On System-Internal and Differential Iconicity in Egyptian Hieroglyphic Writing[*]

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In complex writing systems, such as ancient Egyptian, cuneiform, Sinitic or Mesoamerican, iconicity—understood here as the relation between the form of a sign and its content or value,[1] and thereby in terms of the sign's motivation—is often discussed with a primary view on the visual referent of a sign, the (culturally mediated) "object" in real or symbolic worlds that the sign form "depicts" or points at. While acknowledging the importance of such modes of "referential" or "system-*external*" iconicity, as I would like to term them here, the present paper observes that signs of writing also, and oftentimes very strongly, resonate with other signs of writing *qua* being signs of writing. "System-*internal*" modes of iconicity, as I propose to term these in turn, are prominent in complex writing systems, just like, in partly different ways, system-internal motivation in language is increasingly recognized as important. The focus will be here mostly on what I propose to term "differential iconicity," a mode of system-internal iconicity by which the differences between signs of writing make an important contribution to their motivation. In

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1.   "Content" and "value" are here used in the same sense. The former derives from the semiotic and linguistic tradition, while the latter derives from the philological tradition in studying individual writing systems.

some cases, it is proposed that differential iconicity affords the very foundation for referential modes of iconicity themselves.

1. On "differential" in general

The notion of "difference" lies at the core of linguistics and semiotics, and it comes as no surprise, therefore, that it should find fruitful application in the study of writing systems as these relate to both.

Signs of writing, to begin with, are differential by virtue of the very fact that they are part of a system. Signs of writing are form-content pairings that, however motivated or not, are also, necessarily, grounded in convention and thus, ultimately, usage; they are part of a (closed or open) signary that displays strong systemic features as a historical and functional result of the interplay of normative prescriptivity and emergent, usage-based, phenomena. By definition, then, a writing system, whatever its type, "consists in differences," like for example language does. This holds true not only for writing systems with schematic sign forms, but also for such with highly pictorial ones. In all cases, it is the—differential—relation of a sign (however pictorial and apparently directly "depictive" or not) with other signs of writing that makes it a sign *of writing* in the first place.

Signs of writing are also differential because among various types of semiotic systems, writing, more specifically, represents language, itself a differentially articulated system.[2] A writing system, to be sure, has a visual dimension, hence elements of continuousness (most prominently so in hieroglyphic scripts given their enduring pictorial engagement), yet, at the same time, a writing system has a representative, or surrogationalist, function (a code for a code: writing stands for language) and thereby even stronger properties of discreteness. Any attested writing system, whatever its type, is hooked on language through both phonography and morphography in various interrelated forms, degrees, and combinations.[3] As a result, a writing system inherits the properties of articulatedness of the natural language(s) it represents on both the semantic and the phonetic planes. Signs of writing are then differential with respect to one another because the phonemes and (lexical and grammatical) morphemes they stand for are.

Signs of writing, furthermore, are "differential" at the level of their forms, beyond the trivial observation that they must be formally distinctive. Signs of writing are often formally calibrated with respect to one another so that they differ through fairly minimal differences only, which are thereby emphasized visually. In

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2. "Writing system" is here taken in the narrow definition, as representing language, and excluding other modes of notation (such as musical or mathematical notation) and semiographies (such as identity marks or traffic signalisation).

3. Note that purely phonographic representation—IPA—is a notation, not a writing system, and an artificial construct, not a natural, historically emerging, object. Conversely, purely semantic representation—semasiography—cannot be a representation of *linguistic* semantics.

complex writing systems,[4] the phenomenon is prominent, as to be expected given the high overall number of signs. It is most directly manifest in stroke and line-based systems, such as cuneiform and Sinitic ones in their classic incarnations,[5] with formal differences between pairs of signs consisting in the addition or removal of one stroke or line, *e.g.*:

(1a) 〇 phon. *ba* — 〇 phon. *zu* — 〇 phon. *su*

(neo-Assyrian Cuneiform, ca. 900-600 BCE)

大 *dà* 'big' — 天 *tiān* 'heaven' — 夫 *fū* 'husband' (Chinese)

Hieroglyphic systems—Egyptian and Mesoamerican ones—would at first seem to be different in this respect as they are based primarily not on strokes or lines, but on intensive forms: on forms, that is, that can vary in degrees of visual resolution and modes of formal actualization, or even morph. Yet, minimal differences are manifest here too, at the specific levels that any one such system emphasizes; thus, in the most schematic terms possible, contours (typically, Egyptian) or internally distinctive features (typically, Maya) **(1b):**[6]

(1b) (D56) in *rd* 'leg,' *mȝst* 'knee,' etc. — (D58) phon. *b* (Egyptian)

 HA' 'water' — phon. *ma* — phon. *ba* (Maya)

Against the various senses of "differential" just evoked—to do with the systemic nature of a writing system; with the surrogational function of writing as representing language; and with the nature of often minimal formal differences between the signs—the notion of "differential iconicity" introduced below is
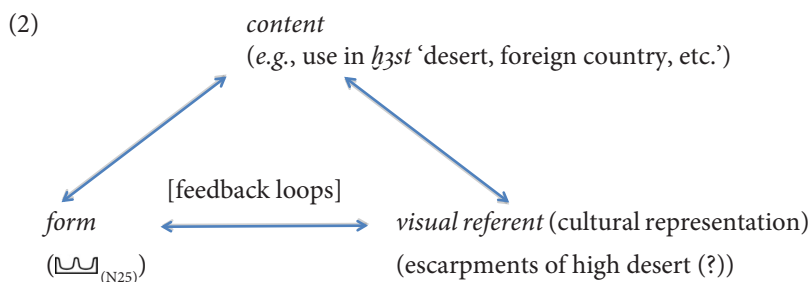
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4. In mainly phonographic systems too, calibration of forms pointing to minimal differences is observed: in alphabets (*e.g.*, Latin *C* and *G*, *p* and *q*), in abjads (*e.g.*, the differentiation of Arabic letters through diacritic points), or in abugidas (consider, *e.g.*, the signs forms for *ha*, *ka*, *ma*, *na*, and *sa* in the Meroitic (non-hieroglyphic) script: Rilly & de Voogt, 2012, p. 7; Rilly, 2007, pp. 231–358).

5. Note that in either domain, earlier historic forms are typically less strongly line or stroke-based, which formal regimentation then appears as the result of (emergent and prescribed) historical systematization (*e.g.*, Woods, fc.; Qiu, 2000).

6. Hieroglyphic signs are presented here mostly in standardized font types. This is admittedly a massive step of abstraction away from the actual incarnations of hieroglyphic signs (cf. Meeks, 2004; 2007, for Egyptian), yet one that should not adversely affect the specific argument developed here. Egyptian signs are mostly from the JSesh font (© Serge Rosmorduc), and accompanied by their Gardiner numbers (Gardiner, 1957³, pp. 438–548), expanded by the codes used in JSesh. Maya signs are drawn from Kettunen & Helmke (2014). Conventions of transcription follow the ones in usage in individual areal fields. Note, in particular: in early cuneiform, capitalized transcription stands for conventional readings (attributing later Sumerian values to the signs, the question whether the actual underlying language is Sumerian or not remaining open); in Maya, capitalized transcription stands for logograms (as opposed to phonograms).

defined per an additional reference to the *motivation* of the sign's content. A few preliminary comments on the notion of iconicity as understood in the present paper are therefore in order.

2. Referential iconicity

Applied to writing, the term "iconicity" is used in a bewildering variety of ways referring to, notably: the pictorial quality of signs; their potential for interplay with (elements in) pictorial representations; their interaction with and effects on the visual field in which they are deployed; their visual salience; or their ability to embody, reflect, and reinforce significant aspects of a cultural encyclopedia—more broadly to the visual dimensions of writing as transcending its instrumental function of representing the linguistic sequence. In the present paper, "iconicity" is defined in a substantially narrower sense: as bearing on the relation between the form of a sign and its content, and thus on this content's motivation.

In discussions of complex writing systems with pictorial sign forms (hieroglyphic ones) or developing historically from earlier stages with pictorial sign forms (cuneiform and Sinitic ones), iconicity-in-the-sense-of-motivation is generally addressed with a view on the visual referent of a sign, the entity that the sign "depicts" or otherwise points at.[7] At the simplest level, what may be represented as a schematic triangle then associates the form of a sign of writing, its content, and its visual referent **(2)**, with iconicity being conceived in terms of different types of "likeness," or lack thereof, between the content of a sign, on the one hand, and the form of the sign as pointing to a visual referent, on the other hand. The visual referent, of course, is not a given in the (real or imagined) world-out-there, but, necessarily, a culturally mediated representation. Moreover, just as the form of a sign of writing is determined by this culturally mediated representation, so it can itself reinforce, alter, or even trigger and ground this cultural representation in potentially complex and historically variable feedback loops. Thus, with an Egyptian example:

(2)   content
                    (*e.g.*, use in *ḫȝst* 'desert, foreign country, etc.')

            [feedback loops]

form   *visual referent* (cultural representation)

(⊔⊔(N25))   (escarpments of high desert (?))

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7.   The approach is illustrated in innumerable discussions of individual signs with a view on their (original and/or historically reinterpreted) visual referents hence on their motivation, both in shorter or lengthier philological notes and in sign lists. Apparently naturalized, the practice does not lead to much explicit discussion.

A sign of writing is then described as being motivated (historically and/ or synchronically, directly or indirectly) in relation to a visual referent (with or without subsequent semantic extension) or as having acquired a phonetic value per rebus (phonetic extension) from another value that is itself motivated in relation to a visual referent **(3)**. Pursuing this line of description, the referentially iconic relation could then be categorized as imagistic or metaphorical/associative (with no doubt many subtypes to be defined), only exceptionally as diagrammatic (to make a cursory allusion to Piercean hypoicons)[8] **(4)**. With Maya and Egyptian examples:

(3a)   BIH 'road'   –   per "representation" (the road as the place where the foot, itself a metonymy for the traveler, goes)

           phon. *bi*   –   per rebus

(3b)   in *rd* 'leg,'   –   per "representation"
      (D56)   *mȝst* 'knee,' etc.

      (D58)   phon. *b*   –   per rebus, from *bw* 'place'(where the leg stands)

(4)   imagistic: CHOK 'scatter'   – ⊙ (N5) *rʿ* 'sun'

       metaphorical/associative: K'IN-*ni* 'sun'[9]   – ⊙ (N5) *hrw* 'day'

While many signs can be described along the above lines by *one* level of possible analysis, this approach, the present paper proposes, also falls decidedly short in view of the documented semiotic complexity of human engagement with (making) visual forms and particularly signs of writing. Note, furthermore, that the associated and often repeated thesis of an allegedly generalized "pictorial origin" of early, pristine writing systems is reconstructive-introspective rather than empirical, as well as a by-product of ultimately neo-evolutionary trends in (anthropological) thought.[10]

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8.   Peirce (1960, pp. 2.276–277).

9.   The main sign is a flower with four petals, with multiple levels of associated symbolism, see Stone & Zender (2011, p. 152–163). The lower broad sign is a phonetic complement, *ni*.

10.   The ideological over-determination is directly manifest in the teleologic evolutionary line that is drawn from "pictography" ("picture-writing": an oxymoron of sorts) to, ultimately, the alphabet as a crowning cultural achievement (if not the most genuine form of writing) by authors that are themselves embedded in an alphabetic graphic encyclopedia (classic formulation: Gelb, 1963², with many descendents; for criticism, direct or indirect, *e.g.* Houston, 2004; 2012; Baines, 2010; Vernus, 2003; Glassner, 2000).

3. "Seeing as" (iconic)

Before moving on to introducing system-internal iconicity, a second preliminary comment concerns the fact that a sign is iconic (by whatever mode of iconicity) only in the eye of the beholder, that is, only when "seen as" iconic. Such "seeing as" can be heavily dependent upon a beholder's familiarity with and exposure to a particular cultural encyclopedia and associated codes of a visual culture. A sign such as **(5)**, for example, would be seen as a schematic form of some sort by most viewers, yet an ancient (only elite?) Maya (hence also Mayanist) would immediately see it as depictive, here of a lap, based on his cultural and visual knowledge of matters to do with accessing kingship and associated rituals such as sitting on a throne:[11]

(5)   CHUM[*mu*] 'sit'

   "Seeing as" is also very much a matter of entrenchment and thus a usage dependent category. To an undefined beholder, a sign such as **(6)** would look like some combination of strokes, yet someone conversant with the Chinese script would see it as including the sign for 'day, sun' (日), itself arguably seen as depictive of the sun given the latter sign's recurrence in yet further signs with allied semantics, the whole set of signs adding up to reinforce such automatically triggered representation:

(6)   昨   zuó 'yesterday' (SUN/DAY + phon. approximately *zuo*)
               cf. 日 rì 'sun, day,' and, *e.g.*, 明 míng 'bright'
               (SUN + MOON), or 星 xīng 'star'
               (SUN + phon. approximately *sheng*), etc.

   Entrenchment and usage are also parameters for one and the same reader fully conversant with a given writing system. De-textualized—outside fluent reading—both Egyptian signs in **(7)** could be seen as depictive of legs, the former including the knee, the latter limited to the part below the knee. In fluent reading, however, both signs could be seen differently. (The following observation is admittedly the present author's introspection into his own practice of reading Egyptian, and cannot be assessed in direct empirical terms for ancient readers, yet may have broader relevance given that it is based ultimately on repeated associations and thus on usage in fluent reading.) While both signs represent legs, one, 𓂝, is recurrently associated with words to do with legs (knee, running, etc.), while the other, 𓃀, stands solely for the phonetic value *b*. Given such associations in the lexicon, the former sign when encountered in reading will activate a network of lexical, hence semantic, assocations that are related to its visual referent, a leg. This opens the potential for 𓂝 to be seen as a leg, much more than for 𓃀, which in fluent reading

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11.   Compare Stone & Zender (2011, pp. 62–63).

will be scanned merely for its phonetic value, *b*, as a component of the phonetic substance of a written word. This relation of course obtains only in fluent reading, and can be undone: when one looks at ⌐ *as such*, either in isolation or in non-fluent reading, the sign can be seen for itself, that is, *as a sign* (a semiotic complex, not a surrogational vehicle for an automatically triggered value any longer):

(7)   [leg glyph]   in *rd* 'leg,' *mȝst* 'knee,' etc.   —   seen as a leg

        [leg glyph]   phon. *b*   —   seen as standing for the
                                                                 (automatically triggered)
                                                                 phonetic value *b*

As has just been hinted at, the effects of entrenchment and usage can also be undone in specific practices of writing that induce a de-automatized reading. Signs of writing can be made the object of a particular material or aesthetic investment or staging of writing as such (as is often prominently the case, not only in hieroglyphic graphic cultures). The visual qualities of the signs—their visual incarnation, their pictoriality, hence also their visual referents—are then foregrounded against the values they surrogationally stand for. Similarly in forms of writing that are not necessarily distinguished by their degree of material or aesthetic incarnation, for example certain practices of enigmatic writing in the Egyptian New Kingdom (1500–1100 BCE)[12] and visual poetry with writing more broadly,[13] situations are brought about in which signs attract attention to themselves by virtue of their difficult-to-read nature and/or visual otherness vis-à-vis regular writing. Reading is then de-automatized and the reader made to "stumble upon" the signs, engaging these *as signs*—in all their complex nature, including their visual referents—rather than running across them as vehicles surrogationally standing for values automatically triggered in fluent reading.

The above emphasis on "seeing as" as an important parameter of the iconic relation is of course not to mean that signs of writing do not inherently differ in their iconic potential: a given sign of writing, to be sure, makes a more or less strong proposal for it to be seen as iconic, or not. In all cases, however, the actualization of this iconic potential of a sign will ultimately be with the viewer's engagement with the sequence of written signs. Iconicity, then, is dependent on different viewers, and also on different types of engagement with a written text by one and the same viewer: for example, the actors that originally devised the signs over against subsequent users in historically later varieties of the scripts; users with varying degrees of graphic literacy ranging from scribes engaged in mundane book-keeping activities all the way up to, for example, sacerdotal or ritual specialists of

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12.   Darnell (2005); Klotz & Stauder (fc.).

13.   Morenz (2008). In Ptolemaic temple inscriptions specifically (300 BCE – 200 CE), *e.g.*, Leitz (2001; 2008); Cauville (2002).

writing; modes of presentation of writing geared at fluent reading against such that emphasize the visual surface of the written text or foreground writing as such; or ancient actors against modern scholars with research agendas bearing on matters of iconicity.

The matter of "seeing as" also leads to a general methodological caveat to do with ancient Egyptians' perceptions and Egyptologists' perceptions of anything iconic. Against the backdrop of the fact that the perceptions of the former are irrecoverable, three assumptions underly the argument that follows. First, both Egyptians' perceptions and Egyptologists' perceptions are inherent plural (see the whole preceding discussion, which could be much extended). Accordingly, a simple binary opposition or contrast between the two lacks any substance. Second, cultural differences are major, and possibly even more so than one would be inclined to recognize given ever recurring tendencies to naturalize one's object of study. Yet there are also some general cognitive mechanisms in common, ultimately to do with the mental wiring of the species. Third, the particular mode of academic discursivity of which the present paper is a token (including explicit analytic exhibition of noted phenomena) would of course have been thoroughly alien to any ancient actor. Yet ancient practices with the signs amount to an implicit metadiscourse on these, which can be partially recovered, just like linguistic practices amount to an abundant implicit metadiscourse on these even in the absence of any field such as linguistics.

4. System-internal iconicity

Iconicity is classically analyzed as bearing on a perceived relation of "likeness" between the content of a sign of writing and its visual referent, the latter pointed at by the form of the sign. One central feature of any writing system, however, is also this: signs of writing "resonate"—entertain relations of various sorts—with other signs of writing *qua* being signs of writing. In part, this follows directly from the fact that writing systems are determined by, precisely, systemic features (prescribed and/or emergent ones; cf. the introductory remarks on other uses of the term "differential"). On an immediately practical level too, signs of writing resonate—entertain relations—with other signs of writing in usage: they do so at the level of the signary, mentally internalized by active users; and they do so in the signary's incarnations in textual artifacts—composed, seen, and read by people—in which signs of writing sit next to other signs of writing.

System-internal iconicity has to do with how signs of writing resonate—relate—directly with one another *qua* being signs of writing. Not all such resonances, however, qualify as system-internally iconic in the sense in which iconicity itself is defined in the present paper: in relation to motivation. For example, all writing systems have a certain visual economy or regimentation by which signs of writing in any one given writing system will tend to resemble one another more than they

resemble signs of any other writing system.[14] When fluent reading is at stake, this homogeneization of the signary's overall visual quality is essential notably in keeping the visual salience of the individual signs of writing low within the written sequence to allow this sequence to remain visually and semiotically transparent enough to the linguistic sequence it stands for. Formal regimentation is also essential to the particular aesthetics associated with a great many, if not all, writing systems, which in turn can be strongly indexical (of, *e.g.*, cultural identity). While system-internal, formal matters are here at play, not motivation.

"System-internal iconicity" is then defined as the various modes by which signs of writing resonate with—relate to—one another directly, not only formally, but in ways that bear on their value or content. System-internal iconicity is of course pervasive in language as well, notably as a result of various types of analogical processes (*e.g.*, Polis, 2008). However fruitful this would be, the following renounces making any further comparison between the two domains, language and writing systems, limiting itself to noting two very general points. First, system-internal iconicity would seem to be generally central to semiotic systems. Second, both language and writing systems are based in usage, and there is good indication that system-internal iconicity too is ultimately emergent through usage in either domain. It should be noted, however, that usage and agency are also different in language and writing systems: for example, one does not have the option not to speak, and agency shaping a writing system may be limited to a much smaller group of people, with thorough-going effects on whatever may be hinted at by images of the "invisible hand," in language and in writing systems.

Turning to writing systems, then, similarities in forms (which may or may not reflect similarities in visual referents) can be associated with similarities in values (as relevant in a given culture). In **(8a)**, the Maya signs for TUN, WITZ, and KAB' relate to one another directly through similar internal details; the signs reflect a cultural conception by which stone, hills, and earth are related, and entertain rich relations with conventions in related pictorial representations.[15] In **(8b)** similarly, the signs for ḫ3st and ḏw are formally related to one another, reflecting a conception of 'foreign country' as mountainous (unlike Egypt, not riverine), while the sign for 3ḫt 'horizon' can be seen as reflecting a cultural conception of the horizon as associated with Western mountain ridges, from which the sun rises:

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14. On the most elementary level, think, for example, of the rounded shapes of Maya glyph blocks and their internally dense elaboration, the specific visual quality of cuneiform and Chinese writing as resulting from the combination of a small number of basic strokes, or the near-continuous superior line in many Indian scripts.

15. Stone & Zender (2011, pp. 168–189, 138–139, 137–138).

(8a) TUN 'stone' — WITZ 'hill, mountain' — KAB' 'earth'

(8b) $_{(N25)}$ ḫꜣst 'foreign/mountain country' — $_{(N26)}$ ḏw 'mountain'
— $_{(N27)}$ ꜣḫt 'horizon'

Beyond whatever levels of (for example referential) motivation a sign may or may not also have individually, an additional bind or motivation is here given at the level of the small group of associated signs as these relate to one another. The phenomenon, which I suggest to term "relational iconicity," represents the broadest manifest of system-internal iconicity and is pervasive.

An important sub-type of relational iconicity is what I propose to term "derivational iconicity," referring to cases when signs of writing relate to one another through a derivational relation specifically (with the now familiar condition that this (derivational) relation is not just formal but has direct effects on motivation itself). Among several possible modes of such derivational iconicity, two are illustrated here: diacrisis, consisting in the augmentation of a sign of writing through a graphic element that is a mere marker, not itself a sign of writing, to yield a new sign of writing with a value related to the first **(9)**; and semantic compounding, consisting in the combination of two independently existing signs of writing to yield a third, the value of which is related to the values of its two component signs **(10)**:[16]

(9) SAG 'head'   →   KA 'mouth,' etc.[17] (late fourth mill. BCE cuneiform)

16. Only a few hints at a vast discussion can be given here. On sign derivation in early cuneiform, *e.g.*, Glassner (2000, pp. 161–215); Gong (1993); Woods (fc., §6.1.2); in Chinese, *e.g.*, Qiu (2000); on early (late fourth and early third millennium BCE) cuneiform, *e.g.*, Johnson (fc.; describing what is here called "diacrisis" and "compounding" as "hard diacrisis" and "soft diacrisis," respectively); on semantic compounding in Chinese and beyond (*huìyì* in native Chinese terminology, *diri* in Akkadian terminology describing Sumerian), *e.g.*, Behr (2006); for semantic compounding in Maya, Zehnder (1999, pp. 70–83). In Egyptian, diacrisis in only limitedly attested in the cursive, Hieratic script (whence it was secondarily introduced into hieroglyphs); based on a preliminary survey by the author, what would come close to semantic compounding is only marginally productive, not forming a regular mode of derivation (paper presented at the Signs of Writing III conference, Paris 25–27 July 2016). Productive modes of sign derivation from other signs in Egyptian the whole issue remains much under-investigated) include those discussed below as differential iconicity, formal combinations of signs retaining their individual values ("composite hieroglyphs": Fischer, 1977), and various types of augmentation of signs by addition of visually meaningful elements (examples: Lacau 1954, pp. 54–76).

17. Formally, a SAG sign with hatching (SAG.*gunû* in later Akkadian native terminology). On early instances of such augmentation by hatching, *e.g.*, Johnson (fc.); Glassner (2000, pp. 171–173 and fig. 7).

(10) 明   míng 'bright' (SUN + MOON) (日 rì 'sun, day' + 月 yuè 'moon')

GU₇ 'disbursement' (SAG 'head' + NINDA 'ration')
(late fourth mill. BCE cuneiform)

PAS 'to dawn' (CHAN 'sky' + K'IN-*ni* 'sun' +
KAB' 'earth') (Maya)

ȝḥt 'horizon' (*ḏw* 'mountain' + ⊙ *r*ꜥ 'sun') (Egyptian)

"Differential iconicity"—the main topic of the present paper—is a further sub-type of relational iconicity, partly overlapping with "derivational iconicity." In "differential iconicity," it is the difference itself between these signs that provides the motivation of the value of one or even both signs. As a first summary Egyptian illustration, the second sign in **(11)** thus differs from the first mainly by the raised back foot.[18] Crucially, it is this very difference that points to the more specific value of the second sign, *fast* motion (further discussion below, §8):

(11) ⋀ (D54) generic motion ('come, go, etc.') (late D.0–)[19]

⋀ (D287) *fast* motion, specifically ('run, hurry, bring') (D.5–)

Whenever it implies a (historical or otherwise) derivation of one sign from another (more basic or historically earlier) one, differential iconicity may be viewed as a subtype of derivational iconicity, broadly understood (thus in **[11]**). Unlike classical modes of sign derivation (such as, *e.g.*, the ones illustrated in **[9]**–**[10]**), however, differential iconicity does not involve the augmentation by a diacritic mark or compounding: rather, the two signs that stand in a differentially iconic relation would both look similarly basic if not for the differentially iconic relation itself. Moreover, cases of differential iconicity are found that do not involve the derivation of one sign from another at all (thus **[12]** below, and compare the discussion below regarding **[18a–b]**). Differential and derivational iconicity thus appear as only partly overlapping, both being sub-types of relational iconicity. As to be developed later, the specific visual quality or cohesion of differentially iconic relations is also one reason why differential iconicity entertains complex relations with referential iconicity itself.

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18. Thus in hieroglyphic font; in actual hieroglyphic forms, the legs also tend to be more elongated, emphasizing fast motion further.

19. Henceforth, "D.1–" and sim. (read: "from the First Dynasty on") indicates early attestation of a sign or value.

5. Introducing differential iconicity further – Nilotic weapons and hoes

To introduce differential iconicity further, the following pairs of signs are proposed for consideration. In **(12)**, the first sign, depictive of a harpoon, serves as a logogram (or radicogram[20]) for the root $\sqrt{w}$ʿ as in 'one,' and also as a phonogram for the sequence of consonants wʿ. The second sign, depictive of an arrow-head, serves as a logogram (or radicogram) for the root $\sqrt{sn}$ as in 'two,' and later also as a phonogram for the sequence sn:

(12) (T21) $\sqrt{w}$ʿ 'one'   phon. wʿ

(T22) $\sqrt{sn}$ 'two'   phon. sn

None of the values of these signs can be reconduced to the visual referents of the signs, tokens of Nilotic culture; nor can the phonetic values be derived per rebus.[21] Rather, it is the very differential relation between the visual referents of the signs—a *one*-barbed harpoon, a *two*-barbed arrow-head that motivates the logographic (or radicographic) values of the signs— $\sqrt{w}$ʿ 'one' and $\sqrt{sn}$ 'two,' respectively—from which the phonetic values are derived in turn, per rebus.[22] The important point is this: that should be seen as *one*-barbed (and hence associated with the value $\sqrt{w}$ʿ 'one') is possible only in relation to the fact that the can be seen as *two*-barbed (and hence associated with the value $\sqrt{sn}$ 'two')—and vice-versa. Both signs are attested from the early First Dynasty on (ca. 3000 BCE), strongly suggesting that they may have been devised directly as a pair.[23] Moreover, differential iconicity

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20. Radicograms stand not for one word, but for a whole series of words derived from the same linguistic root (Schenkel, 2003). The presence of radicograms in Egyptian writing reflects the root-and-pattern (or "interfixing") morphological type of the language.

21. A word wʿ 'harpoon' is attested in the Late Period only (first by the mid-first millennium BCE; see Collombert, 2010, p. 138), while the regular word for 'harpoon,' mʿ$b3$ (including the very sign in its spelling), is attested from the third millennium on. This strongly suggests that Late Period wʿ 'harpoon' is a neologism based on the phonetic value of the sign of writing itself (rather than an ancient word from which this phonetic value wʿ would have been derived per rebus). Regarding , a word $sn.t$, probably with a meaning along the lines of 'spear(head),' is attested at least once by the very early second millennium (*Beni Hassan* I, pl. 34, main legend, 7; cf. Griffith, 1898, p. 62). This is in all likelihood a neologism too in view of the following: if the sign were derived from an ancient word *$sn.t$ 'arrow-head' per rebus, the phonographic value of the sign (sn) should be as ancient as the logographic one ($\sqrt{sn}$ 'two') as both would then be equally derived by rebus from an altogether different word. The opposite is the case: in early times, the sign is used exclusively for words based on the root $\sqrt{sn}$ 'two,' while words that have the phonetic sequence s-n-X are written with the phonograms s and n—not , which comes to adopt the phonetic value sn only later (Sethe, 1910, p. 36; cf. also Kahl, 1994, pp. 734–735, and n. 2296).

22. Griffith (1898, p. 62); Vernus (2003, pp. 217–218).

23. For , see Kahl (1994, pp. 734–735); for , the classical form is documented from the Second Dynasty on (*Ibid.*, pp. 733–734) but an earlier form of a one-barbed harpoon is attested by the

appears to be not a secondary sophistication of Egyptian writing, but present from the very beginning on.

The pair of harpoons is not an isolated case. Two other signs have hoes—major tokens of economic activity in an agrarian society s their visual referents:

(13) ⟋ (U8)   phon. *ḥn*

   ⟋ (U7)   phon. *mr*

The Egyptian lexicon has a word *ḥnn* 'hoe' of undisputed and early attestation (*e.g.*, *Pyr.* 1394a[PM] = PT 560: Allen 2013) so that the motivation of the first sign, ⟋, is here per rebus based on an underlying referentially iconic relation with the object depicted. For the second sign, ⟋, no similar relation obtains in the absence of a word *mr 'hoe' in the Egyptian lexicon. Looked at individually, both signs depict hoes—just hoes. Looking at the same signs as a pair, ⟋ differs from ⟋ in that it represents a hoe specifically with a rope tying both parts together. As it turns out, the Egyptian lexicon includes a verb *mr* 'bind, tie,' hence the phonetic value of ⟋, *mr*, per rebus. The motivation for this value is thereby differentially iconic—per a difference that becomes only manifest when the two signs are looked at as a pair. Like the one and two-barbed weapons discussed above, both signs depicting hoes appear roughly simultaneously in the earliest written record by the early First Dynasty (ca. 3000 BCE),[24] suggesting that these were also devised simultaneously, directly as a pair.[25] As this example illustrates further, differential iconicity stands in no contradiction with representational coherence, which differs from referential iconicity: the hoe with the tying rope is fully representationally coherent, yet cannot be viewed as referentially iconic since its value is established only through the differential relational with the hoe without a rope.

Note that the motivation for ⟋ could be more complex yet. As a stabilized visual form, ⟋ is attested even slightly before the early First Dynasty, in late proto-historical pictorial compositions both in what seems to be war-like activity (*e.g.*, in the Libyan, or Cities', palette, probably as an instrument of royal agency hacking up enemy cities) and in highly ceremonial agricultural activity (*e.g.*, on Scorpion's macehead, with the king probably digging, or opening up, a canal).[26]

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early First Dynasty ('t1': *Ibid.*, pp. 739–740). As a visual form, ⤶ itself is already present in the celebrated Narmer palette (ca. 3050 BCE) both as part of an emblematic visual composition (a harpooning divine falcon hovering above a pictorial composition) and as a sign of writing with a different value (in the sequence HARPOON-WATERY_PLACE, not phonetically *wꜥ-š* for the name of defeated enemy, but, as I propose, quite literally, 'Harpooning (*msn*?) the watery-land'), both occurrences in echo to one another on the two faces of the palette.

24. Kahl (1994, p. 743–746); for early attestations of hieroglyphic signs, see also Regulski (2010).

25. On various other signs devised directly as pairs in early times, generally to express natural semantic pairs, Morenz (2011).

26. *E.g.*, Morenz (2004, fig. 11 and fig. 64, respectively).

This stabilized visual form was then secondarily recruited as a sign of writing to form a pair with another sign of writing, the hoe without a rope, acquiring its value per differential iconicity with the latter as described above. As it turns out, there is a word *mr* 'canal,' attested from the early First Dynasty on in the title *Ꜥḏ-mr*, perhaps initially in reference to a person in charge of having canals dug or monitored. In early times, *mr* 'canal' in *Ꜥḏ-mr* is written with a different sign (a channel filled with water: ▭), to be sure, yet the activity of the *Ꜥḏ-mr* seems to have had 'canals' (Egyptian *mr*) or the like as one of its objects, and could further be related to the ceremonial activity represented with the visual form ✍ on the Scorpion mace head alluded to before. The phonetic value *mr* for ✍ may then have found here another, indirect, level of motivation,[27] so that the motivation of the sign was reinforced on various, mutually non-exclusive, levels, resulting in multiple binds (no pun intended). Among other features of early Egyptian writing, this bears testimony to how semiotic complexity is not a secondary development of the system: against neo-evolutionary narratives implicitly postulating earlier semiotic simplicity, man's engagement with visual signs appears in the documented historical record to be rich from the outset.

6. A very brief formal typology of differential iconicity

Differential iconicity can take various formal modes. The present paper being about introducing the phenomenon as such, the following limits itself to illustrating some basic principles:

(14)   contrast of forms with closely related visual referents

       ↠   √*wꜤ* 'one'; phon. *wꜤ* (early D.1–)

       ⇓   √*sn* 'two'; phon. *sn* (early D.1–)

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27.   Independently from this, Egyptian has a verb *mri* 'desire, love' which may or may not be related to the root √*mr* 'bind'. One may then speculate on a possible underlying metaphor relating 'desire, love' and 'bind.' If so (!), this would then provide yet another level of possible motivation for the value *mr* of ✍ , inasmuch as this is seen differentially—again—as a hoe specifically with a rope *tying* its two parts together.

(15) augmentation (common) / subtraction (rare)

◁👁 (D4)   phon. *ỉr* (early D.1–); logogr. *ỉrt* 'eye' (D.3–)

→   👁 (D7)   *msdmt* 'eye-paint' (D.4–)[28]

→   👁 (D134)   *šp* 'be blind' (D.4–; rare)[29]

(16) morphing (common)

◖▭ (D46)   phon. *d* (early D.1–);[30] log. *d̠rt* 'hand,' *wdỉ* 'place, set' (D.5–)

→   ◖▭ (D49)   in, *e.g.*, *ḫf'* 'grasp,' *ꜣmm* 'seize,' *nd̠rỉ* 'take hold of' (D.5–)

A particular case is with orientation and perspective. Note that the orientation of the second sign in **(17a)** is not only against the basic sign, but also against the general orientation of asymmetrical signs with animate referents, thus against the flow of reading itself.

With perspective similarly **(17b)**, the frontal perspective is not only against the basic sign, but against more general visual conventions in signs of writing and in pictorial representations more broadly:[31]

(17a) orientation

⌃ (D54)   in events of motion (early D.1–)

→   ⌃ (D55)   in *ỉwỉ* 'come (to the speaker)' (D.4–); later also in, *e.g.*, *'nn* 'turn back,' *ḥmỉ* 'return,' *ḥm-ḫt* 'retreat'

→   ⟩ (D287)   in *ḫr* 'fall' (rare, *e.g.*, Pyr. 435aᵂ = PT 293)

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28. The derivation can here be described as diacritic (see above, "derivational iconicity") inasmuch as the formal marker by which the bare eye is augmented is not an individually existing sign itself. At the same time, however, the resulting overall form is also representationally meaningful rather than just deictically (compare and contrast with early cuneiform KA 'mouth' = SAG 'head' + hatchings at the level of the mouth, **(9)** above), hence its inclusion here under the heading of differential iconicity.

29. On this sign, Collombert (2010, p. 29).

30. Per rebus from a word **yad* 'hand,' not attested in the standardized language that forms the Egyptian historical record, but common in Semitic languages, and thus arguably present also in some linguistic varieties that were part of the no doubt multilingual linguistic landscape of late fourth and early third millennium BCE Egypt. See Loprieno (1983, p. 1214); Lacau (1970, pp. 11–13); Helck (1955).

31. For the second sign, and for frontality in Egyptian pictorial representations, Volokhine (2000).

(17b) perspective (rare)

tp 'top, head' (early D.1–)

→ $ḥr$ 'face' (early D.1–)

Moreover, the difference in orientation can be against general experience of (gravity in) the physical world. Here, differential and referential iconicity reinforce one another (thus in the third sign in **17a,** and similarly **18a–b**):[32]

(18a) orientation

in, e.g., $ỉnb$ 'wall'

→ $wḫn$ 'throw down,' $sḫnn$ 'demolish,' $gs3$ 'tilt'

(18b) orientation

in words for boats and to do with sailing

→ $pnˁ$ 'upset, overturn'

7. Depictive, yet differentially derived – human figures

The Egyptian hieroglyphic signary includes a great many full-figured human (or divine) signs. Given their high pictorial quality, compounded with the general salience of human representations, these signs are easily viewed as direct representations and thus as prime examples of referential, or system-external, iconicity. All the more so, example is taken here of signs in this very category to demonstrate how things are more complex.

To be sure, the repertoire of full-figured human signs includes a sizeable number of signs that are direct representations **(19a)** or differentiated through the (directly represented) objects they hold **(19b):**

(19a)   (etc.)

(19b)   (etc.)

This mode of generating signs was particularly productive during the early formative period of Egyptian writing (ca. 3050–2700 BCE).[33] It would continue to be in later times especially in ludic or otherwise extended display varieties of Egyptian writing, culminating in a massive expansion of the repertoire of precisely

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32. On derivation of signs by orientation, further, Lacau (1954, pp. 54–56).

33. Compare the relevant tables in Regulski (2010) and Kahl (1994).

these types of signs in Ptolemaic temple inscriptions.[34] No less noticeable is the fact that among the early signs thus devised, a sizeable share would drop out of use, or became less common, by the end of the formative period and the transition to the Old Kingdom (ca. 2800–2650 BCE), *e.g.*:

(20)   (etc.)[35]

From roughly the same period in time onward, new, differently devised signs begin to appear, bearing testimony to a profound re-organization of the sub-repertoire of signs of full-bodied men. Consider, for example, two signs of seated men **(21)**. The first, the visually most neutral sign to depict a man, was used first after proper names on funerary stelae as well as a pictorial representation of th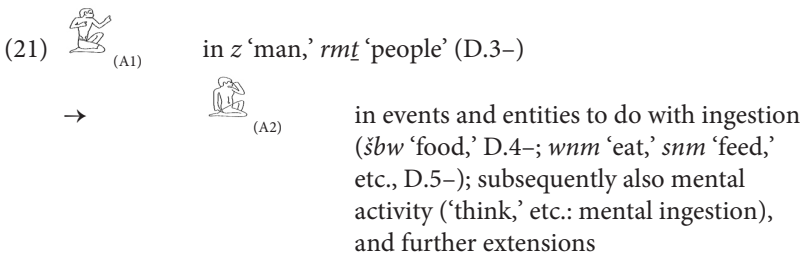e deceased (from the early First Dynasty on),[36] then fully as a sign of writing in the words 'man' and 'people.' The second is used for entities and events to do with ingestion as well as mental activity (construed as mental ingestion, per a metaphor that is not uncommonly reflected also in the grammar of natural languages[37]):[38]

(21)   (A1)   in *z* 'man,' *rmṯ* 'people' (D.3–)

→   (A2)   in events and entities to do with ingestion (*šbw* 'food,' D.4–; *wnm* 'eat,' *snm* 'feed,' etc., D.5–); subsequently also mental activity ('think,' etc.: mental ingestion), and further extensions

Visually, the second sign differs from the first only minimally, through the position of the front arm, raised to the mouth.[39] The difference is deictic in a double sense: first, when the second sign is viewed in isolation, the raised arm points to the very place where ingestion (literal or metaphorical) takes place. Second, when the pair is viewed as such, as a pair, the two sign forms are identical in all parts except

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34. Compare the relevant sections in the sign lists by, *e.g.*, Daumas et al. (1988); Kurth (2007).

35. From Regulski (2010); for the change, compare the repertoires in Regulski (2010) and Kahl (1994), early Dynastic, with Schweitzer (2005), fourth Dynasty, and Collombert (2010), in one early Sixth Dynasty funerary chapel.

36. *E.g.*, Martin (2011).

37. Thus, in the semantic change observed with *ꜥm*, Old and Middle Egyptian 'eat' > from Late Egyptian on 'learn, know.'

38. The drawn (as opposed to font) hieroglyphs are from the tomb of Mereruka (ca. 2300 BCE; Collombert, 2010).

39. The position of the back arm is generally correlated with the front arm, although not fully prescribed: variation is to be observed here (the back arm can be bent like in the neutral seated man), demonstrating that the front arm is here distinctive (Collombert, 2010, pp. 2–3 and 3, n. 2).

for the position of the arms; what is identical between the two sign forms (most of it) then functions as what may be called a common "ground," contrastively high-lighting, and thus pointing to, what specifically is minimally different—here, the (front) arm only. The element that, in the second sign, is deictic—pointing to the mouth—is then itself pointed at—deictically emphasized—through the minimal difference that obtains between the pair, viewed as a pair. This illustrates how more generally deixis is necessarily present in differential iconicity: when signs that are minimally different are viewed as a pair, the minimal difference—set against the background of all other things being equal (the "common ground")—is pointed at.

The sign of the neutral seated man contrasts minimally with a variety of other signs in similar ways, *e.g.*:

(22a) ()   →   (A4)   in *šmȝ* 'flee,' *(s)dḥ* 'hide (oneself), conceal' (D.5–)[40]

(22b)   →   (A3)   in *ḥmsi* 'sit (down)' (D.4–)

(22c)   →   (A9)   in *kȝt* 'work' (D.3–), *fȝi* 'carry' (D.4–), *mstti* 'worker' (D.4–)

The first **(22a)** differs from the neutral seated man only by the position of the hands raised with palms turned inward. Meanwhile, all other things—the head, the torso, and most notably the seated position—remain identical. In **(22b)**, the minimal difference concerns the position of the back leg, while all other things— note in particular the other leg and the positions of the arms along the body— remain identical with respect to the neutral seated man. The result is substantial visual incongruity: if one were to actually sit down while keeping the position of one's arms such as of an already seated man, one might well fall onto one's side. In **(22c)**, the minimal difference concerns the gesture of carrying a basket on top of the head, all other things—note in particular the seated position—remaining identical. Here too, the result is visually incongruous: if one is to conduct work, particularly such as carrying, one better stand up.[41] In all these cases, what remains identical (the common ground) contrastively reinforces what minimally differs. This in turn points to—deictically emphasizes—what establishes the value of the sign derived per differential iconicity. Whenever the interplay between the common ground and the minimal difference results in visual incongruity, the deictic emphasis on

40.   Collombert (2010, pp. 3–6); also Meeks (2007, pp. 7–12).

41.   In **(22a)** too, visual incongruity is observed, when the sign is used with events of 'fleeing': if the man were to flee, he would do better to run rather than remain seated. Uses of the sign with events of 'fleeing' are of course here by extension from uses of the same sign with events of 'hiding', in which the figure could at least in some cases remain seated. Visual incongruity obtains here when the overall semantic spectrum of the sign is considered.

the minimal difference that iconically establishes the value of the derived sign is underscored even further.

While resulting visual incongruity of the sort just introduced is limited to some signs only, a great many among the full-figured signs are determined by minimal differences, for example the positions of the arms **(23a)**, the positions of the figure (the legs, the back) **(23b)**, and/or elements held **(23c)**, all other things remaining typically equal:

(23a) ( ) → (etc.) (etc.)

(23b) → (etc.) (etc.)

(23c) → (etc.) (etc.)
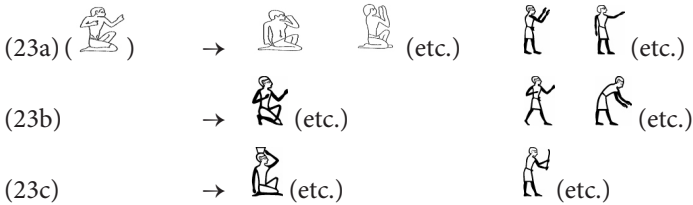
Such minimal differences are here not all differentially iconic (some of these signs in the outer right column in **(23)** may be viewed as referentially iconic) but in all cases deictic in effect: they point to the value of the sign, establishing it (in cases of differential iconicity) or reinforcing it (when established already through referential modes of iconicity). Important are these: first, there is no contradiction for a sign to be both representationally coherent and derived. Moreover, the neutral seated man ( )—while fully pictorial in its own right—appears, simultaneously, to be an abstract matrix for derivation.[42] It is based on this abstract matrix, playing with deictically effective minimal differences and in part differential iconicity, that the sub-repertoire consisting in signs of full-figured men was thoroughly reshaped and systematized during the transition from the formative period of Egyptian writing to the early Old Kingdom (ca. 2700–2500 BCE).

The above analysis of signs of full-figured men, carried out so far only in the hieroglyphic domain, finds an additional confirmation in the sign forms of the both genetically and structurally related, more cursive hieratic variety of Egyptian writing. In the most schematic terms and leaving aside all issues to do with the cursive ductus and different modes of execution, hieratic also displays emergent systemic features (like any script does) reflecting both requirements of distinctiveness and tendencies to formal regimentation. In particular, signs of full-figured men not uncommonly emphasize precisely the elements that make for the minimal differences already deictically emphasized in hieroglyphs. Meanwhile, the

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42. Going further, some partial equivalence between signs of seated and standing men, as well as between body parts and standing men, can also be noted (some signs may be partially specialized: details are complex and historically variable). Moreover, like signs of seated men, signs of standing men can differ only minimally, *e.g.*: ~ in 'hide, flee,' or ~ with events of strongly agentive action; contrast vs. . While not existing as a sign of writing in itself, the underlying "neutral standing man" can then be viewed as a secondary, *covert* abstract matrix for further derivation.

elements that form the common ground between various related full-figured hiero-
glyphs (in particular the bodies and the heads) tend to be strongly abbreviated,
often to a mere stroke, the main function of which lies in ensuring the formal
cohesion of the hieratic sign form as such. In many ways, hieratic then lays bare
what, no doubt also in native practice and perception, makes the relation, and dis-
tinction, between the signs. *E.g.*:[43]

(24)   ((A1))

→   ((A2))   (hand-to-mouth, cf. **(21)** –
                                                                events of ingestion, etc.)

→   ((A24))   (standing, holding stick –
                                                                events of strongly agentive
                                                                action)

8. Derivational iconicity and referential iconicity

Differential iconicity (pertaining to the broader domain of system-internal
iconicity) is not exclusive of referential (or system-external) iconicity; the relation,
moreover, is dynamic. Consider, for example, the two signs depicting hands dis-
cussed above **(16)**, repeated here:

(25)   phon. *d* (D.1–);
                                   logogr. *ḏrt* 'hand,' *wdi* 'place, set' (D.5–)

→   in *ḫfꜥ* 'grasp,' *ꜣmm* 'seize,' *nḏri* 'take hold
                                     of' (D.5–)

    Taken in isolation, both are depictions of hands—just that: hands. Accord-
ingly, the specific values assigned to each sign could not be motivated as long as
each is viewed in isolation: after all, a writing system could very much make the
choice—a convention like any other—that a grasping hand should be the neutral
representation of a hand. (Hands, among other things, are metonymical extensions
of human agency, as is also often reflected in natural language including in Egyptian
itself; that they should be represented neutrally as grasping, *i.e.* as taking hold of
and acting on things, would be a fairly natural choice.) The two signs, then, are not
referentially iconic, even though pictorial and depictive: it is only the difference
between the signs—which becomes apparent when the signs are looked at as a

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43.   Hieratic forms: Elephantine papyri, Sixth Dynasty, ca. 2250 BCE (after Möller, 1909–1912,
      vol. I).

pair—that makes for the different values of the marked, grasping, hand as opposed to the unmarked, generic, hand—iconicity is differential.

There is an important twist, however. For the differentially iconic relation to be established, the two signs must be associated with one another in the first place. In this association, they must furthermore be viewed not just in terms of their formal contrast, but in terms of their visual referents—here, hands, of different types as comparison reveals. This is not referential iconicity, to be sure (as just repeated, a view on the individual visual referents does not suffice to establish the value of either sign); no less, a view on the visual referents is required to establish the differentially iconic relation itself. This is the case in general; to repeat the argument with another example: as discussed, the relation between the *one*-barbed harpoon and the *two*-barbed arrow-head is differentially iconic (the values of the signs—⤣ √*w* ' 'one,' phon. *w* '; ⇓ √*sn* 'two,' phon. *sn*—cannot be derived from their individual visual referents). Yet, the two signs will be associated in the first place only inasmuch as a certain similarity in their visual referents, here two tokens of Nilotic fishing/hunting, is recognized; moreover, this association must be recognized to be not merely formal, but meaningful (*one*-barbed vs. *two*-barbed). Here too, the relation is differentially iconic, and only that, yet for it to obtain at all, it must imply a view on the visual referents of the two associated signs. In a similar vein, it was noted that differentially iconic minimal differences can result in, and be heightened by, visual incongruity (thus, with regard to 𓀔 'sit down' and 𓀻 'work, carry,' all differentially derived from the abstract matrix 𓀃 **[22b-c]**). Visual incongruity—reinforcing the deictic emphasis on differential iconicity—exists only with respect to a visual referent: here again, differential iconicity feeds on, and is even reinforced by, a view on the visual referent.

While clearly distinct from referential iconicity, differential iconicity thus requires a view on visual referents for the two signs to be associated in the first place. Moreover, once this relation is established, the signs can in fact be seen as referentially iconic. Going on with hands **(25)**: the grasping hand ⊂ can be "seen as" referentially iconic—it does represent "a grasping hand," after all, all representation being conventional in the end—and would certainly be seen as such by most users of the script, Egyptians and Egyptologists alike. One reason here is simply usage: both in mental representations of the signary and in practices of writing (writing, reading), the (repeated) association of ⊂ with words to do with the semantics of 'seizing,' 'taking hold,' and the like will arguably end up reinforcing a "seeing" of the sign "as" representing a grasping hand, beyond the differentially iconic relation analyzed above.

But the preceding must also be rephrased more precisely as: the repeated association of ⏢ with words to do with the semantics of 'seizing,' 'taking hold,' and the like—*and, simultaneously, not with more neutral linguistic semantics to do with 'hand,' which, for their parts, are associated with* ⏢—will arguably end up reinforcing a "seeing" of the sign "as" representing a grasping hand. Granted, then, that that the two signs form a sub-system, their linguistic associations will have the effect of reinforcing the already existing perception of the *differentially* iconic relation between the signs—which relation, in turn, makes it possible to see the grasping hand not just as *a* hand, but as a *grasping* hand specifically. Differential iconicity here precedes, and in fact grounds, referential iconicity: it is the differentially iconic relation between the two signs of hands that provides the conditioning possibly for the only (apparently primary, yet in fact secondary) referential iconicity of ⏢.

To repeat the argument with another example (cf. **(11)**): ⌃ generic motion ('come, go, etc.'); ⌃ *fast* motion specifically ('run, hurry, bring'). By users of the script (ancient and modern ones alike), the sign for fast motion, ⌃, is probably easily seen as, in fact, representing fast motion, thus in a referentially iconic mode. (This "seeing as" is here further mediated and powerfully reinforced by visual culture, as in the full-figured representation of fast(er) motion in pictorial scenes in Old Kingdom funerary chapels and royal funerary temples.) Here as well, however, the possibility for seeing ⌃ as directly referentially iconic finds its precondition in the differentially iconic relation of the two signs of writing (and associated modes of visual representation) with one another. If the signary included only ⌃, this could well have been a visual convention for motion-in-general: in the lack of contrast, there would have been no reason that the raised back leg should be a convention for *fast* motion specifically—after all, all motion should imply moving one's legs in a dynamic fashion.

9. To conclude

While iconicity, in the sense of motivation, is generally discussed in relation to the (however culturally mediated) visual referent of a sign of writing—referential, or system-external, iconicity—the present paper makes the case that system-internal iconicity is pervasive in complex (logo-phonographic) writing systems. System-internal iconicity—modes of iconicity by which signs of writing resonate with one another *qua* being signs of writing and do so in ways that are meaningful regarding their motivation—can be described broadly as relational iconicity, with two overlapping sub-types of such, derivational iconicity and differential iconicity.

In Egyptian hieroglyphs, the main focus of the present paper, the not unsubstantial presence of differential iconicity stands in no contradiction with the enduring pictorial engagement of the script. As the category of signs of full-bodied

men illustrates, signs that are depictive and representationally coherent are not seldom derived through minimal differences with strong deictic effect, and in part, it turns out, through differential iconicity itself. While a fully pictorial sign in its own right, the neutral seated man (🖎) also functions as an abstract matrix that played a central role in this derivational, and in part differentially iconic reshaping and systematization of the sub-repertoire of signs of full-bodied men that began with the transition to the early Old Kingdom (ca. 2700 BCE: see above, **(21)**–**(24)**). Other cases of differential iconicity are attested from the beginning of the formative phase of the writing system itself (ca. 3000 BCE, *e.g.*, **(12)**, **(13)**, **(17b)**), documenting that differential iconicity, and more generally semiotic complexity in making signs of writing, was present from the outset.

As noted, differentially iconic minimal differences can result in visual incongruity, in turn heightening the same differences (compare the discussion of 🖎 'sit down' and 🖎 'work, carry,' both derived from 🖎, **(22b–c)**). The remarkable fact is this: visual incongruity—incongruity in relation to an appreciation of the signs as depictive representations of "real-worldly" visual referents—is not perceived consciously as such until exhibited analytically. [44] Even highly pictorial signs of writing, then, are not necessarily seen solely in terms of their visual referents out-there-in-the-world including their cultural mediations, but also, just as much or more, in ways that are mediated by how signs of writing cohere visually and semiotically with other signs of writing.

What emerges as the possibly most fruitful venue for further research is the inherently dynamic (rather than categorically oppositional) relation between differential iconicity and referential iconicity (see the preceding section). For signs to be associated in a differentially iconic relation in the first place, a view on their visual referents (although not referential iconicity itself) is required. Even more remarkably, signs that stand in a differentially iconic relation to one another can and will, once that relation is established, be perceived as referentially iconic in usage. Differential iconicity then precedes, and forms a conditionning possibility for, the referentially iconic perception itself.

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44. On ancient Egyptians' perceptions, little can be said, sure; on Egyptologists' perceptions, one may observe that the present paper is the first to note the here discussed visual incongruities; if, as noted initially, an Egyptologist's mental wiring is broadly similar to the species' mental wiring in general, the proposal made here may hold true beyond the present author's introspection. In addition, it should of course be noted that analytic exhibition of relations between signs would have been of little concern to (all except perhaps very few) ancient actors.

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