



ENLIGHTENMENT THROUGH CONSTRAINT

IN THE INTERESTS OF PROMOTING OPTIMAL COMPREHENSIBILITY, IT SHOULD BE NOTED THAT ALL COMMUNICATIONS ARE TO BE FORMULATED IN A REGISTER AS ACCESSIBLE AS POSSIBLE TO AS SOCIALLY AND EDUCATIONALLY HETEROGENEOUS A RANGE OF READERSHIP AS POSSIBLAHBLAHBLAH...

Feel like living dangerously? Next time you run into a technical writer (H.M. Armed Forces, ret.) augmenting his already handsome service pension with a lucrative industrial post in Denmark, Baden-Württemberg or any other rich and foreign land ("... where the one-eyed man is king"), just whisper "Simplified English" in his ear. If you're very lucky, he'll slap you on the back and buy you a beer. If your luck's out, he might just leave you with a bloody nose.

by Geoff Pogson/ Photos by Dyana Van Campen

Simplified, or more properly, Controlled English (CE) is the most controversial current issue in the small western world of scientific and technical communicators. Enthusiasts like CE consultant John Kirkman praise it as

"another shot in the technical writer's armory of skills," whose economy, clarity and unambiguity cannot but boost efficiency and happiness – and ultimately safety – at work. Those who hate it point to its sometimes apparent pedantry and arbitrariness, and are piqued at its "unnecessary" constraints on individuality, which they regard as a slur on their professional independence.

Of course, many a reader will instinctively sympathize with such emotions. The mere suggestion of external control on the words writers use arouses the primeval bard's sullen wrath in the mildest-mannered lovers of language. But should technical writers want to be bards? In the boss's time? Just ask the boss. Proponents of Controlled Language will tell you that technical writers have a duty to write as simply and clearly as possible, sorting out – as CE developer John Smart says – the "nice to know from the need to know." They will also claim that this can't be achieved just by exhortation. Technical writers need to be able to work within a fixed grammatical framework

and develop their own systematically limited and minutely defined vocabulary.

BASIC ENGLISH TO CATERPILLAR

The first attempt at scientifically limiting and grading a living language in order to facilitate understanding and learning was undertaken in 1930, when British linguist C.K. Ogden launched Basic English. This restricted language, complete in itself, comprised a total vocabulary of 850 words chosen for both frequency and semantic breadth. Ogden saw his creation firstly as an international second language – an English-based Esperanto – and his admirers included both Churchill and Roosevelt. So when World War II reared its ugly head, the order went out that Basic English be applied to Allied military handbooks and training manuals.

In practice, however, Basic's constraints proved too unwieldy for military writers, and the idea was paid little more than lip service. The grammar was considered impossibly limited. And it turned out that too many Basic



words had been assigned extended meanings not based on living English, making it seem unnaturally removed from the real thing. It was less acceptable to native speakers than foreign learners.

It was not until the mid-1960s that big industry turned its attention to scientific methods of making technical documentation more readable. First off the mark was the Caterpillar Tractor Corp. In its Peoria, Illinois, service training department, a team of linguists and writers led by Bernt Von Glasenapp looked at Ogden's Basic English, realized they needed a more flexible syntax and more authentically English lexis, and created Caterpillar Fundamental English (CFE). They then proceeded to convert hundreds of installation, maintenance and operating manuals into the postwar world's first Controlled English. "Their first breakthrough was being able to describe a tractor and all its parts using just 780 different words," says CFE licensee Ted White.

The team at Peoria was also influenced by the various readability indexes then being developed to gauge the ages at which Mr. and Ms. Average might be expected to be able to read and understand texts of varying difficulty. The most commonly used of these is the Flesch-Kincaid Scale, which, on the basis of comprehension tests given to large numbers of children and adults, has calculated for example that an average 11-year-old should be able to grasp a simple passage with an average sentence length of ten words and average word length of two syllables.

Caterpillar's primary objective was to make CFE the lingua franca among the company's 70-odd foreign agents and representatives, in which it was successful to the point beyond which emotional loyalty to national languages proved a stronger force. CFE's broader advantages – more effective

communication among native speakers and easier translation into foreign languages – were at first regarded as incidental spinoffs.

Still in use today, CFE owes its fame to its multiplicity of imitators and descendants. In 1969, the NCR Corp. launched NCR Fundamental English, a 1,350-word restricted vocabulary inspired by CFE, and 1974 saw the birth of Eastman-Kodak's KISL (Kodak International Service Language), another CFE derivative. Both systems are still in use.

SMART AND WHITE

In 1972 Caterpillar was approached by two freelance technical editors — Australian US-resident John Smart and Briton Ted White — whom it granted sole licenses to sell CFE in North America and Europe respectively. In the meantime, both licensees have amended and renamed the original product. Smart now calls his system PEP (Plain English Program), and White has given it the name ILSAM (International Language for Servicing and Maintenance).

Smart and White count both engineering and computer hardware multinationals among their biggest customers. Hyster (lift trucks), Clark (agricultural machinery), Rockwell International (aerospace and defense), Burroughs and Unisys have all adopted PEP. And ILSAM's customers have included Perkins Engines, Rank Xerox, UK subsidiaries of Digital Equipment and IBM, Ericsson Telecommunications (Sweden), Kone Oy Elevators (Finland) and VFW Aircraft (West Germany).

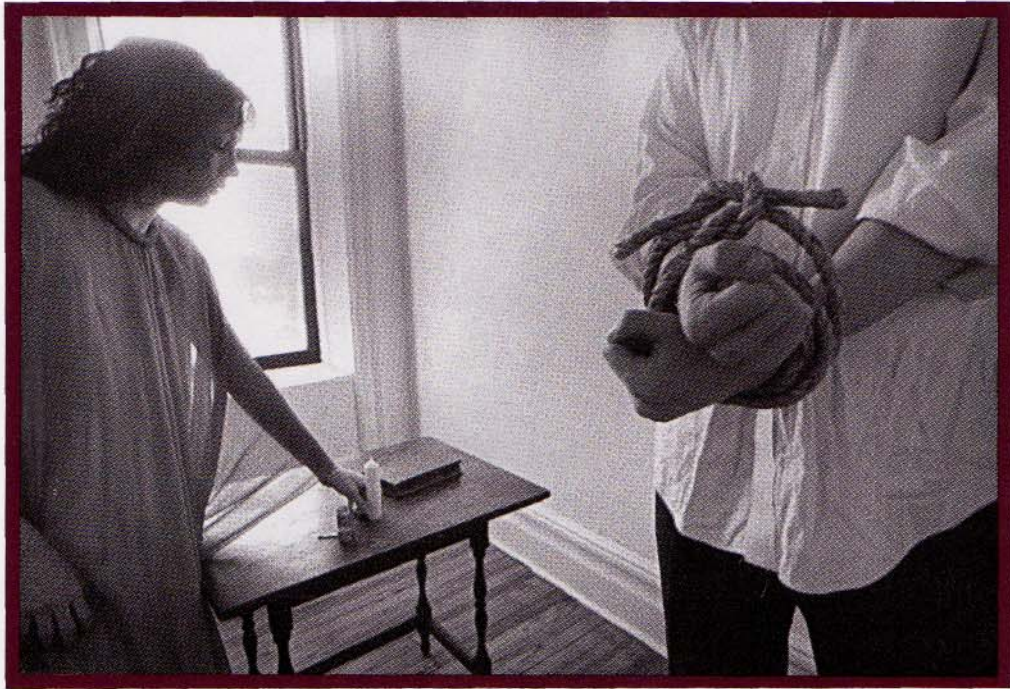
Once PEP or ILSAM have been sold to a company, they are customized to the company's particular needs and expected to grow into fully fledged independent forms of CE. This has led to a plethora of acronyms among CFE's grandchildren and great-grand-

children. Perkins uses PACE (Perkins Approved Clear English), Rank Xerox has MCE (Multinational Customized English), and Ericsson calls its ILSAM variant — further developed by John Kirkman and a team from the University of Wales — EE (Ericsson English).

The most widespread ILSAM derivative so far devised is in use in the aircraft manufacturing industry. The International Language of Aerospace Maintenance (ILAM) is an offspring of ILSAM as introduced to VFW Aircraft by Ted White in 1982. ILAM — or just "Simplified English" as it's commonly known among aerospace writers in Western Europe and North America — is being adopted and standardized for use in maintenance manuals by a joint committee representing members of AECMA (the Association Européenne de Constructeurs de Matériel Aérospatial) and its US counterpart, AIA (Aerospace Industries Association). Participating companies include Fokker, British Aerospace, Rolls Royce, Aeritalia, Aermacchi, Aerospaziale, Airbus Industries, Dornier, Pratt and Whitney, McDonnell Douglas, Boeing, General Electric, Lockheed and Westinghouse.

Ted White, now 63, is one of that rare breed — a technician with a talent for bridging the communication gap between things and people. He entered the world of technical publishing from an early career in electrical engineering. Since 1972 he has devoted himself to the task of simplifying technical English with the missionary fervor of a reforming zealot, dedicated to calling a spade "a spade" and never "an earth-moving device."

He recalls reading an unedited training manual — for foreign students no less — bearing the instructions "Push the switch," "Release the button" and "Operate the control" all on one page. "Switch," "button" and "control" all



**BEFORE CE
DESCRIPTION OF MODIFICATION**

The modification repositions the existing passenger vestibule roof emergency light and service door external emergency light and introduces higher wattage self reflecting filaments: installs overwing emergency lights (4 off) illuminating the wing leading and flap trailing edges, and improves the projection and increases the wattage of the overwing emergency exit lights.

**AFTER CE
DESCRIPTION OF MODIFICATION**

This modification changes the position and increases the wattage of emergency lights in three locations:

- on the roof of the passenger vestibule
- on the outside of the service door
- on the overwing emergency exit.

The modification puts emergency lights in two locations where none are at the moment:

- in an overwing position to show the wing leading edge (2 off)
- in an overwing position to show the flap trailing edge (2 off).

(Reprinted from "Aeroenglishes", an article by Jennifer Boncey in The Communicator, the journal of the UK Institute of Scientific and Technical Communicators (ISTC), April 1986.)

BEFORE CE

When the two bi-metal springs have room temperature a gap should be provided, however, max. 0.1 mm, between the lower side of the link and contact spring 3. The distance is measured using a feeler gauge. Adjusting is executed by bending the adjusting tongues on the stiffened spring 4 using spring bender LSH 2602 or LSH 2603. After adjusting a check should be made of the simultaneousness of the twin contacts. No bending of the bi-metal springs must be made.

AFTER CE

Let the temperature of the two-metal springs become the same as room temperature. The springs will then open. The maximum acceptable distance between the lower side of the link and the contact spring 3 is 0.1 mm. Measure the distance with a feeler gauge. If you need to adjust the springs, use spring bender LSH 2602 or LSH 2603. Bend the adjusting tongues on spring 4. Do not bend the springs. Then check that the two contacts operate together.

(With thanks to John Kirkman)

referred to the same item. "This is what a lack of discipline can do to just one word title," he says. "The health and safety implications of the confusion this can cause are daunting."

When a company buys ILSAM, Ted White's three-man team usually spends between six and eight weeks in its publications department. White starts by examining existing documentation and reducing terminology by cutting out synonyms. This alone can have startling results: Rank Xerox's photocopying nomenclature was reduced from 12,000 to 1,100 words in just three days. The team then goes on to train technical writers both in writing within ILSAM's grammatical constraints and in developing their own customized terminology bases, where the rule of thumb is "One name for each item and one item for each name." All definitions must be mutually exclusive. On average, the whole White treatment will cost some £8,000. From then on, it's up to the company itself. They can keep on developing their new language, augmenting terminology and introducing foreign language additions as required, or they can let the whole thing fall by the wayside.

White estimates that of the companies who buy ILSAM about one in ten eventually drops it. "It's a shame, but the first two or three years are crucial for the language to get established. And during that time you really need an enthusiast in the firm to keep it going - otherwise old guard hostility takes over. This is what happened at Massey Ferguson." White has observed that the

gauge comes from UK technical writers, including expatriates. He puts this down to the general conservatism of British business practice.

Still, New York-based John Smart has faced the same sort of failure rate in North America, though he claims the initial horror his Plain English Program faces usually takes no more than a month to disappear. Smart's emphasis is on high-tech automation. (For full details, see LT#3's cover story "Get Smart.") Not only does he train staff to write PEP and compile domain-specific termbanks. He also uses artificial intelligence techniques in developing software to edit ("scrub") existing documentation ("foggy stuff"). Smart Expert Editor is customized for specific - and at times eccentric - registers. For example, one version scrubs "Japlish" (Japanese English). Japlish "Don't be stupid to your surroundings" is turned into CE "Be careful."

MACHINE TRANSLATION

A logical follow-on from machine editing is, of course, machine translation, and Smart includes customized MT programs in his customer package. The great advantage of Controlled English for machine translation is that - in theory at least - it eliminates the necessity of pre-editing. Smart claims he has achieved this - and also cut *postediting* to 5 to 10% of text. ILSAM users too have been turning to MT, among them Rank Xerox - who have been using Systran from English into French, German, Italian and Spanish for ten years, with an average 10% *postediting* rate - and Perkins Engines, who started using WCC's MicroCat in 1985. White adds: "Translation of CE - whether by computer or not - is fast and accurate, because the translator no longer needs to worry about complicated constructions and inconsistent nomenclature in the original."



John Kirkman, whose Wiltshire-based Communication Consultancy has been training technical writers in CE techniques since 1981, has his own CE story to tell. He says the biggest problem developers like Smart and White face is that companies think CE's going to be easy, that it will blend into the furniture in a couple of days. "The fact is that training, conversion of existing documentation and preparation of nomenclature can take anything up to eight months. Learning to write CE takes concentrated practice, and progress is slow at first. You need to be both fluent and flexible enough to think of synonyms or alternative phrases for what's no longer permitted.

"Most technical writers were originally engineers and remain monoglot. Many of them – especially in aerospace – have a military career behind them. They've grown up with a factual – not a userfriendly – view of language. They're not only initially skeptical about CE. They also often find it frustrating to use – trying to remember which structures and terms are permitted and which are not, racking their brains for the right ones etc. So at first their output is slowed down. But once their speed's up to normal again – or even faster – they find their job satisfaction increases too. They've created a product they *know* is well written."

Kirkman admits that CE is not suitable for all types of text. "Its strict syntactic limitations preclude successful use in high-level theoretical discussions, or complex analyses of abstract concepts, or descriptions of complex interrelated ideas. But for service and maintenance documents, production and operating manuals, simple descriptions and all types of instructions, it's obvious – especially with machine translation here to stay – that for technical writing there's no other way forward."

Geoff Pogson is *LT's* Managing Editor.

CONTROLLED ENGLISH RULES

The rules below describe Ericsson English Level 1, based on ILSAM and further developed by John Kirkman and his team from the University of Wales Institute of Science and Technology (Cardiff)'s Communications Studies Unit. Like most Controlled Englishes, it has a basic non-technical 900-word vocabulary with additional technical vocabularies for various fields; its grammar is similar in principle to other varieties of CE.

1. EACH WORD CONVEYS ONE MEANING ONLY "Connection" is a noun meaning "An electronically conductive joint, a link." It may not be used to mean "The activity of making electrically conductive joints" – "Connecting" expresses this meaning.

2. ONLY ONE WORD CONVEYS EACH MEANING "Start" is not interchangeable with "Begin," "Commence," "Initiate" or "Launch."

3. EACH WORD IS USED IN ONLY ONE WORD CLASS "Test" is a noun. Its related verb is "To make a test."

4. BRITISH (BE) AND AMERICAN USAGE (AE) ARE NEVER MIXED In the BE version, "Regular" is defined as "Fixed according to principle, recurring at fixed intervals," whereas in the AE version it means "Normal, usual."

5. WORDS WITH WIDE INTERNATIONAL RECOGNITION AND CLASSICAL ROOTS, ARE PREFERRED "Aid" is used, not "Help;" "Obtain," not "Get."

6. THE NUMBER OF VERBS TO BE LEARNED IS KEPT TO A MINIMUM. COMBINATIONS OF VERBS PLUS WORDS FROM THE EXISTING VOCABULARY ARE PREFERRED Because we already have the words "Make," "Sure" and "Longer," we use "Make sure" to save adding "Ensure," and "Make longer" to save adding "Elongate."

7. IRREGULAR VERBS ARE KEPT TO A MINIMUM Some irregular verbs, like "Become," "Find," "Take," "Break" and "Teach" are used. But

because readers using English as a foreign language find it easier to cope with regular verbs, irregular verbs are kept to a minimum.

8. AUXILIARY VERBS ARE KEPT TO A MINIMUM Complex verb forms like "Action ought to have been taken" or "Signal may have been sent" can cause difficulties for readers using English as a foreign language. The only auxiliaries used are "Can," "Do," "Must" and "Will."

9. TENSES AND VOICES ARE RESTRICTED We use only the active voice and three tenses: the present simple ("I help"), the past simple ("I helped") and the future simple ("I will help").

10. ALL THE MAIN ENGLISH SENTENCE TYPES ARE USED, BUT COMPLEXITY IS RESTRICTED

A. Commands include only one instruction per sentence.

NOT: "After stopping the test by pressing switch X adjust the resistance in the telephone set before restarting the sequence."

BUT: "Press switch X to stop the test. Adjust the resistance in the telephone set. Start the sequence again."

B. The following types of complex sentence are permitted.

i. Reason clause + statement

"Because you must make the loop first, the link is important."

ii. Time clause + statement

"When the program is finished, the message goes to A."

iii. Conditional clause + command

"If the error is larger, increase input at X."

iv. Conditional clause + statement

"If the interval is smaller than 3, the sequence is wrong."