6 Ill-Formedness and Transformability in Portuguese Idioms

Teresa Botelho da Silva
University of Cambridge

Anne Cutler
MRC Applied Psychology Unit

Idioms are usually defined by their property of semantic eccentricity; they are meaningful strings whose meaning is not a direct function of the meanings of their components. In linguistics and Psycholinguistics, the main problem posed by idioms is the necessity (in grammatical analysis and comprehension) of treating the string as a unit rather than decomposing it into its parts. The syntactic behavior of idioms has been important to this problem principally because of variability among idioms in the extent to which they maintain their idiomaticity under syntactic transformation.

Treating an idiomatic string as a unitary item has loomed large as a problem because so many idioms are, in principle at least, susceptible to a parallel literal reading. Buckets can be kicked, beans spilled, and ice broken in the real, as well as the idiomatic, world. Indeed, much of the literature on the processing of idioms has focused on the question of whether the literal meaning of an idiom is activated when the idiom is encountered; this question only has meaning, of course, for idioms with a literal counterpart.

Not all idioms have a literal counterpart, however. For semantic or syntactic reasons, a literal interpretation may be completely ruled out. We refer to such idioms as *ill-formed.* Semantic ill-formedness usually arises because of violations of selection restrictions among the idiom's components—it is difficult to see how one could literally *rack one's brains,* for example. Syntactic ill-formedness usually violates subcategorization restrictions; thus, only in the idiom can one be *in the know,* because elsewhere in the language *know* functions solely as a verb.

Perhaps because so much of the literature on idioms and idiom processing deals (as usual) exclusively with English, syntactic and semantic ill-formedness

among idioms has received little attention. Indeed, idioms without a literal counterpart are often dismissed as accidental exceptions—on the grounds, for instance, that they contain a unique form (e.g., *eke out),* that they include forms that are fossilized survivors of originally free forms (e.g., *cast a slur on),* or that one of their components has lost one of its original meanings (e.g., *trip the light fantastic).* Some approaches to idiomaticity have even claimed that such collocations cannot be considered "proper idioms" exactly because they violate the condition of ambiguity, which in these approaches is considered to be a basic requisite of idioms. Thus, Weinreich stated that "ambiguity is an essential characteristic of true idioms" (1969, p. 44); he denied the status of idioms to collocations such as *cockles of the heart* or *spic and span* because they contain unique forms. Similarly, Makkai (1973) called such units "pseudo-idioms."

We agree that *spic and span* and *cockles of the heart* do not make strong claims to idiomaticity. But *rack one's brains* and *in the know* certainly do, and although they do not contain unique forms, by virtue of their ill-formedness they are not ambiguous. Therefore, on an ambiguity criterion such as that proposed by Weinreich, these phrases would necessarily have to be excluded from the realm of idiomaticity in English. To be sure, idioms without a literal counterpart are relatively uncommon in English. This is probably one reason why an ambiguity criterion has seemed defensible. If the source of ill-formedness is indeed quite often the presence of a unique form, then identifying ill-formedness with unique forms can be a practical step—by eliminating the latter, one also more or less eliminates the former. Another reason, of course, may be that dismissing the problem of ill-formedness simply facilitates clean elegant models of representation (e.g., Weinreich's polysemy-based model).

The problem is that ill-formed idioms are far more frequent in other languages, for instance French (Boisset, 1978) and German (Greciano, 1983). They are also, as we shall show, extremely frequent in Portuguese. In such languages, ill-formedness in idioms may much more often than not go beyond unique forms; thus, it can hardly be dismissed as irrelevant by decree.

ILL-FORMEDNESS IN PORTUGUESE IDIOMS

In this chapter, we discuss ill-formedness in Portuguese idioms, and describe a memory experiment in which this factor was manipulated. To establish the separate categories of semantic and syntactic ill-formedness, we present several examples of each. (For each idiom, we give the Portuguese base form, followed by a literal English translation, then a paraphrase of the meaning). Examples 1 to 6 are idioms for which a literal counterpart cannot be found for semantic reasons:

1. *Dar bocas* ("to give mouths" = to utter silly remarks).
2. *Meter medo a utn susto* ("to scare a fright" = to be very frightening).

3. *Mandar a Java* ("send to the broadbean" = to send about one's business).
4. *Fazer trinta por uma linha* ("to make 30 by one line" = to misbehave).
5. *Fugir a boca para a verdade* ("to run away the mouth to the truth" = to be sincere without intention).
6. *Armar urn pe de vento* ("to set a foot of wind" = to make a scene).

The ill-formedness exhibited by these idioms is of a semantic nature. Example 1 has a simple verb plus noun phrase (V+NP) structure; *dar* is a transitive verb and *bocas* is assigned the role of direct object. If one cannot literally "give mouths," it is not because *give* and *mouths* are syntactically incompatible, but because the semantic reading of the noun is not productive in association with the semantic reading of the verb.

Likewise, the violation in Example 2 is also semantic; the prepositional phrase (PP) *a um susto* is assigned the role of indirect object to a verb whose indirect object should be | + Animate], but *susto* (fright) can only be (—Animate].

In Example 3, we have a different type of semantic violation—the verb *mandar* (to send), in the sense used here, requires a directional locative complement that must be either [+Animate] or [+ Place], as in *mandar a avo* (send to the grandmother) or *mandar ao mercado* (send to the market). *Fava* (broad bean) does not qualify as a semantically adequate locative complement. It is possible, of course, that the original phrase from which this idiom derives may have been quite regular, something like *mandar buscar favas* (send to fetch broadbeans).

In Example *A, fazer* (to make, to do) is used with the odd Direct Object *trinta por uma linha* (thirty by one line) when it would require a [+Concrete] or a [+Activity] Direct Object. It could be argued that the object is actually *linha* (line), but then we would have a syntactic irregularity because the numeral qualifier *30* would demand a plural noun. In the present stage of the language, there is no such activity or object, but again it seems possible that it once designated some type of parlor game which has vanished from the memory of the speakers' community.

Example 5 presents a similar irregularity to that of Example 3. *Fugir* (to run away) usually demands a directional locative complement which has to be I + Concrete], either [+Animate] or | +Place]. *A verdade* (the truth) is neither; added to this we have the oddity of a [—Volitive] subject accompanying a verb whose meaning implies volition.

In Example 6, the irregularity is again in the Direct Object, which should be I + Concrete] but is not—although, of course, *pe* (foot) could be a concrete noun were it not qualified by *de vento* (of wind).

Thus, one can say that Portuguese offers varied examples of highly metaphorical idioms without a literal counterpart, clearly unambiguous, and with interesting semantic irregularities. Now consider the idioms in Examples 7

through 12, which present marked syntactic irregularity in comparison to standard Portuguese syntax; Mira Mateus, Brito, Silva Duarte, & Hub Faria, 1983):

7. *Levar X a certa* ("to take X to the certain" = to trick X).
8. *Fazer caixinha* ("to make little box" = to keep secret).
9. *Cair em si* ("to fall in oneself = to become aware).
10. *Andar na boa vai ela* ("to go in the good goes she" = to be out on a spree).
11. *Ter po a X* ("to have dust at X" = to dislike X intensely).
12. *Estar-se nas tintaspara X* ("to be oneself [reflex.] in the inks for X" = not to care about X).

Example 7 is an instance of categorial irregularity. The structure of the idiom can be analyzed as:

13. V + X + PREP (LOC) + ART + ADJ

The verb *levar* is a transitive verb with a valency of three, usually taking a directional locative complement [PREP(loc) + NP] or |PREP(loc) + S]. The combination present in the idiom, (PREP(loc) + ADJ], is therefore ruled out. It is in the adjective *certa,* used in its feminine singular form, that the irregularity lies, as this seems to be performing the role of N in an NP, to the point of being preceded by DET (the definite article *a,* which appears in obligatory contraction with the PREP *a),* in its adequate inflexional form, singular feminine.

In Example 8, *fazer caixinha,* we have an example of an incomplete NP. The verb *fazer* (make or do) is a transitive verb, and the NP fills the role of direct object. The irregularity concerns the constituents of the NP. In Portuguese, the presence of DET before the N is compulsory in the NP if the N is in the singular and is a countable noun. The only exception to this rule occurs when the N designates an activity and, therefore, changes from countable to uncountable, allowing Example 14 but not Example 15, which is therefore marked * to signify unacceptability:

14. Eu detesto cinema ("I hate cinema").
15. *Ele comprou cinema ("He bought |a] cinema").

In Example 9, *cair em si,* the ill-formedness resides in the prepositional complement. The verb *cair* is an intransitive verb of movement, which generally requires a directional locative. The structure of this idiom makes the prepositional complement *em si* play the role of a directional locative; but in the case of the verb *cair* (fall), the referent of the locative cannot be identical to the referent of the subject—so Example 16 would be unacceptable:

16. A pedra, caiu na pedra, ("the stone, fell in/on the stone,").

The PREP COMP (and its tlexion) shows that the personal pronoun case used—the ablative—establishes an anaphoric relation with the subject, thus violating the requirements stated previously.

In Example 10, *andar na boa vai ela,* we again have an irregularity in the form of the prepositional complement. *Andar* generally takes a locative complement. In the present idiom, the structure of which is V + PREP(LOC)+ ART+ ADJC + V + PRO, the phrase *na boa vai ela* is assigned this locative role. The problem rests on the fact that the preposition heading the locative is contracted with a DET, the definite article *a* (feminine singular), which should be preceding (as it is prepared to do by the agreement) an NP; but the NP is absent. This absent NP would contain the noun with which the adjective *boa* is prepared to agree (because it appears in its feminine singular). It cannot be claimed that *ela,* the personal pronoun (feminine singular), has taken the NP function in the new S node; pronouns cannot be determined by articles, nor do they take adjectives. It may be the case that there was once an N in the Prep Complement and that it came to be dropped, but it seems more likely that this is a case of combination of a process of fossilization of a question *ela vai na boa (vida)?* (Is she leading the good life?), which came to be used as,an idiom with the subsequent dropping of the noun *vida.* This whole fossilized former question would then have taken the characteristics of a noun; that might explain why it cannot be pluralized (i.e., why Example 17 is possible but not Example 18):

17. *O Miguel e a Isabel andam sempre na boa vai ela* ("Miguel and Isabel go always in the good goes she" = Miguel and Isabel are always out on a spree).
18. **0 Miguel e a Isabel andam sempre nos bons vdo eles* "*Miguel and Isabel go always in the good go they."

The idiom in Example 11, *ter po a X,* shows a very odd subcategorization irregularity and has the interesting syntactic structure of its literal paraphrase. The verb *ter* (have) only takes an indirect object if its direct object is a sense noun, as in the idiom's paraphrase *Ter odio a X* ("have hate at X"). In the idiom, the object is not a sense noun but a common noun (dust) with which the verb *ter* remains a two argument verb, therefore not allowing an indirect object. An indirect object (X) is, nevertheless, obligatory and is headed by the preposition *a.*

Finally, in Example 12, *estar-se nas tintas para X,* we see another case of subcategorization irregularity caused by the combination of a reflexive pronoun with the verb *estar.* The reflexive pronoun is generally used only with transitive verbs in Portuguese, indicating that the action operates on the subject that performs it. The verb *estar* is used to indicate a temporary state of being in a place,

mood, or condition (as opposed to the other verb which is translated by the English be, namely *ser*, which indicates a permanent state of existence); it is not a transitive verb, so a reflexive conjugation is ruled out. There are exceptions to this rule, involving verbs that indicate the subject's participation in an action of the affective type: *apaixonar-se* (fall in love), *zangar-se* (get angry). Verbs like *ficar* (stay), *ir* (go), *rir* (laugh), and *sorrir* (smile) can occasionally take a reflexive pronoun, in which case they also take on a new semantic reading. But the verb *estar* is not in either group and only in this idiom is it used with a reflexive. The case *of* the apparent parallel idiom *estar-se borrifando para X* ("be sprinkling oneself for X"), which means exactly the same, is in fact totally different because it uses a nonstandard construction that translates into the English present continuous.

These are only a few of many ill-formed idioms in Portuguese. Whereas in English ill-formed idioms, particularly syntactically ill-formed idioms such as *by and large* or *in the know*, are not the rule, in Portuguese such cases are much more common.

THE PSYCHOLINGUISTIC IMPLICATIONS OF ILL-FORMEDNESS

The mental processes involved in understanding idioms are the subject of a huge body of research, and rightly so, because the phenomenon of idiomaticity has important implications for models of the perception and production of language. If comprehension of a sentence consists, in the default case, of retrieving the meanings of individual words and combining them according to their grammatical relations, then any case in which the meaning of a string is not a direct function of such operations is obviously theoretically problematic (i.e., interesting).

Psycholinguistic interest in idiomaticity has focused upon three main aspects of the problem:

1. There is the issue of how idioms are represented in the mind, that is, whether they are stored as lexical chunks or processed as any other word string (e.g., Cacciari & Tabossi, 1988; Estill & Kemper, 1982; Swinney & Cutler, 1979).

2. There is the issue of access, the mechanism that makes a speaker opt for an idiomatic interpretation rather than for a literal interpretation when both are available (e.g., Gibbs, 1980, 1986; Ortony, Schallert, Reynolds, & Antos, 1978; Van Lancker & Canter, 1981).

3. There is the question of the processing of transformed versus untransformed idioms (e.g., Gibbs & Gonzales, 1985; Gibbs & Nayak, 1989;

Reagan, 1987); this, of course, also addresses the first problem (i.e., storage of idioms in the mind), because if idioms are stored as unitary lexical representations and are retrieved as such, then the introduction of syntactic transforms should increase processing demands and make the lexical representations less promptly available, whereas if idioms are processed as any other word string, there should be no systematic differences in the amount of processing needed for transformed versus untransformed idioms.

Semantic and syntactic ill-formedness are clearly relevant to these issues. On the one hand, the selection of an idiomatic meaning obviously faces no competition from a potential literal meaning for ill-formed idioms because, by definition, they have no literal counterpart. Therefore, they may serve as a useful control condition in investigations of how idiomatic meanings are accessed. On the other hand, the possibility exists that ill-formedness itself might serve as a signal that the incoming string is an idiom. This, in turn, might lead to the counterintuitive prediction that ill-formed idioms could actually, in some respects, be processed more easily than well-formed idioms—at least in languages in which idiom ill-formedness is common.

Indeed, although ill-formedness among English idioms has hardly been studied at all, there are indications of support for this prediction. Brannon (1975) compared English idioms with and without literal counterparts in several experiments in which subjects judged the grammaticality of sentences or judged whether or not two sentences had the same meaning. Among idioms without a literal counterpart, Brannon included several that we would describe as syntactically ill-formed (e.g., *out of whack, go bananas);* she found that idioms with a literal counterpart (e.g., *hit the bottle, down in the dumps)* took longer to process in these tasks than matched unambiguous sentences did, but idioms without a literal counterpart were processed faster than matched unambiguous sentences.

On the other hand, some semantically ill-formed idioms were included in experiments by Mueller and Gibbs (1987) and Gibbs and Nayak (1989), although their criteria for ill-formedness do not correspond exactly to the distinctions we outlined previously. Mueller and Gibbs (1987) reported that such ill-formed idioms were harder to process than well-formed idioms; thus, the processing effects of ill-formedness, in English at least, remain unclear.

Syntactic ill-formedness also interacts in an interesting way with the issue of syntactic transforrnability. In English, those idioms that are syntactically ill-formed, such as *in the know,* also tend to be syntactically frozen (Fraser, 1970); i.e., to allow no syntactic transforms; e.g., **The know was what he was in after talking with the boss;* cf. *The doghouse was what he was in once his wife found out.* In Portuguese, however, ill-formedness and transforrnability are not fully confounded. Although syntactically ill-formed idioms tend to be frozen to a greater extent than well-formed idioms (Botelho da Silva, 1989), this is not always the case. Some ungrammatical idioms allow transformations; as an exam-

ple, *terpo a X* can allow relative clause embedding, as in *O po que a Beatriz tern a escola ndo tern razdo de ser* ("the dust which Beatrice had at school had no reason to be"). If one can imagine a continuum of syntactic ill-formedness, at least in listener judgements, it is reasonable to suppose that transformed ill-formed idioms are even further along that continuum than their untransformed base forms, if only because of the very low frequency with which they might occur, hence their relative unfamiliarity to listeners (cf. Cutler, 1982; Reagan, 1987).

Gibbs and Gonzales (1985) made the interesting claim that the difficulty in processing transformed idioms should make them more memorable and hence easier to recall. This claim is based on their finding that in a cued-recall task, transformable idioms were recalled more accurately than frozen idioms; this finding contrasts interestingly with the results from a phrase-judgment task in which subjects made significantly faster acceptability judgments to the frozen idioms than to the transformable ones. If our speculation that ill-formedness could produce greater ease of processing has any foundation, and if, furthermore, transformability of an ill-formed idiom only acts to increase ill-formedness, then we might actually expect the pattern which Gibbs and Gonzales found (for well-formed idioms) to be reversed with ill-formed idioms: Transformed idioms might prove easier to process and hence harder to recall.

So far, these speculations are just that; we cannot as yet provide an empirical confirmation or discontinuation of their validity. At this point, we merely wish to draw attention to the potential usefulness of ill-formedness as a factor in psycholinguistic investigations of idiomaticity. Ill-formedness is not highly common among English idioms; this suggests that the relevant experiments should be canied out in other languages that allow the relevant contrasts and this, too, is a development that we would welcome.

In the next section, we report an initial study of the recall of idioms, in which we manipulated both ill-formedness and transformability. We were interested not only in the contribution of these factors to the probability of recall per se, but also in establishing exactly how transformed idioms are recalled (i.e., whether they are, in fact, recalled in their transformed form or, perhaps, in their base form without the transforms which were applied to them).

MEMORY FOR TRANSFORMED IDIOMS: AN EXPERIMENT

The properties of Portuguese idioms allow a systematic test of whether ill-formedness affects the way an idiom is processed. When ill-formed idioms are comparatively rare and may differ systematically from well-formed idioms in structural characteristics (e.g., length), it is hard to institute a controlled test of the effects of ill-formedness. However, when ill-formed idioms are common, this

variable can be added to the repertoire of idiom properties that have been subjected to psycholinguistic investigation.

In the experiment that we describe here, we also exploit a new methodology for the study of idiom processing. We assess the recall of idioms via an incidental-learning paradigm. Subjects were presented with the idiomatic (and control) materials and asked to assess the acceptability of each string. After they had completed this task with the entire set of materials, they were given a surprise recall task. Our primary measure of interest was performance on this recall task.

The materials were 30 Portuguese idioms, 15 well-formed and 15 ill-formed (of which 10 were semantically ill-formed and 5 were syntactically ill-formed). Within each subset of 15, 10 were transformable; the other 5 were frozen idioms, and thus admitted of no transforms. All idioms were embedded in sentence contexts; for the 20 transformable idioms (10 of each type), two versions of each context were given—one where the idiom appeared untransformed, one where it appeared transformed. We constructed 20 nonidiomatic control sentences, 10 well-formed and 10 ill-formed. Each sentence contained a proper name or a noun

TABLE 6.1
Examples of Sentences Presented in the Experiment

	Well-Formed	*Ill-Formed*
Transformed Idioms	*No tribunal os pontos foram postos nos is pelo juiz Monteiro.* (In court the dots were put on the i's by Judge Monteiro.)	*O pe de vento que o Artur armou nao teve razao de ser* (The foot of wind which Arthur set had no reason to be.)
Untransformed Idioms	*O policia deu cabo do can astro ao ladrao de carros.* (The policeman destroyed the basket to the car thief.)	*O cabeleireiro tern po as clientas que nunca sabem como querem o cabelo.* (The hairdresser has dust to clients who never know how they want their hair.)
Frozen Idioms	*No verao as criancas passam sempre pelas brasas depois do a/moco.* (In summer, children always pass by burning coals after lunch.)	*Os motoristas estao-se nas tintas para os pedes.* (Drivers are (reflex.) in the inks for pedestrians.)
Control Strings	*O gerente chegou ao banco muito atrasado para a reuniao.* (The manager arrived at the bank very late for the meeting.)	*O Pedro vai nunca pescar neste /ago.* (Pedro goes never fishing in this lake.)

denoting a profession; these were intended for use as recall prompts. Table 1 contains examples of the sentences presented to subjects, and the full set of idioms tested appears in the Appendix.

The transforms that we used were the following: (a) relative clause embedding, (b) insertion, (c) active nominalization, (d) passivization, (e) clefting, and (f) permutation. These were not systematically manipulated; only one operation was applied to each idiom. In a previous study (see Botelho da Silva, 1989), a hierarchy of operations, analogous to that established by Fraser (1970) for English, was established for Portuguese; in this hierarchy, the operations we used were ordered as shown earlier, with relative-clause embedding producing the highest proportion of "acceptable" judgments and permutation the lowest. Interestingly, this study produced a contrast with Fraser's hierarchy, in that it was not necessarily the case that acceptability at a given level of the hierarchy implied acceptability at lower levels. We note that Gibbs and Gonzales (1985) also found that mean acceptability ratings for transformed idioms produced by a group of subjects did not correspond to the intuitive hierarchy proposed by Fraser and did not always pattern in a strictly hierarchical order. In the present study, we deliberately chose transformed constructions across a range of acceptability because of the nature of the subjects' ostensible primary task in the acquisition phase of the experiment—acceptability judgment.

Two sets of materials were constructed, differing only in which version of a transformable idiom appeared in each set; for each such idiom, its untransformed version appeared in one set and its transformed version in the other (with grammatically, of course, counterbalanced across sets).

Fourteen native speakers of Portuguese took part in the experiment; seven received each materials set. The subjects were tested individually and the 50 sentences of each set were randomized separately for each subject. Subjects read each sentence aloud from a card and then judged it as "perfectly correct," "possible," or "impossible" in the Portuguese language. After the 50 sentences had been judged, the subjects were asked to write down as much as they could recall of the entire set of sentences. They were told to write down full sentences where they could, but also any parts of sentences they could recall, and they were given unlimited time for this task. Recall prompts were given for (randomly chosen) sentences of which no part had been recalled (but a maximum of four recall prompts was given to each subject).

The results can be exploited in several dimensions. We have data on how often a given idiom was recalled and the form in which it was recalled; we also have data on how acceptable subjects judged the idiom to be in the form in which it was presented. We can, therefore, look at recall per se as a function of grammatically and transformability. We can look at recall in the light of acceptability, and we can look at how idioms are recalled, again as a function of the variables we manipulated.

Effects of Ill-Formedness and Transformability on Recall

For a measure of recall per se we counted any recognizable version of the target string, irrespective of syntactic form or paraphrase. The clearest finding from this analysis was that idioms were recalled more often than control strings—19.29% of idioms overall were recalled in comparison with 7.14% of control strings. This difference was significant (x^2 (1) = 20.06; $p < .001$].

Surprisingly, however, grammaticality had no effect on probability of recall. There were 40 instances of recall of well-formed idioms (19.05%) and 41 of recall of ill-formed idioms (19.52%), an insignificant difference. Among the ill-formed idioms, there was again no significant difference in the probability of recall between the semantically and the syntactically ill-formed set.

Transformability also had no effect, with the probability of recall for frozen and transformable idioms virtually identical.

Transformation, in contrast, had a strong effect: The probability of recall for untransformed idioms (37%) was almost twice as high as for transformed idioms (21%). This difference is significant [x^2 (1) = 8.35; $p < .01$].

Acceptability and Recall

As in the preceding study (Botelho da Silva, 1989), the acceptability ratings from these subjects were lower for transforms of ill-formed idioms than for transforms of well-formed strings, in accordance with the tendency of ill-formed idioms towards syntactic frozenness. There was, however, no discernable indication in the results of a systematic relationship between recall probability and rated acceptability.

How are Idioms Recalled?

When we examined the precise form in which subjects recalled the idioms, we found the most surprising result of this study. When transformed idioms were recalled (remember that this happened in only 21% of cases), they were more often than not recalled without the transforms which had been applied to them. Only in one third of such cases were they recalled as they had been heard, another one tenth were paraphrased, and the majority were recalled in their base form.

This pattern held equally true for ill-formed idioms, both semantically and syntactically, and for well-formed idioms.

The frequency of paraphrase in comparison with exact recall was low for untransformed transformable idioms and for frozen idioms, and showed no relation with well-formedness. By comparison, an interesting pattern was revealed in

recall of the control strings. More than half of recall instances of these involved paraphrase, and paraphrase was much more likely for well-formed strings than for ill-formed strings. This presumably reflects the long-known fact that the form of linguistic material is less well recalled than the content. Consider, however, the fact that idioms resisted this tendency to a considerable extent (for all untransformed idioms, only 20% of recall instances involved paraphrase, compared with over 50% of recall instances for control strings). We suggest that this indicates closer connection between form and content in the case of idiom strings and is just what would be expected if idioms are being processed as, in some sense, unitary items.

CONCLUSION

Our experiment constitutes only a pilot study but it offers some very interesting implications for further research—although these are not necessarily the implications we were expecting when we undertook the study! Of our two original aims, the first was to investigate the role of ill-formedness in idiom processing. We found none; ill-formed and well-formed idioms produced very similar recall results. However, even this negative result has potential implications; if it proves reliable and parallels results from other processing tasks, it would argue against processing models which predict different processing costs for idioms which have to be distinguished from a literal counterpart versus idioms which don't (see Cutler, 1983, for further discussion of this issue). Our second aim was to explore incidental learning methodology as a tool for.investigating idiom processing; our results suggest that this methodology could prove extremely useful.

We hope others will follow up and extend our results on recall for idioms presented in transformed form; our subjects tended to detransform such items and recall the base form instead. We suggest that this finding is very consistent with a view of idioms as unitary lexical items, and, along with our finding that idioms were more resistant to paraphrase than were control strings, lends support to lexical-unit models of idiom representation (e.g., Swinney & Cutler, 1979).

Finally, our failure to find advantages for transformable idioms in ease of recall contradicts Gibbs and Gonzales' (1985) prediction to this effect; indeed, our failure to find effects of well-formedness could also be construed as contrary to a prediction that idioms which require differential amounts of processing will produce differential recall results. Note also that we found better recall for untransformed idioms, which suggests that if the transforms we used increased the amount of processing necessary for understanding, then the increased processing certainly did not lead to increased recall probability.

Este estudo e so uma gota no oceano, mas talvez contribua para descobrir o fio da meada deste fenomeno linguistico que se tern provado um osso bem duro de roer.

REFERENCES

Boisset, J. H. (1978). *Idioms as linguistic conventions.* Unpublished doctoral dissertation. University of Florida, Gainesville.

Botelho da Silva, T. (1989). *Processing of frozen idioms.* Unpublished master's dissertation, Cambridge University, Cambridge, England.

Brannon. L. L. (1975). *On the understanding of idiomatic expressions.* Unpublished doctoral dissertation. University of Texas, Austin.

Cacciari. C, & Tabossi, P. (1988). The comprehension of idioms. *Journal of Memory and Language, 27,* 668-683.

Cutler. A. (1982). Idioms—The colder the older. *Linguistic Inquiry, 13.* 317-320.

Cutler, A. (1983). Lexical complexity and sentence processing. In G. B. Flores D'Arcais & R. Y. Jarvella (Eds.), *The process of language understanding* (pp. 43-79). Chichester: Wiley.

Estill, R. B., & Kemper, S. (1982). Interpreting idioms. *Journal of Psycholinguistic Research. 11,* 559-568.

Fraser, B. (1970). Idioms within a transformational grammar. *Foundations of Language. 6.* 22-42.

Gibbs, R. W., Jr. (1980). Spilling the beans on understanding and memory for idioms in conversation. *Memory and Cognition, 8,* 149-156.

Gibbs, R. W., Jr. (1986). Skating on thin ice: Literal meaning and understanding idioms in conversation. *Discourse Processes, 9.* 17-30.

Gibbs, R. W., Jr., & Gonzales, G. (1985). Syntactic frozenness in processing and remembering idioms. *Cognition, 20,* 243-259.

Gibbs, R. W., Jr., & Nayak, N. P. (1989). Psycholinguistic studies in the syntactic behavior of idioms. *Cognitive Psychology, 21,* 100-138. '

Greciano, G. (1983). Signification et denotation en allemand—La semantique des expressions idiomatiques (Signification and denotation in German: The semantics of idiomatic expressions]. *Recherches Linguistiques. 9.* Universite de Metz.

Makkai. A. (1973). *Idiom structure in english.* The Hague, Netherlands: Mouton.

Mira Mateus, M. H., Brito, A. M.. Silva Duarte, I., & Hub Faria, I. (1983).*Gramdtica da Lingua Portuguese* (Grammar of the Portuguese Language]. Coimbra: Almedina.

Mueller, R., & Gibbs. R. W., Jr. (1987). Processing idioms with multiple meanings. *Journal of Psycholinguistic Research, 16,* 63-81.

Ortony, A., Schallert, D.. Reynolds, R., & Antos. S. (1978). Interpreting metaphors and idioms: Some effects of context on comprehension. *Journal of Verbal Learning and Verbal Behavior, 17,* 465-478.

Reagan, R. T (1987). The syntax of English idioms: Can the dog be put on? *Journal of Psycholinguistic Research. 16.* 417-441.

Swinney, D. A., & Cutler, A. (1979). The access and processing of idiomatic expressions. *Journal of Verbal Learning and Verbal Behavior. IS,* 523-534.

Van Lancker, D., & Canter, G. J. (1981). Idiomatic versus literal inteq^retations of ditropically ambiguous sentences. *Journal of Speech and Hearing Research, 24,* 64-69.

Weinreich, U. (1969). Problems in the analysis of idioms. In J. Puhvel (Ed)., *The substance and structure of language* (pp. 23-81). Berkeley: University of California Press.

APPENDIX

Well-Formed Idioms

1. Bater a bota ("to beat the boot" = to die).

2. Andar de vento em popa ("to go with the wind in the stern" = to go very well).
3. Passar pelas brasas ("to pass by the burning coals" = to take a nap).
4. Ir a nove ("to go at nine" = to move very quickly).
5. Baixar a bolinha ("to lower the little ball" = to quiet down).
6. Estar nas suas sete quintas ("to be in one's seven farms" = to feel very happy).
7. Por o carro a frente dos bois ("to put the cart before the oxen" = to change the natural order of things).
8. Dar cabo do canastro de ("to destroy the basket to" = to spank).
9. Por no prego ("to put in the nail" = to pawn).
10. Apalpar o terreno ("to feel the ground" = to ponder before taking action).
11. Puxar a brasa a sua sardinha ("to pull the burning coal to one's sardine" = to defend one's interests).
12. Por os pontos nos is ("to dot the i's" = to settle matters).
13. Dar o no ("to give the knot" = to get married).
14. Perder a cabega ("to lose the head" = to get out of control).
15. Fazer uma fita ("to make a film" = to create a scene).

Ill-Formed Idioms

Syntactically Ill-Formed

1. Estar-se nas tintas ("to be [reflex.] in the inks" = to be indifferent).
2. Cair em si ("to fall inside oneself" = to become aware).
3. Dar o dito pelo nao dito ("to give the said by the not said" = to change one's position).
4. Ter po a X ("to have dust at X" = to hate X).
5. P6r-se a pau ("to put oneself at stick" = to be on the alert).

Semantically Ill-Formed

6. Dar a lingua ("to give to the tongue" = to chatter continuously).
7. Esticar o pernil ("to stretch the spindle-shank" = to die).
8. Meter os pes pelas maos ("to put the feet through the hands" = to blunder).
9. Mandar a fava ("to send to the broadbean" = to send away, to dismiss).
10. Armar um pe de vento ("to set a foot of wind" = to make a scene).
11. Dar a luz ("to give to the light" = to give birth to).

12. Dar a mao a palmatoria ("to give the hand to the ferrule" = to recognize a mistake).
13. Dizer cobras e lagartos de ("to say snakes and lizards of" = to speak ill of).
14. Fazer trinta por uma linha ("to make 30 by one line" = to misbehave).
15. Escangalhar-se a rir ("to destroy oneself laughing" = to laugh heartily).