison” for creativity, not completely giving credit, perhaps, to law’s need for curbing judicial novelty as a condition of its normal theory of legitimization; Jan M. Broekman, “Analogy in the Law”, in Nerhot, *supra* note 5, 217 (A different question is the extent, if at all, in which the constraints of analogical reasoning carry any real effect with judges. This is, essentially, the crux of the so-called Dworkin-Fish controversy, where the former parallels law with “chain gang” novels where any initial author’s (=judge’s) interpretative choices constrain any subsequent author working from a commitment to the oeuvre’s “integrity”. Fish deconstructs this latter notion and claims that any “fit” standard that pretends to issue such commitments is arbitrary if not fictional (and thus nonconstraining), the only constraints stemming not from anything about the nature of texts or language but from the conventions of “interpretative communities”. Ronald Dworkin, “How is Law Like Literature?” in Dworkin, *A Matter of Principle* (Cambridge, MA: Harvard University Press, 1985); Stanley Fish, “Working on the Chain Gang: Interpretation in Law and Literature” (1982) 60 *Texas Law Review* 551.

¹² See Sunstein, *supra* note 10; Scott Brower, “Exemplary Reasoning: Semantics, Pragmatics, and the Rational Force of Legal Argument by Analogy”, 109 *Harvard L. R.* (1996): 923–1028.

¹³ Tversky and Kahneman’s careful surveys assert that people encounter grave problems when referring to their preferences in transitive mode. It was common for an informant to express such preference relations as “‘I prefer A to B’, ‘I prefer B to C’, and ‘I prefer C to A’”, which is a contradiction. See Amos Tversky, Daniel Kahneman “Judgment under Uncertainty: Heuristics and Biases”, *Science* 185: 1124–1131; Amos Tversky, Daniel Kahneman, Paul Slovic (eds.) *Judgment under Uncertainty* (Cambridge: Cambridge University Press, 1982). Arguably, such findings give rise to a context-sensitive re-examination of the status of transitivity itself, namely as a cultural framework regarding which states-of-affairs agents deem compatible. An alternative perspective on Tversky and Kahneman is that informants conceive of preferences in counterfactual terms, thus actually expressing Lewis’ “fallacy of transitivity”; see David K. Lewis, *Counterfactuals* (Cambridge, MA: Harvard University Press, 1973), 31–36; also Robert Stalnaker, “A Theory of Conditionals”, in Nicholas Rescher (ed.) *Studies in Logical Theory* (Oxford: Blackwell, 1968). Putnam – while ascribing this move to Davidson – argues that the problem is not at all one of faulty language use or of representation – i.e. of transformation from mental states to natural language. Even if we had a “cerebroscope” and could read off the subject’s “mentalese”, he argues, we would “undoubtedly find coded in the brain itself such reports”. Hillary Putnam, *Realism and Reason* (Cambridge: Cambridge University Press, 1983), 153–154. This is not the place to discuss the critical point of the dependence

analogical reasoning is that it greatly rests upon a concept that is itself in need of both critique and clarification.

One way of dealing with “likeness” relations was offered by Wittgenstein. While (indirectly) criticizing the age-old Aristotelian concept of definition as a set of necessary and sufficient conditions, Wittgenstein argued that some classes that cannot be defined in this way nevertheless consist of elements that maintain a “family resemblance” between them. No set of necessary and sufficient conditions can identify all games or all “Churchill-like” countenances, but if we relinquish that dogmatic requirement we may discover a set of characteristics of which non-identical subsets may appear in different subjects.¹⁴ Language itself, Wittgenstein argues (as well any of its sentences) “has not the formal unity that I imagined [in the *Tractatus Logico-Philosophicus* – J.Y.] but is the family of structures more or less related to one another.”¹⁵ The fact that concepts that were prior thought to be rule-regulated are found out to be partially not so does not trouble Wittgenstein as long as we have a certain level of regulation that allows us to reach a practical consensus concerning certain practices.¹⁶ This point – the coexistence of contingent zones and analytic zones¹⁷ which divide the processed subject-matter of any given decision-making process – is of paramount significance, and will prove the crux of the present discussion. Another important point is Wittgenstein’s insistence that lack of rigorous acontextual definitions does not mean that boundaries cannot be *drawn for a particular purpose*.¹⁸ This is exactly what a formal model, like the one proposed here, should provide: drafting a framework that is open to constitutive *substantive* elements which are interest- and context-determined. The present treatment of the contingency of transitivity was developed with this interest constantly in mind.

of any possible “mentalese” (a dubious concept to begin with) upon natural language (a position that Putnam himself later discusses in *The Many Faces of Realism* (LaSalle: Open Court, 1987)).

¹⁴ Ludwig Wittgenstein, *Philosophical Investigations* (Oxford: Blackwell, 1953), §67.

¹⁵ *Ibid.*, §108. See also Wittgenstein, *The Blue and Brown Books* (Oxford: Blackwell, 1958), 145–146.

¹⁶ “No more are there any rules on how high one throws the ball in tennis, or how hard; yet tennis is a game for all that and has rules too”. Wittgenstein, *supra* note 14, §68.

¹⁷ This is not the place to discuss Quine’s powerful critique of the synthetic-analytic distinction because, inter alia, it is the line of argumentation of this article that according to practical interests some propositions are to be *constructed* as if they were analytic, even if other considerations – theoretical or other practical ones – claim differently (this is obviously a pragmatist strategy). See W.V. Quine, “Two Dogmas of Empiricism” in *From a Logical Point of View* (Cambridge, MA: Harvard University Press, 2nd edn. Rev. 1961), 20–46.

¹⁸ Wittgenstein, *supra* note 14, §§68–70.

Wittgenstein doesn't address the problem of the contingency of transitivity specifically. That problem was acknowledged one year prior to the posthumous publication of his *Philosophical Investigations* by The Oxford philosopher Peter Strawson:

The logician's desire to codify formal analogies by adopting a representative verbal pattern to figure in a quoted rule encountered in this case [of transitivity – J.Y.] a certain difficulty; the difficulty of the absence of any pervasive formal feature common and peculiar to relational statements which can enter into valid inferences of patterns analogous to the above [contingent one – J.Y.]¹⁹

and:

[W]e are as far as ever from the discovery of one truly representative pattern for relational statements with just the kind of logical powers as we are here concerned with, and we are left with only the expedient of classifying together, under the name "transitive", all those relational predicates which yield analytic formulae if substituted for "f" in the formula $(fxy \wedge fyz) \rightarrow fxz$.²⁰

The present article does not offer a comprehensive solution to the challenge posed by Strawson. Instead it attempts to offer, within the Wittgensteinian framework, a quantitative perspective that takes on at least the logical difficulties of the transitivity of analogical relations and their relation to pragmatic considerations, which I hope will prove instrumental in a further development of a richer, more critical analysis of analogical reasoning.

The structure of the rest of the article is this: first, it offers an examination of transitivity as a problem concerning relations in general and analogical relations in particular. It proceeds to offer a formal model for a quantitative treatment of the problem, which in turn offers means to delineate, identify and narrow the boundaries of contingencies (denoted "translation"). It then examines translation as the linguistic and semi-otic "deep structure" of analogical/transitive forms and emphasizes its specifically pragmatic character. It concludes with an examination of the dependence of analogy and translation on goal-oriented, counterfactual uses of relevance criteria as part of the general discussion of analogical reasoning.

1.1. *Contingencies and discursive language*

Traditional logic is standardly perceived to be very limited in its analysis of contingencies, which are the greater bulk of scientific, discursive, and

¹⁹ Peter F. Strawson, *Introduction to Logical Theory* (London: Methuen, 1952), 202–203.

²⁰ *Ibid.*, at 204.

everyday lay propositions. The obvious reason is that the truth value of contingent representational propositions depends *ad definitio* on their content (or, on facts) and not on form. However, even if traditional logic cannot deal with contingencies directly, a logical inquiry may serve in exploring the *limits* of contingency. Logic can supply us with some formal tools (later to be complimented with content-based substance) to determine, in specific cases (or classes of cases) where contingency ends and analyticity begins. A suggestion for such a framework, based (primarily but not exclusively) on a quantitative analysis, is the aim of the following section. As such it is an exploration of the construction of the borders of contingency. However, from the outset it must be clear that this effort differs from projects that attempt to substitute any kind of “formal reasoning” or any set of heuristic rules for the faculty of judgment, as formal approaches to decision making (judicial or other) call for.²¹ The goal here is more limited: as stated above, it is to delineate and recognize some areas where contingencies are not as prevalent as they may seem; alternately, it is an attempt to provide a framework for identifying contingency’s true domain. As will be seen below the model is flexible and suffers imposition of substantive considerations ranging from any given specific decision-making context, which allow “to draw a boundary for a special purpose” in Wittgenstein’s terms (specifically, the determination of the variables r_0 , ε_1 and ε_2 is left open to accommodate the context and, in an important sense, internalize contingency already at this level).²²

1.2. *The problem of transitivity*

Relations (or multi-subject predicates)²³ conform by certain defining formal characteristics, that for some purposes may be treated as *metarelations*. Thus some relations are *reflexive*, which means that it is the case that a subject that maintains that relation maintains it in relation to itself. “Identical with” is a reflexive relation that any subject maintains and for which Pxx (P standing for “identical with”) is analytic. Some relations are *irreflexive*, which means that a subject can never stand in this relation to itself; “larger than” is an example of an irreflexive relation. A *non-reflexive*

²¹ In legal theory, both the economic and the formal-linguistic approaches’ claim to superior rationality (in respect to eliminating arbitrary or subjective elements from “judgment”) partially rely on this interest.

²² Wittgenstein, *supra* note 14, §69.

²³ For general discussions of logical relations and their characteristics (spawned – in modern propositional logic – by Pierce and de Morgan) see Alfred Tarski, *Introduction to Logic and to the Methodology of Deductive Sciences* (Oxford and New-York: Oxford University Press, 3rd edn. Rev. 1965); Elliot Mendelson, *Introduction to Mathematical Logic* (Pacific Grove: Wadsworth, 3rd edn. 1987).

relation is one about which we don't know whether it is reflexive or not, because there is nothing about the relation itself that makes it so – that depends on contingent properties of the case.

Symmetrical relations are those which abide by the formula $Pxy \rightarrow Pyx$. “Resembles” is a symmetrical relation but “reflects” is *non-symmetrical*, because if x (say, a mirror) reflects y (say, myself – in one sense of the word) it does not entail (neither does it exclude) that I reflect the mirror. “Taller than” is *asymmetrical*, because if x is taller than y then it is *ad definitio* impossible for y to be taller than x (this is true, e.g., of ordinal relations whose function is organizing elements sequentially in respect to each other).

Transitive relations maintain the form $(Pxy \wedge Pyz) \rightarrow Pxz$ (“if x is more desirable than y and y is more desirable than z then x is more desirable than z ”). Transitivity is a key element in systematic analogical reasoning. Consider the (admittedly much simplified) model of the common law: a rule is deemed to be set in case A; it is followed in case B which is deemed “like” case A (and by this further developed, at least in respect to its narrative application); case C may be judged “like” case B, but is it also “like” the precedent-setting case A, to be treated accordingly?²⁴ This problem, as Strawson stresses and Wittgenstein was aware of, is that of contingency, or rather of its limits. *Intransitive* relations are those that never yield to transitive form, i.e. all those for which it is the case that $(Pxy \wedge Pyz) \rightarrow \sim Pxz$ (e.g. “ x is the biological father of y ”). Transitive formulae featuring these relations are also analytical and pose no problem of contingency (we know them to be false). The problematic class is that of relations that do not fall into any analytic scheme, those for which there is nothing inherent about P that makes it the case that it is either transitive or not. Consider the binary predicate “close” as referring to a set of spatial distances between two referents (“ Pxy ” here stands for “ x is close to y ”). There is nothing in our understanding of “close” that makes it possible for us to determine whether in this case $(Pxy \wedge Pyz) \rightarrow Pxz$ is true or false (or whether the corresponding argument is valid or not). It may be that the distance between x and z still allows them to be considered “close” to each other according to P , or not; in the present example this question depends inter alia upon such matters as spatial arrangement (x , y and z may

²⁴ The precedent-setting case is actually case B, for it is B's (and subsequent cases') performance in treating A (by way of performative reference) that constitutes both A's status and the initial content of its *ratio-decidendi*. See generally John Salmond, *On Jurisprudence* (London: Sweet & Maxwell, 12th edn. 1966, ed. P.J. Fitzgerald), 174–183.

form three heads of an equilateral triangle, for instance),²⁵ as well as upon what we mean and/or understand by “close”. Such relations are termed *non-transitive*, and they typically *do* pose problems of contingency. Relations of the “likeness” family – those we are concerned with in analogical reasoning – are typically reflexive and symmetrical, but *non-transitive*.

Consider the following three propositions:

- a. If Ronny is taller than Shosh and Shosh is taller than Kim, then Ronny is taller than Kim.
- b. If Shosh is Ronny’s mother and Ronny is Kim’s mother, then Shosh is Kim’s mother.
- c. If Ronny resembles Shosh and Shosh resembles Kim, then Ronny resembles Kim.

(a), (b), and (c) follow the transitive formula $(P_{xy} \wedge P_{yz}) \rightarrow P_{xz}$, to different effects. (a), featuring an ordinal relation, is analytic. As far as ordinal relations go, the transitive formula is a tautology, its truth value guaranteed in virtue of its form, irrespective of any information about the world.²⁶ (b), featuring an exclusionary relation, is also analytic (and contradictory). Exclusionary relations are those that exclude some elements from the logical (or discursive) case.²⁷ In a case where a logical space can be occupied by only one variable (such as “x is y’s biological mother”) the fact that such a variable is already identified (barring mistakes) means that no other variable may occupy that space; hence, in the case of such relations, the transitive formula is a contradiction, and there is again no problem of contingency.

However (c) poses a difficulty, namely the problem of contingency of transitivity. It may be the case that it’s true, and it may be that it’s not, but that cannot be determined from the sentence alone, because of the indeterminacy of “resembles” in ordinary language. It may be the case that Ronny resembles Shosh in that they are both females, and that Shosh resembles Kim in that they are both writers. The problem can be quantitative: perhaps Ronny actually resembles Shosh quite slightly (although enough to consider them “alike”) and so does Shosh resemble Kim, to the

²⁵ I.e., for transitive expressions containing P, xy and yz (and hence xz) must contain a vectorial component.

²⁶ There is sense in redefining logical status by use of the concept of *relevance*. The criterion of relevancy for proving tautologies false is an empty set – by definition, there is no such relevant factor.

²⁷ See Joseph Raz, “Reasons for Action, Decisions and Norms”, *Mind* 83: 481 (1975); “Introduction”, in Raz (ed.) *Practical Reasoning* (Oxford: Oxford University Press, 1978), 1. For a discussion defending exclusionary logic and its role in decision making on grounds similar to those of the present study see Yovel, *supra* note 7.

effect that Ronny resembles Kim almost not at all (and at any rate, not enough to justify P_{xz}). To take another example, let us say that P stands for “earning approximately the same salary as” and that by “approximately the same” we decide to understand “within a ten percent fluctuation”.²⁸ If Ronny earns S and Shosh $S - (10\% * S)$ then P_{xy} is true; if Kim earns $(S - (10\% * S)) - (10\% * (S - (10\% * S)))$ (Shosh’s salary minus 10%) then P_{yz} is also true, but P_{xz} is not (Kim then earns a salary that is equal to 81% of Ronny’s). It could prove true if we either substituted the differences between the given values by smaller ones or alternately allowed the value of the fluctuation to be larger. The second strategy is further developed in the next section.

Traditionally, logic has little to say about contingencies, because these are propositions whose form is not the determining factor of their “legitimacy” criterion – truth value (in semantic terms) or validity (in syntactic ones). However, a pragmatically-oriented formal inquiry can indeed contribute to a delineation of divisions within the class of non-transitives, and thus draft, as Wittgenstein urges us to do, some borders of contingency. The task at hand is to suggest sufficient conditions that, if met, will transform (c)-like propositions into analytic ones. The strategy set in the remainder of this study is to form a function that allows for transformation from continuums of meaning (the functional source of contingency) to meaning in the form of context-sensitive manipulable categorizations (the domain of analyticity and its borders).

2. A QUANTITATIVE ANALYSIS OF RELATIONS

The main intuition offered here is that the “resemblance” family of predicates does not consist of well-defined and independent relations, but of relations that must be conceived anaphorically, as “propredicates”. These relations refer recursively to prior, more determined predicates, for which they substitute in ordinary language much in the way that a pronoun relates to a noun and a “prophrase” to a prior phrase.²⁹ Let us then define for any analogical relation P such a predicate Q that stands for the “defining characteristic” in relation to P . Q answers the question “resemble in what

²⁸ The amount of fluctuation may be the product of specific, context-oriented deliberation, or of a more general convention.

²⁹ While not making full use of his communicative analysis of anaphora, this study generally follows the brilliant philosophical discussion of anaphora-based linguistic units (in particular, “prophrases”) offered by Robert Brandom, *Making it Explicit: Reasoning, Representing and Discursive Commitment* (Cambridge, MA: Harvard University Press, 1994), 449–494.

way?” concerning P, although it does not answer the question “resemble to what extent?” Whether determining Q may prove problematic for any given P is not dealt with by this paper. The assumption here is that there is a practical interest in answering the question “to what extent are x and y said to resemble each other?” independently of the qualitative question “in respect to what Q are x and y said to resemble each other?” Moreover, only the former question lends itself to formal treatment.

For any x_1 and any x_2 and for any defining characteristic Q, a value (or quanta) r can be determined that represents the extent to which x_1 and x_2 are alike in relation to Q. We define $r_Q(x_1, x_2) = [0, 1]$. $r = 1$ indicates total similarity between x_1 and x_2 in relation to Q. Total variance (signified by $r = 0$) means that the intersection of the sets of all qualities of x_1 and x_2 by an operator defined by Q will produce an empty set: as far as Q is concerned, x_1 and x_2 have nothing in common.

Note that r 's range is defined as a continuum.³⁰ Thus we assume that it is not necessarily the case that x_1 and x_2 are “alike” or “not-alike” (which will require a default binary function); there is an *extent* to which they are alike, and decision makers may, if necessary, further work with a non-continuous function that will *translate* the continuum of contingency into n-chotomies, for instance a dichotomy of “alike/unlike” (the more general concept of n-chotomies is discussed below. For purposes of illustration dichotomies may be easier to work with than multi-chotomies, but they have no default or other privileged status). For this purpose we define a parameter $r_0 = [0, 1]$ and a function f such that: For all pairs x_1, x_2 , iff $r_Q(x_1, x_2) > r_0$, then x_1 is said to be “like” x_2 in respect to Q. (Alternately, the set S of all pairs of x_1, x_2 for which $r_Q(x_1, x_2) > r_0$ defines the binary predicate “alike in respect to Q”).

For all pairs x_1, x_2 for which $r_Q(x_1, x_2) < r_0$, x_1 is said to be “unlike” x_2 in respect to Q. (Alternately, S's complementary set).

The measure of r_0 is not formally determined, but left open to the context-sensitive decision making process, because in different contexts and for different purposes x_1 and x_2 must be determined “alike” or not according to different scales. We therefore define the following function f :

³⁰ r could alternately be defined on a symmetrical continuum in relation to the value 0, namely $r = [-1, 1]$, and the subsequent model amended accordingly. This however poses the problem of “inverse relations” and a “mirror” conception of negation. (It also opposes a convention of logical discourse that representations of relations not contain logical terms, such as connectives.)

$$(1) \quad \text{def. } f(r_Q(x_1, x_2)) = \begin{array}{|l} |x_1 \text{ is like } x_2 \text{ in respect to } Q \text{ iff } r_Q(x_1, x_2) > r_0| \\ |x_1 \text{ is unlike } x_2 \text{ in respect to } Q \text{ iff } r_Q(x_1, x_2) < r_0| \end{array}$$

Of course, something is missing: what about the domain of $r_Q(x_1, x_2) = r_0$? This is a third class, a zone of *indeterminacy*. The indeterminacy zone is required by the obvious logical interest of avoiding contradictions³¹ as well as epistemological and practical considerations of allowance for difficulties and costs in determining a relatively precise r_0 . These latter considerations urge us to define the indeterminacy zone flexibly, as a continuum, a range of the local periphery of r_0 . This creates a tension with the initial need to limit the scope of the indeterminacy zone (within which contingency maintains its domain and our task to render propositions analytic is frustrated). To capture this tension we introduce a variable ε and represent the indeterminacy zone as $r_Q(x_1, x_2) = [r_0 - \varepsilon, r_0 + \varepsilon]$. Within this range the translation process effectively fails and yields an empty set (in the new language of n-chotomies the domain of $]r_0 - \varepsilon, r_0 + \varepsilon[$ is inexpressible).

Thus

$$(2) \quad \text{def. } f(r_Q(x_1, x_2)) = \begin{array}{|l} |x_1 \text{ is like } x_2 \text{ in respect to } Q \text{ iff } r_Q(x_1, x_2) = [r_0 + \varepsilon, 1]| \\ |x_1 \text{ is unlike } x_2 \text{ in respect to } Q \text{ iff } r_Q(x_1, x_2) = [0, r_0 - \varepsilon]| \\ |\emptyset - f \text{ is undefined iff } r_Q(x_1, x_2) =]r_0 - \varepsilon, r_0 + \varepsilon[\\ \text{("indeterminacy zone")}| \end{array}$$

The indeterminacy zone $[r_0 - \varepsilon, r_0 + \varepsilon]$ is the immediate periphery of r_0 and is necessary for f 's consistency. Its flexibility allows sensitivity to the demands of any concrete decision-making context (note, that the value of ε is independent from that of r_0). A smaller ε allows for larger analytic zones ($[0, r_0 - \varepsilon]$ and $[r_0 + \varepsilon, 1]$, respectively) but may prove more difficult or expensive to refine; at times a decision maker may be satisfied with a less refined ε , at the cost of a larger indeterminacy zone. f 's basic structure is thus that of a trichotomy: it features a dichotomy plus a buffer zone. Recall that under the opening conditions of the contingency problem all we had to work with was Strawson's continuum of contingency (or indeterminacy); (2) is therefore an improvement. We now understand the continuum to be logically prior to the n-chotomy yet *translatable* to the latter (the continuum being f 's source and the n-chotomy its domain). A dichotomy we thereby interpret as a domain where the continuum A (of contingency) has been divided into two subdomains (of analyticity) buffered by a relatively limited (in respect to A) continuum of contin-

³¹ Otherwise, in the case of $r_Q(x_1, x_2) = r_0$, x_1 and x_2 will prove both "alike" and "unlike" in respect to Q.

gency. In the domain – the language of n -chotomies – not all problems of contingency are solved, but more are solved than in the condition of continuum.

This model can be easily improved on in the sense of increased sensitivity to contextual practical and discursive requirements. There is no default requirement for the indeterminacy zone to be defined symmetrically in relation to r_0 . Thus ε may be broken into ε_1 and ε_2 :

$$(3) \quad \text{def. } f(r_Q(x_1, x_2)) = \begin{cases} |x_1 \text{ is like } x_2 \text{ in respect to } Q \text{ iff } r_Q(x_1, x_2) = [r_0 + \varepsilon, 1] \\ |x_1 \text{ is unlike } x_2 \text{ in respect to } Q \text{ iff } r_Q(x_1, x_2) = [0, r_0 - \varepsilon_2] \\ |\emptyset - f \text{ is undefined iff } r_Q(x_1, x_2) =]r_0 - \varepsilon_2, r_0 + \varepsilon_1[\\ \text{("indeterminacy zone")} \end{cases}$$

We now have the basic working framework for delineating the borders of the contingency of transitivity. We still require some model to quantify $r_Q(x_1, x_3)$ as a transitive product of $r_Q(x_1, x_2)$ and $r_Q(x_2, x_3)$.

2.1. A quantitative model

Let us offer the following simple model M1: $r_Q(x_1, x_3) = r_Q(x_1, x_2) * r_Q(x_2, x_3)$, with f defined as in (3). This is a transitive model inasmuch as the relation between x_1 and x_3 is determined by those between x_1 and x_2 and between x_2 and x_3 , respectively. When dealing only with a continuum of contingency such a model would have served no purpose because the non-continuous function f is dependent upon breaking the continuum and limiting the indeterminacy zone.

The following example follows this model:

$$\begin{aligned} \text{Data : } r_0 &= 0.5 \\ \varepsilon_1, \varepsilon_2 &= 0.01 \\ r_Q(x_1, x_2) &= 0.7 \quad r_P(x_1, x_2) = 0.7 \\ r_Q(x_2, x_3) &= 0.8 \quad r_P(x_2, x_3) = 0.6 \end{aligned}$$

According to the M1, $r_Q(x_1, x_3) = 0.56$. By setting the above given values in f we find that $r_Q(x_1, x_3) = 0.56$ and $r_0 + \varepsilon_1 = 0.51$, hence $r_Q(x_1, x_3) = [r_0 + \varepsilon_1, 1]$, hence x_1 is “like” x_3 in respect to Q . However, in the case of P we find that $r_P(x_1, x_3) = [0, r_0 - \varepsilon_2]$ and hence x_1 is not “like” x_2 in respect to P . Q proved to be, in this example, transitive in respect to x_1, x_2, x_3 respectively, while P proved intransitive in respect to them. In this example, any value of $r_\alpha(x_m, x_n) = [0.49, 0.51]$ would still fall within the contingency zone, which we may then attempt to adjust by manipulating the values of ε_1 and ε_2 .

M1 allows us to form, within its premises, the following theorem:

The binary relation Q is transitive for any set $x_1, x_2, x_3 \dots x_n$ for which

$$r_Q(x_{n-2}, x_{n-1}) * r_Q(x_{n-1}, x_n) = [r_0 + \varepsilon_1, 1]$$

and is intransitive in case of

$$(r_Q(x_{n-2}, x_{n-1}) = [0, r_0 - \varepsilon_2]) \wedge (r_Q(x_{n-1}, x_n) = [0, r_0 - \varepsilon_2])$$

Assuming that fine-tuning ε_1 and ε_2 is cost-consuming, a cost-sensitive decision maker (and all decision makers are sensitive to costs, in whatever kinds of resources they conceive of them) will attempt to efficiently form contextually effective ε_1 and ε_2 : the least costly variables to produce that would still effectively suit the purposes of the specific goal-oriented process in its particular practical context.

3. FORMALIZATION AS A PRAGMATIC DEVICE: THE LINGUISTIC AND SEMIOTIC STRUCTURE OF “TRANSLATION”

Among the requirements defining a “justified judgment” Bernard Jackson demands that the relevant facts be regarded as “*sufficiently* close to a narrative rule” and that “the decision is arrived at by a process of persuasion which is judged to be *sufficiently* close to a narrative-rule of ‘truth-certification.’”³² What and how much is “sufficient”? While the model of translation presented above defines “sufficient” in formal terms, it only supplies the framework for substantive, semantic variables: *what* needs to be sufficient, and how much is judged “sufficient” for the purposes of the present goal-oriented decision-making event? Formalizations are sometimes thought of as resistant to pragmatic considerations: it may prove then of critical value to analyze the combined structure offered above (that of f and $M\alpha$) in standard linguistic terms. This will help clarify the relations between the attempt at formalization and critical and its pragmatic motivations.

The bulk of the model is sensitive to pragmatic considerations, specifically in these areas: the structure of $M\alpha$ (the calculus of quantification), the construction of the defining quality Q in relation to the non-transitive relation P , and of course the determination of $r_0, \varepsilon_1, \varepsilon_2$. Both Q and P

³² The other requirements bear on the justifiability of the narrative-rules themselves. Jackson’s idiosyncratic vocabulary stems from his commitment to a non-referential theory of meaning where language does not form correspondence-type claims about “the world” but is still able to supply measures of “truth-telling” and “narrative integrity”. For a discussion of the non-referential characteristics of the model of translation see below. Bernard Jackson, *Law, Fact and Narrative Coherence* (Merseyside, UK: Deborah Charles Publications, 1988), 195.

have semantic properties (they are about meaning that is not dependent on the pragmatic layers mentioned) and moreover, they maintain semantic relations between themselves. Q is recursively determined by P because P represents something about its referents (X_m , X_n etc.) in respect to Q, that nevertheless is not expressible by means of quantifying Q over X_m , X_n (this was earlier termed P's anaphorical structure). The semantic content of P and Q is of course imported from the substantive decision-making context.

While the structure of $M\alpha$, once incorporated, becomes a part of the model's grammar, it is initially a variable; not so the structure of f . That – the claim that transitive decision-making in the case of non-transitive relations involves a functional translation from the concept of a continuum to that of an n-chotomy – is syntactical framework, in need of subsequent incorporation of pragmatic variables. That then is akin to a “deep structure” of analogical/transitive reasoning, the characteristics of which are critically examined in section 4, below.

Following the above discussion, “translation” in this study assumes a technical sense: a function that transforms one structure of meaning into another, whose source is a language of continuums and its domain a language of n-chotomies. It is an incomplete function that imports and internalizes semantic content both as the object of discourse (and is thus a pragmatic structure) and on the level of shaping and governing the indexical and other semiotic functional elements that apply to the semantic content. The latter characteristic, that of working through the pragmatically relevant context,³³ is perhaps the most significant feature of translation and best captured by Silverstein's term, *metapragmatic*.³⁴ Applied in the context of legal discourse both translation and the structure of relevance – discussed below – form, organize and govern segments of that discourse and are therefore *metadiscursive*.³⁵

Any model of translation deals in meanings. The model offered above involves the various elements of a formal framework of analogy/ transitivity. Actual translation processes may need to employ only a subset of these considerations, for the sake of economicity (“transaction costs”), or other considerations typical of decision-making contexts. In certain

³³ On the complexity of relevance itself as a metapragmatic, ideological device *see* sections 5, 5.1 below; also Jonathan Yovel, “Two Conceptions of Relevance”, 8 *Law and Artificial Intelligence, Special Issue: The Law of Evidence* (forthcoming, Fall 2000).

³⁴ Michael Silverstein, “Metapragmatic Discourse and Metapragmatic Function”, in John Lucy (ed.) *Reflexive Language: Reported Speech and Metapragmatics* (Cambridge: Cambridge University Press, 1993), 33.

³⁵ For various aspects of metadiscourse *see* Michael Silverstein and Greg Urban (eds.) *Natural Histories of Discourse* (Chicago: The University of Chicago Press, 1996).

cases the relevant problem that mobilizes the model to begin with may be indifferent to some of these considerations, or unable to determine them. Default or arbitrary quantities may be used then. Inasmuch as translation – as conceptualized here – in fact captures the cognitive “deep grammar” of analogy/transitivity-based decision making (or, in certain contexts, a “judgment”), while employed either intuitively or systematically, constant tradeoffs are performed between the stipulated needs of the decision-making context (which may change during the performance itself) and the costs of determining the content and scope of the various elements.

However, what does it mean to claim that this model of “translation” captures a “deep grammar” or “deep structure” of analogical/transitive reasoning (whether judicial or not)? No formal model is complete without this meta-theoretical, or critical inquiry. This matter must be approached next.

4. TRANSLATION AS “DEEP STRUCTURE” OF ANALOGICAL/TRANSITIVE REASONING: A SEMIOTIC AND CRITICAL APPROACH

The “Translation” model, as conceptualized above, features two more characteristics that concern conceptions of meaning: 1) non-referentiality; 2) a claim of capturing a “deep structure” of analogy/transitivity-based structures.³⁶ These characteristics are both central to Greimasian-Jacksonian semiotics. This section makes use of that tradition in order to examine, locate and contextualize these characteristics.

The role and status of reference in constituting meaning forms a discernible divide between semiotic approaches (including legal semiotics). While Peircean semiotics generally looks into referential relations between signifiers and signified, or signs and “the outside world” in determining meaning (this is a broad characterization that ignores nuances), the Greimasian tradition holds that meaning “consists in relations within a particular system of signification, and does not depend upon a relation of reference to the outside world.”³⁷ We must be very precise in the characterization of non-referential meaning in the context of this study. In observing the model of translation presented above it is clear that the relevant relations are between continuums of meaning and goal-(or

³⁶ This claim must be qualified in the sense that translation, as presented here, does not purport to supply the *entire* deep structure of transitivity/analogy performances; see below.

³⁷ Algirdas J. Greimas, *On Meaning* (Minneapolis: University of Minnesota Press, 1987); Bernard Jackson, *Semiotics and Legal Theory* (London: Routledge and Kegan Paul, 1985), 14–17; see also Jackson, *supra* note 32 at 27.

function)-oriented categorization. As such it is a non-referential relation because the model and its elements make no referential or correspondence-type claims. However, applying the formal structure of translation, as was made clear, is never a sufficient condition for analogical/transitive reasoning: the content (semantics) of the relevant parameters are finally determined by the substantive, *contextual* decision-making process. They are imported; the availability of a normative context presupposes the activity of translation and thus its structure.

In what sense can this structure of translation count as a “deep structure” of analogical/transitive reasoning? Greimasian semiotics distinguish between a “deep level” of signification and a “level of manifestation”.³⁸ The deep level features elementary structures that may – this is a separate matter – be universally, cross-culturally valid (e.g. the function translating continuums of meaning into n-chotomies). These structures, as Bernard Jackson puts it, explain the minimum conditions for discourse to bear meaning, and as such are extrapolations of Saussurian semantics.³⁹ They are, however, patently insufficient. Meaning consists in the particular ways in which deep structures are invested at the “surface level” or, in other words, in cultural contexts – the world activities of competing, interacting speech ideologies. Each such context presupposes and imposes its own grammatical relevance criteria (and must at times face and accommodate

³⁸ Sometimes termed “surface level”. For different reasons, both terms may be improved on. The spatial-material metaphor, while signifying a level of contingency and transience, also connotes a shallowness that is not a correct characterization of the cultural (and diachronic) elements of meaning. On the other hand “manifestation”, as used by both common law and speech act theory, is a transparent indication of meaning that preempts interpretation – a loaded sense that I wholly do not wish to employ here. See, e.g., Restatement of Contracts (Second): “A term of a promise or agreement is that portion of the intention or assent *manifested* which relates to a particular matter” (§5); “An offer is a *manifestation* of willingness to enter into a bargain” (§24); “Acceptance of an offer is a *manifestation* of assent to the terms thereof made by the offeree . . .” (§50(1)); “*manifestation* of mutual assent to an exchange requires that each party either make a promise or begin or render a performance” (§18); etc. (Restatement of Contracts (Second) (St. Paul, MN: American Law Institute Publishers, 1981; Italics added). Farnsworth defines a contractual offer as “A manifestation of assent that is made by the offeror to the offeree in the form of a promise that is conditional on a manifestation of assent in the form of some action by the offeree . . .” E. Allan Farnsworth, *Contracts* (Boston: Little, Brown and Co., 2nd edn. 1990). For a similar sense employed by speech act theory see H. Paul Grice, “Logic and Conversation”, in Grice, *Syntax and Semantics*, Vol. 3: *Speech Acts* (Orlando: Academic Press, 1975); John Searle, “How Performatives Work?” *Linguistics and Philosophy* (1989), 12: 535.

³⁹ A central point for Saussurian semantics is that meaning is dependent upon differentiation. Transforming continuums of meaning into categories – here termed “translation” – is a specific mechanism of establishing differentiation.

subversive, alternative notions, as discussed below). Discursive elements are thus internalized or “imported” into the process of translation from various institutional and non-institutional contexts and by a variety of speakers, in different forms, to different extents, responding to different background relevance criteria and expectations.⁴⁰ The structure itself, however, is non-referential: the function of translation (as defined above) stands for no other thing except precisely what it does: the transformation of meaning from the form of continuums to goal-oriented, manipulable n-chotomies.

Greimas, and from a legal perspective Jackson, work from a cultural, albeit universalistic interpretation of “deep structure”, different in scope, origins and application from the Chomskyan notion.⁴¹ For them, deep structure is a semiotic pattern that nevertheless depends on almost existentialist notions.⁴² Thus Greimas argues that on a “syntagmatic” axis all human action is goal-oriented, and that following acts of “performance” relative the setting of a goal (the performance being successful or not), humans construct meaning and ascribe it to their actions in narrative (and sequential) mode, relative to the goal that sets them as subjects.⁴³ This

⁴⁰ The role of “importation” in constituting meaning and especially as a condition of illocutionary linguistic performance (an alternative account of performativity to that of standard speech act theory) is discussed in Yovel, *The Language Beyond Law: Linguistic Performativity in Legal Context*, SJD dissertation, Northwestern University School of Law, 1997.

⁴¹ Algirdas J. Greimas, *The Social Sciences: A Semiotic View* (Minneapolis: University of Minnesota, 1990), published also as *Narrative Semiotics and Cognitive Discourse* (London: Pinter, 1990); Jackson, *supra* note 32. The Chomskyan concept of deep structure implies universality, necessity, and presumably a biological-cognitive mechanism that explains the cross-cultural universality of generative grammar and language acquisition. The present study suggests claims of a much more limited scope, and obviously has nothing to say about the biological or genetic aspects of cognition.

⁴² Especially so Greimas’ conception of human action as goal-oriented and of the inherent reflection and narration associated with the production of meaning.

⁴³ While working from similar teleological grounds – language as being goal-oriented – JL Austin, Greimas’ partial precursor, ran into trouble that the latter analysis perhaps fails to solve, as well. To distinguish conditions of linguistic performance from truth functions, Austin termed as “felicity conditions” the sets of conventional “procedures” that underlay successful linguistic performance (the emphasis is on illocutionary acts, although the term is used for any linguistic performance). For instance, it is a felicity condition that an issuer of a command be in a suitable position of authority, that the utterers of “I do” in the context of a wedding be of opposite sexes and unmarried (at least in certain countries), etc. However, while “successful” presupposes a specific goal with which the actual outcome’s correspondence counts as a “success”, “non-felicitous” need not signify what Greimas means by “non-performance”. The simple reason is, that the act may have produced something else: while setting a goal “buy the house” the speaker may have procured an option on it or rented it, etc.; or “inquire about the house” may result in having

structure accommodates translation and contextualizes it in a larger framework of discursive action. It also helps to analyze, not just the distinction between “deep structure” and the politics of “surface level” semantics but between different constituents of the underlying grammar as well. At points on the syntagmatic axis (the semio-narrative level), an ongoing semantic history unfolds on the “paradigmatic” axis of discourse. On the paradigmatic axis choices need be made among, and exclusively among, semantically-constrained substitutable contenders (to reiterate Jackson’s example, a defendant is “guilty” or “not guilty” but not “overweight”). Roland Barthes illustrates these constraints by the example of a restaurant menu that offers choices that are substitutable within categories (entrée, desert) but not cross-categorically.⁴⁴

However, in a world of obvious linguistic variation what “deep structure” really means is also a matter of discursive politics and linguistic ideology. While this is not the place to elaborate on the deterministic function of such stipulations or presuppositions, Barthes’ parable may nevertheless serve to illustrate the point that subversive conceptions and interpretations – that in a technical sense are claimed to be nonsensical in respect to a given language as they are not formed according to its grammar – may metapragmatically challenge acceptable grammatical, discursive and ideological presuppositions.⁴⁵ By a “challenge” to relevance criteria I mean a cross-categorical challenge, e.g. an event featuring a subversive

bought it. Two complete acts are produced: one, of procurement of an option; the other, the botched *attempt* to conclude a sale (incidentally, criminal law recognizes botched attempts as non-referential, self-contained felonies.) Felicity conditions are thus *constitutive* of the illocutionary performance.

Austin correctly thought of these “procedures” (his term) as wholly conventional, thus obscuring the distinction between the specifically linguistic conditions of action and their cultural-normative context. Of course, “felicitous” means precisely “successful” when *intentionality* is brought in as a constituent of meaning and/or of performance (as in the work of John Searle). That in turn is a phenomenological postulate that both semioticians (and especially those working from non-referential theories of meaning) and linguistic theorists may wish to avoid. J.L. Austin, *How To Do Things With Words* (Oxford: Clarendon Press, 1962; Cambridge, MA: Harvard University Press, 1962).

⁴⁴ Barthes’ example I find especially ironic, as the relevant word “entrée” curiously means different courses in France (“first course”, as it etymologically suggests) and in the United States (“main course”).

⁴⁵ “Grammar” is generally used in at least two, non-converging senses. In one sense grammar is the system of linguistic rules that prescribes how to appropriately arrange words into sentences and other meaningful language segments, whether consciously manipulated or not; “grammar” is thus distinct from language’s other major components, vocabulary (or lexicon) and phonology (or sound system). In this study, “grammar” has a less differentiated sense, that encompasses the whole system of rules and procedures that make up a given language, including syntactical, lexical and phonological patterns. When

patron who insists on substituting a fruit-salad for a steak – contrary to the menu’s grammar and the restaurant’s conventions (which are based not only on culinary-motivated considerations but also on calculations of cost, pricing policy, kitchen division of labor, etc.) All along, the menu was a political grammar that enjoyed general relational consensus as such. The subversive patron may seem to talk nonsense – her speech does not obey the language’s grammar as captured by the “paradigmatic axis” – but that determination itself is ideological, giving primacy to that grammar over alternative ones. In fact, every non-paradigmatic action is a proposed alternative to the paradigm rather than a piece of nonsense. This, however, is still done within the syntagmatic framework of grammar (in Barthes’ parable: sitting down at a restaurant, ordering food, etc.)

The demarcation between the syntagmatic and paradigmatic axis may also prove a matter for politics of discourse. It may be a party’s particular politics to mask a paradigmatic constraint as syntagmatic, and the subversive speaker’s business to challenge the claim and the relevance-based constraints it imposes on discourse. To paraphrase on Barthes’ parable, not just the menu’s internal grammar, but the limitation of choices to the particular menu or any menu to begin with is a paradigmatic determination, in Greimasian terms. As such it is a matter of relations, power, and politics. In law, switching from one doctrinal category to another works along similar lines, as illustrated by the history of the law of consumer protection and manufacturer’s liability for defective products, from comity to tort.⁴⁶ The history of the question “what communicative acts may count as contractual offers/acceptances?” is another example.⁴⁷ If anything, law – and even doctrinal law – is a distinctive arena for contesting paradigmatic modes of action, and emerging alternatives to established relevance criteria, grammars and vocabularies. So are courtroom speech styles, narrative conventions and other less-or-non-doctrinal, institutionally-governed legal action.

Finally, the risk in ascribing “deep structure” to semiotic or linguistic patterns is what Silverstein calls the “ideologization” of linguistic struc-

linguists describe a language in terms of its grammar it is the latter sense that they usually employ.

⁴⁶ See Levi, *supra* note 10.

⁴⁷ See Patrick S. Atiyah, *The Rise and Fall of the Freedom of Contract* (Oxford: Oxford University Press, 1979); Michael Furmston, Takao Norisada, and Jill Poole (eds.) *Contract Formation and Letters of Intent* (Chichester: John Wiley & Sons, 1998); James Gordley, *The Philosophical Origins of Modern Contract Doctrine* (Oxford: Oxford University Press, 1991). For a linguistic, ahistorical study of this question, see Yovel, “What is Contract Law About? Speech-Act Theory and a Critique of ‘Skeletal Promises’,” *94(3) Northwestern University Law Review* (2000).

ture: simply put, generalizing a private case – even a paradigmatic one – into a universal pattern.⁴⁸ Silverstein’s critique is potentially applicable to the claim that “translation” is a semiotic “deep structure” of analogy/transitivity. One way of avoiding this critique is to reformulate and study translation in ethnographic rather than analytical terms (as Rosaldo and Wollard suggest to approach speech act theory).⁴⁹ The present study, however, suggests translation as a candidate for capturing – at least partially – the formal deep structure of analogical/transitive reasoning, but cannot supply the kind of overwhelming empirical evidence required by an ethnographic approach with a possibly universal claim.⁵⁰

5. TRANSLATION IN DECISION-MAKING AND CRITIQUE

Analogies, according to the model of translation, are more-or-less flexible constructions, not a relation “there” to be discovered; no objects are analogues but that are judged to be in particular instances within a discourse.⁵¹ Every analogy/transitivity construction features and internalizes, at least potentially (i.e. under conditions of sufficient data), the costs of the tradeoffs imposed by translation in switching from one language – one structure of meaning – to another. A critique of analogical/transitive reasoning and of particular analogical/transitive arguments may begin by deconstructing translation to its elements as detailed above.

⁴⁸ For instance, Silverstein critiques Searle’s claim that speech act theory is a “skeleton” of social interaction around which the rest – cultural layers – build. See Michael Silverstein “Language Structure and Linguistic Ideology”, in R. Clyne, W. Hanks and C. Hofbauer (eds.) *The Elements: A Parasession on linguistic Units and Levels* (Chicago: Chicago Linguistic Society, 1979), 193; Elizabeth Mertz and Bernard Weissbourd, “Legal Ideology and Linguistic Theory: Variability and Its Limits”, in Mertz and R.J. Parmentier (eds.) *Semiotic Mediation: Sociocultural and Psychological Perspectives* (Orlando: Academic Press, 1985), 261.

⁴⁹ See Kathryn A. Woolard, *Language Ideology: Issues and Approaches*, *Pragmatics* 2(3): 253–249; Michelle Z. Rosaldo, “The Things we do with words: Ilongot Speech Acts and Speech Act Theory in Philosophy”, *Language in Society* 11: 203–237 (1982).

⁵⁰ Some aspects of the model seem more contextually-sensitive than others. Such is the arguable tendency of decision-making agents – in law and otherwise, when employing structures of translation – to converge on binary processes, i.e. dichotomies (of all possible n-chotomies), involving the construction and “identification” of two alternative outcomes in each stage. Whether, and to what degree, this is a widespread or even universal tendency – or why this should be the case – I have no indication. Evidence in this matter requires considerable empirical research and is quite beyond the scope of the present study.

⁵¹ Broekman typifies analogy as “an event” that “occurs”. His account, however, denies analogy any decision-making or indeed cognitive structure (instead he speaks of a “sudden awareness” of analogy); *supra* note 11 at 219.

An additional motivation for this study stems from the veteran quest of trying to reconcile everyday language with discursive and with “scientific” criteria of precision or other functional – and translatable – qualities. Law is embedded in everyday language and its diversity and yet is different from it; not an expert or scientific language and nevertheless featuring expert conceptualizations. Obviously, everyday language and discursive language serve many different functions; but at least some of everyday language, and much of scientific language, is prepositional.⁵² However, the contexts in which these propositions are used, and the functions and purposes which they serve, are different in everyday language and in discourses such as law. Everyday language has to be useful for lay speakers who do not share discursive interests nor competence (including modes of linguistic competence) similar to those “experts” intensely engaged in a given discourse; we are all speakers who at times are not interested in rigorous and painstaking precision, but who still are interested in action related to discourse, in making sense of it, and in reasoning effectively. Ongoing, tentative and ideological compromises are intersubjectively woven in the intersections of discourse, science and the lay requirements of practice. Translation – in the particular sense defined above – does not offer such compromises, but it does offer decision makers in various contexts means to delineate, predict, plan and manipulate the respective boundaries of analyticity and contingency. Even if I cannot allow the cost (in whatever resource) of a desired measure of precision or typification captured by any representational segment of language I use, I may at least delineate the borders of imprecision. I may not know precisely how much of property X is necessary for any given action, but I may know how much is sufficient and how much it will cost me to find out just how much isn’t. It is a property of lay language and inexpert action that the said cost is perceived as too great in relation to the benefit it supplies. Minimizing the indeterminacy zone, refining the tradeoff and working out relatively precise margins of contingency – ε_1 and ε_2 in relation to property Q, in the model of translation – is the hallmark of the expert.⁵³

A primary requirement from any such framework of translation is that it be open-ended and sensitive to substantive (as opposed to formal) considerations. As argued above, the model is thus incomplete until given to importation of normative content (some of which substitutes for the vari-

⁵² Each may – and does – serve performative functions as well; following Wittgenstein and Austin I do not claim any primacy for representationalism – rather the contrary is true.

⁵³ Note that expertise is typified here in uncritical terms. All that was said above concerning a critical approach to relevance on the paradigmatic axis applies to this definition of expertise, as well.

ables r_0 , ε_1 , ε_2 , and also determines Q). Note, that the act of translation itself also figures as part of the decision making process – to wit, choosing the form of translation requires ideological choices involving discursive legitimization of analogy to begin with (e.g. the form of precedent), a cost-benefit sensitivity, etc.⁵⁴ It may be that certain decision-making processes require more inflexible borders of contingency than others according to, primarily, practical considerations (and to a lesser degree theoretical ones).⁵⁵ Decision makers will then be willing to pay for the construction of those borders – smaller ε_1 and ε_2 to further limit the indeterminacy zone – in terms of intellectual effort, time and other quantifiable resources. Others may find that some rigors are unnecessary or that they incur production costs higher than their practical value. The model presented here is formal in that it caters to subsequent interests and proceeds to suggest further practical calculi. It attempts to contribute to this practical interest by providing a framework for dividing logical (and discursive) continuums of contingency into systems of n-chotomies that feature “islands” or zones of analyticity whereof a decision maker may conclude that a system indeed supports transitivity, and others where it does not. A residual, contingent “indeterminacy zone” is also always present, but its borders are, as proposed above, manipulable. All matters of delineation and manipulation are practically – i.e., culturally – induced, and are governed by specific norms and interests in various decision-making contexts.

5.1. *Translation of the lens, not just the object: Analogy and some counterfactual uses of relevance*

As an independent precursor of both instrumental approaches to knowledge (I have Durac and Poincaré in mind) and philosophical pragmatism, Nietzsche, in some of his contradictory, multifaceted work, makes with breathtaking clarity the distinction between theoretical validity and practical usefulness of analogy. In decisive contrast to anything resembling the Aristotelian – Baconian incomplete and incompletable project of

⁵⁴ Why, how, and especially when should cost-analysis devices be applied in decision making is of course a different question.

⁵⁵ The reasons for the primacy of practice over theory in such cases stems from the argument that theorizing itself is a practice, an activity which is therefore subject to practical considerations. This may seem a turn on the traditional post-Aristotelian discussion of the relations between theoretical and practical reasoning, the common critique being that practical reasoning is merely theoretical reasoning in matters practical (for different perspectives on this question see Raz, *supra* note 27.) The position underlying this article is quite clearly the pragmatist opposite, which ascribes priority (if priority must be called for at all) to practical reasoning; accordingly, reaching a “theoretical conclusion” will then be “making a decision in a theoretical matter”.

classifying the attributes of reality as a condition and mean of better manipulating them, Nietzsche draws a clear line between true knowledge and effective action, the former being not a condition, but indeed a detrimental impediment for the latter. To recall, in what became one of his most famous fragments, Nietzsche offers the parable of the hunter-gatherers, the dim cognitors who failed to perceive the true uniqueness of each and every segment of reality, the radical idiosyncrasy of each and every contextual object (animal, vegetable, shelter etc.)⁵⁶ Their numbness of perception allows for knowledge by classification, and classification, according to Nietzsche, consists in sequences of analogical/transitive judgments: once the hunter benefits from hunting animal A in a unique, never-to-be-repeated event 1, his dim perception and lack of awareness to the event's – and the object's – idiosyncrasies, enable him to determine that animal B is likewise huntably in event 2 because it is *like* animal A in event 1, etc.⁵⁷ In contrast, the true cognitor acknowledges the uniqueness of each segment of reality and, barring a mechanism of translation/classification as outlined above, becomes a slave to epistemology (and malnourished, at that). Nietzsche – who denied the validity of both analogy and evolution as long as they lay onto logical claims – ironically sketches analogy/transitivity as the main evolutionary advantage and chief criterion of natural selection. In a universe of singularities, selection is anti-epistemological, advantaging those cognitors who construct theoretically invalid but practically useful criteria of *relevance* for analogy, in order to perform useful epistemological mistakes. Successful performance of analogy is thus a prerequisite of felicitous action, to paraphrase JL Austin.⁵⁸

Significantly, relevance criteria in law are sometimes used in ways that obscure or even reject factual narratives for other discursive purposes. A central example is the risk, or actual production of, counterfactual narratives during the evidence stage of a trial while pursuing some non-epistemological, specifically discursive practical goal. While some relevance criteria aim at serving epistemological functions (hence “reliability” of evidence), law typically works through acknowledging the

⁵⁶ Friedrich Nietzsche, *The Gay Science* (New-York: Vintage Books, 1974, trans. Walter Kaufmann), §124.

⁵⁷ This, of course, is a presumption. But whether it be sustained or not – whether or not segment S₃ of reality is to be judged as responsive to the relevant attributes (“unharmful, edible”) prior ascribed to S₂ and before that to S₁ – a critical decision-maker will continually keep questioning the presumption of relevance of those attributes and the means of determining them. This requirement – true of judges as much as of hunter-gatherers – stems directly from Gadamer's model of “questioning the text” and risking one's presuppositions in the process.

⁵⁸ See Austin, *supra* note 43.

primacy of practical narrative reconstruction (or “justice”) over factuality (or “truth”).⁵⁹ Some of the most interesting cases are those where law uses relevance criteria to suppress an otherwise reliable evidence for the sake of such non-epistemological interests as maintaining family integrity, suppressing police brutality, and upholding procedural rights even in cases when those are not instrumental to winning or losing a case.⁶⁰

Nietzsche’s parable of the hunter-gatherers’ cognitive processes illustrate the process of translation, in the technical sense outlined above. While applying goal-oriented relevance criteria the continuum of phenomena is broken into n-chotomies – typically dichotomies: to hunt/gather or to let be? In respect to prior knowledge, how much is animal or vegetable B (the new, unknown object) *like* animal or vegetable A in respect to certain relevant qualities Q1, Q2, Q3 . . . Qn, but not in respect to others? When the amount of likeness relative to a relevant criterion (risk, nutritious value, etc.) is fixed, a classification can be established and a decision made (e.g. to hunt/not to hunt). Translation then seems to imply an inherent dogmatism, incarnated by relevance criteria. The dogmatism is both useful and risky. A periodical application of critical hermeneutic modes of “questioning the text” at various decision-making points (either strategically selected or, more intriguingly, arbitrary ones) to both the relevance criteria (Q) and the quantities employed ($r_0, \varepsilon_1, \varepsilon_2$) should mitigate the risks of dogmatism (at a cost). Typical decision-making is thus akin to a classical, yet perhaps not very sophisticated novel:⁶¹ as the plot advances, as information accumulates and emotive patterns set, the range of possible endings (other things being equal) continually and gradually narrows.⁶² Judicial decision-making, if textual legal opinions may count as evidence, certainly seem to

⁵⁹ See Yovel, *supra* note 33.

⁶⁰ For the last important point see Larry Alexander, “Are Procedural Rights Derivative Substantive Rights?”, *Law and Philosophy* 17: 19–42 (1998).

⁶¹ By “classical” I denote here only one Aristotelian quality, namely poetic (or narrative) coherence. This choice is far from arbitrary. For Jackson, working through requirements of narrative coherence (that are specifically non-referential in that they do not presuppose nor establish correspondence-type truth claims and where “truth” can be substituted for “integrity”) is the most we can aspire to achieve through metadiscursive inquiry. Even without such a commitment to non-referential conceptions of meaning and language’s ability/inability to make claims about anything but itself (i.e., linguistic reflexivity) narrative coherence is a paradigmatic ideological preference of legal narration. See Jackson (1988), *supra* note 32.

⁶² This claim should be taken as ethnographic: embracing coherence and rejecting absurd at its other extreme, it is a characterization of law’s typical narrative ideology. “Nonsophistication” here is meant in a formal sense: that the relevance criteria according to which the narrative advances, once set, guides it throughout. I make no claim as to the aesthetic value of this poetic quality.

work this way as they tell stories so as to produce the effect of having reached the most “natural”, coherent and at times obvious legal decision.⁶³

While discussing “translation” in somewhat different and certainly more sophisticated terms, James Boyd White forcefully makes the point that translation is never “perfect”: as an action involving two (or more) languages – in the comprehensive sense in which language is a “form of life”⁶⁴ – meaning cannot be “transported”, only deconstructed and reconstructed in manners subject to each language’s grammatical idiosyncrasies, while at best guided and mitigated by communicative values and goals.⁶⁵ Translation isn’t about transparent reproduction of meaning but about much more complex modes of communication, community-building, manipulation, ideological and political action, and more. As noted above, Greimas would underline translation (like any other human action) as specifically goal-oriented. “Translation” in the sense employed in this work carries White’s point further: it is precisely the *different* sense of meaning, the molding of continuums of meaning into manipulable units (possibly counterfactually) that is the goal of this model of translation in analogical/transitive reasoning. Translation is not “perfect” in the representational, semantico-referential sense because it needs allow for forms of action that pre-translated meaning cannot accommodate. The point about translation’s anaphorical “deep structure” is that it produces not just different meanings but different structures of meaning, moving from source to domain communicatively, even if “imperfectly”, as it were. The consideration of “translation” as a communicative act (in Haber-

⁶³ For some excellent discussions of linguistic and narrative analysis of judicial opinions see James Boyd White, *Heracles’ Bow* (Madison: University of Wisconsin Press, 1985); Peter Brooks and Paul Gewirtz (eds.) *Law’s Stories* (New Haven: Yale University Press, 1996); Lawrence M. Solan, *The Language of Judges* (Chicago: University of Chicago Press, 1993).

⁶⁴ White takes Wittgenstein’s *dictum* that “to imagine a language means to imagine a form of life” as the representative interpretation of the linguistic turn on which his own work on justice as translation turns. Wittgenstein, *supra* note 14, §19. James Boyd White, *Justice as Translation: An Essay in Cultural and Legal Criticism* (Chicago: The University of Chicago Press, 1990); Elizabeth Mertz, “Creative Acts of Translation: James Boyd White’s Intellectual Integration”, 4(1) *Yale J. of Law and Hum.* 165–185 (1992); Jackson, *supra* note 32.

⁶⁵ “Communicative values” here converge on Habermas’s sense, i.e. the universal conditions of communication that mitigate the linguistic and hence epistemological fragmentation captured by the linguistic turn in modern philosophy. Likewise, White talks of “respect” and “inhabiting” the other’s (linguistic) world. Jackson, in turn, talks of narrative ethics – all offshoots of the Habermasian principle. See Jürgen Habermas, *The Theory of Communicative Action* (Boston: Beacon Press, 1984 trans. Thomas McCarthy); White, *ibid.*

masian terms), as a vehicle for recasting “practical reason” in terms of “communicative rationality”, is certainly a crucial aspect of the discussion of analogy/transitivity – the next level after the project of uncovering and characterizing its “deep structure”, in fact. At the outset of the present study very limited goals were set, and that level merits a separate discussion.

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