



International Conference “Knowledge Design. Graphic Design  
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## (De)signing Authority

### The Indexical Dimension of Scientific Graphic Design

## 1 Introduction

“Long traditional in our culture is the threefold division between speaker, hearer, and something spoken about. It has been elaborated in information theory, linguistics, semiotics, literary criticism, and sociology in various ways.” (Hymes 1974: 53–54)

### Thesis

The *indexical dimension* is a third dimension next to the informative and the epistemological dimension (and others) that needs to be taken into account when scientific graphic design is investigated.

## 2 Core concepts

### 2.1 Indexicality

#### Indexical Signs

“Psychologically, the action of indices depends upon association by contiguity, and not upon association by resemblance or upon intellectual operations.” (Peirce 1932: 172 [= CP 2.306])

#### Indexical Meaning as Social Meaning

“[...] referential or denotational, ‘pure’ meaning is only one part of the effects of language use. Apart from referential meaning, acts of communication produce *indexical* meaning: social meaning, interpretive leads between what is said and the social occasion in which it is being produced.” (Blommaert 2005: 11)

“Through indexicality, every utterance tells something about the person who utters it – man, woman, young, old, educated, from a particular region, or belonging to a particular group, etc. – and about the kind of person we encounter – we make character judgements all the time, and labels such as ‘arrogant’, ‘serious’, ‘funny’, ‘self-conscious’, or ‘businesslike’ are based almost exclusively on how people communicate with us. Every utterance also tells us something about the utterance itself. Is it serious or banter? Is this an anecdote, a joke, an order, a request? Is the speaker sure/sincere/confident of what s/he says? What kind of relationship between the speaker and the hearer is articulated in this utterance – is this a friendly or a hostile utterance? And every utterance tells us something about the social context in which it is being produced: is this a formal or an informal occasion? Are things such as social class, gender, ethnicity, or professional status played out in the utterance? Are social roles reinforced or put up for negotiation? Are social rules being followed or broken? And so on. Indexical meaning is what anchors language usage firmly into social and cultural patterns.” (Blommaert 2005: 11–12)

## Indexical Presupposition and Entailment

“Now in relation to micro-social context in the most general sense, any such socially conventional indexical (Legi)sign [=type] is dialectically balanced between indexical presupposition and indexical entailment. That is, its indexical meaning is composed of two aspects. One is its indexical ‘appropriateness-to’ at-that-point autonomously known or constituted contextual parameters: what is already established between interacting sign-users, at least implicitly, as ‘context’ to which the propriety of their usage at  $t_o$  appeals. The other is its indexical ‘effectiveness-in’ context: how contextual parameters seem to be brought into being—i. e., causally and hence existentially entailed—by the fact of usage of the indexical (Sin)sign [=token] itself.” (Silverstein 2003: 195)

“In general [...] the social effects mediated by speech are highly context-bound or **indexical** in character: they are evaluated in relation to the context or situation at hand, including those aspects of the situation created by what has already been said or done. Either an utterance is felt to be appropriate to the situation as already understood, or it alters the context in some recognizable way, transforming it into a situation of an entirely different kind.” (Agha 2007: 14; orig. emph.)

## Indexing Past Practices

“jeder sprachliche Ausdruck in unserer Sprachbiographie [ist] durch den Kontext indiziert [...], in dem wir ihn kennengelernt haben – jenseits seiner in Wörterbüchern explizierten Bedeutung bedeutet/bezeichnet jeder Ausdruck eben immer auch reflexiv die Situation, deren Artikulation er ermöglicht (hat).” (Maas 1989: 168)

[any expression in our linguistic biography is indexed by the context in which we experienced it. Beyond the meaning as elaborated in dictionaries, thus, expressions always reflexively refer to the situation which enable/d their articulation. (transl. J. S.)]

“die soziale Praxis, und damit eben auch jede Sprachpraxis, [ist] reflexiv [...]: die Form jeder Praxis, also die Form, in der die jeweilige Praxis artikuliert worden ist, kann selbst zum Zeichen für diese Praxis werden.” (Maas 1985: 73)

[the social practice, and hence any linguistic practice, is reflexive [...]: the form of any practice, i. e. the form in which it has been articulated, itself might become a sign for this practice. (transl. J. S.)]

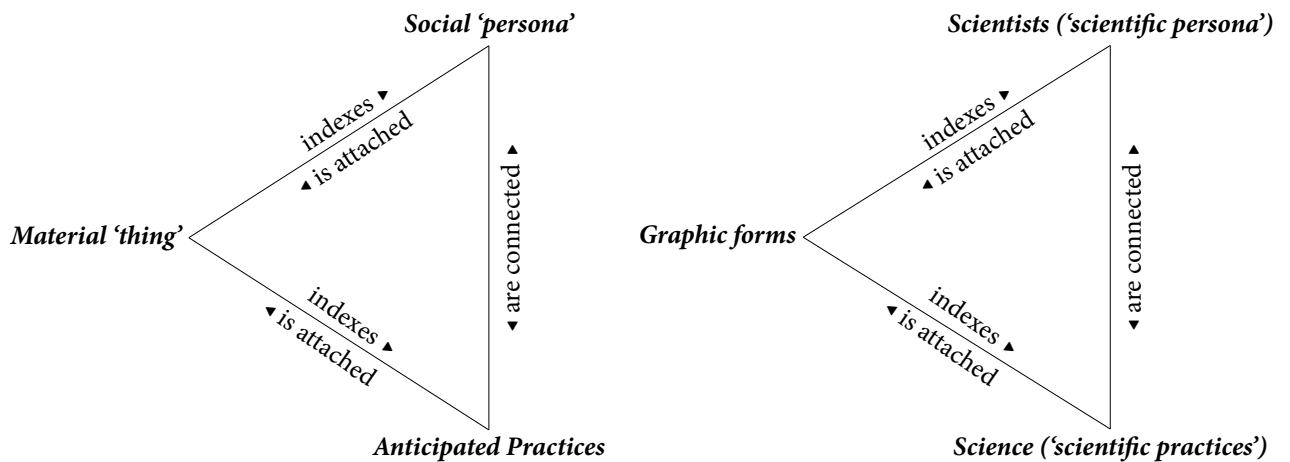
## 2.2 Enregisterment

### Social Emblems, Registers, Enregisterment

“What is the rubric called ‘identity’ a name for? What are the things it names? It is a way of talking about the emblematic functions of signs in behavior. An *emblem* is a thing to which a social persona is attached. It involves three elements; (1) a perceivable thing, or diacritic; (2) a social persona; (3) someone for whom it is an emblem (i. e., someone who can read that persona from that thing). When a thing/diacritic is widely recognized as an emblem – when many people view it as marking the same social persona – I will say that it is enregistered as an emblem, or is an *enregistered emblem*. ‘Enregistered’ just means ‘widely recognized,’ and there are degrees of it.” (Agha 2007: 235)

“registers [are] culture-internal models of personhood linked to speech forms” (Agha 2007: 135)

“*Enregisterment*: processes and practices whereby performable signs become recognized (and re-grouped) as belonging to distinct, differentially valorized semiotic registers by a population.” (Agha 2007: 81)



(Cf. Spitzmüller 2015)

### 2.3 Indexical Orders



- 1st-order indexicality: Linguistic forms that are linked to a specific sociodemographic context only from the outside (e. g., by linguistic observation)
- 2nd-order indexicality: Linguistic forms that are linked to a specific sociodemographic context from the inside (i. e., by group members) and hence can be used as contextualization cues
- 3rd-order indexicality: Linguistic forms that are widely perceived as being 'emblematic' for a given sociodemographic context and that are thus often used in stylization [*connotation sensu* Hjelmslev ([1943] 1969: 114–125)] (Silverstein 2003)

### 2.4 Ideologies of Communication

#### Language Ideologies

“I should clarify that ideologies about language, or linguistic ideologies, are any sets of beliefs about language articulated by users as a rationalization or justification of perceived language structure and use.” (Silverstein 1979: 193)

#### Graphic Ideologies

“[...] interactants not only display values and beliefs towards and by means of languages and varieties, but also towards and by means of the use of graphic elements. Alongside language ideologies, sociolinguistics thus also needs to consider what I shall call graphic ideologies here. [...] Drawing on Michael Silverstein's (1979: 193) classic definition, graphic ideologies can provisionally be defined as any sets of beliefs about graphic communicative means articulated by users as a rationalization or justification of perceived orders and communicative use of graphic elements. 'Graphic communicative means' thereby subsume all sorts of communicative means that use the visual channel and that are used in texts (this, in turn, excludes nonverbal visual phenomena such as gesture).” (Spitzmüller 2012: 256–257)

### 3 Exemplification

#### 3.1 Academic Writing as Social Positioning

“Die Alltägliche Wissenschaftssprache dient den Schreibern einerseits als *zeichenhaftes Werkzeug* zur Realisierung wissenschaftlicher Denk- und Handlungsrouninen und andererseits als *Erkennungszeichen* wissenschaftlicher Autorität. [...] Als Gruppensprache hat die Wissenschaftssprache nicht nur eine Darstellungs-, sondern immer auch eine Ausdrucks- und Appellfunktion. Sie ist zum einen ein *Symptom* der ‘Innerlichkeit’ des Schreibers, ist ‘Kundgabe’, weil sie dessen ‘Selbstdarstellung’ dient. Mit ihr weist sich der Schreiber als Wissenschaftler aus. Die Wissenschaftssprache ist zugleich *Signal*, ein Appell an den Leser, dem vermittelt wird, dass der Text einem wissenschaftlichen Kontext zuzurechnen ist.” (Steinhoff 2007: 3, 35–36)

[The ordinary academic language serves writers on the one hand as a *semiotic tool* for the realization of scientific routines of thought and action, and, on the other hand, as an *identification mark* of scientific authority. [...] As a group language, academic language does not only have a representational function, but always also an expressive and an appeal function. It is a *symptom* of the “inwardness” of the writer, it is a “profession”, since it serves his/her “self representation”. By means of it, the writer identifies him/herself as a scientist. Academic language is, at the same time, a *signal*, an appeal to the reader, to whom it is signaled that the text is to be assigned to a scientific context. (transl. J. S.; the terminology refers to Bühler [1934] 2011)]

“Academic writing, like all forms of communication, is an act of identity: it not only conveys disciplinary ‘content’ but also carries a representation of the writer. [...] In other words, we do not simply report findings or express ideas in some neutral, context-free way, we employ the rhetorical resources accepted for the purpose of sharing meanings in a particular genre and social community.” (Hyland 2002: 1092–1093)

“Academic writing is a major site in which social positionings are constructed. The acquisition of disciplinary knowledge involves an encounter with a new and dominant literacy, even for L1 learners, and although undergraduates are not expected to enter a disciplinary community, they are assessed on their ability to engage in its specialized discourses [...]. Students have to develop the ‘peculiar ways of knowing, selecting, evaluating, reporting, concluding and arguing that define the discourse of the community’ [...]. They must speak with authority, and to do this they must use another’s voice and another’s code, weakening their affiliations to their home culture and discourses to adopt the values and language of their disciplinary ones [...].” (Hyland 2002: 1094)

#### 3.2 The Enregisterment of Scientific Emblems

Cf. for instance:

- Raible (1991)
- Campbell-Kelly/Croarken/Flood/Robson (2003)
- Rosenberg/Grafton (2012)
- Lima (2014)

### 3.3 The Footnote as a Scientific Icon

- “typographische Geste der Wissenschaftlichkeit” (“typographic gesture of scientific nature”), “das Graphem der Gelehrsamkeit schlechthin” (“the ultimate grapheme of scholarship”) (Cahn 1997: 92)
- “Personalausweis der Gelehrtenrepublik” (“identity card of the Republic of Scholars”) (Košenina 2003: 267)
- “Footnotes [...] are intimately bound up with authority” (Nimis 1984: 106)

For a brief discussion, cf. Spitzmüller 2013: 414–418.

### 3.4 The Enregisterment of ‘Objectivity’

“Nineteenth-century scientific prose shows trends that persist from the 18th century and that will continue to persist into the 20th. [...] [Amongst others,] the movement toward the appearance of objectivity that stems from the reduction of personal pronouns, evaluative and deviant expressions, and an increase in abstract and impersonal predicate.” (Gross/Harmon/Reidy 2002: 124)

### 3.5 Plain Style in Science

- Plain style ideal in scientific writing as of the 17th century (Cf. Nate 2001; Hüllen 1989)

“[...] in aufklärerischen Wissenschaftsideologien [...] [wird] eine ‘durchsichtige’ Wissenschaftssprache gefordert [...], eine Sprache, die ihre eigene Sprachlichkeit vergessen machen und es ermöglichen soll, auf die ‘nackte Wahrheit der Dinge’ zu blicken (Kretzenbacher 1995: 25). Der Einfluss dieser Ideologien auf die scientific community ist ungebrochen.” (Steinhoff 2007: 5)

[in scientific ideologies of the Enlightenment, a “transparent” language of science is being requested [...], a language that aims to leave behind its own linguistic character and to enable a look at the “naked truth of things” [...]. The influence of those ideologies to the scientific community is undiminished. (transl. J. S.)]

⇒ Language ideology of ‘transparency’ (See Kretzenbacher 1995)

### 3.6 Plain Style in Typography

- See König (2004); Spitzmüller (2010); Spitzmüller (2013: 29–58)

### 3.7 Typographic Prescriptivism in Academic Style Sheets

Corpus: 50 guidelines for students from 35 different Swiss and German universities (cf. Spitzmüller 2013: 424–426)

- 33 style sheet limit the selection of possible fonts
  - 17 require the selection of a specific font:
    - \* 9 require *Times New Roman*
    - \* 6 require *Arial* or *Times New Roman*,
    - \* 1 requires *Arial*, *Helvetica* or *Times New Roman*
    - \* 1 requires *Times New Roman* or *Calibri*
  - 15 style sheets strongly recommend *Times New Roman*, *Arial*, “or similar” fonts

“Der Sinn des Layouts besteht bei wissenschaftlichen Arbeiten darin, ein möglichst hohes Maß an Leserfreundlichkeit zu erzielen. Das Layout hat also keinen Selbstzweck, sondern dient ausschließlich dazu, den zu vermittelnden Inhalt zu transportieren. Daraus ergibt sich vor allem eine Anforderung an das Layout: Es sollte so unauffällig wie möglich sein, damit es nicht vom Inhalt ablenkt, sondern im Gegenteil zu ihm hinzuführt. Generell sollte daher mit Textformatierungen sparsam umgegangen werden. Ein gutes Layout tritt hinter den Inhalten völlig zurück; je zurückhaltender und schlichter es ist, desto besser.” (Guideline from German Studies Department [Germanic Linguistics, Germany])

[The function of the layout of scientific texts is to provide the highest possible degree of readability. The layout, thus, has no end in itself, it serves exclusively the purpose to transport the content that is to be conveyed. From this, one requirement to the layout emerges: it has to be as unobtrusive as possible, in order to not distract from the content, but lead to it. In general, formatting should be used as little as possible. A good layout completely hides behind the contents. The more discreet and simple it is, the better. (transl. J. S.)]

“Wenn Sie keine Times-Schrift, wie sie die meisten Textverarbeitungsprogramme als Standard-Einstellung haben, verwenden möchten, sollten Sie dennoch eine möglichst ähnliche Schrift wählen. Auch hier gilt: Abweichungen vom Üblichen sind eher von Nachteil als von Vorteil. [...] Und mit [...] dem optischen Gesamteindruck leidet, auch wenn es ungerecht sein mag, zugleich unweigerlich der Seriositätseindruck – ein Aspekt, dessen Bedeutung man nicht unterschätzen sollte.” (Guideline from German Studies Department [Germanic Linguistics, Germany])

[If you do not want to use *Times*, the default setting of most text processors, you should use a most similar font. Again, the rule is: deviations from the usual are disadvantages rather than advantages. [...] An with the general visual impression, the perceived respectability inevitably suffers – as unfair as this might be – an aspect that should not be underestimated. (transl. J. S.)]

“Da Grundkenntnisse in der Verwendung von Textprogrammen selbstverständlich sein sollten, wird erwartet, dass die Arbeit in gut lesbarer Form auf dem Computer eingerichtet wird (sauberes, akademisches und klares Layout!)” (Guideline from German Studies Department [Literature Studies, Switzerland])

[Since basic skills in the usage of text processors should be taken for granted, it is expected that the paper is set in a well-readable form on the computer (clean, academic and plain layout!) (transl. J. S.)]

### 3.8 Authentication as a Social Practice

“We call attention not to authenticity as an inherent essence, but to authentication as a social process played out in discourse.” (Bucholtz/Hall 2005: 601)

“authenticity is not so much a condition [...]; it is a social meaning.” (Coupland 2007: 26)

## 4 Conclusions

- Scientific graphic design is, as any form of communication, *indexically linked* with specific personae and practices
- It is subject to socially distributed values and beliefs (*communicative ideologies*) that have developed discursively over time
- Hence, scientific graphic communication is *more than a means to convey or constitute scientific knowledge* – it is a *socially meaningful practice* that helps constituting and maintaining science as a field for social actors
- The *indexical dimension of scientific graphic design* therefore should be considered if we want to understand how scientific communication works as a *social practice* and how scientists position themselves as *social actors*

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