 doi:10.20944/preprints202202.0209.v1

Article

Read the Signs: Detecting Early Warning Signals of Interreligious Conflict

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Abstract: Building on recent directions in religion-related social and political science, our essay addresses a need for location-specific and religion-specific scientific research that might contribute directly to local and regional interreligious peacemaking. Over the past 11 years, our US-Pakistani research team has conducted research of this kind: a social scientific method for diagnosing the probable near-future behavior of religious stakeholder groups toward other groups. Integrating features of ethnography, linguistics, and semiotics, the method enables researchers to read a range of ethno-linguistic signals that appear uniquely in the discourses of religious groups. Examining the results, we observe, firstly, that our religion and location-specific science identifies features of religious group behavior that are inevident in broader, social scientific studies of religion and conflict; we observe, secondly, that our science integrates constative and performative elements: it seeks facts and it serves a purpose. We conclude that strictly constative, fact-driven sciences may fail to detect certain crucial features of religious stakeholder group behavior.

Keywords: religion; interreligious conflict; science; constative; performative; peacemaking; ethnolinguistics; semiotics; behavioral signals; group behavior

Introduction

For most government agencies and foreign policy think tanks, religion is not a unique subject for scientific inquiry. As we observed a decade ago while working at DOS, the behavior of religious groups tends to be subsumed under broader categories of social and political behavior, examined with the same methods of social and political science that are applied to any social groups. Foreign policy studies are changing, however. Over the past two decades, a growing library of publications urges governments and think tanks to attend in more focused ways to the role of religion and religious groups in violent political conflict, whether on the side of peacemaking or war-making (among early sources are Johnston and Sampson 1994; Lederach 1995; Appleby 2003; among the more recent are (Powers 2010; Hayward 2012; Cole et al. 2017). Prompted by a steady rise in religion-related violence and influenced to some degree by this literature, government agencies have in the last decade sponsored extensive scientific research on CVE, methods of countering violent extremism (Ribeiro et al. 2016; Azizan et al. 2016; Mandaville & Nozell 2017). There is also a significant increase in broader, social scientific research into various features of religious behavior, including tendencies toward peaceful or conflictual behavior (Hasenclever & Rittberger 2000; Flere 2007; Rothbart 2020). Building on these emergent directions in religion-related social and political science, our essay addresses a need for location-specific and religion-specific scientific research that might contribute directly to local and regional interreligious peacemaking. Over the past 11 years,

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our US-Pakistani research team has conducted research of this kind. Examining the results, we argue that a religion- and location-specific science identifies features of religious group behavior that fall outside the domain of broader, social scientific research. We have introduced our scientific tools and field-testing results in recent and forthcoming publications.[1] Our goal in this essay is reflective: to identify features of our scientific practice that are not evident in broader social scientific studies of religion and conflict and to evaluate the differences. Applying terms introduced by J.L. Austin (Austin 1962), we devote much of our attention to the difference between "constative" and "performative" utterances (saying and doing). Constative utterances make true or false claims, typically descriptive ones. Performative utterances are actions performed by saying something in some way. Applying these terms outside the context of Austin's work, we characterize broader social sciences as constative and our science as both constative and performative. We argue that information about certain features of religious stakeholder group behavior may be occluded by strictly constative sciences but disclosed in a partly performative science.

By way of introduction, our team has developed a social scientific method for diagnosing the probable near-future behavior of religious stakeholder groups toward other groups: Value Predicate Analysis (VPA). Integrating features of ethnography, linguistics, and semiotics, the method enables researchers to read a range of ethno-linguistic signals that appear uniquely in the discourses of religious groups. Examined through manual field observations and re-examined by way of natural language processing tools, signals are consistently associated with up to nine different types of near future group behavior, including linguistic and dispositional behaviors. After five years of field testing in regions of high tension and verbal but non-lethal conflict, the team constructed several diagnostic tools of potential use to peacekeepers and peacemakers[2] in regions of conflict. The team's current effort is to share its most refined and reliable diagnostic tools with government, UN, and nongovernmental agencies who might employ these tools to help identify and ameliorate settings of imminent, violent conflict among religious groups.

Through the course of this essay, we sample distinctive features of our ethnolinguistic science as a science of reading the signs: ethnolinguistic signals that appear to be unique to the discourses of religious groups. We hypothesize that the signs may be identified in many aspects of religious group behavior, but their measurable force is markedly greater in settings of tension and of conflict. In order to demonstrate the possibility of a science, we looked for evidence of the simplest correlation between a signal and the information it might offer. Through trial and error, we discovered a potential signal and methods of observing it in the field. We refined and field-tested the method and employed it to collect and analyze field data.

The essay has four sections. *Section 1* offers an overview of our diagnostic tool and its field tests. *Section 2* offers a semiotic account of VPA as a performative science. *Section 3* identifies the strictly functional and practical goal of this science. *Section 4* examines several implications of our projects for nurturing performative sciences of religion.

Section 1: The VPA Diagnostic Tool

VPA focuses on speech and writing (teachings, speeches, sermons, essays) by teachers or cultural influencers in small religious or "value-centered" groups.[3] Within this speech

[1] See

[2] In this essay, "peacekeepers" refers to UN and governmental agencies dedicated to regional conflict reduction or resolution, ideally through the use of soft power, but with capacities for the use of force when necessary. When distinguished from peacekeepers, "peacemakers" refers to nongovernmental agencies seeking to identify or apply methods of conflict reduction or resolution without the use of force. When appearing without this distinction, "peacemakers" refers to the rate of peacekeepers and peacemakers.

[3] Our study of religious groups is simultaneously a study of what we call value-centered groups; our diagnostic methods apply equally to groups that describe themselves as religious or as what we label intensely value-centered but not religious: for example, Sea Shepherds (a radical environmentalist group in the USA) or Marxist-like groups. When we

 doi:10.20944/preprints202202.0209.v1

and writing, we discovered and field-tested a surprisingly consistent, quantitative signal of each group's behavioral tendencies toward other groups: the average number of different meanings that group members tended to associate with each value term embedded in their teacher/influencers' value judgments. We labeled this average the "semantic range" of value meanings for a given group at a given time. For example, one focus group associated the Urdu term "love for the Prophet"(*rasūl kī muḥabbat*) with a range of two meanings: "obeying prophetic commandments" or "not following western values and lifestyles." Another group associated the term with a range of five meanings, including "cultivating an intimacy with the Prophet through *ẕikr* (remembrance)"; "praying special prayers to God for strengthening the bond with the Prophet"; and more.[4] Over years of research in different field settings in South Asia and the USA, we discovered probable correlations between a group's average semantic range and that group's probable behavioral dispositions toward other groups in its proximity.

Methods and Results of Field Research and Testing

Our research methods include ethnolinguistic fieldwork and text mining. To establish semantic range scales, we invite members of different religious and value-centered communities to join small focus groups. We train focus group members to serve as local researchers, observing weekly sermons and examining related written documents. Individual researchers identify value judgments and evaluate the semantic range of values. VPA team members and employees then collect and analyze researcher reports. We subsequently test and retest our field results through several methods including further data collection by local researchers; deploying non-specialists to observe/evaluate religious group speech and writing; and deploying non-specialists to text mine extensive online religious-group documents. VPA specialists generate quantitative analyses of all field reports, measuring degrees of change in the number of meanings speakers assign to key value terms or phrases. Another way is to text mine large online caches of religious teachings by different religious groups, adding these semantic range measurements to measurements gathered in the field. Collecting large sets of measurements, VPA analysts calculate average ranges of meaning for specific religious subgroups for specific times and locations.

Each group that we examined displayed a consistent semantic range between 1 and 9, which means a group would tend, on average, to associate from 1 to 9 meanings per value term. We discovered, furthermore, that each semantic range number corresponded to a class of probable group dispositions. We observed, for example, that a group whose members consistently associated only 1 meaning with each value term also tended to display the following group tendencies: (a) a highly reduced value vocabulary of only 6 to 8 value terms; (b) "linguistic insensitivity," our label for a group tendency to preserve a single meaning for each value term despite radical changes in the group's social or environmental conditions; (c) a tendency to prohibit "interpretive license," our term for individual members' freedom to attribute any degree of polyvalence to the group's value terms; (d) a tendency to display some degree of aggression toward other groups (from verbal aggression to militant action). By way of contrast, we observed that groups displaying an average semantic range of 4 also tended to display (a) an average value vocabulary from 60 to 90 terms; (b) "linguistic sensitivity," a group tendency to adjust the

array the results of our studies of both religious and non-religious value-centered groups on a single axis, most of the religious groups results occupy one side of the axis, but some of the non-religious groups appear among them, while other non-religious groups appeared toward the other side of the axis along with self-described humanistic religious groups. Our conclusion is that all these groups may be successfully analyzed and compared within a value-based system of measurement.

4 Also "obeying prophetic commandments and practices preserved in prophetic utterances, both in words and deeds"; "learning about his personality, life, and deeds, by studying the Prophet's biography"; and "remembering and emulating him as if he were still alive and before you."

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meanings of value terms in response to changing environmental or social conditions; (d) degrees of openness to interaction with neighboring groups; (e) despite initial cautiousness, potential openness to intergroup dialogue or diplomacy should conditions warrant. Finally, we observed that groups displaying an average semantic range of 8 also tended to display: (a) a highly reduced value vocabulary, from 6-10 terms; (b) "extreme linguistic sensitivity," a group tendency to over-react to changing environmental conditions, generating an excessive ranges of semantic choices; (c) "excessive interpretive license," encouraging highly individuated semantic choices; (c) tendencies toward community-wide linguistic dysfunction and social segmentation; (d) no evidence of community-wide policy or shared tendencies toward other groups.

Analytic Vocabulary and Methods. VPA focuses on certain verbal symptoms that correlate reasonably well with testable signs of group behavioral tendencies. We apply the label "value term" to verbal indices of group behavioral tendencies. Value terms are introduced within the languages spoken by a group and defined through indigenous usage. We define the term "value," operationally, as referring to a set of behavioral preferences within a group. We identify value judgments as elements in speech that assert some value of some subject "in the world" (independent of the speech itself), thereby recommending some set of actions in relation to this subject. "Religious groups" are characterized as value-centered groups that practice an exceptional degree of reflection on group values. We classify values as "religious" *when* indigenous groups recommend such a classification. Operationally, VPA examines religious value terms only as they appear in active religious value judgments. Value terms are examined only if they appear in the predicates of such value judgments; this excludes value terms that appear as the subjects of judgments or as members of lists of value terms. VPA researchers establish "baseline" ranges of meaning within a group over a given time period (such as 3-6 months), measuring changes in range of meanings at given times.

Illustrations. As indicated in Figures 1-3, changes in value-term usage are measured as changes in what we label "semantic range," which refers to technical measures of the likelihood that speakers-and-listeners will assign or tolerate any one of nine degrees of change in the character of value-term usage. The following three figures compare semantic range averages from focus groups in three different but closely related religious groups.

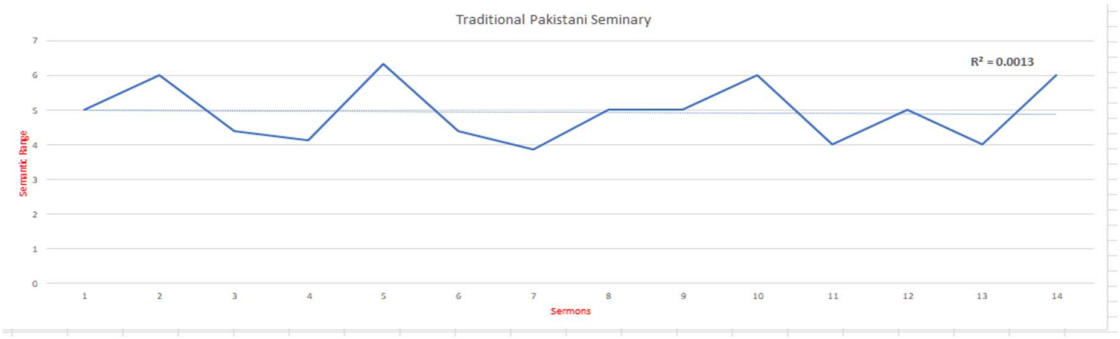

Figure 1. Traditional Pakistani Seminary.

The graph indicates that student groups from a traditional seminary tended to associate significant value terms with from 4-6 different meanings. VPA analysts associate a semantic range of 4-6 with the linguistic flexibility of highly communicative social groups whose languages adapt well with changing social and natural environments and which display modest openness to exploring relations with other groups (at least within the broader range of a given religious tradition). This test result also strengthens our initial hypothesis that groups attracted to intensive, traditional religious text study tend also to avoid aggressive intergroup interaction.

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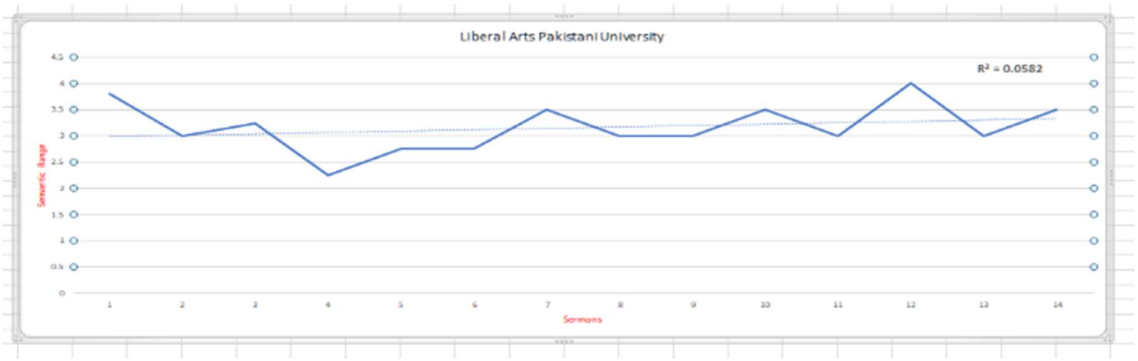

Figure 2. Pakistani Liberal Arts University.

The graph indicates that student groups from a liberal arts university tended to associate significant value terms with from 2.25-4 different meanings: indicative of a narrower linguistic flexibility than was evident in a traditional seminary (Figure 1). VPA analysts associate such flexibility with social groups whose languages do not adapt as well with changing environments as those higher on the scale. The graph also shows a greater variation within the groups, indicative of lower social cohesion than was observed in the seminary and greater tendencies to autonomous value judgments by individual group members. These results strengthen our initial hypothesis that westernization (exemplified in liberal arts education) tends, on the one hand, to reduce the social and behavioral cohesion of religious groups and, on the other hand, to increase the linguistic/conceptual rigidity of individual group members' value judgments.

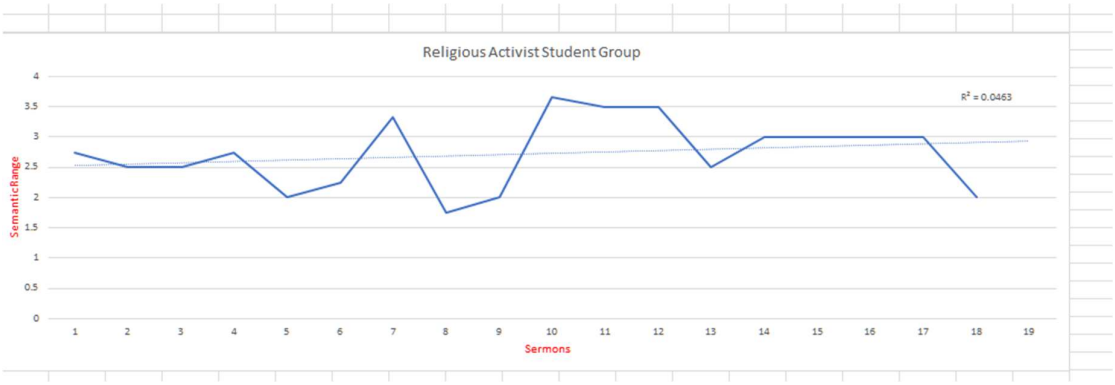

Figure 3. Religious Activist Engineering Students.

The graph indicates that student groups with a mixed cultural and intellectual socialization tended to associate significant value terms with from 1.75-3.6 different meanings. The results introduced us to a category about which we had not yet formulated hypotheses: the linguistic/behavioral tendencies of groups whose members had received rigorous training in both a particular religious tradition and a particular techno-scientific practice. Comparing graphs, we hypothesized that techno-scientific training might decrease, rather than increase, the relative linguistic flexibility of members of traditional religious groups.

Table 1. Comparing Linguistic Flexibility Scores for other Religious and Value-Centered Groups.

Group Name	Description	Low	High	Range	Average Score
ISIS	Radical Islamist	1	2	1	1.1818
Westboro Baptist Church	Fundamentalist Baptist	1	2	1	1.2857
Sea Shepherds	Radical Environmentalist	1	3	2	1.6429

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Liberal Jewish commentaries	Liberal Judaism	1	8	7	3.2340
John Piper	Conservative Evangelical	1	5	4	3.4000
Dorothy Day	Progressive Catholic	2	5	3	3.7647
Traditional Jewish commentaries	Rabbinic Judaism	4	4	0	4.0000
Bahai	Pacifists	1	6	5	4.5227
Integral Yoga	American Yoga community	1	8	7	4.8980
Mehr Baba	Indian Guru	2	9	7	5.3909

Table 1 summarizes the text mining data gathered from online caches of 10 groups. Note differences, for example, between text caches typical of Liberal Judaism (groups exploring contemporary directions in modern Jewish thought and practice) versus those typical of Rabbinic Judaism (groups observing traditional practices of Talmudic study). Text measurements of Rabbinic Judaism displayed the highest degree of consistency of any of our subjects. Liberal Judaism displayed a fairly high degree of variability. This difference strengthens an additional hypothesis of ours: that, contrary to popular opinion as well as to most foreign policy predictions, groups devoted to traditional disciplines of sacred text study tend to display the relatively most balanced practices of linguistic flexibility. Examples are students of Rabbinic Judaism and Pakistani, Muslim seminarians.

Data Science. At the University of Virginia, the data science sub-group of our VPA team spent three years refining natural language processing tools (NLP) that can approximate our manual VPA analyses of texts.[5] NLP codes remain binary, but machine learning technologies enable data scientists to approximate the results of performative sciences that require manual inputs.[6] Training their text-mining program with our VPA field results, the data group discovered that performative programs outperformed non-performative (in our terms, constative) programs such as semantic and sentiment analyses.[7] Running the most successful program (context vector analysis) on large online caches of sermons from a range of religious groups, the group also observed that:

1. Their work "has produced good predictions of flexibility of keywords in religious discourse. [This work] has significantly extended [the results of VPA fieldwork] … and shown that automated systems can be developed to assist in modeling the language flexibility of religious discourse."[8]
2. "Test results show that text mining algorithms can accurately estimate the language flexibility of religious discourse. These results provide evidence that the performative characteristics of language better predict tolerance level than the semantic characteristics of language."[9]
3. "The performative signals, judgments, and pronoun usage of different groups have shown to predict a group's linguistic rigidity score with a high degree of accuracy, when using the RCP team's manual process of document scoring

5 The data group produced two publications:

6 The data group explains:
Natural language processing (NLP) is a range of techniques that allow machines "to analyze, understand, and derive meaning from human language in a smart and useful way" [5]. NLP has been applied to a diverse set of tasks, such as sentiment analysis, translation, and topic segmentation, and it sits at the intersection of many different fields, including text mining [5]. Text mining transforms text into data in order to discover relevant information that can be used for future analysis [6]. NLP is then the methodology that deciphers the textual data in order to gain understanding of the linguistic question at hand. ()

7 Performative programs were able to reproduce our results with an accuracy of up to 91%, while constative programs had accuracies up to 63%.

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> as ground truth. Furthermore, these signals continue to show predictive power when applied to non-religious ideological groups, extending the application of this research far beyond religious groups."[10]

The data team's findings significantly strengthen the primary claims of VPA: that VPA's results are coherent and well-ordered; that its diagnostic methods are reproducible and potentially applicable to a larger domain of group behaviors; and that VPA is both a performative and constative science, whose performative methods identify linguistic phenomena that are not evident in constative studies.[11]

Section 2: A Science of Reading the Signs.

This section introduces a method for identifying how we read the signs of probable, emergent religious conflict. We adopt a conventional definition of science as the systematic study of the natural and social worlds, guided by well formed, field-testable hypotheses and by independently verifiable methods of observation, measurement, data collection, and critical evaluation.

Constative science. Constative utterances make true or false claims, typically descriptive ones. Performative utterances are actions in words, such as the utterance "I apologize," where the purpose of the utterance is to effect worldly relations, in this case social relations.[12] Austin illustrates: "The truth of the constative utterance 'he is running' depends on his being running" (Austin 1962 p. 47). Like Aristotle, the author of such an utterance presumes a direct correspondence between the utterance and something existing in the world. The performative utterance "I apologize" is true if its intended effects – in this case on the utterer and the addressee – occur, for example if both display feelings of relief. Avoiding excessive complexity, we draw a simplified, functional distinction between *constative science* and *performative science*. We argue that a full science of religion-in-conflict would be a performative rather than only a constative science.

VPA includes constative dimensions, including empirical accounts of the primary claims of foreign policy analysts, of writings that urge DOS and DOD to examine religious group behavior in its own terms, of value theorists whose work informs ours, and of methods of training local researchers in the field, of collecting researcher reports, of text mining, of analyzing semantic range data, and of testing and refining SRA measurements. VPA research also draws on an extensive library of constative studies in social and political science, including statistical studies (for example, Demmrich & Huber 2019; Poorjebelli et al. 2014). The distinguishing feature of VPA is not that it omits constative inquiry but that it includes non-constative, performative inquiry, including indigenous field researchers' personal and religion-specific judgments about group values, analysts' judgments about categories of measurement that would best serve the needs of peacemakers, and data scientists' comparative tests of performative versus semantic programs for natural language processing.

In sum, VPA is not a strictly constative science because (a) its measurements integrate constative descriptions of stakeholder group discourse with non-constative interactions with features of the discourse; (b) these features are observable signs of certain relations

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[10]

[11] Semantic and sentiment analyses do indeed identify features of religious group behavior, but not the performative features that are identified through the data group's performative text mining programs.

[12] Austin introduced this distinction in the beginning of his book, only to retract it to some degree by the end of the book, where he removes the notion of constative utterances and replaces it with a complex distinction among different kinds of performatives. True-false distinctions, for example, reappear as one type of what he calls Verdictives. We could restate our distinction between constative and performative science into a distinction among types of Verdictives or between predictors and commanders. But there is no need to burden this essay with such complexity. In a full monograph, we could restate our account of science in terms of his complex distinctions, but Austin's initial, artificial distinction is quite adequate for our purposes in this essay (Austin 1962).

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between judgments by group teachers/influencers and by group members; (c) its measurements are not verified through further observations of the discourse alone, but also through the results of another level of performance: the potential contribution of VPA measurements to the efforts of peacemakers to remediate or prevent incidents of interreligious conflict.

Performative science: Before Austin, Charles Peirce and John Dewey identified performative dimensions of the logic of science, anticipating the founders of early 20th century quantum science, who observed that their science combined elements of classical and nonclassical physics. In our terms, classical physics sought to make only constative claims; nonclassical physics offered performative claims. In 1910 Ernst Mach wrote that scientific claims about objects in the world could not be verified without taking into consideration the effects of different faculties of sense perception (Mach & A. Toulmin 1910). As summarized by Stephen Toulmin,

For Ernst Mach, … the methodology of physics would remain incomplete so long as physicists insisted on looking only outward: rather they should turn their attention back upon themselves and consider more candidly the relationship of their theoretical concepts to their own "sense impressions" or "sense observations." The time had therefore come to adopt a more critical attitude toward the interrelationships between the *observing scientist* and *objects of observation*. (Toulmin 1970)

According to Werner Heisenberg and Niels Bohr's Copenhagen interpretation of quantum theory, the tools of quantum measurement effect changes in the behavior of subatomic particles. (Heisenberg, 1999; Bohr, 1935). Quantum measurement is therefore a product of a space-time-specific relationship between subatomic objects of measurement and the measurement tools. The measurement is in this sense *performative*. This does not mean that it is strictly "subjective" any more than it is strictly "objective." It is a *relation* that has a character of its own, of which the tool and object of measurement are *relata.* We have not introduced these historical notes in order to identify our science of religion as a quantum science but to show that the notion of performative science is not new. Our science integrates performative and constative features just as quantum mechanics integrates features of classical and nonclassical science.

VPA is a scientific method, but it does not deliver only constative claims about facts-on-the-ground, such as efforts to identify *the* causes of a given conflict and then identify ways of removing those causes. The goal of VPA is not even to identify the character of each stakeholder group in a conflict or the actual values that group members hold. All such efforts would be constative, and our researchers agree to this extent with foreign policy analysts: there is no adequate, constative science of religion-in-conflict. VPA is a scientific method because it is guided by well-formed hypotheses and provides field-testable, performative measures that may be independently verified and critically evaluated.

The single most significant difference between VPA and a constative science is that the objects of VPA measurement are not limited to facts in the world but include signs of how focus group members receive and respond to certain facts. VPA analysts measure these signs as probable early warning signals, rather than as direct evidence of near future group behavior. The signs qualify as early warning signals only if, in the judgment of VPA analysts, the signals are strong and precise enough to merit immediate attention by location-specific peacemakers. Peacemakers accustomed to relying on constative evidence need additional training if they want to take advantage of such early warning signals, learning, for example, to work with probabilities rather than clear and distinct facts and to rely on what some call inference to the best explanation (Lipton 2004). rather than classical models of induction and deduction.

Within the space of this essay, we do not attempt a technical analysis of the logic of performative science. Instead we offer an introductory heuristic: an account of how VPA interprets signs beyond the limits of observing facts, measures relations and correlations rather than sets of discrete data, draws inferences from linguistic behavior rather than evidence of bodily activity, and evaluates its results by the degree of its probable contribution to some activity, in this case, on-the-ground interreligious peacemaking,

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Reading the Signs

In this essay, our primary heuristic is semiotic. We illustrate how VPA reads vague or indefinite signs as primary sources of its performative inferences. Our illustration has three levels.

Level 1: *We define a sign, first, as something in the visible world that captures the attention of an observer*. The sign is therefore not a thing by itself nor an observer's curiosity by itself, but (3) a relation between what we might call (1) "the appearance" and (2) "the observer's attention." We need not assign a special number to the parts of this relation, but we find it particularly unhelpful to suggest that there can be only one part (the appearance of an indivisible event) or only two parts (the appearance plus the observer's attention). For those who count parts, we assume that the sign must have at least three: (1) an appearance, (2) the observer to whom this appears, and (3) a unique relation that binds together observer and appearance.

Researchers took notice of VPA's characteristic sign only after some years of examining religious group discourse in a variety of settings, including but not limited to settings of religious tension in South Asia. As they collected new data,[13] researchers narrowed their focus, successively, to linguistic behavior in general, to stakeholder group discourse, to discourse related to values and possible action, to value judgments of teachers/influencers, to indigenous value terms within the predicates of these judgments, to the reception of value terms by group members, to the ways that group members assigned meanings value terms, to the range of different meanings identified by focus groups, and finally to SRA: the average *semantic range* of value terms displayed within each stakeholder group. One key discovery was that analysts could consistently distribute time-specific data from individual members of our subject groups into any one of the nine categories of SRA. Another discovery was that a group's average measure tended to remain the same over several weeks, often up to three months. Additionally, we discovered that the characteristic measures of some groups changed more rapidly than others. In the end, perhaps the most powerful discovery was that such changes appeared to correspond to periods of social tension or other changes in a group's relations to other proximate groups.

Level 2: *On a second level, we define a "possible sign" as the object of an agent's desire, imagination, and will*. VPA researchers were, from the start, looking for something surprising that might enable peacemakers to read early warning signs of religious group behavior. The object of desire was therefore an unidentified, or vaguely identified,[14] practice of empirical research that would enable researchers to diagnose early warning signs of conflict. If successfully field-tested, the researchers' diagnostic tool could strengthen peacemakers' skills to identify such signs early enough –and with enough precision – to enable remedial action before disaster struck. This research could also demonstrate the feasibility of a performative science of religion-in-conflict. In terms of a now expanded model of sign, the researchers searched for (1) something in the appearance of stakeholder group behavior that would (2) attract the researchers' interest, because it might enable them (3a) to develop a scientific method for diagnosing signs of near-future inter-religious conflict and thereby (3b) bring their work into potential relation to on-the-ground religion-related peacemaking. This desire fueled the researchers' successively refined hypotheses about where to look for possible signs and, once found, how to interpret and test them.

Level 3: On a third, more technical level, we distinguish between a two-part, or dyadic, semiotic model of constative claims and a three-part, or triadic, semiotic model of performative claims, adopting the latter as a means of diagramming VPA as a performative science. Our primary heuristic goal is to clarify the difference between a science of facts (which, alone, cannot identify certain religion-specific signals) and a science of facts + indefinite signs (which can). Our second goal is to offer a glimpse inside the interrelated levels of a performative science of religion group behavior. In the essay's concluding

[13] Analysts classified the results of hundreds of manual semantic range studies, accelerated to thousands of texts studied through techniques of natural language processing.

[14] See Level 3.

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section, we reflect on the features of specifically religious group behaviors that might lend themselves more generally to triadic practices of performative science.

A Semiotic Model of VPA

An introductory semiotic vocabulary.

- *A dyadic model* depicts a two-part relation between a *sign* and its *object or meaning*.[15]
- *The triadic model* depicts a sign as a three-part relation among a sign-vehicle (the visible appearance of the sign), and object or meaning, and what Charles Peirce called an "*interpretant*," or the enabling conditions with respect to which a sign refers to its object. Different analysts may choose to identify these conditions in different ways, for example, as sets of presuppositions or socio-historical conditions and so on. The elemental reason for identifying an interpretant is to preclude definitions of sign that generalize meaning beyond the temporal or spatiotemporal context of interpreter's claim.[16]

A four-part model.

(1) A probable sign refers to a group's probable near future behavior toward other groups.

(2) Near future group behavior is a performative sign of the likelihood that location-specific peacemakers would read a group's VPA measurements as an early warning signal of probable conflict.[17]

(3) Early warning signals are performative signs of the likelihood that, having adopted VPA tools, location-specific peacemakers would initiate actions to inhibit potential conflict between the groups in question.[18]

(4) Peacekeepers will most likely employ VPA in the future if actions undertaken in the present case (3) appear to have contributed to inhibiting potential conflict. The validity or value of VPA is measured only by the likelihood of peacemaker trust in the method, which is measured in turn by peacemaker judgments about the contribution of VPA warning signals to successful peacemaking.[19]

For the purposes of this essay, one implication of (4) merits close attention: that the success or failure of VPA is measured by responses from potential peacemakers rather than from other social and political scientists alone. From one perspective, this is not utterly dissimilar to the role of the community of leading scientists within a given discipline in affirming or rejecting new theories or paradigms in that discipline. The difference is that we are speaking of judgments from a community of practitioners rather than of scientists. Is this comparable to including engineers and spaceship builders among those who vote on the success or failure of the new theory in physics? We have two

[15] $S \rightarrow O$. The symbols we use are specific to this essay. For example, → represents signification rather than logical implication.

[16] $S \rightarrow O \mid$ [where $\mid$ marks the interpretant].

[17] $S_n \rightarrow B_g$: A probable sign S_n refers to a group's probable near future behavior toward other groups:
(a) $S_n \rightarrow B_g \mid M_{sra}$: The probable sign is identified through SRA measurement.
(b) $LF_g \rightarrow M_{sra} \mid VPA_c$: SRA measures a group's linguistic flexibility, which researchers identify with constative-statistical measurements of the degree of value-predicate polyvalence in the linguistic behavior of focus group members.

[18] $P_! \rightarrow P_P \mid$VPA: Early warning signals [$P_!$] signify the likelihood that, having adopted VPA tools [$\mid$VPA], peacemakers would initiate actions P_P to inhibit potential conflict between the groups in question. See pp. 18-19.

[19] $P_P \wedge \sim P_! \mid$VPA: Peacekeepers will most likely employ VPA [$\mid$VPA] in the future if actions undertaken in the present case (P_P) apparently contributed to inhibiting potential conflict [$\sim P_!$]. See below, 19-20.

 doi:10.20944/preprints202202.0209.v1

complementary responses. Our primary response is that this case is not comparable, because a science of religious behavior *must* include conditions of practice as part of the scientific method itself. The elemental data of the science must be conditioned by performative questions and answers. From this perspective, a science of religion-in-conflict would not be field testable -- and would most likely include inaccurate claims— if it were conducted as an academic affair, alone, rather than as a partnership between academic researchers and practitioners. Our second response is that, on the flipside, our science of religious behavior would not succeed if it were conducted exclusively by location-specific peacemakers, independently of broader research in such areas as linguistics, semiotics, and comparative religion. In Section 3, we scrutinize our responses in terms of both the field accounts of Section 1 and the semiotics of Section 2. In Section 4, we test our responses in light of broader reflections on the study of religion.

Section 3: Constative and Performative Elements of VPA

On the academic rather than performative side, some may ask how we can pursue a science of what you cannot see. A quick response is to ask how one can have a science of waves that cannot be directly seen, such as ocean waves (of which we see only the movement of water up and down) and light waves (of which we see only the effects). Readers will certainly think of other examples, such as forces of gravity, or electromagnetic fields, or, on the human side, justice or goodness. Perhaps we can agree to this: many disciplines examine visible effects of not-directly visible natural or social causes, tendencies, or laws. Inquirers give names to the antecedents to these effects, as Plato and Aristotle would aver. Over time, specialists have always bickered over the names and the modality of what they refer to, questioning whether they refer to phantasms or substances, potentialities or actualities, realities, or objects of imagination. VPA researchers attend to visible, ethnolinguistic phenomena: group tendencies to attribute one or many possible meanings to what group members call their cherished values or sacred beliefs. VPA analysts adopt a working hypothesis: that it may prove very useful to examine these quantitative attributions *as if* they were the visible effects of ethnolinguistic tendencies that could not be directly observed and as if these tendencies included dispositions to act in certain ways toward other groups. Applying and testing this hypothesis over a decade, we have succeeded in generating well-formed and recurrent classes of data that correspond, within limits of probability, to the possible signs we originally sought. We have successfully field-tested the data in simulated conditions of tension and not-yet violent conflict. We theorize that we would obtain comparable results in conditions of overt conflict, but such testing would have to be sponsored by security agencies. While our work is well received by officers in US and non-US agencies, the innovative character of our science has not yet won the trust of those who oversee funding and deployment.

Working within the scope of our current findings, we devote this section to a concluding, semiotic analysis of the overall coherence of VPA theory, data collection, and testing. Our hope is, thereby, to display the strengths of VPA as a performative science of potential significance for on-the-ground, interreligious conflict prevention and remediation. To do so, we add a second, more technical level of analysis to the four-part model of Section 2.

Part 1: The probable sign S_n functions like a vague or indefinite claim. Consider, first, a vague claim. Peirce offers this example: a claim that "someone in this room is smoking." The claim is constative – "there is cigarette smoke in the room" – and the claim adds an inference: if there is cigarette smoke in the room, then someone must be smoking. The claim can be diagrammed logically as $\exists x[S(x)]$, there is someone such that that someone is a smoker. But the claim is also self-limiting: the claimant does not offer evidence of who it is. In this way, the claim has an indefinite quantifier, $\exists x$, whose domain is any one of several persons (all the persons in the room). The claim is also conditional, implying that "if you search through the room you will find the person who smokes." In sum, a claim is vague or indefinite if it offers an incomplete constative assertion that leaves to the claimant

the responsibility to complete it. Until the claim is completed, the claim refers to (is quantified by) any one of a set of possible entities.

What, however, if the predicate of a claim is vague rather than the subject? The primary signal for VPA analysis is indefinite in this sense: a teacher utters a value judgment whose value predicate is vague: for example, "That text is holy," where holy could be defined in any one of several ways. Such judgments are performative. Our analysis of them falls in the realm of what some call fuzzy logic or multivalued logics. To avoid too much detail, we limit ourselves to Charles Peirce's semiotic account. A few citations from Peirce will warm up the idea of indefiniteness: "the unsettled is the primary state [of things in the universe]…; definiteness and determinateness, the two poles of settledness, are in the large approximations" (Peirce 1909); "Color is also something essentially vague, for the color of an object is the admixture of lights necessary to producing the same chromatic effect…. Even normal eyes receive quite different chromatic sensations from the same objects… Color, therefore, is quite a remarkable vague quality" (Peirce 1909); "No words are so well understood as vernacular words…; yet they are invariably vague….This is emphatically the case with the very vague word 'God,' which is not made less vague by saying that imports 'infinity,' etc. since those attributes are at least as vague…. Every concept that is vague is liable to be self-contradictory in those respects in which it is vague. No concept, not even those of mathematics, is absolutely precise" (Peirce 1906) . Peirce adds that instincts and indubitable beliefs are invariably vague, yet "are far more trustworthy than the best-established results of science, if these be precisely understood" (Peirce 1906). Returning to our semiotic account, Peirce writes,

A sign… that is in any respect objectively indeterminate (i.e., whose object is undetermined by the sign itself) is objectively *general* insofar as it extends to the interpreter the privilege of carrying its determination further. Example: "Man is mortal." To the question, What man? the reply is that the proposition explicitly leaves it to you to apply its assertion to what man or men you will. A sign that is objectively indeterminate in any respect is objectively *vague* insofar as it reserves further determination to be made in some other conceivable sign, or at least does not appoint the interpreter as its deputy in this office (Peirce 1905).

In these terms, VPA is founded on the discovery that religious stakeholder groups' cherished values display degrees of vagueness, each degree corresponding to a prelimited range and quantity of meanings that the group tolerates or encourages. Individuals may assign meanings to the group's value terms, as long as those meanings fall within this range and quantity. A second founding discovery is that a group's characteristic range of meanings changes in response to environmental conditions, especially in response to the presence or absence of intergroup tension. Groups that are more aggressive or defensive restrict the range and quantity of meaning, potentially down to one required meaning. Groups that lack corporate cohesion relax the range and quantity of meanings. Groups that adjust more readily to changing environmental conditions and that display greater intergroup communicative skill also display an intermediate or balanced range and quantity of meanings.

Part 2: We identify a group's near-future behavior with its near-future linguistic behavior, assuming that all group dispositions toward other groups will be displayed a priori in group discourses, especially in value-related discourses. Sudden reactive behavior by group members falls outside the purview of VPA, because it also falls outside the groups' linguistic proclivities. Practically speaking, we cannot envision any way that peacekeepers could anticipate such behavior, except insofar as the likelihood for such behavior attaches to the groups' linguistic proclivities. Testing for such likelihoods falls within the work of VPA. Researchers may anticipate, for example, that groups registering quite high or quite low on the scale of linguistic flexibility would be more likely to include members who are relatively more liable to such reactive behavior. While groups displaying SRA of 7-9 are not likely to display corporate behavior of this kind, they are more

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likely to include individuals or small subgroups whose proclivities *are* discontinuous with those of the majority of group members.

Part 3: Part 3 illustrates the academic-and-practical nexus of VPA. VPA science is at once academic, in its pursuit of a dispassionate study of stakeholder group behavior, and performative, in its desire to contribute research that would strengthen interreligious peacemaking efforts on the ground. This dual service provides enabling conditions for VPA's abductive activity, that is, its effort to formulate field testable hypotheses about religious group behavior. It is because of their desire to serve peacemaking efforts that VPA researchers searched, beyond the assumptions of current social and political science, for possible early warning signals of conflict. We labeled the object of their search a "possible sign." As researchers examined religious group behavior, this possible sign served as criterion for measuring what would qualify as a potential peacemaking signal and, therefore, what would merit further investigation. If this method turned up no potential signals, then there would remain no significant semiotic link between the researchers' inquiry and their idea of a possible sign. As it turned out, potential signals were identified, refined, and field-tested, resulting in the VPA model described in this essay. As a product of current research, the VPA model integrates features of both the possible sign (a performative object of researchers' desire to serve peacemakers) and useful evidence collected from the field and analyzed (a constative-and-performative object of the researcher's science). The possible sign is a necessary (albeit non-sufficient) condition for framing VPA hypotheses.

Part 4: Part 4 demonstrates the coherence of VPA. "$P_P \wedge \sim P_!$ | VPA" models a potentially successful, three-dimensional product of VPA science, indicating that, if successful, the science would serve as interpretant (| VPA) of interreligious peacemakers' efforts (P_P) to identify and inhibit emergent conflict (that is, to negate or obviate conditions of conflict, $\sim P_!$). A more complete model would distinguish degrees of linguistic flexibility, between SRA 1-2 (signals of strictly monovalent readings of group value terms) and SRA 7-9 (signals of excessively polyvalent readings of group value terms) polyvalent SRA signals.[20]

Model 1 identifies monovalent readings with determinate claims that conform to the principle of non-contradiction [$O_T \vee \sim O_T$] and polyvalent readings with indefinite or vague claims that do not conform to that principle [$\sim (O_T \vee \sim O_T)$].[21] Model 2 identifies the VPA interpretants of conflictual behavior, which appears as P! in the terms of Section 3; within this model it appears as ∑e, where the disposition to such behavior appears as a sum or class of problematic behaviors "e." Thus, | Ip=∑e [Where e=error/disposition toward conflict]. Model 3 identifies the elemental features of successful peacemaking or repair.[22]

Our models make use of unconventional symbols whose meaning and force may become clearer in Section 4. The purpose of such models is to construct and thereby demonstrate a consistent and coherent theory of VPA, supported by the imitable system of data collection introduced in Section 1, and by our methods of field-testing. In this way we hope to offer evidence of how VPA functions as a performative science. The success or failure of this science is, of course, another matter. Our field-test results are encouraging; the next step is testing by peacemakers.

Section 4: applying VPA theory to more general accounts of religion

VPA is useful in testable, localized applications. Such applications offer no account of the nature of religion in general or of the essential character of a particular religion and a particular set of values. The force of the science is displayed only in its practical use. At

[20] The following three models are adapted from

[21] The model is $T_{scr} = (S_T \rightarrow O_T \mid I_c$, where O= ___ • and where $O_T \vee \sim O_T) \vee (S_T \rightarrow \sum (O_T \mid I_{cy}$, where $\sim (O_T \vee \sim O_T))$.

[22] $(S_1 \rightarrow O_e) \rightarrow [\ (S_1 \rightarrow O_e \mid I_e) \rightarrow (\mid I_e) \rightarrow \sum (S_1 \rightarrow O_r \mid I_r) \mid I_p$ [where O_e = a disposition toward conflict, functioning as the object of warning signal P!: $S_1 \rightarrow O_e$; I_e= a disposition to conflict, functioning as the interpretant of a group's problematic behaviors; O_r= a repaired or inhibited disposition, functioning as the object of peacemaking P_P; I_r= repaired or inhibited disposition.

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the same time, while planning research and field testing, we find it useful to construct plausible explanations of the kind of worldly conditions that could supply useful data for such a science. We recognize that, in constructing these explanatory narratives, we seek to reassure ourselves that our work, however innovative or unconventional, is not out of touch with reality. If we could not imagine a world that could warrant our science, we wouldn't trust our efforts. At the same time we recognize that our narratives are as fallible as our science. We are therefore prepared to adjust our narratives according to what we learn in the field as much as we are prepared to adjust our field practices to accommodate our most reasonable narratives. To reiterate, our narratives are not an attempt to imitate some static reality; they are functional just as our science is functional. For that reason, we do not offer a single broad and static narrative by way of conclusion to this essay. Instead we offer samples, drawn from our evolving narratives, that illustrate how, from the perspectives of different field locations, we might have imagined religion and religion-related behavior working in the world. We offer these samples so that readers may test how well our models of VPA might complement conceivable accounts of how religion and religious behavior work in the work. Minimally, this exercise may help readers visualize the meaning and force of our models -- or the lack thereof! Each sample is presented as a principle that would apply if the world corresponded to VPA observations. In this section, we will use the symbol religion$_b$ to refer to features of both religion and religious behavior.

1. *Scientists of religion$_b$ will not be able to identify general or universal features of religion and religious behavior. They may, however, identify what Wittgenstein called family resemblance classes,*[23] *constructed out of sets of features that are observed in various spacetime specific locations.* It is possible, moreover, that individual features observed in one location may also appear in many locations; in this sense, such features are neither strictly-localized nor universal. As in many worldly phenomena, empirical observations begin locally and, within the limits of empirical evidence, suggest broader applications.

2. *Religious or value-centered*[24] *beliefs correspond to habits or regularities*[25] *of worldly behavior that may not be directly visible.* To identify such patterns, scientists of *religion$_b$* must (a) engage in extensive empirical studies of visible behavior, (b) reason abductively to generate potentially field-testable hypotheses about habits or regularities of behavior that, if posited, would enable scientists to correlate features of visible behavior with features that have not yet been observed, and (c) test and refine such hypotheses with respect to ongoing field observations.

Such research is best conducted locally. VPA researchers have gotten most reliable results when working with one modest-sized group (from 200-4000 members) at a time, over a finite period of time. VPA researchers have observed changes in a religious group's linguistic behavior after about three months, so that evidence about significant group tendencies would need to be refreshed every three months. In periods of social unrest or intergroup tension, evidence would need to be refreshed more often, even daily in contexts of violence. VPA researchers have gathered less reliable data from populations over 4000. Researchers hypothesize that such populations include sub-communities that display significantly different habits of behavior that may, in fact, resemble neighboring sub-communities professing different religious traditions than more distant sub-communities laying claim to a common religious tradition.

Habits observed in one location may not, therefore, offer reliable information about the behavioral tendencies of groups from other locations that profess the same religious tradition. To profess a religion may mean, simply, to attach a presumably generalizable name to a local group practice: whether naming a tradition (such as Judaism or Islam), a denomination (such as Conservative vs Reconstructionist Judaism or Shia vs Sunni Islam, a legal school (such as Hanafi vs Hanbali), or devotees of a unique religious leader or institution.

23 Introduced by others, the term's use was most famously extended in (Wittgenstein 1958).

24 In Section 4 all references to religious beliefs and values also apply to phenomena observed in value-centered groups.

25 In Section 4 we will use the term "habit" to refer to habits or regularities or patterns.

 doi:10.20944/preprints202202.0209.v1

3. *Read the signs: Visible features of religious group behavior may serve as indefinite signs of underlying habits of behavior.* In this sense, religion$_b$ sciences seek to identify verifiable correlations between visible signs and nonvisible habits. As noted earlier, the semiotic formula $S\rightarrow O\,|$ may serve as a template for identifying the elemental objects of religion$_b$ science: from the perspective of religion$_b$ science ($|$), certain features of visible behavior (S) signal correlative features of underlying habits of behavior (O). The non-binary character of this formula identifies religion$_b$ science as a performative science in contrast to a strictly constative science, whose dyadic formula would lack an explicit interpretant: S→ O. The non-binary formula is a useful instrument for identifying sciences whose objects include possible signs. Religion$_b$ science is an empirical science that includes both possible and actual signs. As noted earlier, possible signs are indefinite signs, referring to any one of a set of possible objects $[\sum_1^\infty o]$; the interpretant of the science indicates the conditions with respect to which a scientist has, per hypothesis, selected a finite subset of such objects, $[S\rightarrow \sum_1^n o]\,|$ religion$_b$ science].

4. *The most readily observable object of religion$_b$ science is linguistic behavior*. Religion$_b$ science may examine many forms of non-linguistic behavior, but language use is, for several reasons, the most economical subject of study. Language use is ubiquitous among group members who are not incapacitated. Initial levels of language use are immediately observable through spoken or written signs. As noted, it is possible to correlate visible signs with nonvisible habits of group linguistic behavior. Language use is amenable to both qualitative and quantitative scientific observation; SRA offers a prototype of the latter. Everyday language use displays features of both constative and performative linguistic behavior. Performative use is correlative to an individual's displays of emotion, sensibility, desire, purpose, authority; to an individual's probable participation in a broad range of relations and of shared practices; and to all aspects of group performance. For VPA science, the most important performance is a group's disposition to act in certain ways toward neighboring groups. *VPA's foundational discoveries are that these dispositions are correlative to certain classes of linguistic behavior and that there is no need to search for additional ways of correlating these dispositions to types of on-the-ground physical action.* The latter discovery may be most surprising to readers. It is that, for the sake of identifying early warning signals of probable conflict, there is no need for VPA scientists to concern themselves with a group's non-linguistic dispositions. There are two reasons for this. First, evidence of physical behavior would come too late for peacekeepers to take action to prevent conflict. Second, it is highly likely that a group's corporate tendencies to act will be displayed linguistically prior to and during any physical performances by the group. This is because corporate actions are necessarily intentional, since any unintended actions would not attach to the group per se, but only to individuals or collections of individuals. Intentional action is invariably displayed linguistically or in forms that translate directly into the vocabularies and syntax of group discourse.

5. *The most readily observable object of religion$_b$ linguistic science is the linguistic expressions of a group's most cherished values, including value judgments and value-specific readings of group codes and instructional narratives.* We employ "value" as an analytic term for use in religion$_b$ science; only group members – ideally group teachers/influencers – can identify indigenous words and behaviors that, per hypothesis, scientists identify as elements of a group's value discourse, which serves as the primary medium through which group influencers/teachers influence on-the-ground group behavior.

6. *Value predicates.* In this essay we focus on value predicate analysis, but it would be reasonable to pursue many other types of value-related analysis as well.[26] After collecting

[26] Here is a sample of instructive prototypes for such study:
In Jewish values studies: Max Kadushin's many studies of "rabbinic value concepts" and Vanessa Ochs's studies of "Jewish Sensibilities." For example, (Kadushin 1973; V. Ochs 2006; V. Ochs 2003).

 doi:10.20944/preprints202202.0209.v1

data for SRA, we have begun to field-test three other genres of value-based diagnostics. While our results are not yet ready for publication, we have encouraging data from analyses of narrative genres, of subgroup efforts to push for changes in value meanings, and of several types of what we call meta-discourse (evidence of structural changes in how a group organizes and defines its elemental value terms).

7. *Polyvalence and monovalence in religion$_b$ discourse*. Our studies of linguistic flexibility are quantitative measures of polyvalence: from an SRA measure of 1 (strict monovalence) to 9 (excessive polyvalence). Religion$_b$ scientists may find such quantitative measures of greater significance than conventional efforts to characterize religious groups as more vs. less tolerant, often associating more with greater goodness. VPA analysts do not seek to identify the reason for a group's engaging in conflict or disengaging: the reason may be aggression, or a defensive response to unjust oppression or invasion, or something else. The purpose of VPA is to provide signals of use to peacemakers, whose own purposes, values, and prudential judgments condition decisions about when and how to act on VPA measurements.[27]

8. *The purposes of inquiry*. Among the enabling conditions of any project of religion$_b$ science is an explicit purpose. The purpose of VPA is to provide diagnostic tools for interreligious peacekeeping. Another religion$_b$ project might examine metaphors for nature in a sample of contemporary Lutheran theologies; the research team's goal might be to measure the soft power of literary tropes in shaping a denomination's ecopolitics; and the purpose might be to encourage religious ethicists to pay more attention to religious politics. Another project might seek to provide a coherent Lutheran theology of the natural world, with the purpose of strengthening Lutheran commitments to climate change. We mention the latter to illustrate that religion$_b$ science could serve denomination-specific purposes as well as academic discipline-specific purposes. A Lutheran and a religious studies research team might make overlapping observations about recent Lutheran writings, but they might reach different conclusions drawn in the service of different purposes of inquiry. The different conclusions would not reveal contradictions between scientific and religious inquiries but would mark different objects of inquiry correlative to different interpretants: $S \rightarrow O_{Le} \mid_{L}$ vs. $S \rightarrow O_{rp} \mid_{rp}$. One team read certain Lutheran texts (S) as possible signs of Lutheran environmental sensibility (O_{Le}); the other read those texts as possible signs of the force of religious politics (O_{rp}). The readings are different, but not contradictory.[28]

Conclusions

We conclude by summarizing lessons learned from a decade of research on Value Predicate Analysis:

- *In regions prone to conflict, modest-sized religious groups can be identified and engaged through ethnolinguistic and group-self-reflective studies.* It is therefore possible to identify specifically "religious" groups in the field. Such groups inhabit finite geographic spaces. It is possible to engage such groups in ways that are specific to the socio-linguistic character of the groups, as measured through VPA.

Christian value studies: Gary Comstock's uses of Kadushin's value concepts, Stanley Hauerwas's ethics. For example, (Comstock 1990; Hauerwas 2001)
Muslim value studies: Studies on purposes of the law, for example, by Felicitas Opwis, Rami Koujah, Anver Emon, David Johnston, and Andrew March. Studies on sources and logic of the law, for example, Ebrahim Moosa, Sherman Jackson, Mohammad Fadell, Anver Emon, and Khaled Abou El Fadl. See for example (Abou El Fadl 2014).
Philosophic studies: John Dewey, Max Scheler, John Deely. For example (Dewey 1938).

27 VPA reports include recommendations about the range of peacemaking actions that might be signaled by VPA measurements. Choice of action would be relative to field conditions.
28 They are logical contraries, not contradictories.

 doi:10.20944/preprints202202.0209.v1

- *It is possible to train local, stakeholder group researchers, who gather appropriate data within their own religious groups and engage in mutually meaningful communications with region-specific researchers.* It is possible to generate field projects that would, without duplicity, serve the immediate interests of local, focus group members. *Non-specialist researchers and local researchers can successfully collect linguistic data needed to measure SRA within such groups:* they can regularly identify value-judgments and value-predicates within group discourse and record group-member judgments about the meanings of those value-predicates.

- *It is possible to collect ethnolinguistic data that would contribute to the work of region-specific peacemakers addressing conditions of conflict among religious groups.* While we have not yet conducted field test in locations of violent conflict, we have received promising results from field tests in environments of simulated conflict, along with encouraging reviews from Army Civil Affairs Officers returning from conflict in South Asia.

- *The practices of VPA conform to general standards of scientific method, including well formed, field-testable hypotheses and independently verifiable methods of observation, measurement, data collection, and critical evaluation.* At the same time, the practices are atypical in that they include elements of performative inquiry. Because we identify VPA as an atypical science, and because we identify which elements of VPA are performative and which are constative, we do not claim more or less than can be achieved through such a science. We do not claim that it can, overall, deliver true or false claims about the character of a religious group's values or about the patterns of behavior the group will display. At the same time, we present evidence that this science can potentially serve its overall purpose of enabling peacemakers to anticipate probable stakeholder behavior toward other groups before there is explicit evidence of such behavior on the ground.

- *Extending lessons learned within the practices of VPA, researchers may discover other ways to construct and employ performative-and-constative sciences of religion.*

- *There are many lessons yet to be learned*, including lessons from broader field tests of VPA and of cognate sciences of religious group behavior. There is reason to experiment with additional varieties of purpose-specific sciences of religion, weighing the merits of a given purpose against the constraints of context-specific applications and degrees of uncertainty. There is also reason to be highly disciplined in the construction and testing of such sciences and reason to be cautious about misuse or misrepresentation.

Funding: Research by the Value Predicate Analysis team has been partly funded over 11 years by Henry R. Luce Initiative on Religion in International Affairs; University of Virginia Center for Global Inquiry and Innovation; University of Virginia Board of Visitors' Strategic Investment Fund and the Office of the Dean of the College of Arts and Sciences; and the UVA Initiative on Religion, Politics and Conflict.

Institutional Review Board Statement: Obtained exemption for human subject research on April 20, 2017, from the University of Virginia Institutional Review Board.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not Applicable.

Acknowledgments: Guidance from: The Religion Working Group of the U.S. Department of State Bureau of Conflict and Stabilization Operations (CSO); Jerry White who, as Deputy Assistant Secretary of State stimulated our initial work and then reviewed subsequent developments; Henry R. Luce Initiative on Religion Director Toby Alice Volkman; dozens of researchers, analysts, data scientists and the two hundred and fifty undergraduate interns who have contributed to VPA research over the past eleven years; our contributing scholars Nauman Faizi, Zain Moulvi, Jonathan Teubner, Donald Brown, Qibla Ayaz, and, most recently, Caitlin Kwalwasser and field manager Sabookh Syed.

Conflicts of Interest: No conflicts of interest.

 doi:10.20944/preprints202202.0209.v1

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