

Redesigning Design; An Invitation to a Responsible Future

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Overview

This essay proposes new contours for design as a profession in a world whose industrial products have become more and more language-like and incommensurate discourses compete with one another for hegemony - the *design discourse* being merely one of many. It takes design to be constituted (that is, defined with) in processes of languaging. It calls on us to recognize and act in the awareness of how our discursive practices identify us as the experts we are, create the objects of our concerns, and provide us with a vocabulary to communicate or coordinate our actions relative to each other.¹

The motivation for this essay stems from the far too common experience that whenever designers do work with their counterparts from the so-called 'harder' disciplines, professionals who can argue with statistics, with experimental findings, with calculations or from positions of administrative authority, they most often lose out. Examples are abound.² I conclude from them that, first, designers often are preoccupied with products when what matters is how their ideas occur in talk, in clear presentations, in hard evidence, and in compelling arguments. It is communication that makes a difference and gets results. Second, design is foremost conceptual and creative of future conditions. Dwelling on existing facts often inhibits and is generally less important than the ability to bring a multiplicity of people to recognize the benefits of collaborating in the realization of new ideas. Designers are bound to fail when they do not act on the premise that their conceptualizations must make sense to those that matter. Third, the success of famous designers is based primarily on carefully nourished publicity, personal connections, or longtime working relationships with clients. The visual qualities and functionalities in terms of which

¹ The insight that we humans, whether as ordinary people, as professionals or as scientists of one kind or another, are living in language is the starting point of several philosophers such as Martin Heidegger, Hans-Georg Gadamer, Ludwig Wittgenstein and Richard Rorty. I can not review their ground and must go on here.

² The version of this essay which was presented to the conference included five examples, among them Robert Blaich's account of how Philips' well known Roller Radio almost didn't come to be. See Robert Blaich (1990), *Forms of Design*, pp. d1-d14 in Seppo Väkevää (Ed.), *Product Semantics '89*, Helsinki: University of Industrial Arts.

designers justify their work are never obvious and mostly derivative of their social standing. Forth, facing increasingly sophisticated stakeholders in material culture, designers' claim of possessing superior visual sensibilities has lost much of its appeal and is easily countered even by entirely irrelevant but voluminous data, impressive calculations, predictions, or business arguments. In sum, current *design discourse has lost much of its rhetorical strength*. I contend that this need not be so.

With this in mind, my essay explores what makes engineering (including ergonomic), sociological (including marketing), and economic (including business) discourse so compelling and what makes current industrial design discourse rather easily discountable, wherever they happen to meet. Against the emerging knowledge of how discourses behave, this essay then locates several weaknesses, I am inclined to say "*pathologies*," inherent in design discourse, and ends up proposing ways of overcoming these.

At the center of this proposal is an astonishingly simple *axiom for industrial design*, one that is at least as irrefutable as the axioms of other disciplines with whom designers typically need to collaborate. This axiom holds the promise of an indigenous vocabulary that could make design discourse compelling, gives rise to new research questions, even to a new science for design, suggests a unique identity for designers, and thus creates exciting possibilities heretofore unavailable.

Discourse and professional design discourse

Notwithstanding dictionary definitions,³ I see discourse as a particular way of languaging, as a social phenomenon with a life of its own. In languaging, people talk and listen to each other's voices, acquire their identity, coordinate their behavior relative to each other and produce or reproduce what matters to them, both individually and jointly. Writing is merely one way of languaging. Discourse is not coextensive with natural

³ Dictionary definitions typically refer to bodies of literature, to organized writing. They ignore the writer and the community that makes contributors to this literature into writers and assigns meanings to their work. Additionally, the traditionally outstanding contributions by designers are visual and tactile, not linguistic, which requires rearticulations of what their discourse does.

language. For example, designers can more easily talk with designers speaking another language, especially with the help of drawings and models, than, say, with professional athletes, pharmacists or theologians speaking the same language. We are confronted with a postmodern world that consists of many incommensurate discourses.⁴ With the notion of languaging we overcome the Cartesian dualism, (e.g. the semiotic two-world assumption); we overcome disembodied notions of language (e.g. as a formal system of representations); we take account of how real people (not convenient statistical abstractions of them) actually do use language in their lives; and, we acknowledge the fundamentally constructed or artifactual nature of the world. As a form of languaging, discourse provides us with new and powerful foci for social analysis quite different from Marxian social classes, anthropological constructions of linguistic communities, Weberian bureaucracies, all of which homogenize people, interactions, and relational practices.

From this radically new understanding of discourse,⁵ I am sketching a five-dimensional definition - concerning its textual matter, its community, its institutionalization, its boundary, and its justification to and by outsiders - and illustrate each with how the practices of industrial designers appear in them.

(1) A discourse surfaces in a body of textual matter. Textual matter is the literal heritage of a discourse. It consists of artifacts, records, literary works or, simply, texts left behind for subsequent (re)⁶examination, (re)search, and (re)articulation. Its "body" nature, the connections between texts or its *intertextuality*, is apparent in
(i) the recognition of distinct vocabularies, enabling users to see different texts or artifacts as composed of recognizable families of components,

⁴ I am not referring here to an architectural style but to a sociological account of knowledge. For example, see Jean-Francois Lyotard, *the Postmodern Condition: A Report on Knowledge*, Minneapolis MN: University of Minnesota Press, 1984.

⁵ I like to acknowledge the formative role of the conceptions by Ludwik Fleck, *Genesis and Development of a Scientific Fact*, Chicago IL: University of Chicago Press, 1979; J. Lyotard. Op. cit. 1984; Siegfried J. Schmidt, *Literaturwissenschaft als interdisziplinäres Vorhaben*. Schriften #30. Siegen: Institut für Europäische Literatur und Medien Forschung der Universität-Gesamtschule Siegen, 1991; and Ian Parker. *Discourse Dynamics*. New York: Routledge, 1992. Against these dynamically oriented and comprehensive approaches, I find the conception of "discourse analysis," focussing almost entirely on the critical reading of texts, for example in Teun A. Van Dijk (Ed.) *Handbook of Discourse Analysis*. Volumes 1-4, London: Academic Press, 1985, far too objectivist in intent and limiting.

⁶ I am using parentheses to suggest easily forgotten meanings, for example in the double reading of "(re)search" as both "search" and "repeated search."

(ii) the use of quotations, citations, references or pointers within one text to others,
(iii) the presence of (re)- or (over)views, (hi)stories, (re)search literature, indices, and citation studies, all of which organize portions of that textual matter into distinct bodies, and
(iv) its openness to divergent readings, new interpretations, creative (re)articulations, and additions, thus, in a living discourse, the textual matter is *never complete or finished*.

What industrial design leaves behind as "texts" consists first of all or most obviously of designed objects, collected in museums, displayed for sale in stores, arranged in spaces of everyday living or work. Such "collections" or *bricolages*.⁷ have their own orderliness, its parts being arrangeable in historical sequences, by commonalities, by origins (e.g. by designers, producers or cultures), into working systems, etc., all involving humans in various capacities. They always are constructed and consensual. The role artifacts are seen to play in them contributes to their meaning and their passage from one bricolage to another contributes to their history.

An important aspect of any discourse is its *vocabulary*. It creates a structure within textual matter that is based on selectively (re)cognizing similarities in the compositions or usages of artifacts: (re)combinable and (de)composable forms, components or assemblages, much like words, and syntactic structures. The vocabulary of industrial designers stems from several sources, predominantly from the arts (e.g. aesthetic qualities of form, materials, surfaces, expressions, styles, periods, schools, artists as individual creators), crafts (e.g. workmanship, materially appropriate forms), engineering (e.g. structure, function, technology of mass production), ergonomics (e.g. efficiency in performance, manipulability), advertising (e.g. average consumer, creatable motivation, purchasing power, market forces), popular culture (e.g. generations) and, of rising importance, from software manufacturing (e.g. the emerging linguistic standards for interfacing with computers).

Publications probably are the more important ingredients of any textual matter, here: books, magazines, journals or newspaper articles, exhibition catalogues, biographies of designers, documentations, histories of design, etc. These texts organize the presentation of artifacts (not to be confused with the artifacts themselves), refer to other publications, establish connections within textual matter, thus introducing *discourse-typical intertextualities*. As with the origins of the vocabulary of design discourse, its publications are authored largely from art historical perspectives and tend to arrange products, as would be expected, in terms of styles, schools, designers, periods and other traditional categories, typical for

⁷ This term stems from Claude Levi-Strauss (1966). *The Savage Mind*. Chicago: University of Illinois Press.

museums and other curatorial intentions. There also are sociologies of design, cultural anthropological accounts and studies of the technological influences on celebrated forms, not to forget the manifestos of particular design movements, and most recently a book on *The Psychology of Everyday Things*.⁸

While most of the larger libraries and bookstores have sections on architecture and design, the intertextuality of design discourse is very different from that of other discourses. In medicine, for example, which is a very practical discourse, much like design, and relies heavily on pictorial matter as well, there exists a far more impressive volume of textbooks, research journals, and scholarly books that continuously (re)present the changing medical knowledge and update its vocabulary, both of which must be mastered by its professionals. Each addition to the textual matter of medicine responds to or builds upon prior texts and acknowledges findings as stepping stones on one's own path to such additions. Consequently, in medicine, virtually every text is directly or indirectly connected to every other text. Medical procedures, medications, instruments, tests, research reports, etc. are all cross-referenced and mostly supportive of each other. Much of medical research aims to weed out inconsistencies within its textual matter and to define the problems to be solved. It is not the greater volume of literature but the rich network of interconnections in medical writing that accounts for the amazing ability of medical professionals to be able to retrieve or (re)search everything known about medicine.

In design, by contrast, there are no widely accepted textbooks, dictionaries or reference works that could provide a sense of coherence and the kind of connectedness that enables efficient access to its textual matter, at least not from the perspective of practicing designers. There are hardly any commonly accepted exemplars of design processes that students could (re)examine and learn from. Although there are journals on design, many of its articles are written by non-designers, and as mentioned, art historians are the main contributors to design talk. Even after nearly a century of its existence, industrial design still lacks a *scholarship* of its own. The intertextualities that do emerge under these conditions further the discipline that creates them but provides little intellectual support for design. Other discourses can be said to *colonize* and confine design discourse. Consequently, much information on past design practices stays irrecoverably lost.

To avoid the equation of discourse with text, typical of "interpretism," I insisted that discourse "*surfaces* in textual matter." The remaining four dimensions concern what is below its surface.

⁸ Donald A. Norman (1988). *The Psychology of Everyday Things*. New York: Basic Books.

(2) A discourse is kept alive within a community of its practitioners in whose conversations

(i) textual matter is continuously (re)read, (re)written, (re)produced, (re)searched, (re)articulated, elaborated or rejected. A community continually (re)generates its textual matter and acquires the character of a dynamically connected diversity.

(ii) textual matter remains not only meaningful to or understandable by members of a discourse community, each in its own terms, but, because of their necessary bodily involvement in other discourses, textual matter is also being validated by remaining in touch with certain (largely backgrounded and generally unattended) other-discursive lives these members have as well: bodily (e)motions, sensoria, live stories (memories), and communication with practitioners of other discourses.

(iii) Members of a discourse community continually test each other's commitment to it, learn from each other's practical successes and failures and generate motivation for their participation.

Poetry, for example, does not reside in text but in its being performed in the presence of Others, in its being read and listened to. Material artifacts similarly come to live in use, in their being woven into stories that are told and retold by their users, in public celebrations, and in their connection to the mythologies of a culture. Things nobody cares about have little or no meaning. The communal involvement in textual matter need not be conscious to insiders. Poets may attend to their works as texts while enjoying the fruits of their significance with the help of readers.

The *design community* is constituted as a network of diverse stakeholders among which at least five kinds may be recognized.⁹ These are the *designers* or core practitioners (who invent ideas for intervening in the human interfaces with artifacts), the *interpreters* (who largely talk or write about design and offer journalistic or scholarly accounts of design accomplishments, people, ideas, histories and trends), the *jurors* (who decide which products to produce, exhibit, advertise or talk of), the *legislators* (who seek to institute design standards - whether to uphold certain qualities, certify members or adjudicate ethical conduct, avoiding plagiarism for example), and finally knowledgeable *users* (not just consumers or end-users, but all those "lay" persons who claim a stake in the manifestations of design). Obviously, these are not of equal influence within a community nor need they share the same knowledge, interests, or values. Their network is held together as long as processes of design and talk of

⁹ Other discourses make quite different distinctions within a community, see L. Fleck (1979), Op. cit. for an example of distinctions in the discourse of science. The point of such distinctions is to highlight the existence of diversity and stratifications of most discursive communities instead of the usual emphasis on commonalities, what community members share.

designs, of designers, and of designing continue. Communication, not commonality, keeps the design discourse "alive."

This very conference exemplifies design discourse in action. Here, papers are presented and discussed, design ideas are analyzed, related to each other and assessed from different perspectives, and things are categorized and made sense of in public. Only in *conversations among real people*, with their own (often only partially articulated) feelings, with their own histories of involvement with one another, do designs acquire their meanings and their significance, and bring a design community together. Meanings are not fixed (intrinsic) correlates of form (as assumed by a semiotics that favors statements like "X stands for Y," or "X is a sign of Y"). They emerge, are maintained, or retired in conversational/cultural contexts and shift with them in time.

Unfortunately, current design discourse is not very supportive of its community. One reason is the largely (auto)biographical artifact of the designer as a lone, artistically creative and publicly visible *genius* who is far ahead of his or her time. In fact, such designers, rare as they may be, usually derive their visibility and aesthetic influence from being promoted by influential producers or corporations who need them, much like medieval court artists were adopted by rulers to hide their power behind cultural concerns. This ideal, pursued by many but achieved by few, is hardly supportive of a viable design community. It conceals both the hard work that goes into design research and practice and the actual failures that could enter the stock of professional knowledge and be instructive to other designers. Its individualism marginalizes the collaborative or dialogical nature of most design accomplishments and retards knowledge of successful team methods in design. It also sidesteps the political and managerial skills by which good designers become who they are. The self-serving fiction of the ingenious designer seems almost parasitical on the very discourse community without which he or she can hardly be.

The present weakness of our design discourse community can also be traced to the fact that designers are very *competitive* among each other, even where challenging problems and resources are not scarce. In discussions, designers habitually put other designers down, into unfavorable categories and near the margins of their own community. One rhetorical strategy is to question each other's artistic sensibilities. This is all the more devastating as most designers claim such sensibilities as part of their identity and objective standards by which disputes concerning them could be settled can not exist by their own definition.¹⁰ A second strategy is to outdo each other

¹⁰ This fact demonstrates the rhetorical nature of most aesthetics. The fact that aesthetic sensitivities are acquired does not deny the reality of perceptions for those claiming to possess them, sensitivities are always claimed or denied, either of which are verbalizations. To have any social currency, sensitivities must be practiced, granted or denied, a

regarding who represents "the latest thinking" and is privileged to speak of it. Convincing clients that other designers are "behind times" or "have nothing new to offer" is a way of painting oneself into the center of things to come. In this race for newness, it is only natural that other designers who contributed to one's own thinking are deliberately silenced - which is also reflected in the lack of citations in the design literature.¹¹ These and other rhetorical devices deter open professional conversation, discourage thorough and mutually beneficial explorations of design problems, and in the end contribute to the lack of intellectual solidarity within the design community. As a consequence and by comparison to other discourses, many important issues of design remain undeveloped.

For an example of such mindless struggles consider "*product semantics*." The word was coined only in 1984.¹² Its appearance in the literature led superficial readers to the very semiotic terminology whose epistemology was explicitly criticized as unable to provide an appropriate understanding of how artifacts mean. This word brought some semioticians, in search for a new area of exploration, into the picture. For designers, the sound of semiotic terminology triggered doubts as to whether there was "anything new here" - after all, semiotics was fashionable in graphic design circles of the 60's but abandoned a decade later. Then the Cranbrook School began to publish an innovative approach. Initially joining the rising importance of product semantics,¹³ it attempted to

process that may start at design or art schools and certainly continues in negotiations among designers, artists, critics, clients or everyday users. Differences in "sensitivities" can stigmatize only if "naturalizes" them and attributes reality to what actually are mere *logical* opposites, such as "insensitivity" or "lacking it."

¹¹ Readers that are curious about this assertion may wish to examine the articles in this publication for how authors connect themselves to previous work.

¹² Klaus Krippendorff and Reinhart Butter (1984), Exploring the Symbolic Qualities of Form, *Innovations* 3,2:4-9; Translated into Japanese (1987), *Industrial Design* 139-140:10-13; K. Krippendorff (1984-5), Die Produkt-Semantik öffnet die Türen zu einem neuen Bewusstsein im Design, *Form* 108-109:14-16. For two precursors to the study of meanings in design see: K. Krippendorff (1961), *über den Zeichen- und Symbolcharakter von Gegenständen: Versuch zu einer Zeichentheorie für die Programmierung von Produktformen in sozialen Kommunikationsstrukturen*, Diplom Thesis, Ulm: Hochschule für Gestaltung Ulm; and (1961), *Produktgestalter Kontra Konstrukteur*, *Output* 5+6:18-21.

¹³ R. Blaich (1989), Philips Corporate Industrial Design: A Personal Account, *Design Issues* 5,2:1-8 gives an excellent account of these developments. Lisa Krohn and Michael McCoy (1989), Beyond Beige: Interpretive Design for the Post-Industrial Age, *Design Issues* 5,2:112-123 describe the connection between Cranbrook and Product Semantics. Other articles can be found in *Design Issues* 5,2, 1989; S. Väkevä (Ed.)(1990), *Product Semantics* '89; Susann Vihma

express functions through visual metaphors, which is part of the semantics of meaningful interfaces, but before it reached adequate levels of understanding, it came to be dismissed as another style. Meanwhile ergonomists,¹⁴ who had never been concerned with meanings and whose measurements are just not powerful enough to tab them, felt threatened and hoped to capitalize on these new developments by borrowing from the emerging vocabulary of cognitivism. Claiming to be the latest craze, cognitive science looks at everything from a computational or artificial intelligence perspective, not realizing, despite available criticisms, that it can not possibly cope with processes of languaging, with human existence in discourse,¹⁵ with the emergence of meanings in human interfaces, and therefore is wholly incompatible with designers' concerns. This gerrymandering of territory clearly slows down efforts to address human interaction with artifacts more knowledgeably and achieve increasingly natural or meaningful interfaces, regardless of how one names this effort.

(3) A discourse institutes its recurrent practices, by
(i) enabling social organizations to thrive on controlling the technical means of (re)producing and disseminating the discourse - not only its textual matter and its community, but, most importantly, its very own organizational forms (social autopoiesis),
(ii) legitimizing its procedures, methods, theories, schools of thought, and criteria through the very acts of making them selectively available, especially to members of its discourse community who may turn the benefits of participation into loyalties to particular organizations operating within that discourse, and by
(iii) applying its axioms relative to which a discourse (its textual matter, conversations, and organizations) can achieve a certain autonomy, coherence, and direction.

(Ed.)(1990), *Semantic Visions in Design*; S. Vihma (Ed.)(1992), *Objects and Images*, all three: Helsinki: University of Applied Arts.

¹⁴ Fredrick Wildhagen (1992), Product Semantics in a Macro Perspective, pp. 138-145, in S. Vihma (Ed.), *Objects and Images*, Op. cit. relates the transition from ergonomics to product semantics to the challenge mechanistic sciences experienced in the concurrent climate of post-industrial restructuring.

¹⁵ Note that artificial intelligence (AI) is nothing but a discourse but one that can not reflect on itself. Its boundary is defined by computability, embracing only phenomena that are afforded by algorithmic accounts and can be reproduced by a machine. AI researchers talk about symbol manipulation but only in the very restricted sense of following syntactical rules not meanings. Notwithstanding its remarkable accomplishments, AI's boundaries exclude the dialogical emergence of new forms, their embodiments in real people (especially the AI researchers without whose creativity there would be no AI at all), and how realities come to be socially constructed in everyday languaging.

Institutionalization "*freezes*" recurrent interactions into traditions, codifies ways of communication into (re)producible forms and standardizes practices in support of particular organizational pattern. Typically, educational institutions play a major role in developing particular thought styles and teaching appropriate language practices. Professional associations oversee the certification of practitioners, enforce ethical codes of professional conduct and lobby relevant organizations. Governments legitimize and the courts interpret procedures that regulate the roles of individuals relative to each other and to organization, defining what is legal and rational.

In the United States, there are hardly any *institutional requirements* for industrial designers to practice. Universities certify graduation but no more. Professional associations have little influence on the conduct of individual designers and business or government decisions. Although this lack of institutionalization has the virtue of inviting into the conversation individuals that may have something new to say, it makes valuable design traditions difficult to transmit, explains why design is often considered unsystematic or not rigorous - the popular belief being that "everyone with appropriate taste and talent can be a designer" - and it accounts for the limited responsibilities designers tend to be given as compared with other professionals. By contrast, consider the political clout of the American Medical Association, which controls the certification of medical practitioners, codifies procedures for drug use, etc., thereby institutionalizing the rights and responsibilities of all medical practitioners.

Even in academic institutions, design discourse finds little respect. Although the situation may be better in other countries, in the United States there is only one doctoral program in design with two students, but no graduate yet. Designers with academic ambitions must earn advanced degrees elsewhere and then become sidetracked, into art history, art education, psychology, communication,¹⁶ or systems and industrial engineering, for example. Even master's degrees in design are rare and industry does not particularly reward designers with advanced degrees. In fact, there is long-standing tension between industrial practitioners and teachers of design over the value of education. Consequently, most schools of design are comparatively weak, under-staffed, and under-resourced. This is in marked contrast to virtually every other profession where graduate education is highly valued.

Organizations that happen to grow in design discourse are of basically two kinds: *Corporate producers*, largely of consumer products and to a lesser extent of capital goods, who impose rational, efficiency, and economic criteria on design, and *cultural institutions*, museums, art publishers, universities

¹⁶ I myself am a product of this situation.

with large art or architecture departments who promote design for its cultural and artistic values. Taken together, the two criteria for (judging, teaching, financing, producing, advertising or publishing) design often are in conflict.

Instead of developing criteria of their own, designers often allow themselves to be torn between two: Industry's interest in developing competitive technologies and achieving high sales volumes on the one hand, and the cultural institutions' attention to making publicly significant, meaningfully discussible, and culturally or artistically influential contributions on the other hand. The title of this conference, contrasting responsibility with (aesthetic) pleasure, attests to this tension. The two conflicting institutional demands yield artifacts that are - in the extreme - either mass-produced but not much talked of or never manufactured but put on a pedestal and cheered.

Organizations not only *thrive* in a particular discourse, they also *conserve* themselves in their own terms, live their own ideologies and in turn shape the discourse they operate in. This affects definitions of design. So, design conceptions may be influenced by the economic interests build into a local design curriculum, by the publicity needs of the sponsors of international design competitions, or by governmental policies aiming at recognition and market expansion for their industries, the concepts of "Nordic Design" or "Japanese Design" are classical outcomes of such policies. Institutionalization stabilizes a discourse and strengthens its resolve. But, it also moves that discourse in an organizationally beneficial direction.

Notwithstanding the organizational forms in which design does flourish, design discourse currently lacks the kind of *axioms* that organizes other discourses. Economic discourse, for example, in which business organizations thrive, is predicated on the axiom that "individuals always act according to what they have and how they value what they don't." Medical discourse is organized around the possibility of "curing diseases," using an elaborate and institutionalized vocabulary to spell out just what abnormalities are to be treated and how - in the West, largely by chemical or mechanical interventions. Nursing discourse is kept coherent by the commitment to "patient care." Religious discourses grow out of certain axiomatic beliefs of a transcendental nature. Positivist science is committed to "the ontology of a single natural universe waiting to be discovered and described." Currently, no comparable "truth" has been developed for design.

Competitiveness among designers unwittingly obstructs institutionalizations in yet another way. Usually, much before the virtues of a new idea, theory or approach to solving design problems are being understood, its fascination is lost for designers. Living "on the cutting edge" and by the rule that "any five year old idea is a dead one" - facetiously suggested by a critic - makes the successful institution of workable

design practices virtually impossible and retards the systematic accumulation of knowledge in design. Organizations need viable organizational memories. Discourses need some measure of institutionalization. Avoiding textbooks, devaluing past contributions, and loathing organizational procedures works against acquiring the institutional muscle other discourses undoubtedly enjoy.

(4) A discourse draws its own boundary within:

- (i) textual matter, among texts or artifacts that do belong to the discourse and those that don't, among**
 - (ii) individuals that are bona-fide members, contributors, experts or representatives of the discourse community and those that are excluded from making contributions, and concerning the**
 - (iii) organizational or communicative practices that are legitimate within the discourse and those that are not.**
- These boundaries are more or less permeable.**

Niklas Luhmann¹⁷ describes the boundaries of (his notion of) social systems in terms of their use of a binary code. This idea is applicable here as well. If a discourse is sufficiently coherent, I am moreover suggesting, its code could derive from its axioms. For example, according to the above-mentioned axiom of economics, anything that has value is included and anything that doesn't has no place in it. This code distinguishes between what economists may want to attend to and what is irrelevant to their discourse.¹⁸ Indeed, theories in economics have nothing to say about human biology, for example, or about patient care, transcendental beliefs, truths, ecology, meaning, or design, for that matter, because these phenomena are not driven by anything resembling the circulation of a currency or values. The code of economics is extremely successful not only by protecting the discipline from being undermined by other disciplines but, moreover, by allowing economic thinking to be expanded into the empirical domains of others; for example, by treating social relations (e.g. friendships), politics (e.g. holding political offices) or culture (e.g. the reproduction of a cultural heritage) as economic issues.

Design discourse draws boundaries as well. But, what constitutes design literature, who is a designer, what is a good design solution to a design problem, how design is to be taught, certified or judged is the subject of frequent discussions among designers, with their clients, even in courts.

¹⁷ Niklas Luhmann (1986), *Ecological Communication* Chicago IL: University of Chicago Press.

¹⁸ The concept of externality, for example, is important in economics. It acknowledges measurable effects on a system that are, however, not describable in economic terms and are, hence, located outside the system to be modeled. Externalities are not facts. They are at best the artifacts of economic theories, of what economists have decided to exclude from their discourse.

At such occasions boundaries are being drawn and redrawn, some say negotiated. Conversational or institutional efforts of this kind attest to the importance of a boundary for designers to work and feel at home within but also to its *uncertain location*.

The largely visual and hence non-verbal nature of design does not help to clarify this boundary either. Design publications, awards, and exhibitions tend to celebrate outstanding examples and thus provide important landmarks or prototypes but say little about the boundaries near which ordinary designers typically operate.

The above mentioned incentives for claiming to be "on the cutting edge," of understanding what is momentarily "in," may offer one explanation of the need to constantly redraw the boundary of design, evidenced by wave-like appearances and disappearances of styles, product concepts or techniques, much like in the fashion industry. It favors attention to new but undigested knowledge at the expense of developing enduring wisdom. It also diverts attention from the very rhetorical practices that produce these boundary fluctuations.

Probably the most notable pathology of design discourse is its *openness to colonization* by other discourses. Perhaps it is because designers tend to be concerned more with non-verbal phenomena than with texts, have little patience for scholarly writing, and prefer acting to research, that design discourse is virtually invisible to designers. No wonder that it is freely subvertible by outsiders, journalists, economists, cultural commentators, museum curators or art critics who have their own interest in claiming that discourse as part of their own territory. From within, designers' groping for new conceptions and uncritically adopting the perspectives of other discourses invite into their discourse paradigms that can easily turn parasitical, intertextualities that may prove disabling in the long run, and incoherences that could break a community apart and systematically erode its identity. Beginnings of this can surely be seen in design. For example, the economists' conception that design add value to a product¹⁹ unwittingly restricts the attention of designers to the point of sales in the complex life of an artifact, leaving other considerations secondary if not irrelevant; psychological, cultural, and ecological ones, for example. Or, accounts for the meanings of artifacts in semiotic terms leads one to see artifacts as representative of things extraneous to them, as signs or symbols of something else. This favors a view of design as being concerned only with attractive surfaces, with superficial symbolisms, and with forms that hide the nature of artifacts in the service of other institutions.

¹⁹ See Helene Karmasin (1993), *Mehrwert durch Zeichenwahl*, pp. 73-87 in Michael Titzmann (Ed.), *Zeichen(theorie) und Praxis*, Passau: Wissenschaftsverlag Rothe; and H. Karmasin (1994), *Producte als Botschaften*, Wien: Ueberreuter Wirtschaftsverlag.

(5) A discourse justifies its identity to outsiders. Justifications occur in dialogue and in response to challenges or contestations by members of other discourse communities and affect
(i) the discourse's *reality* (truth) in these outsiders' lives,
(ii) the discourse's *virtue* (value) relative to these outsiders' discursive practices,
(iii) the *competencies* (abilities) discourse practitioners may claim and the *responsibilities* they are given in response.

This is to acknowledge that discourses, while ideally incommensurate, may not be entirely autonomous. Their identity - what its members distinguishes and are able to do in society - is being shaped in interaction with other discourses. For once, people cross and may even experience internal conflicts near their boundaries, having to wear different "hats" at different times. More importantly, members of different discourse communities may need to collaborate on joint projects without giving up who they are.

I am suggesting that the respect discourse practitioners enjoy in communication across discursive boundaries depends largely on the existence (creation, promulgation and acceptance by Others) of compelling justifications for their own discursive practices. One only needs to examine why we take the advice of doctors or how we select a good plumber. Professions are held in high esteem when they can prove their discourse to be real, their work to have virtue in the projects of Others and they themselves capable of assuming the responsibilities they desire. Good justifications can give a discourse a fighting chance against usurpatory efforts by other more dominant discourses.

Generally, a discourse that can not successfully justify itself to outsiders, becomes either totally isolated (like astrology which is only believed by its practitioners), is increasingly ignored (like dying crafts) or is being raided and colonized by more aggressive discourses. Design clearly suffers from the latter. Unless its discourse becomes the target of purposeful reflections and actions, there is a good chance that design disappears. Notwithstanding several flagship examples to the contrary - from the commercial successes of Braun to those of Black&Decker and from the corporate successes of an Elliot Noyes to the personal successes of a Charles Eames, I fear the colonization of design discourse is progressing.

This seems to be so particularly where design is taken to be subjective. The language in which this subjectivity is expressed is difficult to justify to Others. The claim to possess aesthetic sensitivities, cultural insights or foresight that non-designers lack has *reality* only where it can be empirically demonstrated and compellingly argued. It surely helps to occupy the position of an unquestioned authority or to be able to rely on personal or political connections, for example. But such extra-discursive variables do not change the perception of those who do not see how designers see and are likely to

conclude that designers do not know what they are talking about. Most designers find themselves confronted by sophisticated research methods from other disciplines whose reality they are unable to relativize, analyze, and put in place. The reality of markets, of profits, much like the reality of engineering products is rarely doubted precisely because language makes this compellingly obvious and their institutions back it up. When outsiders can veto a design without being confronted in an empirically grounded language, designers have lost the debate over the reality of their ideas. Subjectivity defies communication.

Popular opinion assigns *virtue* to design but few can say why. This is blatantly obvious for designers in the automobile industry who are surely more appreciated than in most other industries and generally do lead product developments, but it is marketing, advertising and sales that drive designers questions and judge their answers. In the absence of compelling arguments, the role that designers are left to play is no longer their own.

Presently, there is no consensus on an area for which designers could claim professional *competence* exclusive of other professions. Designers know rudiments of engineering but usually learn only what they need to know from those actually responsible. Designers are familiar with elements of ergonomics - which was once claimed to hold the answers to most design questions - but non-designers do the research and write our guidelines. Some designers see themselves as advocates for consumers, but market experts, executives, and sales people often claim to know them better and present even data to this effect. Many designers espouse artistic abilities, but most professional artists consider them second rate ("un-fine" artists). Professionals who can rely on a coherent discourse and are able to make it compelling cases for their work generally are accorded large responsibilities. Knowing a little bit of everything is not enough, trying to be integrators of multiple perspectives requires managerial knowledge most designers do not have, and withdrawing into the reality of other disciplines amounts to being unaware of ones own discourse. The most frequent complains designers are heard to make concerns not being given the responsibilities they deserve. This should make us question our discursive practices and particularly the justification of design discourse to outsiders.

Toward a new design discourse

Hopefully, the preceding made us aware of our professional existence *in discourse*, a phenomenon we have been largely blind to and which we have systematically ignored. By taking other discourses as a yardstick, I have tried to show where design discourse deviates from normalcy and I have attempted to point out some of its weaknesses, if not its *pathologies*. The picture that emerged is painfully deficient for industrial designers. Our way of languaging is in trouble. The very

discourse in which we acquire our identity vis-à-vis other professions, institutionalize our professional practices, and justify our contributions to society is full of problems that we have not attended to. Industrial design is being appropriated by other rhetorically stronger discourses. The human/social/cultural/aesthetical role of technology and concerns for the quality of human interfaces with artifacts is left unattended or exploited by other interests. I contend that this can be changed and I am making three recommendations to strengthen our discourse. Together they intend to give designers the opportunity to claim new and exciting responsibilities. In effect, this means - the title of this essay suggests just this - "Redesigning Design" by focusing not only on material things alone but also, if not as a priority, on the very discourse we live in.

(I) An Axiom for Design

My first recommendation is to adopt a powerful axiom for industrial design, one that gives us a clear focus, gives our discourse an intrinsic coherence and extrinsic appeal, and gives our profession a rhetorical strength currently unavailable to it.

Looking back, Industrial design has always been concerned with what industrial artifacts *mean*. All schools, all movements, all philosophies, however short lived or ill-conceived they may appear to us now, can be characterized by their particular approach to *making sense* of material culture. Unlike the axiom I am proposing, their concerns were expressed largely in terms of ideological (if not idealistic) projects that manifested themselves in the pursuit of particular approaches to things, of formal/aesthetic styles or of certain often vaguely formulated social visions. However, by failing to recognize the very choice of such projects as a matter of design, previous generations of designers did not reach the awareness we are seeking here.

For example, William Morris wanted industrial products to become related to users through the valued understanding of crafts. The fact that we may see the products of this early period of industrial design differently does not deny his mission. The Bauhaus sought a new synthesis between the arts, the crafts, and the emerging forces of mass production. It was the social implications of its program that drove it out of Weimar to Dessau, to its closing, and to the ultimate dispersion of its proponents all over the world. We now reproduce (images of) its (surprisingly few actually manufactured) products and admire its bold play with heretofore unused geometric forms - but this is a retrospective view that does not take into account the bauhäusler's justifications. We now see styling in the US as faking speed, false glamour, and conspicuous consumption, but the designers of its days saw themselves as satisfying hidden desires that were thought real. Notwithstanding the industrial interests this served, it was a social or perhaps a psychological mission that designers actively pursued. The Ulm School of

Design recognized and opposed the product cosmetics of styling and sought to achieve a functionalism whose minimalism would be equally acceptable and useful everywhere and to everyone. Not recognized at that time was the correlation between the international success of this universalistic and culturally insensitive anti-styling style and the increasing globalization of markets for industrial goods. Memphis challenged the dominance of functionalism by its playful use of anti-archetypal forms. The fact that its products became expensive art objects may have served their creators but such meanings were again quite unintended. And so the story goes on.

Its point, however, is that designers, while expressing themselves largely with forms, were deeply motivated by achieving certain social meanings whose consequences could hardly be foreseen at their time. Every vision, every ideological project that motivated design at one time ultimately became obsolete. Currently enacted perspectives on design, especially at the expense of social contexts of use, are not exempt from this generalization. Indeed, images alone do not convey the terms in which Others see them. However, when we (re)connect these images with the writings of their contemporaries about what they saw in their products or meant to accomplish with them, we usually come to more differentiated conclusions about design. (This is why its textual matter is so important).

In contrast to the changing and more or less articulated ideological projects of past generations of designers, what has been learned in the process of developing product semantics is that any project or vision, however broadly formulated it may be, must be realizable in local practices and afford individual users' conceptions. Even big trees must have tiny roots in nutritious soil. Grand visions may change but the actual interfaces between users and their artifacts must always work, must be able to enter human communication and survive within the very ecology of artifacts within which designers reside as well. What is constant despite the fluctuations in perspectives on design is the empirical fact that *we never act on the physical qualities of things* (as described by experts other than ourselves) but *interface with our material world according to what they mean to us and talk brings forth what we are seeing*.

This is axiomatic for understanding why the owner of a Lamborghini tolerates much discomfort and spends an extraordinary amount of money for the identity he or she acquires when driving it. This is axiomatic for explaining what salespersons do and say to whom industrial products are nothing but more or less valuable merchandise. This is axiomatic for understanding why computer users utilize only the features that are explainable and they can make sense of. This is axiomatic also regarding designers who simply can not design anything outside their imaginability, outside of their command of technical knowledge, and outside of their capability of reading, talking, and collaborating with

colleagues, clients, and users. In other words, designers too need to (re)cognize that the meanings already held or emerging in communication with Others direct their actions and their designs. Hence my proposal:

**Accept as *axiomatic* that
humans act not on the physical qualities of things but
on what they come to mean *to them*.**

Axioms are not hypothetical of anything. They are adopted by a community for the conceptual consequences they yield. This axiom offers to make design discourse coherent, is capable of generating a wealth of new ideas and rearticulating old ones, and its apparent irrefutability constitutes an extremely solid basis to argue with and live by. Elaborating on it, we state with unprecedented confidence:

*No artifact can survive within a culture
- be conceived, produced, distributed, used, maintained, etc.-
without being meaningful to those
who can move it through its defining process.*

For industrial design, this obvious truth has considerable consequences. To be clear, with the term "artifact," I want to broaden our usually narrow attention to industrial end products. The whole sequence of manifestations, preceding and succeeding such products - from models to trash, so to speak - are literally "made" as well and are, hence, artifacts in their own right, albeit of a more transitional kind.²⁰ Their "meaningfulness" shows up in our understanding something upon seeing it or in our knowing what to do in a situation we face.²¹ By "defining process" I mean the network of transformations, from one of its manifestations to another, until it coheres with the definition its stakeholders have for it. For example, a "real" computer exists neither in the form of a drawing nor when displayed in a showcase but when it shows up as such in someone's interactive involvement with it, when it affords its users' definition. Accordingly, reality is not composed of unattended objects but brought forth in human interaction, in seeing and acting in concert with something and someone. This is an important epistemological turn. "Those" are the stakeholders and include everyone who happens to be concerned, affected, involved with or has something to say about a particular artifact, and what becomes of it. Stakeholders claim their own stake in bringing forth an artifact

²⁰ As Larry Keeley in his lecture to this conference suggested, we should be concerned not with "forms" but with "transforms."

²¹ For the concept of meaning appropriate to artifacts, see K. Krippendorff (1989), On the Essential Contexts of artifacts or on the proposition that "Design Is Making Sense (of Things)," *Design Issues* 5,2:9-39; and (1990), Product Semantics: A Triangulation and Four Design Theories, pp. a3-a23 in S. Väkevä (Ed.), *Product Semantics '89*. Op. cit.

through its many manifestations:²² models, production drawings, work schedules, marketing plans, sales displays, many kinds of uses, even ecological effects. Our proposition merely says that any one of an artifacts' necessary manifestations must have meanings, at least to those who count. No artifact will come into existence otherwise. Meaning drives use.

I contend this axiom to be indisputable. Everything known makes sense to somebody. Surely, meanings differ for different stakeholders, especially for makers, users, and observers of artifacts. They may evolve into something other than their designers had intended and they may acquire different identities over time, for different people, especially from different cultures. Everything known must make sense to somebody. I have found no examples to the contrary.

Indeed, our axiom is as definite as the second law of thermodynamics, which asserts that "energy may be consumed but can not be created," and is foundational for much of physics. It is also as solid as the axioms of mechanics, the best known of which states: "all actions have reactions, equal in magnitude but opposite in direction." (Mechanical) engineering is built on it. None of these axioms are contradicted by evidence precisely because we choose to construct physics and mechanics in that way. Our axiom too is consistent with everything we know. It is a condition of everyday life. Few propositions are as compelling. Therefore, I am proposing that we adopt this axiom as our very own and build our discourse and our profession upon it. If we do just this, design discourse could have a strength that parallels the strongest discourses designers usually come in touch with. Let us declare:

Design concerns itself with the meanings artifacts can acquire by their users.

This would bring into focus what I believe has always been the key concern of industrial design although it surfaced in various ideological projects or design "philosophies" that fascinated designers at different times, frequently confused our vocabularies and pulled us into all kinds of directions - whether in pursuit of fashionable ideals or in the service of other discourses. The axiom delineates a unique and empirically rich domain within which any ideals may be pursued without prejudice provided it is brought down to where human interfaces with artifacts do occur. Everything else is a matter of rhetoric.

²² From this new perspective, designers can no longer simply equate artifacts and material objects when what seems to "matter" is their continuous transformation, from one temporarily frozen form into another. The designers' "artifact" becomes the process of his or her intervention.

To make good on this way of delineating the empirical domain of design, we have to invent new concepts and a language in which it is obvious that meanings are not entities that could be designed *into* machinery or attached *to* their surfaces, using separately meaningful symbols, for example. This conception would bring us back to the dualist position that excludes the constitutive role humans play in any social construction, including in design. Sense is always made by people and meanings become accessible to us in how the stories of our involvement in everyday things are enacted and how Others, spectators, experts or friends are woven into particular interface practices. Artifacts by themselves, much like figures without a ground or words without a context have no stable meanings. The meanings we are concerned with here arise in and direct user interfaces with artifacts. They differ from designers' interventions into the material conditions of Others only in that the former may but the latter must embrace the conceptions of Others.

*Artifacts always afford many meanings.
By controlling their forms and
placing them in various (material and discursive) contexts,
designers can do no more than provide
the affordances for users' meaningful involvement.*

Knowledge of how artifacts afford the meanings users hold or can construct defines our empirical domain quite differently from that of other professions. Engineering knowledge concerns mechanical functions and engineering has done extremely well in plowing this idea into its discourse. Marketing grew out of the notion of markets as having statistical propensities for sales and has explored this conception extensively. Economists are concerned with accounting for costs, optimizing profits, maintaining economic growth, etc. and their mathematical theories reflect this attention. Ergonomists have adopted as their problem the human physiological/perceptual functioning under institutionally controlled conditions.

Each of these professions pursues its own perspective, makes its own epistemological assumptions creates its own discursive reality, and asks its own research questions. However, no profession other than design is concerned with (the multiple) meanings (of things), with how humans as knowledgeable agents interface with their material world, with how meaningfulness can be materially afforded.

Our axiom achieves a clearly articulable and defensible *boundary* for design discourse. It leaves engineering to engineers, marketing to market researchers, art to artists and yet offers designers a wide field for creative explorations.

The axiom also justifies an unprecedented *reality* for design discourse. Unlike the self-serving claims of visual sensitivities, meanings can be explored empirically and tested in their consequences on the human interfaces they direct. It provides a new reality for designers and an empirically

grounded language. The scientific implications of this reality will be addressed below.

The *competencies* that designers can then claim for themselves is then grounded in their ability to develop ways for artifacts to be easily recognizable for what they are, for its controls to be self-evident, for interface languages to turn breakdowns into breakthroughs, for complex devices to be intelligent, self-instructing, reconfigurable or adapting to users' world conceptions, and for systems to be viable and technological complexes to grow into the lives of diverse users. This expertise gives designers considerable strength in negotiating the kind of *responsibilities* they wish to assume.

Wherever artifacts need to be in contact with knowledgeable users, the *virtue* of design to other stakeholders becomes obvious. Designers' expertise is unique and indispensable. Neither engineering nor ergonomics, market research, and psychology can answer questions of these kinds of meanings.

(II) A Science for Design

My second recommendation is to join hands and

Develop a genuine second-order science for design

that faces the research questions our axiom raises. This science for design must not be confused with science "of" design for it can not rest on describing "facts" as detached observers do. It must be proactive and support design as a material intervention into processes of living. It must address the problematic of articulating artifacts in a language that includes their stakeholders. And since knowledge has all the attributes of artifacts, this science for design must apply its design principles onto itself, be radically self-reflexive, dialogical, and constructive of future conditions - not conservative of facts as most traditional sciences are.

First of all, a science for design must be developed in a vocabulary that provides strategical support for interventions into the network of meaningful interfaces that designers wish to argue for (or against). It must have a strong practical moment. Secondly, and despite its discursive nature, a science for design has to maintain strong connections to the visceral, to the non-verbal, to the sensual, to the intuitive, and develop compelling empirical tests for the validity of meaning claims. This becomes its rhetorical moment. Thirdly, a science for design must direct designers' attention toward broadening material affordances, toward making technology humanly enabling rather than oppressive. This becomes its humanizing moment. Fourthly, a science for design has to inform curricular developments on all levels, from undergraduate courses to academic research. This is its pedagogical moment. Finally, a science for design can not but respect the cultural differences of users, specifically in support of cultural diversities. Rather than standardizing people under the guise of universalistic ideologies, it has to respect different

rationalities (including the universalistic claims some may espouse). This becomes its ethical moment.

All of these moments converge on a new kind of understanding which I have been calling "second-order." Let me explain this by contrast. The notion of function,²³ for example, as in "form follows function," comes from mechanistic explanations of how parts relate to the known purposes of their (superior) whole. For example, the role a steering wheel plays in driving a car or how the heart serves the human body. In purely mechanical systems (functional) explanations have no effect on what their parts actually do and meanings do not matter. The human heart does what it does whether one sees it as the seat of emotions or as a pump.

This becomes radically different in systems constituted in human understanding, where meaning is crucial. Heart surgeons will proceed differently depending on what they conceive the heart to be. Any explanation of what a certain key on a computer keyboard does will make a difference in how one uses it. The heart and its conception, just as the key and its explanation, belong to fundamentally different empirical domains. The latter involves human understanding, the former does not. Where knowledgeable humans are involved, *explanations*, functional or not, *constitutively enter into what something is for them*. People can talk, understand, and act, mechanical systems do not - whether physicians take such systems as given or engineers consider them constructed. We are concerned with how such systems are regarded.²⁴ Our axiom calls on designers to stop trying to understand what an artifact "objectively" *is*, but how different users can understand and interface with it, designers' own understanding being merely another possible version. By taking the meanings of Others as a fundamental starting point for design, designers must proceed from their understanding of users' understanding, which is understanding of understanding or *second-order understanding*, and this is a way of knowing wholly different from ordinary (first-order) understanding of things.²⁵

This science for design will then encourages us to read our textual matter as a second-order phenomenon. Its vocabulary

²³ See K. Krippendorff and R. Butter (1993), Where Meanings Escape Functions, *Design Management Journal* 4,2:30-37.

²⁴ Where systems are social in the sense of being constituted in the understanding that their human participants bring to it, meaning always matter. However, when one chooses to regard such systems as mechanical ones, and accounts for the participation of humans in functional terms, one, in effect, denies them their own meanings. This is why functional explanations need to be avoided when it comes to human interfaces with artifacts for they reduce users to some kind of dupe.

²⁵ See also K. Krippendorff (1989), On the Essential Contexts of Artifacts ..., Op. cit.

is invariably tied to an awareness of our own languaging. It takes for granted that Others' (the stakeholders') understanding is different from ours, and that incommensurate logics exist side by side. In practice, second-order understanding shows up in designing not functional objects that call for only one correct use but the material affordances for a whole range of interface logics, a whole range of cognitive models users might apply, moreover acknowledging that meanings are different in different social settings, in different cultures, and at different times. Second-order understanding gives designers the confidence of letting go of efforts to control "correct" uses and delegating some of the design activities to other stakeholders instead.

Second-order understanding is closer to the humanities than to the natural sciences. The latter pursue an objective knowledge that dismisses everyday knowledge as unscientific and biased.

Their statements are about objects (without ever asking Others to participate in their formulation) and hope to approximate a single "truth" thought to lie outside an observers' language. First-order knowledge from the natural sciences retards our ability to design systems in which meanings matter or it encouraged us to treat them as if meanings were irrelevant. It is second-order understanding that offers us the key to a productive science for design.

But I must also add a cautionary note: Second-order phenomena have become important in a variety of areas of exploration. Several professional disciplines are trying to cash in on our design discourse for their own good. Computer interface design is a pertinent example. Its problematic is the paradigm case for solving even traditional design problems and should be considered the Litmus test of our professional viability. If we are unable to shift from our traditionally monological to a multi-logical approach to design, if we remain unaware of our own linguistic involvement in design, if we fail to embrace *our* historical responsibility for the design of meaningful interfaces and do not move ahead with all our might, someone else will surely claim this as yet unattended and certainly exciting territory. Once the implications of our axiom become widely appreciated, we can expect many attempts to cross the boundary into design discourse. We must prepare ourselves for this by pursuing a clear vision of what matters to design while respecting the discourses of other professions.

(III) *Languaging*

My third recommendation is to

Acknowledge, through every individual act, that design takes place in discourse.

This very essay can be characterized as my attempt to apply this final recommendation to itself. It hopes to make designers aware of their own discourse, which can then no longer be ignored.

I began by saying that most of what we do is accomplished by talking and by listening to the voices of Others, through writing and reading Others' writing, and by commenting on and rearticulating what is made available to us. It is in design discourse that we present ourselves to clients, define the problems we try to solve, explain to Others what we are capable of doing, teach our students a way of seeing, collaborate with colleagues, get advice from users, justify our work to whoever matters, etc. Design discourse is what makes design possible and meaningful. Industry and other stakeholders in the realization of artifacts may see us as the conceptualizers of attractive surfaces and subordinate us to their own interests. We do not need to accept their definitions and much of what I recommended in the above aims at taking our discourse into our own hands or, better said, into our own languaging.

We can not escape the effects of languaging with Others. But our design discourse is our most important professional (re)source that we need to care for. The awareness of its role and of the possibilities of (re)designing or (re)languaging it, rather than aimlessly drifting within it, does change the very *possibilities* this discourse makes available to us. Without discursive possibilities we are but (functional) machines, and without our own discourse we serve the discourses of Others. In the past, discourse has not been the target of conscious design efforts. Our traditional emphasis on physical objects rendered our languaging trivial and our discourse invisible. This essay intended to lift this blindness. Let me therefore propose:

Designers are responsible to each other for continually redesigning their discourse and in that process preserving, if not expanding, the possibilities it provides them.

The responsibility I am asserting here is *to the designers' own community* - not merely to other stakeholders of the artifacts they may design, to employers, clients, producers, users, etc. And it is *for keeping design discourse viable* - not merely for pursuing a particular design ideology or a socially motivated project as in our discontinuous past. Here, I am concerned only with the ground on which designers must stand and may formulate and enact any design ideology or project they prefer.

To me, taking advantage of being in discourse with other designers entails the responsibility of giving something back to ones community. True, the influence any one designer can assert on the discourse of his or her community may be negligible, but it is never absent. This lies in the nature of languaging. All I am hoping for is a conscious effort to examine ones own discursive habits and replace them where prove not conducive. In as much as a discourse is a complex living entity, its redesign must take place along all of its dimensions, particularly its textuality, its community, its institutionalizations, its boundary, and its justifications. Let me mention three things everyone can do.

First, we must *engage in true conversations* within our design community. In conversation there can be no authorities above Others. Anything said is contestable in principle, especially when institutionalizations appear confining. The only criteria of open conversation are the possibility of its continuation. Open conversation keeps a discourse alive, inspires the creativity of its members and provides a home that nourishes professional growth. As designers, we have to become aware and then rid ourselves of the senseless effort to always be on the cutting edge of things, merely to put Others down, only because we haven't learned any better. Competition is good - but not when it inhibits intellectual explorations and growth which, in the end, retards our discourse. We may have to ridicule the ideal of the ingenious designer whose self-promoted individualism does not promote conversation, education, and professional coherence. Instead, we have to encourage a new kind of designer, one who has collaborative skills, is aware of the discursive ground of meanings, explores second-order understanding in depth, and makes his or her conceptual, literary or material contributions freely available so Others can benefit from them as well.

Second, given the opportunities that our axiom opens up for us - emphasizing interfaces rather than objects, meanings rather than appearances, what discourse brings forth rather than what already exists, affording diversity rather than searching for single solutions to problems - it is important that we develop our own language, our own vocabulary, our own identity, and *protect our discourse against colonization efforts* by other more aggressive ones (who, except for their imperialism, do what I am proposing but better than us). This calls for stopping the habit of celebrating "newness" in other disciplines and adopting their "hottest" ideas without regard for whether they advance or undermine our professional identity. To develop our own second-order understanding and design methodologies is no small undertaking and outside help may be needed. But ideas from other discourses can also be "Trojan horses" through which parasitical paradigms enter and usurp our own possibilities. For example, the fascination with the kind of measurability ergonomics values easily confuses design with the control needs of large hierarchical institutions, the military or business for example, whose purposes much of ergonomic research was intended to serve. This fascination diverts our attention to what is measurable, largely to first-order and behavioral phenomena, disregards the need to understand users' understanding, and dismisses the possibility that users could pursue their own goals. It may not always be easy to identify in advance the discursive practices that undermine a whole discourse and might even prepare it for wholesale surrender. However, everything we take into design effectively (re)draws distinctions that can either strengthen or weakens our discourse boundary. We need to use our creativity in our own defense.

Third, our discourse is not only a house to dwell in, it also is the source of our professional wisdom, the knowledge we must

rely on in facing new challenges. It is therefore important to *enhance the quality of our scholarship* and make design literature, methods, and exemplars, more readily accessible and (re)searchable to practitioners. This means, creating reference works, bibliographies, and histories of interfaces - not from the perspective of art historians, technologists, economists, or ergonomists but foremost from the perspectives of designers, of the stakeholders involved, and regarding the dialogue between them that produces a truly second-order understanding of artifacts and their life cycles. Indeed, much valuable knowledge is already lost by not documenting design processes, by celebrating superficial successes at the expense of failures, by not quoting ones' sources or by adopting categories of description that are irrelevant to design. Textbooks on what meaning means, on how multiple meanings can be afforded by artifacts, on available methods for assessing semantic claims, and on theories of the multitude of human interfaces with material culture designers may have to address, are badly needed. We must learn to write from our second-order understanding. For a rather simple start, we may want to get out of the habit of photographing products on pedestals with neutral backgrounds, without users - as if they were art objects in their own right - and instead find ways of presenting them in interaction with a variety of users in different social contexts. This is where everyday meanings are enacted. This is where modern technology provides us with the most important challenges and this is what our axiom and our discourse directs us to explore and alter.

Finally

My remarks are not yet truths. They are intended to invite all those who care about design to a conversation that may realize them. Its topic would be nothing more precious to industrial design than its possible future as a self-directing profession, as a human centered science, and as a practice in everyday life. Without concern for its discourse, design is bound to drift, as it has in the past, from one peak to another, ultimately into oblivion. Too many other discourses seek to expand their hegemony at designers' expense. To start this conversation, I have suggested a conception of discourse and an extremely powerful axiom for design that promises us a clear focus and a new reality with unprecedented possibilities. Any reorientation naturally disturbs traditional ways and I do not expect my proposals to be painless, especially not to those who have succeeded. As Alberto Alessi²⁶ says: "Design, true design, disrupts habits and shakes uncertainties" but not merely "in the industrial environment," of which he speaks.

²⁶ P.14 in Alberto Alessi (1992), *Design & Poetry; Design as Marketing and Technological Tool in Italian Industry*, pp. 10-15 in S. Vihma (Ed.), *Objects and Images*, Op. cit.

(Re)designing design discourse challenges the habitual core of being designers. I contend this to be liberating and fun.²⁷

²⁷ I owe thanks to Reinhart Butter, Joseph A. Koncelik, John Shotter, Marge M. Thorell, and Dagmar Arnold-Wahlforss for critical comments on earlier drafts of this essay.