THE LANGUAGE OF TECHNOLOGY: THE LIGHTER SIDE

Gianfranco Porcelli - University of Pavia

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I would be tempted to quote Francis Bacon: "Intermingle… jest with earnest" (*Essays*, 'Of Discourse') or at least the proverb that says "There is many a true word spoken in jest" to justify my choice, but I hope that although this approach of mine to the language of technology is, at first sight, quite a playful one, it will be clear in the end that it can shed some light on how scientists and technologists develop their language. This paper is largely based on E. Tenner's *TechSpeak or How to Talk High Tech*, London, Kogan Page, 1986, a book I was lucky enough to find at an airport bookshop before a long flight. The author is described on the back cover as an "executive editor of Princeton University Press [who] has encountered more (and more fearsome) Techspeak than most of us and has succeeded in turning a lot of it into perfectly intelligible English. He is, therefore, admirably qualified to reverse the process."[1]

What all this means is made clear right from the cover picture, showing a man in the street, with a spade in his hand, talking to a scientist and saying: "I like to call a spade a spade". The answer is "I prefer to call it a geomorphological modification instrument". Spades must have a very strong fascination — this idiom attracted Oscar Wilde, too:

> CECILY: When I see a spade I call it a spade.
>
> GWENDOLEN: I am glad to say I have never seen a spade. It is obvious that our social spheres have been widely different.
>
> *The Importance of Being Earnest*, Act I

Whether we look at spades from Wilde's sociological perspective or from Tenner's technological one, it is clear that *denomination processes* are crucial and that they are not confined to experts and insiders (Italian has a nice idiom for this: "addetti ai lavori") but they concern all of us in everyday life. In their turn, *denomination processes* are part of the more general category of *definition processes* that includes variously-labelled sub-processes.[2]

Quoting from Tenner's back cover again, "In the world of the 1990s those who like to call a spade a spade will find themselves stranded in a linguistic backwater, still stuck with the hopelessly out-of-date notion that the English language is a tool for communicating clearly and concisely. The

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1) Quotations without any references are all from Tenner (1986).

2) One of these taxonomies lists *denomination* alongside with: *equivalence*; *typifying* or *characterisation*; *analysis*; and *function*. For a discussion of this taxonomy see Porcelli 1998.

truth, of course, is that in the worlds of technology, business and government English is fast giving way to Techspeak".

TechSpeak: a few examples

If you can state that "A **material sectioning tool** (MST) consists of a ferrous-alloy invasive plane (FIP) and a metacarpal power-grip anchor (MPA)" why should you simply say that "a knife has a blade and a handle"? Nobody is going to be impressed by the latter! On the same page about **Prehensile-Adapted Force Transmission Devices**, under the picture of the MST, you can find the picture of a **geomorphological modification instrument** (GMI) showing that it consists of the lithosphere penetrating subsystem (LPS), a vertical leverage system (VLS) and a torsal muscular force brace (TMFB); a *TechSpeak Note* adds that an early proposed Tech-Speak name for the GMI was *geotome*.

The picture of the **Carbohydrate-Laminated Bovine Protein Wafer** shows its bipartite farinaceous comestible capsule (BFCC) containing homogenised bovine contractile fiber (HBCF) between a layer of bacterially coagulated lactic secretion (BCLS) and a lamina of nonprocessed vegetable enhancement (NPVE); the upper surface of the BFCC shows a randomized oleaginous germinal array (ROGA); the complete definition says that the carbohydrate-laminated bovine protein wafer (CLBPW) is a thermally processed, homogenized, lipid-rich, contractile-fiber-coagulated, acidified-vegetable-enhanced, farinaceous-buffered, constant-diameter thin-profile ruminant muscular-tissue disk for anthropoid mandibular-dental abrasive homogeneization and enzymatic-acidic pre-absorptive emulsification — if all this discourages you from eating a ***hamburger***, well… I cannot really say I'm sorry.

"The **Passive Solar Illumination Assembly** (PSIA) is a vertically installed, moisture-resistant photon-transmission aperture for sub-exospheric microclimate monitoring, with polished planar transparent amorphous-fused-silicate surfaces and manually adjustable gaseous infiltration/exfiltration capability." So, next time you open or close a ***window*** be more careful and respectful: you are handling a piece of hi-tech.

Other items in the "texicon" (i.e. TechSpeak lexicon) are the **Chromatic Pollination Motivator**, the ***In Vivo* Recombinant Genetic System**, the **Dual Carbohydrate-Oxidation Chamber**, the **Avian Embryo Nutrient Cartridge**, the **Fused Silicate Gravitational Containment Vessel**, the **Canine Seclusion Habitat**, the **Stereoscopic Image Correction System,** the **Terrestrial Rotation Emulators** and others. For the benefit of those few readers who at this point are still not familiar with texicon, here are the non-tech corresponding words: *flower, family, toaster, egg, a glass, kennel, eyeglasses,* and *clocks.*

From TechSpeak to ESP

These examples provide us with a wealth of material illustrating some very important aspects of English for Special/Specific Purposes (ESP). One of the features they capitalise on is the presence of a high number of adjectives of Greek and Latin origin referring to common objects that

have a simple and easy Anglo-Saxon name. Ibba (1988) noted this with reference to the parts of the body:

head/skull	cranial
brain	cerebral
eye(s)	optical
ear(s)	auricular
mouth	oral
tooth/teeth	dental
gums	alveolar
tongue	lingual
jaw	mandibular
throat	guttural / pharyngeal
shoulder	humeral
and all the way down to	
legs	crural
feet	pedal, podiatric, (meta)tarsal[3]

Many of Tenner's "taxa" (the building blocks of texicon) are adjectives of this kind; a first list of examples refers to animals:

If it relates to…	*Then it's…*
a cow or bull	bovine
a pig	porcine
a dog	canine
a cat	feline
a horse	equine
a lion, tiger, etc.	macro-feline
[...]	
a fish	ichthyic
a bird	avian
a chicken or turkey	gallinaceous
	[...]

[3]) Ibba developed this aspect with special reference to the teaching of English in a medical Faculty, to both undergraduate and graduate students.

Describing a hamburger as “constant diameter” rather than “round” calls for an elementary knowledge of geometry; but describing a slice of cheese as “a layer of bacterially coagulated lactic secretion” requires that the reader knows how cheese is obtained from milk. So the effectiveness of TechSpeak depends on how knowledgeable its users are about the scientific and technical aspects of the things they are re-defining. This brings us back to the long-standing debate on the relationship between linguistic competence and subject-matter competence in teaching ESP. For an ESP course to be efficient, an adequate amount of expertise in the subject-area is required — whether it should come from the teacher herself or from a collaborative process with students (and/or with the teachers of the specific subjects) is a matter that will not be discussed here. Even the reshaping of language for the sheer fun of it points to the need of keeping in touch with the real world and, in this specific case, with the advancements in science and technology.

How remote is TechSpeak from real language? Let us resort to the most authoritative source for English words, the *Oxford English Dictionary*:[4]

> **KNIFE** 1. A cutting instrument, consisting of a blade with a sharpened longitudinal edge fixed in a handle, either rigidly as in a ***table***-, ***carving***-, or ***sheath-knife***, or with a joint as in a ***pocket***- or ***clasp-knife***. The blade is generally of steel, but sometimes of other material, as in the silver fish- and fruit-knives, the (blunt-edged) paperknife of ivory, wood, etc., and the flint knives of early man.

Tenner may regret he missed out “longitudinal” — which also describes the cutting movement very well — but perhaps not: his full description is “The material sectoring tool (MST) is a low-mass, carpally reciprocating shearing-force disassembly instrument, equally categorizable as a nutrient-system ingestive accessory”. Using *carpally* implies that you know the names of the bones in your hands — exactly as *(meta)tarsal* above referred to the foot bones.

“The geomorphological modification instrument (GMI) is a somatic-mass-augmented skeletomuscular extension for palmar/plantar-effected mechanical multiphase aggregative organomineralic substrate exposure”. Does the *OED* call a spade a spade?

> **SPADE 1 a.** A tool for digging, paring, or cutting ground, turf, etc., now usually consisting of a flattish rectangular iron blade socketed on a wooden handle which has a grip or cross-piece at the upper end, the whole being adapted for grasping with both hands while the blade is pressed into the ground with the foot.[5]

The cross-piece at the upper end is typical of English spades and is not frequently found in an Italian ***vanga*** or ***zappa***. Most ***vanghe***, instead, have a foot rest above the blade to facilitate pushing the spade into the ground — could it be a “plantarly-operated geofractionator” in TechSpeak? Again, we cannot avoid referring to the real objects being defined or described.

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4) *OED* second edition on CD-Rom Version 2.0, OUP 1999, s. v.

5) *Ibid.*, s.v.

The recourse to less common words to define more frequent ones (e.g. *longitudinal, rigidly, flint* for *knife* and *flattish, rectangular, socketed* for *spade*) is precisely what has led to the development of dictionaries for foreign learners; one of these has a very clear picture showing the difference between a *shovel* and a *spade*: the captions are "shovelling coal" and "digging the garden" — which, incidentally, tells learners that *shovel* (but not *spade*) can be used as a verb.[6]

Defining processes need higher-order words to begin with: a *knife* is described as an *instrument* by the *OED* and as a *tool* by Tenner; a *spade* is a *tool* in the *OED* and an *instrument* in TechSpeak. Tenner proposes a TechSpeak Generating Algorithm and lists the words that function as default roots:

unit	cell	module	station
system	subsystem	device	structure
facilitator	effector	actuator	agent
substance	framework	matrix	node
vector	medium	transducer	instrument
mechanism	input	output	throughput
habitat	environment	assembly	commodity
artifact	nexus	icon	tool
aggregation	event	component	technology
configuration	parameter	increment	decrement

These "substantors" are commonly found in ordinary dictionary definitions, so TechSpeak users are advised to avoid them in favour of more specific terms; here is part of the list of "Active Substantors":

exchanger	generator	modulator	initiator
manipulator	converter	circulator	annunciator
stabilizer	separator	homogenizer	compactor
abrader	ablator	deflector	detonator
multiplexer	positioner	coagulator	suppressor
propeller	impeller	depressant	extruder

"Transmission Substantors" are semi-active; here are a few:

transponder	conductor	buffer	interface
simulator	emulator	emplacement	locator

6) *Oxford Advanced Learner's Dictionary*, 4th ed., 1989, s.v. *spade*.

distributor	protector	motivator	attenuator

The following list, "Passive Substantors", includes words like *substrate, wafer, barrier, projectile, arc, flexure, conductor, pipette* and a lot more. The next section deserves to be quoted in full:

"**Vocationals**

Of course, people are substantors, too, but in their occupations and not as human beings. A person who isn't a juvenile or an emeritus(-ta) is a:

professional	technician	analyst
operator	representative	officer
practitioner	consultant	associate"

Sure enough, the caption under the picture of a gambler playing dice reads "Stochastic Technician."

Another interesting section is the one giving the nouns to be used to describe actions; this is what studies on LSP call *nominalisation*:

If something…	*Call it…*
hits something that stops it	rapid deceleration
propels something else from rest	acceleration
twists something	torsion
makes something slide in two	shear
presses on something	compression
burns	oxidation or combustion
melts, vaporises, or condenses	phase-transition
stretches something	tension

Verbs can also be replaced by using adjectives, which, as attributes, are part of the noun phrase and as such contribute to nominalisation:

If something works by…	*Call it…*
human force	kinaesthetic
heating	thermal
cutting	ablative
freezing or even cooling	cryogenic
a combination of forces	synergetic

More adjectives can be used with reference to the parts of the body. Under the heading "Somatics" ("Parts of the body" is definitely *not* TechSpeak), we find among others:

If this acts…	*Call it…*
finger	dactylic, phalangeal, or digital
palm	metacarpal
wrist	carpal
forearm	antebrachial or ulnar
neck	cervical
pelvic bones (for sitting)	ischiadic
intestines	visceral
sensory organ	organoleptic

Somatics include not only body parts, but also processes:

If you…	*Call it…*
sweat	diaphoretic
walk	locomotive
chew	masticatory
swallow	ingestive
talk	(natural-language-) communicative

Common *adjectives* have their corresponding TechSpeak *qualifiers*; a selection follows:

If you mean…	*Say…*
similar	isomorphic
different	allotropic
helping	adjuvant
not continuous	discrete
observed	phenomenological
really important	paradigmatic or canonical
in step	isochronous
pleasurable	hedonic
body language	proxemic

Word-formation processes

As could be expected, TechSpeak provides guidance on word-formation as well; the two main aspects considered are *affixes* and *abbreviations*. Derivation allows the formation of high-sounding terms by means of well-chosen prefixes. Here is the full list:

If you want to say…	*Try…*
on a higher level	meta- or super-
alongside	para-
underneath	infra- or sub-
within	intra-
big or global	macro-
small or local	micro-
foreign	exo-
internal	endo-
outside	ecto-
too much	hyper-
too little	hypo-
before	ante-
bad	dys-
good	eu-
together	syn-
different	allo- or hetero-
the same	iso- or homo-
early	proto-
middle	meso-
final	telo

As we saw while examining examples of TechSpeak, *techronyms* (TechSpeak acronyms or abbreviations, of course…) are used massively, as indeed they are in real ESP. Saying — or writing — that MST = FIP + MPA is still more impressive than "A **material sectioning tool** (MST) consists of…"; if listeners or readers cannot remember that FIP stands for "ferrous-alloy invasive plane" and MPA is a neat abbreviation for a metacarpal power-grip anchor, well, that quite simply means that they do not know the technical jargon, so they do not belong to our clique. This will bar them from asking why on earth we should attach high-sounding names to a common knife and its parts.

Going back to real English: when I was learning computer science and got interested in the language of computing, I was struck by the wealth and pervasiveness of three-letter abbreviations, some of which, like ROM, RAM, CPU, VDU, HDD, etc., are now fairly well-known. Their use is so widespread in the trade that some catalogues and other technical specifications use TLA as a three-letter abbreviation for… "three-letter abbreviation"! They insist that TLAs be used throughout

for the sake of brevity *and clarity*. At the time I thought this was the limit, but then experience taught me that the worst is always yet to come.

Is it just prestige?

"This new language can obscure even the simplest meaning, thus giving the TechSpeak user a gratifying sense of self-importance and an enormous psychological advantage over the bewildered layperson on the receiving end." When I read a notice saying that "I terminali per gli studenti sono posizionati nell'atrio dell'aula G.015" I wondered why not simply "I terminali per gli studenti sono nell'atrio dell'aula G.015" or perhaps "sono posti, collocati, situati, installati, si trovano…"; with so many good alternatives — to which you may add "piazzati" if you gladly accept calques from French — I have come to develop a strong dislike for "posizionare". But the answer is obvious: if a chap says "abbiamo messo/sistemato i terminali", he may sound as if he has got a low-rank job; but "abbiamo posizionato i terminali" suggests that he is a technician with at least a secondary school certificate (actually, the notice was put up by a "geometra").

But recourse to TechSpeak-like jargon has many more not-so-innocent reasons. Tenner remarks that no producers of hamburgers would ever use the TechSpeak name (Carbohydrate… Wafers) to market them; they did, however, manage to persuade the U.S. Department of Agriculture to let them use the word *calcium* on packages, instead of *powdered bone*. After a massive campaign against "enti inutili" in Italy, as well as after the scandals over the mismanagement of some very important ones, the word "Ente" got largely discredited. But since "enti" of some kind are still sometimes necessary, they are now called "Authorities" — with all the possible misspellings and mispronunciations of the English word. We used to have a lot of tramways in most cities, which were later replaced with bus lines. In recent years, city planners, transportation engineers and ecologists have realised that it was a big mistake, so they are putting old tramways back into operation, and even building new ones — except that they do not call them "linee tranviarie" any more, but "metropolitane leggere". A foreign-sounding or hi-tech-like name is often used to disguise unpleasant referents.

A frequently asked question in U.S. educational circles in the late 1960s was "Are you a TEFLician or a facilitator?" What it meant was: "Do you realise that you cannot *teach* but only *facilitate learning*, or do you still consider yourself a technician in TEFL (Teaching English as a Foreign Language)?" At the time, and over there, *teacher* seemed to have become one of those taboo words that a polite person would never use in public, and methodology books avoided all possible references to teaching.[7] When my colleagues and I were invited to a baseball match at the Dodgers' Stadium in Los Angeles, at one point the display announced the presence of a group of

7) See, for example, Dubin & Olshtain 1977.

Italian *educators*.[8] In this case new words are chosen (or old words are given new meanings) deliberately, in order to emphasise new concepts.

This may be perceived by outsiders as unnecessary misuse of the language. In his "Nontechnical epilogue" Tenner remarks that "almost everybody is convinced that the language has never been so degraded — by others". A more balanced view and, above all, a historical perspective can be useful to perceive that this is not necessarily true, or, at the very least, it is not the full story. He mentions the birth of "legalese" as an example.

> The Norman conquest [...] brought England not (yet) technical legal French but an ambiguous, basically oral and lay language. It took two hundred years for a legal profession to emerge. At first a word in a document could mean many things. *Entendre* could mean what we now know as intention, attention, understanding, hearing, obedience, waiting, meaning… purport, assumption, information, thought.
>
> Hard as it is to believe, legalese was a reform. An emerging profession was trying to make itself clear.

A balanced view of the matter can only lead us to keep in mind the need for monosemous terms in all fields and the quest for brevity. Acronyms and abbreviations are baffling for outsiders but convenient tools to avoid the repetition of long expressions. Our use here of ESP, OED and TEFL is justified, hopefully, by the fact that the target readers are familiar with these abbreviations — the paraphrases are given to make sure that no ambiguity arises but they are probably redundant. The quality of a text, ESP or otherwise, can only be assessed on the basis of the addressees envisaged.

TechSpeak vs. Plain English

TechSpeak is clearly a parody (and a hilarious one, at that) but not against the Plain English Movement. On the contrary, it exposes the excesses of technical jargon by 'exploding' it to its extremes. Defining a ***ball-point pen*** as a "linear pigment deposition tube (LPDT)" and describing it as "a microspherically transferred viscous-substance-dispersion penetrative system" may seem to over-stretch the capabilities of premodification in English, with four premodifiers (six words) between "a" and "system"; but is it really so? Here is an example from the language of electronics:

> The Model 2000 is a portable battery-operated 3½-digit, five-function digital multimeter …[9]

where we can find five premodifiers (8 words — counting "three and a half" as *one* word) between "a" and "multimeter".

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8) At the time (1969), we were all secondary school teachers, spending the summer term in the US on a Fulbright scholarship.

9) Quoted in Balboni & Porcelli (1987) p. 17

TechSpeak is then, from a linguist's point of view, technically impeccable — at times even moderate, as we have just seen. The point is, of course, that what is amply justified in specialised fields becomes intolerable in everyday communication, either face-to-face or through the media. Here, as an old song, *Words*, said, "plain, old, simple words are better": so, if you ever see a geomorphological modification instrument, if (unlike Gwendolen) a GMI is not beneath your life-style, call it a spade.

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