1. Introduction

1.1 Grammatical form

We shall consider here three constructions which can be used to communicate imperative messages: (i) the $u$-form or U-FRM: verb-first sentences with the formal pronoun $u$, as in Loopt $u$ door! ‘Walk you through! /Keep you on walking!’, (ii) INF: infinitives, as in Doorlopen! ‘To keep on walking!’, and (iii) STM: the bare verb stem, as in Loop door! ‘Keep on walking!’.

None of these structures actually communicates a specific, unambiguous message of COMMAND. Rather, in each instance, the imperative message must be inferred from some more abstract meaning and contextual clues.

The verb-initial $u$-form communicates commands as well as questions and conditions; cf. Neemt $u$ dit boek! ‘Take this book!’; Neemt $u$ dit boek? ‘Are you taking this book?’, and Neemt $u$ dit boek, dan moet $u$ het lezen ‘If you take this book, (then) you must read it’. A single meaning for the $u$-form consistent with ALL its uses, would be a combination of (i) the politeness/formality expressed by the non-intimate second person pronoun $u$ (versus the intimate second person pronoun je) and (ii) the relatively imprecise meaning of NON-SUBORDINATING, NON-ASSERTING which one could postulate for the Verb-First signal in opposition to both Verb-Second (as in U neemt dit boek) and Verb-Last (as in ... U dit boek neemt); cf. the non-homonymous analyses of verb-position proposed by Merckens (1960) and van Haeringen (1962), discussed in Kirsner (1979:89–91), as well as Daalder (1983) and van der Horst (1986). Accordingly, U-FRM in Neemt $u$ dit boek first addresses the hearer explicitly, formally, and politely, and second characterizes the event in which he is the actor (taking the book) as non-factual, not (yet) actually occurring.¹

According to Blom (1987:184–187) the infinitive used as an imperative
contrasts with the verb stem in characterizing the activity (i) explicitly as action to be undertaken and not just imagined, (ii) as one of a series of actions making up a standardized procedure, but without (iii) placing the activity in a personal perspective. In her pair *Niet roken* ‘Not to smoke /No smoking’ versus *Rook niet!* ‘Don’t smoke’, *INF* is said to ‘evoke smoking in a standard impersonal institutional setting,’ while *STM* is said to evoke a situation in which the addressee is urged to personally adopt a particular health regimen.

Proeme discusses the range of interpretations which the simple verb-stem can receive, from incitement to action (as in *Ga zitten* ‘Sit down’) to invitations to imagine oneself in a given situation (as in *Hang de was buiten en het gaat regenen* ‘Hang the wash outside and it starts raining’). The meaning he proposes for *STM* is ‘The speaker moves the addressee to regard himself as fulfilling the role which otherwise (in another sentence type) would be fulfilled by the referent of the subject’ (1984:245).

Comparing these three semantic descriptions, one might suggest that *U-FRM*, the least specialized for imperative messages, would probably be the least forceful in communicating commands. The politeness indicated by the formal pronoun *u* would also reinforce the message of ‘request’. At the other extreme we place *STM*, with its direct personal impact. *INF*, lacking both the explicit formality of *U-FRM* and the personal character of *STM*, conceivably takes up an intermediate position (for a more elaborate discussion of the internal ranking of the three imperative forms cf. § 5.1).

### 1.2 Pitch accent type

We shall limit ourselves to sentences containing one single accent. Using the notation of the Grammar of Dutch Intonation (*'t Hart, Collier and Cohen 1990) we contrast three accentual patterns: the pointed hat pattern ‘1&A’, the rise ‘1’, and the fall ‘A’. Drawing on Keijsper (1984) and Caspers (1996), we may characterize their semantics as follows: All three patterns indicate that the accented constituent is the Focus of the sentence, i.e. the Speaker’s contribution to the communication. They differ according to whether they (a) characterize some referent as new versus given, and (b) indicate that the communication is complete or incomplete.

The pointed hat pattern ‘1&A’ explicitly introduces some new referent into the discourse but does not indicate whether the communication is over or continuing. The fall ‘A’ explicitly indicates that the referent is NOT new but rather given or known, but, like ‘1&A’, also does not indicate whether the communication is over or continuing. The rise ‘1’, in contrast, neither affirms nor denies the
novelty of the referent, but does indicate explicitly that the communication is not finished, that there is some ‘new thought’ coming. The rise ‘1’ is ‘open-ended’ in that either the Speaker or the Hearer may be the source of this new material.

If one attempts to determine the relative suitability of ‘1&A’, ‘A’, and ‘1’ for communicating imperative messages, both dimensions are relevant. First of all, with respect to ‘novelty of referent’, one can envision a connection between novelty, surprise, and brusqueness. A potential imperative-message containing a totally unexpected referent will surprise the Hearer, catch him unawares. Accordingly, we expect ‘1&A’ to be most compatible with messages of surprise, and hence, commands, and ‘A’ to be least compatible with surprise, i.e., less suited for commands. The rise ‘1’, ‘unmarked’ in the Jakobsonian sense with respect to the novelty of the referent, could occupy an intermediate position. However, the incompleteness explicitly signaled by ‘1’ could detract from the forcefulness of the command, or suggest that the message is not an ‘open and shut case’, i.e., that negotiation is possible.

1.3 Boundary tone

Following Kirsner, van Heuven and van Bezooijen (1994:108–9), we suggest that if the sentence ends on the high boundary tone H%, it indicates appeal to the hearer; i.e., a request for continued attention, a verbal reply or acknowledgement, or some sort of behavioral compliance. The absence of H% indicates a lack of such explicit appeal. Kirsner and van Heuven (1996) showed that sentences containing the pragmatic particles hè, hoor, zeg and joh were much more acceptable with +H% than with −H%, and that the reverse held true for ‘plain’ sentences without pragmatic particles. Given that these particles all profile and comment in some way on the Speaker–Hearer relationship, it makes sense that they combine more felicitously — synergistically — with the tone explicitly signaling appeal to hearer. Accordingly, we may suggest that +H% lends itself better to communicating requests rather than commands. In communicating a command, the Speaker will avoid indicating that the Hearer has any say in the matter, that he has the choice to not comply which appeal suggests; cf. Kirsner and van Heuven (1996:145, fn.7).

1.4 Pragmatic particle

In this study we shall be concerned only with the utterance-final pragmatic particle hoor. Our working hypothesis is that hoor (a) indicates an existing relationship between Speaker and Hearer, (b) draws attention to the immediately
preceding material, and (c), in contrast to the particle hè, indicates that the Speaker needs no confirmation or acknowledgement from the Hearer; cf. Kirsner and van Heuven (1996).

One consequence of using a particle which explicitly profiles the Speaker–Hearer relationship is that the utterance can be interpreted as being made primarily for the sake of the relationship and, hence, that it is not, strictly speaking, true; cf. the discussion of ‘cognitive weakening’ in Kirsner and Deen (1990:7). Used in imperatives rather than statements, one might expect the explicit referencing of the Speaker–Hearer relationship to ‘soften the blow’ of the imperative and skew the message towards a request.

2. Predictions concerning imperative messages

We have hypothesized the following hierarchies with respect to the messages of COMMAND vs. REQUEST, where a<b indicates that b expresses the notion of COMMAND more forcefully (Imperativity scale), or is better suited for a message of COMMAND (Acceptability scale), than a: U-FRM<INF<STM; {‘A’, ‘l’}<'l&A'; +H%<–H%; and +hoor<'plain'. The only area of ambiguity is accentual contour, given the two-dimensional nature of the contrast. While it is reasonable to propose that ‘l&A’, explicitly signaling a new referent, would be more compatible with COMMAND messages than either ‘l’ or ‘A’, it is not clear that ‘l’, signaling only that the communication is not finished, would necessarily outrank ‘A’, signaling only that the referent is given.

The crucial questions are: What experimental evidence is there for (or against) these hierarchies? (How) will they interact with each other? With respect to interactions, the simplest prediction one can make with regard to imperative messages is that there would not be any. In other words, the factors would simply be additive: e.g., that a sentence containing U-FRM, accent ‘A’, ending on H%, and containing hoor would communicate more of a request (less of a command) than a sentence containing STM, ‘l&A’, –H%, and no particle. In any event, it is difficult to predict — in advance of any empirical evidence — which of these various factors would weigh more than others, or how intermediate combinations might sort out.

One might predict, also, that certain combinations of specific factor levels are more acceptable than others. Typically, factor levels that reinforce one another, will be judged more normal, more acceptable, than factor levels whose combination yields an inherent conflict. Given, for instance, that the plain stem imperative STM is intentionally overbearing, it makes little sense for the Speaker to
weaken the impact by terminating the utterance in a rise expressing APPEAL, or by affixing his brusque command with a pragmatic particle that emphasizes a personal Speaker–Hearer relationship.\(^3\) Similarly, it would seem more normal for a harsh imperative to be realized with a pointed hat accent ‘1&A’, than to soften the blow of the imperative by choosing an accent-lending fall ‘A’ (announcing the command more gently) or by implementing an accent-lending rise ‘1’ (suggesting that the command is negotiable, cf. § 1.2).

3. Method

The sentences De deur opendoen!, Doe de deur open!, and Doet u de deur open! were recorded by a male intonologist (also a native speaker of Standard Dutch), once with and once without the sentence-final particle hoor. Each of the six sentence types were spoken with the pointed hat (‘1&A’) contour and ended with the high boundary tone H\%. The utterances were stored in computer memory (16 kHz, 16 bits) and their intonation curves were measured by an autocorrelation-based pitch extraction programme. A set of 36 sentences was then synthesized by concatenating a limited number of building blocks excerpted from the stored waveforms such that all utterances contained the same sequence of segment tokens whenever possible. The basic synthesis unit was Doet u de deur open /dul j do dør o:p/. The STM-imperative was then derived from this unit by eliminating the segment sequence /t j/ and joining /dul/ and /død u:/ on a zero-crossing. For the INF-imperatives the leading two syllables were eliminated altogether. The final syllable -pen /pɛn/ was replaced by the sequences -pen hoor /pɛn hɔr/, -pen doen /pɛn dœn/, and -pen doen hoor /pɛn dœn hɔr/. The intonation patterns were derived from the pointed hat +H\% contour by stylizing the curve to five straight lines: low declination from sentence onset to accent, rise ‘1’ immediately followed by fall ‘A’, low declination from accent to final syllable and rise 2 (+H\%) on the final syllable. All other intonation patterns were constructed from this stylization according to the specifications of the Dutch Intonation Grammar (’t Hart et al. 1990). The pitch manipulations were performed through PSOLA-resynthesis (Rietveld and van Heuven 1997:377–8 and references given there) as implemented in the PRAAT 3.6 speech processing package (Boersma and Weenink 1996:122–3). The resulting utterances sound perfectly human and yet only contain the acoustic (pitch and timing) differences that should be there according to the grammar.

The 36 resynthesized utterances, 3 (Imperative Types) × 3 (Accent Types) × 2 (Particle hoor vs. ‘plain’) × 2 (+H\% vs. –H\%), were recorded on compact cassette in
random order, preceded by 4 practice items, and played over loudspeakers to two
groups of 27 native Dutch listeners who were seated in a lecture room. The first
group was instructed to decide for each utterance how well it could serve as a
brusque command (9 on the rating scale) or as a friendly request (1 on the rating
scale), with scale position 5 indicating neutrality. The second group had to
indicate, on a similar 9-point rating scale, how acceptable or unacceptable they
found each successive utterance. Acceptability was operationalized for these
listeners by asking them to decide for themselves how easy (9 on the scale) or
how difficult (1) it was to imagine situations in which the particular utterance
(with its specific speech melody) could be used. For discussion of our choice of
the semantic scaling technique, see Kirsner et al. (1994:108); for discussion of
the acceptability task, see Kirsner and van Heuven (1996).

4. Results

To determine first of all whether our experimental subjects agreed with each
other in assigning the acceptability and imperativity scores to the stimuli, we
computed the Cronbach Alpha statistic for each scale (cf. Kirsner et al.
1994:112). A score of 0 would indicate no agreement at all between the subjects;
a score of 1 indicates perfect agreement. The results obtained were .93 for the
Acceptability scale and .95 for the Imperativity scale, suggesting that the scales
were indeed reliable measuring instruments.

A repeated measures analysis of variance of the Acceptability and Imperativity
scale judgements showed that Imperative Type, Accent, Boundary, and Particle
were all significant factors. Table 1 lists all main effects and second-order
interactions found to be significant at the .01 level or below on at least one of the
two scales and which explain at least 1% (rounded off) of the variance, as
indicated by the omega squared statistic \( \omega^2 \); cf. Kirsner and van Heuven
(1996:139, fn. 5).
Table 1. *Summary of analysis of variance on the Imperativity and Acceptability scales*

<table>
<thead>
<tr>
<th>Factor/Interaction</th>
<th>Acceptability scale</th>
<th>Imperativity scale</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Significance</td>
<td>$\omega^2$</td>
</tr>
<tr>
<td>Imperative Type</td>
<td>F(2,38)= 9.3, p=.002</td>
<td>1%</td>
</tr>
<tr>
<td>Accent</td>
<td>F(2,38)=23.7, p&lt;.001</td>
<td>7%</td>
</tr>
<tr>
<td>Boundary Particle</td>
<td>F(1,19)=45.3, p&lt;.001</td>
<td>8%</td>
</tr>
<tr>
<td>Particle x Boundary</td>
<td>F(1,19)=34.1, p&lt;.001</td>
<td>2%</td>
</tr>
<tr>
<td></td>
<td>F(4,96)= 3.9, p=.006</td>
<td>3%</td>
</tr>
<tr>
<td>TOTAL VARIANCE EXPLAINED</td>
<td>18%</td>
<td>18%</td>
</tr>
</tbody>
</table>

To keep the presentation concise we shall display the main effects on both the Acceptability data and the Imperativity data in the combined figures which follow. We shall, however, discuss each scale separately.

4.1 **Main effects upon Acceptability**

Consider Table 1 and Figure 1A-D. Beginning with Imperative Type, we may show with planned comparisons that U-FRM ranks significantly lower either than INF or STM (p<.001) but that there is no significant contrast between the latter. Similarly, with Accent the pointed hat ranks significantly higher than ‘1’ or ‘A’ (p<.001) but ‘1’ does not outrank ‘A’. One might propose that, among the imperatives, the explicitly formal U-FRM could be expected to be less usual, more special, than its competitors and that, among the accents, the high acceptability of ‘1&A’ reflects its use as a ‘default accent’ without the extra baggage carried by ‘1’ or ‘A’. The lower acceptability of hoor-sentences vs. plain sentences reflects the relative incompatibility of pragmatic particles with command messages (cf. § 2).
4.2 Main effects upon Imperativity

As shown in Figure 1C-D, the results for Particle and Boundary are as predicted. 
Hoor, explicitly profiling a relationship between Speaker and Hearer, adds a 
‘personal touch’, which softens commands into requests. +H%, signaling that the 
Speaker is making an appeal to the Hearer suggests that the Speaker is more 
dependent upon the Hearer, which also is consonant with polite requests rather 
than gruff commands.

With both Imperative Type and Accent, only a two-level opposition is found 
rather than the predicted three-level one. U-FRM is significantly lower in Impera­
tivity than either INF or STM (p<.001), but INF and STM do not contrast. The 
pointed hat ‘1&A’ is significantly higher in Imperativity (by a full scale point) 
than either the rise ‘1’ or the fall ‘A’ (p<.001 in planned comparisons), but in 
general there is no significant difference between the scores for ‘1’ and ‘A’.

The omega square statistic in Table 1 indicates that the relative strength of the
variables is: Accent>Particle>Imperative Type>Boundary, which would suggest that the grammatical form of the imperative is less influential than one might have expected it to be. Observe also that, taken together, the intonational factors Accent ($\omega^2 = 7\%$) and Boundary ($\omega^2 = 2\%$) statistically influence the interpretation of the utterance as strongly as the morpho-syntactic material in the utterance: Imperative Type ($\omega^2 = 3\%$) and Particle ($\omega^2 = 5\%$).

4.3 Interactions

As shown in Table 1, there are two significant interactions explaining at least 1% of the variance. The first is that between Particle and Boundary Tone on the Acceptability scale, diagrammed in Figure 2A below. This interaction is precisely as expected from the semantic discussion in § 1.3. That is, in imperative sentences as well as the declarative ones studied in Kirsner and van Heuven (1996), particle-less utterances are more felicitous with $-H\%$ and utterances containing hoor are more felicitous with $+H\%$.

Figure 2. Acceptability scores broken down by Particle and Boundary Tone (panel A), and Imperativity scores broken down by Imperative Type and Accent (panel B). Further see Figure 1.
The second significant interaction is that between Imperative Type and Accent on the Imperativity scale, diagrammed in Figure 2B. It will be seen that this interaction reveals the one environment out of the three we have considered in which a full three-level contrast between ‘1&A’, ‘1’, and ‘A’ is actually observed. Planned comparisons show that with U-FRM, the mean score of 5.7 for the pointed hat pattern ‘1&A’ is significantly higher than the scores for both the rise ‘1’ and the fall ‘A’ and that the mean score of 5.0 for the rise ‘1’ is significantly higher than the mean score of 4.2 for the fall ‘A’. (With INF and STM we find only that ‘1&A’ is significantly higher than both ‘1’ and ‘A’, without ‘1’ scoring significantly different than ‘A’.)

5. Discussion

Insofar as the main effects and interactions on the Acceptability scale were straightforward and easy to interpret, we shall limit ourselves here to the Imperativity results.

5.1 Grammatical form

In §§ 1–2 we predicted a monotonously ascending Imperativity score for the three imperative forms in the order U-FRM<INF<STM. Although, indeed, this order was observed in the data, only the difference between U-FRM and the two other forms was significant, whilst the latter two did not differ significantly from each other. We are reluctant, however, to abandon our original hypothesis in favor of the alternative ordering U-FRM<{INF,STM}. There are several more reasons to hold on to the Imperativity order INF<STM.

– First, there is native-speaker testimony in the linguistic literature that STM is more direct and forceful as an imperative than INF; cf. Blom’s discussion of Duinhoven’s (1984) examples Schenk jezelf een borrel in! ‘Pour yourself a drink’ (a ‘true’ command) vs. Jezelf een borrel inschenken! (which could only be said by a theatre director reminding an actor to pour himself a drink on stage).

– Second, there is our own observation that in genuine emergencies or other urgent situations, STM is much preferred over INF. Compare Er is een ongeluk gebeurd! Roep een dokter! ‘There’s been an accident! Get/Call a doctor!’ with ?Er is een ongeluk gebeurd! Een dokter roepen!

– Third, we notice that only STM is forceful enough to be appropriate in cursing and other forms of verbal abuse. Expressions such as Krijg de tering, ‘Catch
tuberculosis', i.e., 'Go to hell/Fuck off', or Val dood! 'Drop dead!', are possible only with the verbal stem: cf. *De tering krijgen! or *Doodvallen!

Fourth, we note that even in written public notices, there seems to be a subtle contrast between more urgent and less urgent commands; compare Pas op voor de hond 'Beware of the dog' or Let op voetgangers 'Watch for pedestrians', both with STM, versus Rechts houden 'Keep to the right' with INF. (After all, one could have written Op voetgangers letten en Oppassen voor de hond versus Houd rechts but did not.)

We must therefore propose that the reason why STM was not judged to be a significantly more forceful command than INF in our exploratory experiment is in the particular test sentence we happened to choose. In retrospect, Doe de deur open (De deur openendoen) refers to a rather common request in an everyday setting. Even when the request is made forcefully, there is no great difference in status evoked between Speaker and Hearer and nothing to encourage making a finer distinction in message between imperatives containing the explicitly polite pronoun u and those lacking it. In other words, the lexical content of Doe de deur open perhaps creates a kind of upper limit or 'ceiling' to just how strong the imperative will be felt to be. When one considers other possible test sentences evoking more serious situations, for example, where there is a clear chain of command, INF is clearly less appropriate than STM: cf., in an army context, Presenteer geweer! 'Present arms!' and Geef acht! 'Attention!', versus ?Geweer presenteren! and ?Acht geven. We expect that future studies utilizing several test sentences would provide more decisive evidence for the Imperativity hierarchy u-FRM <INF <STM.

5.2 The interaction between Imperative Type and Accent

In §2 we found ourselves unable to unequivocally predict the full three-level rankorder among the accent-lending pitch movements 'A', '1', and '1&A'. We could safely predict that the pointed hat accent '1&A' would be more compatible with COMMAND that either the single rise '1' or the single fall 'A', but we could not easily determine the internal order between the latter two. Indeed, the results clearly show that the pointed hat accent signals COMMAND more forcefully than the other two types of accent. Moreover, the data in Figure 1B show a trend for the single fall to be least compatible with the notion of COMMAND. We argue, therefore, that the true order among the three accent types is 'A'<'1'<1&A'. This is precisely the order that is observed (Figure 2B) — with significant differences between each of the three accent types — with the grammatical form, U-FRM, which, as was suggested in § 1.1, is the least dedicated to communicating
imperative type messages. Here we propose that, when a grammatical structure contains less information than its competitors, every additional intonational cue towards an imperative message will be pressed into service, such as that between ‘A’ and ‘I’; cf. the argumentation in Haan, van Heuven, Pacilly and van Bezooijen (1997).  

6. Conclusion

The exploratory study described above was undertaken in order to put to an experimental test various ideas in the literature about the semantics of imperative constructions, intonation, and pragmatic particles in Modern Dutch. We have found that, to a certain extent, basic predictions have been confirmed — at least those involving the ‘simpler’ binary variables of +H% vs. –H% and presence vs. absence of the pragmatic particle hoor. The more complex variables of Infinitive Type and Accent — where the semantic contrasts between the signals are multidimensional — remain problematic. At best, the two-level contrasts we have found do not directly contradict the three-level hierarchies in Imperativity which we have proposed. To make further progress, to rule out alternative explanations for our data, we will have to run additional experiments with a range of test-sentences and in which the higher-order interactions involving Imperative Type and Accent can be scrutinized in greater detail than we have been able to do here.

Acknowledgments

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Notes

1. Compare use of Verb-Second in the brusque order *U neemt dit boek!* ‘You take this book!’, where the meaning NON-SUBORDINATING, ASSERTING, claiming that your taking of the book actually occurs, communicates a less polite message.

2. Surprise can thus be a threat to the Hearer’s Face in the sense of Brown and Levinson (1988). Politeness will then consist in somehow diminishing the surprise, preparing the hearer for it so that the imperative message is no longer ‘coming out of the blue’.
3. As a case in point, Kirsner and van Heuven (1996) found that Dutch listeners find the combination of sentence-final hoor with the absence of +H% unusual: it is unusual for a Speaker to stress the existence of a personal bond with his Hearer without issuing at the same time the appeal signal H%.

4. The use of repeated measures analysis of variance, carried out on the raw scale judgements, was recommended to us by the statistical consulting staff of the UCLA Office of Academic Computing. Though the amount of variance explained by the effects is relatively small, this appears to be the norm in behavior research, as pointed out in Keppel (1991:65).

5. This should not be taken to indicate that prosody pragmatically outweighs morpho-syntactic cues to COMMAND: irrespective of the prosody, the Imperativity scores are always at or above the midpoint of the Imperativity-scale; there is only one instance of a prosodic mark that is strong enough to counteract the morpho-syntax such that a command is softened into a request: this only happens when the weakest command form (U-FRM) is spoken with fall 'A', i.e., the gentlest type of accent that is least compatible with the notion of COMMAND (cf. Figures 1B, 2B).

6. An alternative explanation of the presence or absence of contrasts in Accent among the three Imperative types is also conceivable, based not on the semantic analysis of accentual contours sketched in § 1.2 but rather on Ohala's (1983) frequency code hypothesis that, across languages and even across species, high pitch (small/young creatures) iconically expresses subservience and politeness and low pitch (large/adult creatures) dominance and bossiness. Accordingly, one might expect that the greater the fraction of time that the speech signal has low pitch (i.e. low declination), the greater the perceived dominance, and hence the greater the perceived Imperativity, of the Speaker on the part of the Hearer. To evaluate this possibility, we determined this fraction for the 36 stimuli used in the experiment. For sentences spoken with a pointed hat '1&A', the pitch is low during as much as 72–79 percent of the utterance. With rising accents, a mere 10–39 percent of the utterance is low-pitched. These non-overlapping ranges tie in perfectly with the Imperativity scores obtained for these two accent types. However, the frequency code runs into problems with sentences spoken with falling accents: here low pitch takes up 52–87 percent of the utterance duration. This range extends both below (as predicted) and above (not predicted) that of the pointed hat. Consequently, in future research we would maintain (as a working hypothesis) our original linguistic-semantic analysis, based on an arbitrary, conventional form-meaning relationship, rather than adopt the more iconic form-meaning correspondance suggested by the frequency code.

References


