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Acknowledging the role of word-based activation in spontaneous trait inferences

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The first goal of the present paper is to call attention to a confounder in studies that explore Spontaneous Trait Inferences (STI). These studies use, most of the times, behavioral descriptions which strongly imply personality traits about the actor of the behavior. However, a potential limitation of this material is the possibility of the trait being activated by specific words in the sentence (word-based priming) and not, or not only, by an inference made based on the comprehension of the behavioral sentence as a whole (text-based priming). This aspect has been recurrently ignored in previous studies. In the present paper, we discuss how the word-based priming may have obscured the interpretation of previous results in the STI literature. A second goal of this paper is to present a potential solution for this problem. We created a set of 122 trait-implying sentences and their correspondent control versions. These control sentences have approximately the same words as the trait-implying sentences, but the words are rearranged in such a way that the sentences no longer imply the target traits. By keeping the words constant, we control for the activation from individual words in the sentences (word-based priming). Thus, differences in trait activation between the two sentences can only be attributed to text-based priming. Researchers interested in investigating STI in the Portuguese language can use these materials in their studies. With this paper, we hope to stimulate a discussion about the mechanisms responsible for the trait activation in STI studies.

Key words: Inference, Spontaneous trait inference, Word-based activation, Rearranged sentences.

Individuals have the fascinating talent of making inferences and reading in between the lines. This is an efficient and effortless skill which plays a crucial role in our comprehension of the world. If someone says that he or she likes apples, for instance, we automatically know that the person is talking about *eating* apples. We do not need to retrieve all the possibilities which match the same context (e.g., "she likes the color of apples", "she likes catching apples"), instead, the appropriate meaning immediately comes to our mind. Inferential thinking is useful in many different contexts; one of them is the social context. If you know that "John did not smoke at home while his roommate was trying to quit", it is very likely that you will infer that John is a "considerate" person. Research in social cognition has shown that such trait inferences occur spontaneously, that is, in the absence of any specific intention to form impressions or to infer traits (e.g., Winter & Uleman, 1984; for a review see Uleman, Rim, Adil Saribay, & Kressel, 2012).

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Inferring personality traits from behavioral descriptions seems intrinsic to our comprehension, but from a methodological standpoint, researchers encounter recurrent difficulties. One of them has been in demonstrating that the trait inference is part of the natural understanding of the behavior, that is, that the inference automatically occurs when the behavioral information is being encoded. Spontaneous Trait Inferences (STI) research has put much effort into creating better paradigms to demonstrate how and when trait inferences occur. But less attention has been paid to the type of behavioral descriptions used. Specifically, the question about what the processes are through which the trait may be activated based on the behavioral descriptions has not been fully considered. In the present paper, we discuss how the sentences used to elicit trait inferences can activate the target traits *without* a trait inferential process being necessarily involved. Note that while it is usually assumed that the trait is inferred as a result of the comprehension of the behavioral sentence meaning, a plausible alternative explanation for the activation of the trait is a word-to-word activation process. That is, the activation of the trait might result from associations with specific words in the sentence, and not from the understanding of the sentence as a whole. Take, for example, the following behavioral description employed by Carlston and Skowronski (1994) in one of the most cited papers in the STI literature: "I am 18 years old and a doctor. I received my medical degree from Harvard. In my spare time, I enjoy doing research at the Mayo Clinic". This is a behavioral description which implies the trait "intelligent". However, there are several words in the sentence ("degree", "Harvard" and "research") which may activate the trait "intelligent". Thus, in order to activate the trait, participants do not need to process and understand the meaning of the sentence, and do not need to make any text-based inferences. Not controlling for word-to-word associations in the material used to study STIs might thus lead to systematic confounds. Importantly, word-based priming cannot be considered an inference, but its outcome perfectly mimics that of a text-based inference.

The present paper has two main goals. The first goal is to discuss the potential role of word-based priming on STI results, and to explain in detail why this issue should be a concern to researchers. The second goal is to present a possible solution to this problem. Specifically, we created a set of materials that controls for word-based priming, which can be used by researchers conducting studies with Portuguese speaking participants. We start by discussing the importance of distinguishing word-based priming effects from true trait inferences, both at the theoretical and methodological levels. We then show how this issue has been neglected in many of the past studies in the trait inference literature. Finally, we present a set of sentences which were initially validated for the Portuguese language, and which can be further developed and applied by researchers in future STI studies.

Word-based priming: The problem of confounding

Keenan, Potts, Golding and Jenning (1990; see also Keenan & Jennings, 1995) called attention to the problem of how word-based priming might contaminate the results found in studies examining inferences during text comprehension. They noticed that two sources of priming, word-based priming and sentence-based priming (i.e., text inferences), had been confounded in many previous studies in the text comprehension field, rendering the evidence for inferences somewhat inconclusive. These authors highlighted that word-based priming is based on intra-lexical associations and it is insensitive to the meaning of the whole sentence, whereas an inference is based on the meaning of the text combined with the perceiver's knowledge of the described situation. Thus, it was crucial to investigate whether results which had been taken as evidence of these more elaborated, higher level inferential processes, were not simply a result of word-based

associations. Moreover, even though this issue has been systematically explored in the text comprehension literature, it has been mostly neglected in the STI research.

Within the STI research, the main aspect we want to emphasize is that the trait activation, usually interpreted as an inference made from the behavior, might be a consequence, not of the (spontaneous) interpretation of the behavioral description, but merely a result of the presence of certain word(s) which are semantically associated with the trait. In fact, it is common for trait-implying sentences to contain words highly associated with the trait concept. And, even if the sentence is processed in a shallow manner (if the participant is under cognitive load, tired or unmotivated for the task), the person might still be able to pick up the presence of these words and activate the trait without the need to deeply process the meaning of the sentence. The need of experimentally controlling for these associations is crucial, not just because of their inference mimicking power, but also because they might interact with sentence-based inferences in unknown ways.

One possible solution to overcome this confounder would be to eliminate from the sentence all the words which individually activate the trait. Then we could be sure that word-based priming effects were not responsible for differences in trait activation. However, it is very difficult, if not impossible, to eliminate all these word-to-word associations (see Forster, 1981; Keenan et al., 1990; Kintsh & Mross, 1985). A more viable solution is to equate the word-based associations present in the trait-implying behavioral descriptions with the control versions, by using the same words, but rearranged in such a way that the meaning of the control sentence changes and no longer implies the target trait. It is then possible to verify whether the trait is more activated in the inference version than in the rearranged version. Because the trait-implying sentence and control versions have similar words, word-based priming effects should be of similar magnitude in both sentences. Any differences in the activation of the trait between the two sentences would be attributed to the processing of the meaning of the sentence as a whole, that is, to text-based inferences. The set of materials which will be presented in this paper is essential for the implementation of this second solution.

As previously said, neither the problem, nor the solution, are new for the text comprehension researchers (McKoon & Ratcliff, 1986; Potts, Keenan, & Golding, 1988). For example, in order to study the occurrence of predictive inferences, McKoon and Ratcliff (1986) used a probe recognition task during which the participants were presented with paragraphs containing predicting sentences ("The director and the cameraman were ready to shoot close-ups when suddenly the actress fell from the 14th story", where "dead" should be the inferred prediction) and paragraphs containing rearranged sentences ("Suddenly the director fell upon the cameraman, demanding close-ups of the actress on the 14th story." where "dead" should not be inferred any longer). Note that roughly the same words were used in both sentences. After reading the last sentence in the paragraph, a target word was presented. In critical trials, the participants had to indicate, as quickly and accurately as possible, whether the target word (the predictive event "dead" in the example above) was part of the paragraph. If the predicted event was inferred during the reading of the predictive sentence, then the correct response ("no") should be slower and more inaccurate, than in the case in which the predicted event followed a rearranged sentence. This was exactly what was found. In this case, results cannot be accounted for by word-based associations because both sentences have approximately the same words.

The word-based priming problem in STI research

In this section, we present the main paradigms used to study STIs and discuss the potential role of word-based priming on the results obtained with each paradigm. The first paradigm used in the

STI field was the cued-recall paradigm (Claeys, 1990; Uleman, Moskowitz, Roman, & Rhee, 1993; Winter & Uleman, 1984; Winter, Uleman, & Cunniff, 1985). In this paradigm, participants are presented with trait-implying behaviors, under memory instructions (i.e., they are asked to memorize the material for a later unspecified memory test). After a distractor task, participants are asked to recall the previous behaviors under various cue conditions. The central assumption is that if the trait is inferred during the encoding of the sentence, it will be an effective cue for the recall of the behavior, compared to a no-cue condition.

Although none of the studies with the cued-recall paradigm used rearranged sentences, Winter and Uleman (1994) expressed concern about the potential interference of word-based associations. These authors conducted a series of rigorous pre-tests which controlled for some of the word-based activations in the sentences. For example, they controlled for semantic associations with the actors of the sentences, who were described via their occupations (e.g., reporter, librarian), by eliminating those actors who were strongly associated with the target trait. The authors wanted to rule out the possibility of traits presented at test activating the actor in the sentence based on semantic backward associations, thus increasing the likelihood of retrieving the sentence, independently of any inference processes which might be taking place at encoding. Critically, while these researchers pre-tested the materials extensively, they did not explore all the possible associations between the trait and the words in the sentences, remaining inconclusive the extent to which word-based associations affect the results in the cued-recall task. This problem could have been overcome by using rearranged sentences to test whether the recall of the trait-implying sentence is better than the recall of the rearranged version, when the trait is provided as a cue.

Other common paradigms which have been applied to explore STI are the savings in relearning (Carlston & Skowronski, 1994) and the false recognition (Todorov & Uleman, 2002). In both paradigms participants are initially presented with a series of photos of actors, each one paired with a trait-implying behavior. In the false recognition task, the previously seen photos are presented at test, paired with trait-words. Some of the pairs are created by pairing the actor with the trait previously implied by his behavior (match pairs), while other pairs are created by presenting the actor with a trait previously implied by the behavior of another actor (mismatch trials). The participant is instructed to indicate whether the trait was part of the sentence presented previously with that actor. A higher rate of false recognitions of the trait in the match than in the mismatch condition is taken as evidence of occurrence of STI during the encoding of the behavior, that is, as evidence that the trait became attached to the actor's representation in memory. In the savings paradigm, in a second phase, participants are presented with face-trait pairs. Some of these pairs are "relearning pairs" (faces are paired with the corresponding implied traits) while others are new (faces are paired with new traits). In a final phase, the photos from the second phase are presented as cues and participants have to recall the corresponding traits paired with the photos. Results typically show that the recall of the traits is superior for relearning pairs, than for new pairs (the so called "savings effect"), indicating that participants had inferred the traits in the initial phase of the study. The false recognition and the savings paradigms are currently the most frequently used methods in STI research. However, studies using these paradigms never included rearranged control versions of the trait-implying sentences. As such, the degree to which performance in these tasks is affected by specific intra-lexical associations between the to-be-inferred traits and words from the sentences remains unclear.

To our knowledge, the only STI study which originally included rearranged sentences was conducted by Uleman and collaborators, with the recognition probe paradigm (Uleman, Hon, Roman, & Moskowitz, 1996). The recognition probe paradigm was borrowed by the authors from the text comprehension literature (e.g., McKoon & Ratcliff, 1986) and has been popular since then in the STI literature (e.g., Ham & Vonk, 2003; Newman, 1991, 1993; Ramos, Garcia-Marques, Hamilton, Van Acker, & Ferreira, 2012; Uleman et al., 1996; Van Overwalle, Drenth, & Marsman,

1999; Wigboldus, Dijksterhuis, & Van Knippenberg, 2003; Wigboldus, Sherman, Franzese, & Van Knippenberg, 2004). Uleman and collaborators (1996) first applied this paradigm to the study of STI, by using both types of sentences: trait-implying sentences ("He took his first calculus course when he was 12 years old" – a sentence which implies the trait "smart") and control sentences which used roughly the same words but do not imply the trait ("He took his first calculus course when he was 42 years old." – a control sentence which should not imply the trait "smart"). Results showed that participants made more errors (Experiment 1) or took more time to provide a correct response (Experiment 2) after reading trait-implying, than control rearranged, sentences.

Note, however, that Uleman and colleagues' paper (1996) is an exception and not the rule. As far as we know, none of the following studies (Ham & Vonk, 2003; Newman, 1991, 1993; Ramos et al., 2012; Uleman et al., 1996; Van Overwalle et al., 1999; Wigboldus et al., 2003, 2004) using the recognition probe paradigm have included rearranged controls, making it impossible to know whether they were dealing with real trait inferences or not. The control trials in many of the recent studies using the probe paradigm are neutral paragraphs with the only requirement being to not imply the trait, but without controlling for the individual words included. This kind of neutral control does not lead to the inference of the trait from the sentence as a whole, however it does not allow researchers to disentangle real inference from word-based priming effects.

A possible solution: The use of control sentences

In the present work, we present a set of materials which researchers can use in future studies in order to control for the impact of word-based priming effects on STI occurrence. We created a set of trait-implying behavioral descriptions and control versions of those descriptions. The control versions were created in such a way that the control sentence incorporates as many words from the trait-implying sentence as possible.

Three different pre-tests were conducted to create these materials. In the first pre-test, the goal was to create a large set of pairs of sentences and traits. Participants were presented with a list of traits and were instructed to generate behaviors representative of each trait. We then created rearranged controls for the trait-implying sentences. In the second pre-test, we tested how much the traits were being inferred from the created, rearranged versions. This allowed us to select only those pairs of sentences in which the rearranged counterparts did not lead to the inference of the critical traits. Finally, in the third pre-test, we analyzed how much the traits were implied in the trait-implying sentences when compared to the rearranged controls, and also how these two types of sentences differ in terms of ease of comprehension.

Pre-test 1: Creation of trait-implying and rearranged sentences

In this initial pre-test, the purpose was to obtain trait-implying behavioral sentences representative of a large set of personality traits. In order to create a diversified list of trait-implying behavioral descriptions, a list of 223 traits was initially compiled. The personality traits were translated from Norman Anderson's list (Anderson, 1968) but traits which we considered to be less frequent in the Portuguese language were not included and other new traits considered common in the Portuguese language, but that were not part of Anderson's list, were included. Two hundred and ninety-three subjects (115 males) took part in the pre-test. The average age of the

sample was 29.31 years old. The pre-test was conducted online, using Qualtrics Survey Software and the participants were recruited using social media tools (e.g., Facebook groups dedicated to data collection for social research) and email invitations. Each participant was presented with 15 personality traits randomly chosen from the initial list of traits and their task was to generate a representative behavior for each one of the presented traits. Participants were instructed to think about people they knew and to give concrete examples of their behaviors. Participants were also instructed to: take no more than 1 minute and 30 seconds per trait; avoid using adjectives; and be as specific as possible in their behavioral descriptions.

Two independent judges analyzed the collected data. Each judge received half of the generated behavioral descriptions. The first step of the analysis consisted in eliminating answers which were not behavioral descriptions (e.g., definitions of the trait or traits' synonyms), as well as redundancies between participants' answers. Then, the judges selected 2 or 3 behavioral descriptions which better illustrated each trait (e.g., the sentence "She was in favor of the marriage between people of the same sex." was generated for the trait "open-minded"), and in cases in which none of the descriptions were behaviors, the judges created a sentence for that trait. Traits with similar behavioral descriptions, usually synonyms, were grouped under the same trait label, such "chata" ("boring") and "enfadonha" ("dull"). This grouping resulted in a total of 154 traits and their corresponding behavioral descriptions.

Two new judges received half of the stimuli each (77 pairs) and were asked to select the best behavioral description for each trait. At this point, the main concern was to choose the sentence which implied the trait the most. These same two judges also created rearranged control versions for each of the 154 trait-implying sentences. Critically, an effort was made to use all the words from the trait-implying sentences in their rearranged versions. In some sentences keeping exactly the same words was easier (e.g., the rearranged sentence "A nota mais alta que conseguiram tirar na sua cadeira no semestre passado foi 14" of the trait-implying sentence "A nota mais alta que conseguiram tirar na sua cadeira no semestre passado foi 19.", which implies the trait "exigente") than in others (e.g., the rearranged sentence "Este ano passou um mês a viajar sozinha." of the trait-implying sentence "Para não ir sozinha, adiou a viagem para o próximo mês deste ano." which implies the trait "aventureira").

Pre-test 2: Rearranged control sentences

The 153 rearranged sentences were presented to four new independent judges. Two of the judges (group A) were asked to write down the first word which came to their mind when reading the sentences and the other two (group B) were asked to evaluate to what extent the sentences presented were related to the critical traits by using a 9-point scale ranging from not related (1) to very related (9). If at least one of the judges from group A generated the target trait or a word which was related to the trait ("esperançoso" when the trait inferred was "optimista"), that pair of rearranged/implying sentences was excluded from the set (based on this criterion, 14 % of the material was excluded). In addition, from the remaining material, if both judges from group B rated the relation between the rearranged sentence and the trait with a rating higher than 5, that pair of sentences was also excluded from the set (8 % of excluded material based on this criterion). This resulted in 122 pairs of trait-implying/rearranged sentences, which are presented in Table 1. In this pre-test the inter-judges reliability in Group B was low, *ICC*=.360, 95 % CI [.008, .577], and that motivated the next pre-test.

Table 1

Trait-implying descriptions and rearranged versions (in Portuguese). The gender of the trait is feminine because the question made in the pre-tests was about the person described in the sentence and the word "person" is feminine in Portuguese ("pessoa")

Trait	Type of Sentence	Sentence
aberta	Trait-Implying	Mostrou-se a favor do casamento entre pessoas do mesmo sexo.
	Rearranged	Não se mostrou a favor do sexo antes das pessoas casarem mesmo.
activista	Trait-Implying	Recolheu assinaturas de todos os moradores da cidade para pedirem obras na escola primária.
	Rearranged	Disse aos moradores que assinou o contrato para as obras na escola primária da cidade.
agradecida	Trait-Implying	Pagou a refeição ao desconhecido que veio atrás dela para lhe dar o casaco que se tinha esquecido no metro.
	Rearranged	Pagou a refeição e ia a sair quando um desconhecido lhe veio entregar o casaco que se tinha esquecido na cadeira.
agressiva	Trait-Implying	Levantou a mão à empregada porque esta pediu-lhe para baixar o tom de voz.
	Rearranged	Levantou a mão e com sua voz baixa fez um pedido à empregada.
alegre	Trait-Implying	Estava a assobiar uma melodia muito conhecida no caminho para o trabalho.
	Rearranged	Estava a passar uma melodia muito conhecida no caminho para o trabalho.
ansiosa	Trait-Implying	Não conseguiu dormir nada de noite porque ia viajar no dia seguinte.
	Rearranged	Dormiu a noite toda durante a viagem e estava fresca no dia seguinte.
arrogante	Trait-Implying	Olhou a pessoa de alto a baixo antes de lhe responder.
	Rearranged	Ele é uma pessoa baixa e teve de olhar para cima para lhe responder.
ateia	Trait-Implying	Recusou-se a pôr o seu filho na catequese apesar dos outros pais o fazerem.
	Rearranged	No caminho para a reunião de pais pôs o seu filho na catequese.
autoritária	Trait-Implying	Disse ao filho que este ia começar a praticar natação mesmo sem ele querer.
	Rearranged	Porque o filho queria tanto, disse-lhe que podia começar a praticar natação.
aventureira	Trait-Implying	Este ano passou um mês a viajar sozinha.
	Rearranged	Para não ir sozinha, adiou a viagem para o próximo mês deste ano.
barulhenta	Trait-Implying	O vizinho veio queixar-se do volume da sua televisão.
	Rearranged	Queixou-se ao vizinho do pacote volumoso em que vinha a sua televisão.
bondosa	Trait-Implying	Decidiu esquecer que a colega a prejudicou no exame e dar-lhe uma nova oportunidade.
	Rearranged	Decidiu esquecer o exemplo da colega e fazer o exame das "novas oportunidades".
calculista	Trait-Implying	Foi à festa porque sabia que lá ia estar uma pessoa importante e podia dar jeito um dia destes conhecê--la.
	Rearranged	Como era uma pessoa importante para si disse que podia ir à festa nesse dia.
calma	Trait-Implying	Encostou-se à poltrona com um chá a ouvir a sua música favorita.
	Rearranged	Estava a dar a sua música favorita quando entornou o chá na poltrona.
carinhosa	Trait-Implying	Passou uma semana inteira em casa do primo que tinha tido um acidente.
	Rearranged	Disse ao primo que passou uma semana em casa porque tinha tido um acidente.
chata	Trait-Implying	Contou tantas vezes a história aos colegas que eles já a sabem de cor.
	Rearranged	Porque os colegas pediram ele contou a história que já sabia de cor.
ciumento	Trait-Implying	Não quer que a namorada se dê com outros rapazes que não ele.
	Rearranged	Não se dá com aquele rapaz e com sua namorada porque eles não querem.
cobarde	Trait-Implying	Incitou os colegas a fazer greve e foi o primeiro a desistir quando chegou o chefe.
	Rearranged	O chefe incitou os colegas a fazerem greve e ninguém chegou a desistir.
confiável	Trait-Implying	Não contou a ninguém o que o colega lhe contou acerca do passado do seu pai na prisão.
	Rearranged	Não contou a nenhum dos seus colegas que o seu pai esteve na prisão no passado.
conflituosa	Trait-Implying	Criou logo um escândalo durante a refeição só porque a pisaram no bar da faculdade.
	Rearranged	Ele pisou o almoço o que criou logo um escândalo no bar da faculdade.
controlada	Trait-Implying	Bebeu uma cerveja e parou porque sabia que ia ter que conduzir.
	Rearranged	Como sabia que já não ia ter de conduzir foi beber uma cerveja.
cooperante	Trait-Implying	Disse que ajudava a pagar o arranjo do elevador do prédio mas se todos os outros também o fizessem.
	Rearranged	Fez os arranjos no prédio todo e disse que ia precisar de ajuda para arranjar o elevador também.
crente	Trait-Implying	Mesmo face à má época do seu clube, ele ainda acha que podem ter uma victória.
	Rearranged	Mesmo face a uma victória do seu clube, acha que a má época ainda pode continuar.
criativa	Trait-Implying	Como não encontrava o livro para ler uma história ao filho, inventou uma e o filho gostou.
	Rearranged	O filho gosta de histórias inventadas mas ela leu uma de um livro que encontrou.
cruel	Trait-Implying	Descobriu que uma das suas empregadas tinha sido toxicodependente e usou isso contra ela.
	Rearranged	Descobriu que perto do seu emprego havia toxicodependentes.
cuidadosa	Trait-Implying	Transportou os copos novos devagar até casa sem partir nenhum.
	Rearranged	Partiu um copo ao transportá-lo para a sua casa nova.
curiosa	Trait-Implying	Procurou informação sobre aquela espécie de cão estranha que viu passar na rua.
	Rearranged	Na rua que estava à procura viu passar um cão de uma espécie estranha.

Table 1 (cont.)

Trait	Type of Sentence	Sentence
dedicada	Trait-Implying	Queria entregar a tese em primeira fase e por isso nas últimas semanas passou o tempo todo a escrever.
	Rearranged	Teve o tempo todo para se inscrever na primeira fase mas só o fez na última semana.
desarrumada	Trait-Implying	Demorou meia hora a encontrar a outra meia do par no seu quarto.
	Rearranged	Vestiu a outra meia do par e em meia hora estava a sair do quarto.
desbocada	Trait-Implying	Fez um comentário sobre alguém que se encontrava por perto e podia ouvir.
	Rearranged	Alguém fez um comentário mas ele não pôde ouvir porque não se encontrava perto.
desleal	Trait-Implying	Aceitou trabalhar para o rival do seu melhor cliente a troco de mais alguns dinheiro por mês.
	Rearranged	Apercebeu-se que a empresa rival tinha melhores clientes e fazia mais dinheiro por mês.
desligada	Trait-Implying	Foi viver sozinha e desde então já vai para 3 meses que não liga aos pais.
	Rearranged	Ligou aos pais e disse que desde então ia viver sozinha por 3 meses.
desonesta	Trait-Implying	Deu troco a menos, como quem se tinha enganado, para ver se o cliente não notava.
	Rearranged	Recebeu troco a menos porque o cliente não notou que se tinha enganado.
desorganizada	Trait-Implying	Não apontou os dias das reuniões e acabou por trocar os dias todos.
	Rearranged	Acabou por pedir para trocar os dias das reuniões e apontou-as todas na agenda.
desorientada	Trait-Implying	Estava num cruzamento perto da casa dos tios e não fazia a mínima ideia para onde devia virar.
	Rearranged	Tinha a ideia que perto do cruzamento tinha que virar para a casa minúscula dos tios.
despreocupada	Trait-Implying	Apesar de ter teste no dia seguinte, ela ainda foi à praia descontrair um pouco.
	Rearranged	Não conseguiu ficar mais na praia a descontrair porque tinha um teste no dia seguinte.
desrespeitadora	Trait-Implying	Passou à frente de três pessoas da fila sem pedir autorização a nenhuma.
	Rearranged	Pediu para passarem a frente porque ali não havia autorização para fazerem fila.
discreta	Trait-Implying	Entrou para buscar a sua mala e depois saiu sem ninguém dar por ela.
	Rearranged	Depois de ir buscar a mala entrou mas voltou a sair porque não deu com ninguém.
distraída	Trait-Implying	Estava a procura dos óculos quando os tinha na sua própria cabeça.
	Rearranged	Procurou os óculos e pô-los na sua própria cabeça.
eficaz	Trait-Implying	Estava a fazer dois trabalhos ao mesmo tempo e conseguiu boa nota em ambos.
	Rearranged	Em ambos os trabalhos fizeram uma nota sobre o bom tempo que ia estar.
egocêntrica	Trait-Implying	Falou tanto de si e das suas férias que não teve tempo para saber como é que a amiga estava.
	Rearranged	Esteve a falar com a amiga e soube que não tinham estado de férias ao mesmo tempo.
egoísta	Trait-Implying	Arranjou o exame dos outros anos mas não contou a ninguém.
	Rearranged	Falaram-lhe de uns exames de outros anos mas ninguém os conseguiu arranjar.
encorajadora	Trait-Implying	Disse ao empregado para não desistir do trabalho mostrando-lhe os seus pontos fortes.
	Rearranged	Disse que o ponto forte do empregado era mostrar trabalho.
entusiasmada	Trait-Implying	Gesticulava muito e falava quase sem respirar ao contar as aventuras na viagem à Ásia.
	Rearranged	Respirou fundo e contou novamente as aventuras da viagem à Ásia quase sem gesticular.
esquecida	Trait-Implying	Voltou a casa para buscar o almoço que tinha deixado no frigorífico de manhã.
	Rearranged	Deixou comida no frigorífico de manhã para almoçar quando voltasse para casa.
estudiosa	Trait-Implying	Deixou de ir a três festas para se preparar para o exame de química.
	Rearranged	Depois do exame de química preparou-se para ir a três festas.
exagerada	Trait-Implying	Descreveu o robalo que pescou como se fosse um tubarão.
	Rearranged	Descreveu o tubarão e o robalo que pescou.
exigente	Trait-Implying	A nota mais alta que conseguiram tirar na sua cadeira no semestre passado foi 14.
	Rearranged	A nota mais alta que conseguiram tirar na sua cadeira no semestre passado foi 19.
extravagante	Trait-Implying	Quando acordou naquele dia, pintou o cabelo de roxo.
	Rearranged	Quando acordou naquele dia o seu olho estava roxo.
falsa	Trait-Implying	Passou a imagem que queria ajudar a colega quando o que queria era ficar com o seu cargo.
	Rearranged	Passou as imagens que queria colocar na apresentação para o colega que tinha a seu cargo.
flexível	Trait-Implying	Mudou os seus planos para se ajustar aos dos seus colegas.
	Rearranged	Mudou o plano para melhor enquadrar os seus colegas na fotografia.
formal	Trait-Implying	Trata todas as pessoas por "você", mesmo quando lhe são próximas.
	Rearranged	Disse que apenas iria tratar as pessoas que lhe são próximas.
forreta	Trait-Implying	Todos os presentes que ofereceu no Natal são comprados com pontos promocionais.
	Rearranged	Todos se ofereceram para estar presentes nas acções promocionais deste Natal.
fraca	Trait-Implying	Ao ser confrontada com falsas acusações ficou tão afectada que nem se conseguiu defender.
	Rearranged	Ao ver todas aquelas falsificações ficou tão chocada que não soube o que fazer.
fria	Trait-Implying	Não demonstrou afecto num momento em que o marido tanto precisava.
	Rearranged	Precisava de um momento de afecto com o marido.
gabarolas	Trait-Implying	Afirmou várias vezes que tirou 18 no exame e não estudou nada.
	Rearranged	Afirmou várias vezes que é difícil tirar 18 se não se estuda nada.
gananciosa	Trait-Implying	Ganhou uma herança considerável e ainda diz querer ganhar o Euromilhões.
	Rearranged	Já tinha uma poupança considerável e ainda teve a sorte de ganhar o Euromilhões.

Table 1 (cont.)

Trait	Type of Sentence	Sentence
gastadora	Trait-Implying	Na primeira semana do mês já tem que pedir dinheiro aos amigos.
	Rearranged	Tem um encontro de amigos já na primeira semana do mês.
generosa	Trait-Implying	A caminho de casa, ofereceu o seu jantar a um sem-abrigo.
	Rearranged	Foi abordado por um sem-abrigo quando saiu do jantar em casa dos pais.
habilidosa	Trait-Implying	Construiu uma pirâmide de cartas com 50 centímetros sem deixar cair nenhuma carta.
	Rearranged	A pilha de cartas sem nenhuma resposta na sua mesa atingiu já os 50 centímetros.
hospitaleira	Trait-Implying	Não se importou de dormir na sala para alojar bem as suas visitas.
	Rearranged	As suas visitas não se importaram de ficar a dormir na sala.
humilde	Trait-Implying	Atribuiu o mérito ao grupo, quando foi ela que encontrou a solução para o problema.
	Rearranged	Encontraram em grupo a melhor solução para o problema.
ignorante	Trait-Implying	Disse que África é um país que fica a sul de Espanha.
	Rearranged	Disse que África fica a sul de Espanha.
impaciente	Trait-Implying	Perguntou 3 vezes à recepcionista se faltava muito para ser atendida.
	Rearranged	Perguntou à recepcionista se era a terceira vez que essa pessoa faltava.
imparcial	Trait-Implying	Não deu razão ao irmão na discussão que este teve com o vizinho por causa da construção da varanda.
	Rearranged	Percebeu que a razão da discussão que o irmão teve com o vizinho era a construção da varanda.
impulsiva	Trait-Implying	Despediu-se do trabalho durante uma discussão com o chefe.
	Rearranged	Despediu-se do chefe após a discussão de um trabalho.
incansável	Trait-Implying	Na mesma tarde fez uma aula de dança e ainda foi à piscina nadar 1 hora.
	Rearranged	Foi a uma aula de dança de uma hora mas perdeu a tarde devido a um problema que houve na piscina.
incapaz	Trait-Implying	Chumbou pela terceira vez no exame de condução.
	Rearranged	Mudou pela terceira vez o exame de condução.
incompetente	Trait-Implying	Amputou a perna de alguém porque pegou no relatório médico de outro paciente.
	Rearranged	Amputou a perna do paciente e foi escrever o relatório médico do mesmo.
inconsistente	Trait-Implying	Está sempre a corrigir os outros quanto aos seus hábitos alimentares mas depois só come fritos.
	Rearranged	Está sempre a dizer aos outros para excluírem os fritos dos seus hábitos alimentares.
indecisa	Trait-Implying	Precisou de meia hora para decidir onde ia almoçar nesse dia.
	Rearranged	Precisou de meia hora para conseguir almoçar nesse dia.
ineficiente	Trait-Implying	Perdeu 2 horas a fazer uma tabela que podia ter feito em 15 minutos se utilizasse o novo programa.
	Rearranged	Perdeu 15 minutos a fazer uma tabela que iria demorar 2 horas se não utilizasse o novo programa.
ingénua	Trait-Implying	Não percebeu que toda a conversa e elogios eram porque o rapaz estava apaixonado por ela.
	Rearranged	Percebeu que o rapaz por quem estava apaixonada não era muito dado a elogios e conversas.
ingrata	Trait-Implying	Nem se lembrou dos colegas que o ajudaram no trabalho naquele dia.
	Rearranged	Ajudou um colega a lembrar-se do trabalho que tinha para fazer naquele dia.
insegura	Trait-Implying	Pediu aos colegas que confirmassem se estava a pensar e a fazer bem.
	Rearranged	Confirmou com os colegas o que tinham a fazer e pensar.
interessada	Trait-Implying	Fez 3 perguntas durante a apresentação para melhor compreender o tema.
	Rearranged	A terceira vez que apresentou o tema, compreenderam-no melhor e não houve perguntas.
interessante	Trait-Implying	Mesmo os mais sonolentos ficaram curiosos ao ouvi-lo falar sobre o tema.
	Rearranged	Ficou mais sonolento à medida que ia ouvindo falar sobre o tema que até lhe despertava curiosidade.
invejosa	Trait-Implying	Ficou toda vermelha quando soube que a colega tinha tido melhor nota do que ela.
	Rearranged	Ficou melhor ao notar que a colega tinha ficado tão vermelha quanto ela.
irónica	Trait-Implying	No final de um dia acidentado, disse ao amigo que o dia que não poderia ter corrido melhor.
	Rearranged	No final de um dia acidentado, disse ao amigo que o dia poderia ter corrido melhor.
irrealista	Trait-Implying	Mesmo tendo um salário reduzido, acreditava que ia conseguir comprar um carro desportivo a curto prazo.
	Rearranged	Mesmo tendo um salário reduzido, conseguiu num curto prazo comprar um carro desportivo.
irrequieta	Trait-Implying	Não consegue estar parada mais do que dois minutos, começa a bater o pé e a mexer as mãos.
	Rearranged	Não consegue estar de pé mais do que dois minutos, sem que as pernas comecem a tremer.
irritadiça	Trait-Implying	Bateu com a porta da sala quando soube que teve só 13 no teste.
	Rearranged	Bateu à porta da sala 13 para saber a sua nota no teste.
justa	Trait-Implying	Castigou os dois filhos da mesma forma quando estragaram a torneira da casa de banho.
	Rearranged	Notou que os filhos estragaram a torneira da casa de banho e arranjou-a da mesma forma.
machista	Trait-Implying	Não contratou a pessoa com melhor currículo porque era uma mulher.
	Rearranged	A mulher que contratou não era a pessoa com melhor currículo.
mal-educada	Trait-Implying	Respondeu à professora quando esta lhe chamou a atenção por causa do barulho que estava a fazer.
	Rearranged	Por causa do barulho que estavam a fazer, não ouviu a professora quando esta a chamou o seu nome.
manhosa	Trait-Implying	Perguntou algo que sabia de antemão para testar o seu colega.
	Rearranged	Perguntou ao seu colega se sabia que estava em contramão.
medrosa	Trait-Implying	A sala ficou escura e ela agarrou-se logo ao braço da pessoa ao lado.
	Rearranged	Ao seu lado na sala estava uma pessoa com uma camisola escura nos braços.

Table 1 (cont.)

Trait	Type of Sentence	Sentence
melancólica	Trait-Implying	Relembrou um acontecimento do tempo em que seu marido estava vivo.
	Rearranged	Relembrou o tempo e onde vivia com o marido quando isso aconteceu.
mentirosa	Trait-Implying	Contou aventuras que um amigo teve numa viagem a África como tendo sido suas.
	Rearranged	Quer viajar até África por causa das aventuras que uma amiga conta ter tido.
mesquinha	Trait-Implying	Cortou relações com o amigo por causa de 20 cêntimos.
	Rearranged	Cortou 20 centímetros o cabelo ao amigo.
mimada	Trait-Implying	Não falou o dia todo com a mãe porque esta não lhe comprou a camisola que queria.
	Rearranged	Passou o dia todo a tentar falar com a mãe para saber que camisola esta queria que lhe comprasse.
misteriosa	Trait-Implying	Não disse onde ia nessa noite e quando questionado fugiu à pergunta.
	Rearranged	Perguntou para onde e de onde estava a fugir esse indivíduo de noite.
namoradeira	Trait-Implying	Mudou de namorada várias vezes no último ano.
	Rearranged	Mudou de morada várias vezes no último ano.
obediente	Trait-Implying	Ele fez como o polícia pediu, saiu do carro, tirou as mãos dos bolso e pô-las na cabeça.
	Rearranged	O polícia vinha de mãos nos bolsos, baixou a cabeça e pediu-lhe para sair do carro.
orgulhosa	Trait-Implying	Apesar de ter percebido que aquele não era um bom sítio para fazer a festa não deu o braço a torcer.
	Rearranged	Sem se ter apercebido, torceu o braço enquanto arrumava o sítio onde ia fazer a festa.
ousada	Trait-Implying	Foi dançar para a coluna da discoteca.
	Rearranged	Partiu a coluna quando dançava na discoteca.
passiva	Trait-Implying	Soube que amiga lhe tinha mentido mas não fez nada quanto a isso.
	Rearranged	Não soube o que fazer à amiga que lhe tinha mentido.
patriota	Trait-Implying	Pendurou a sua bandeira à janela durante os jogos olímpicos.
	Rearranged	Viu a bandeira dos jogos olímpicos a partir da sua janela.
pensativa	Trait-Implying	Passou uma tarde inteira a olhar para o mar.
	Rearranged	Passou uma tarde inteira a tomar banho no mar.
perigosa	Trait-Implying	Apontou o x-acto a uma pessoa com quem estava a discutir.
	Rearranged	Apontou com o x-acto para umas pessoas que estavam a discutir ao longe.
persistente	Trait-Implying	É a quinta vez que se vai candidatar ao curso de medicina.
	Rearranged	Disse que é a quinta vez que o curso de medicina vai excluir candidatos.
pessimista	Trait-Implying	Ainda nem fez o teste e já acha que lhe vai correr mal, apesar de estar preparada.
	Rearranged	Apesar de achar que já estava preparada, o teste acabou por lhe correr mal.
pontual	Trait-Implying	Chegou uns minutos antes da hora marcada ao local da reunião.
	Rearranged	Acabou por marcar a hora da reunião mesmo ali no local.
poupada	Trait-Implying	Comparou os preços das várias marcas antes de fazer as suas compras.
	Rearranged	Ao fazer as suas compras trouxe produtos de várias marcas e preços.
preguiçosa	Trait-Implying	Não se levantou do sofá para atender o telefone.
	Rearranged	Levantou-se do sofá para atender o telefone.
quieta	Trait-Implying	Não se mexeu durante a aula toda.
	Rearranged	Mexeu-se durante toda a aula de dança.
racista	Trait-Implying	Disse à filha que a deserdava se ela se casasse com um africano.
	Rearranged	Disse à filha que gostava que ela se casasse com um vestido africano.
rápida	Trait-Implying	Tomou banho em 10 minutos e ainda chegou antes da hora marcada ao jantar.
	Rearranged	Tomou banho 10 minutos antes da hora marcada para chegar ao jantar.
rebelde	Trait-Implying	Fugiu de casa sem os pais saberem para ir ao festival de verão.
	Rearranged	Contou ao pais tudo o que deviam saber sobre o festival de verão.
religiosa	Trait-Implying	Precisou de se confessar 3 vezes nesse ano.
	Rearranged	Confessou que precisou de ir ao casino 3 vezes nesse ano.
respeitadora	Trait-Implying	Apesar de as pessoas da reunião falarem todas ao mesmo tempo, ela esperou pela sua vez de falar.
	Rearranged	Quando chega a sua vez de falar numa reunião, as pessoas falam todas ao mesmo tempo.
rude	Trait-Implying	Palitou os dentes à mesa de um restaurante muito elegante.
	Rearranged	Teve uma terrível dor de dentes naquele restaurante muito elegante.
sensível	Trait-Implying	Usou dois pacotes de lenços de tantas vezes chorar durante o filme.
	Rearranged	Usou dois pacotes de lenços de tantas vezes espirrar durante o filme.
simpática	Trait-Implying	Aceitou substituir um colega do trabalho que queria visitar a avó no hospital.
	Rearranged	Queria visitar a avó no hospital mas nenhum colega aceitou substituí-la no trabalho.
simples	Trait-Implying	Foi à festa sem maquilhagem e com roupa do dia-a-dia.
	Rearranged	No seu dia-a-dia usa maquilhagem mas não roupa de festa.
sociável	Trait-Implying	Falou com o estranho que estava ao seu lado.
	Rearranged	O estranho que estava ao seu lado falou para o motorista.
solitária	Trait-Implying	Passou a passagem de ano com o seu gato.
	Rearranged	Comprou uma passagem para levar o seu gato.
supersticiosa	Trait-Implying	Bateu três vezes na madeira para evitar que acontecesse o que acabara de dizer.
	Rearranged	Acabou por encomendar três ripas de madeiras como aconteceu as últimas vezes.

Table 1 (cont.)

Trait	Type of Sentence	Sentence
teimosa	Trait-Implying	Sugeriram-lhe que usasse uma técnica mais moderna, mas ela continua a fazer as coisas à maneira dela.
	Rearranged	Passou a usar uma técnica mais moderna que lhe sugeriram em vez de fazer as coisas à maneira dela.
tolerante	Trait-Implying	Pela terceira vez consecutiva esperou pela namorada mais de 30 minutos sem se zangar com ela.
	Rearranged	Pela terceira vez consecutiva encontrou a namorada sem ter combinado com ela.
trabalhador	Trait-Implying	Ficou no escritório mais 1 hora, mesmo sabendo que não ganharia mais por isso.
	Rearranged	Ficou no escritório mais 1 hora, mesmo sabendo que não havia nada para fazer.
vingativa	Trait-Implying	Meteu-se com o namorado da amiga porque esta no passado tinha-se metido com um namorado seu.
	Rearranged	Meteu-se com a amiga dizendo que no passado se tinha metido com o seu namorado.

Pre-test 3: Comparing the trait-implying and the rearranged control sentences

Four new independent judges were presented with half of the pairs of sentences (66 trait-implying sentences and 66 rearranged sentences) and the correspondent traits. For each sentence-trait pair, the judges were asked to indicate how well the trait described the person performing the behavior. They were instructed to use a scale ranging from 1 ("the trait does not describe the person at all") to 9 ("the trait describes very well the person"). Moreover, for each sentence, the judges had to indicate how easy it was to comprehend the sentence, again by using a 9-point scale (1 – not easy at all, 9 – very easy). Each judge was presented with one of the two sentences (the trait-implying or the rearranged), related to the same trait. Thus, 2 judges were presented with a set of sentences (Group C) and the other 2 with a different set (Group D). For the trait ratings, in both Group C, *ICC*=.868, 95% CI [.811, .907], and Group D, *ICC*=.818, 95 % CI [.735, .874], we obtained a high inter-rater reliability. As expected, the ratings for how much the trait describes the person in the rearranged sentence are much lower (*M*=2.84, *SD*=2.08) than in the trait-implying sentence (*M*=8.19, *SD*=1.07), $t(121)=22.87$, $p<.001$. For the comprehension, in both Group C, *ICC*=.354, 95% CI [-.042, .590], and Group D, *ICC*=.386, 95 % CI [.120, .572], the inter-rating reliability was low. The comprehension ratings for the rearranged sentences (*M*=7.37, *SD*=1.88) were significantly lower than for the trait-implying sentences (*M*=8.68, *SD*=.70), $t(121)=6.71$, $p<.001$. Even though different, the ratings for comprehension are above 5 in both conditions. Table 2 contains the average ratings for each pair of stimuli (trait-rearranged sentence and trait-implying sentence). When using this material, we recommend researchers to select those pairs with similar levels of comprehensibility for the rearranged and the trait-implying sentences.

Table 2

Mean and standard deviation of the ratings of the trait-implying descriptions and rearranged versions in pre-test 3

	Trait-implying sentences				Rearranged Sentences			
	Describes the actor		Comprehension		Describes the actor		Comprehension	
Trait	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
aberta	9	0	9	0	1	0	8.5	0.5
activista	8.5	0.5	9	0	7	2	5	2
agradecida	9	0	6.5	0.5	5	0	7.5	1.5
agressiva	8.5	0.5	7.5	1.5	1	0	6	1
alegre	5.5	0.5	8.5	0.5	5.5	0.5	6	2
ansiosa	8	1	9	0	1	0	9	0
arrogante	8.5	0.5	9	0	1	0	7.5	0.5

Table 2 (cont.)

	Trait-implying sentences				Rearranged sentences			
	Describes the actor		Comprehension		Describes the actor		Comprehension	
Trait	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
ateia	6.5	0.5	9	0	1	0	4.5	3.5
autoritária	7.5	1.5	8.5	0.5	3.5	1.5	8.5	0.5
aventureira	9	0	9	0	1	0	5	4
barulhenta	6	3	8.5	0.5	3.5	2.5	9	0
bondosa	8	0	9	0	1	0	4.5	3.5
calculista	8	1	7.5	0.5	3	2	6	3
calma	7	1	9	0	3.5	1.5	5.5	3.5
carinhosa	7	1	7.5	1.5	1.5	0.5	9	0
chata	9	0	9	0	1	0	7	2
ciumento	9	0	9	0	1.5	0.5	8	1
cobarde	8	0	9	0	1	0	4.5	3.5
confiável	9	0	8.5	0.5	4.5	0.5	9	0
conflituosa	8	0	9	0	5	4	1	0
controlada	7	1	9	0	7.5	0.5	9	0
cooperante	7.5	0.5	9	0	1.5	0.5	6.5	1.5
crente	6	1	9	0	3.5	1.5	9	0
criativa	8.5	0.5	9	0	1	0	8	1
cruel	9	0	7	2	3.5	1.5	8	1
cuidadosa	8.5	0.5	9	0	1	0	8.5	0.5
curiosa	8.5	0.5	9	0	5	1	8	1
dedicada	8.5	0.5	9	0	1	0	9	0
desarrumada	8.5	0.5	9	0	6	2	8.5	0.5
desbocada	9	0	9	0	1	0	6	3
desleal	8.5	0.5	9	0	4.5	0.5	9	0
desligada	8	0	9	0	5	4	5	4
desonesta	9	0	9	0	1.5	0.5	6.5	2.5
desorganizada	9	0	9	0	2.5	1.5	6	2
desorientada	7.5	0.5	8.5	0.5	6.5	2.5	8.5	0.5
despreocupada	8.5	0.5	9	0	1	0	9	0
desrespeitadora	4.5	4.5	9	0	3.5	1.5	5	2
discreta	9	0	8	1	1	0	4.5	3.5
distraída	9	0	9	0	6.5	1.5	6.5	0.5
eficaz	9	0	9	0	1	0	1.5	0.5
egocêntrica	9	0	8	1	2	1	8	0
egoísta	9	0	9	0	1	0	6	3
encorajadora	8	1	8	1	8	0	9	0
entusiasmada	9	0	9	0	1.5	0.5	5.5	1.5
esquecida	7	0	8	1	1	0	9	0
estudiosa	8.5	0.5	9	0	3	1	7.5	0.5
exagerada	9	0	9	0	7	0	9	0
exigente	5	3	9	0	4.5	3.5	9	0
extravagante	8	1	9	0	3	2	9	0
falsa	9	0	9	0	1	0	2.5	1.5
flexível	9	0	7.5	1.5	7	1	9	0
formal	8.5	0.5	9	0	1	0	3.5	2.5
forreta	5	3	9	0	4.5	3.5	8.5	0.5
fraca	5	2	9	0	4.5	3.5	8	1
fria	8	1	9	0	3.5	1.5	9	0
gabarolas	9	0	9	0	1	0	8.5	0.5
gananciosa	7.5	1.5	9	0	4	2	9	0
gastadora	9	0	9	0	1	0	6.5	2.5
generosa	9	0	8	1	3	2	9	0
habilidosa	9	0	9	0	1	0	7.5	1.5
hospitaleira	9	0	9	0	4	0	9	0
humilde	8	1	9	0	3	0	7.5	1.5
ignorante	9	0	9	0	1	0	9	0
impaciente	9	0	9	0	1	0	8	1
imparcial	5.5	1.5	6	2	3.5	1.5	9	0
impulsiva	8	1	9	0	1	0	4.5	3.5

Table 2 (cont.)

	Trait-implying sentences				Rearranged sentences			
	Describes the actor		Comprehension		Describes the actor		Comprehension	
Trait	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
incansável	6	2	8.5	0.5	5	0	6	0
incapaz	8	1	9	0	1.5	0.5	7.5	0.5
incompetente	8.5	0.5	6.5	1.5	1.5	0.5	9	0
inconsistente	8.5	0.5	9	0	1	0	9	0
indecisa	9	0	8	1	4.5	0.5	9	0
ineficiente	9	0	9	0	1	0	4.5	3.5
ingénua	7	1	9	0	1.5	0.5	9	0
ingrata	8.5	0.5	9	0	1	0	9	0
insegura	8.5	0.5	8	1	2	0	8.5	0.5
interessada	8.5	0.5	9	0	1.5	0.5	6	1
interessante	7	1	8.5	0.5	3	2	9	0
invejosa	9	0	9	0	1	0	6	2
irónica	7	2	5.5	2.5	1.5	0.5	9	0
irrealista	9	0	9	0	1	0	6.5	1.5
irrequieta	9	0	9	0	8.5	0.5	9	0
irritadiça	6.5	0.5	9	0	1	0	9	0
justa	8	1	8.5	0.5	6	3	9	0
machista	9	0	9	0	3.5	2.5	8	1
mal-educada	8	1	8.5	0.5	5	4	8.5	0.5
manhosa	9	0	9	0	1	0	7	2
medrosa	9	0	9	0	1	0	9	0
melancólica	6.5	1.5	9	0	6	2	6	3
mentirosa	9	0	9	0	1	0	9	0
mesquinha	9	0	9	0	2	1	8	1
mimada	9	0	9	0	4	3	9	0
misteriosa	8.5	0.5	9	0	1	0	4	3
namoradeira	8	1	8.5	0.5	3	2	9	0
obediente	9	0	9	0	2	1	4.5	3.5
orgulhosa	8.5	0.5	7	2	4	3	9	0
ousada	9	0	9	0	1	0	5	4
passiva	7	1	7.5	1.5	6.5	0.5	8.5	0.5
patriota	9	0	9	0	1	0	5	4
pensativa	6.5	2.5	9	0	3.5	2.5	9	0
perigosa	8	0	9	0	1	0	4.5	3.5
persistente	9	0	9	0	3	2	9	0
pessimista	9	0	9	0	1	0	9	0
pontual	7.5	1.5	9	0	5.5	2.5	9	0
poupada	9	0	9	0	3	2	9	0
preguiçosa	8	1	9	0	1.5	0.5	9	0
quieta	8.5	0.5	9	0	1	0	6	3
racista	9	0	9	0	3	2	8.5	0.5
rápida	9	0	9	0	5.5	0.5	7	2
rebelde	9	0	9	0	1	0	9	0
religiosa	9	0	9	0	1	0	7.5	1.5
respeitadora	8.5	0.5	9	0	1.5	0.5	6.5	2.5
rude	9	0	9	0	1	0	5.5	3.5
sensível	9	0	9	0	8	1	9	0
simpática	9	0	9	0	3	2	8	1
simples	6.5	2.5	6.5	2.5	8	1	9	0
sociável	8.5	0.5	9	0	2.5	1.5	5	2
solitária	8	1	9	0	5	1	9	0
supersticiosa	8.5	0.5	9	0	1	0	4.5	3.5
teimosa	9	0	7.5	1.5	1	0	9	0
tolerante	8.5	0.5	9	0	1	0	5	3
trabalhador	9	0	9	0	4.5	3.5	9	0
vingativa	9	0	9	0	3.5	2.5	5.5	0.5

Discussion

Evidence for STI has been extensively obtained. However, it is difficult from the existing literature to conclude whether previous results are being influenced by simple word-based priming effects. This is particularly problematic because trait-implying sentences frequently contain individual words which are strongly related to the critical traits, and the presence of these words can activate the traits, regardless of text-based inferences. In the present paper, we have suggested that one efficient way of overcoming this confounder is by comparing the trait-implying sentences with control sentences containing the same words. Any differences in the performance found between the two sentences should be due to real inferences based on processing of the entire meaning of the sentences. We recommend the use of these pairs of sentences in future studies investigating trait inferences in the Portuguese language. It should be noted that we consider the present paper as a first step in approaching this issue. Future studies might be necessary to further test the present material with larger samples, and regarding other variables, such as valence, familiarity, or ease of comprehension (since our results were not totally clear regarding the latter).

One aspect of the material presented here that should be considered is that the rearranged sentences vary in a critical aspect. Sometimes, the resulting rearranged sentence does not imply any trait, that is, neutral. This is the case, for example, of the control sentence "She was singing a popular song on her way to work." (corresponding to the trait-implying sentence "It was playing a popular song on the radio on her way to work."), which implies the trait "joyful". However, other times the rearranged version implies a different trait, which can even be opposite in meaning to the critical trait implied in the trait-implying sentence. For example, the control version for the sentence: "She was in favor of marriage between people of the same sex.", which implies the trait "open-minded", is the sentence "She was not in favor of sex before people marry.", which implies the opposite trait "closes-minded". This should not be a major problem as long as the critical trait is not activated by the control-rearranged sentence, since that is the trait we are controlling for. If a different trait is being inferred from the rearranged version, this sentence is still a control for the trait inferred in the trait-implying sentence. If the trait activated by the control sentence is the antonym of the trait activated in the trait-implying sentence, the differences in the activation of the critical trait between the two sentences will be even more pronounced than it would be in the case where the rearranged sentence is neutral. One can argue that in such a situation the difference between the two sentences is overestimated, and ultimately one can choose to use only neutrally rearranged controls. And even though we don't find it problematic to use this kind of controls, we provide in Appendix 1 a list of the traits for which at least one of the two judges, from the second pre-test, generated a trait which is opposite in meaning to the critical trait implied in the trait-implying sentence. This was verified only for 15 traits (the "open-minded" example mentioned above is one of them).

To sum up, our first recommendation for future studies is to include rearranged sentences, besides the trait-implying ones. However, even when including rearranged sentences, because the calculation of STI effects relies on the difference between critical and control sentences, we should guarantee *beforehand* that word-based activation does not play a significant role in the material. Not controlling the material for this aspect before the actual experiment carries the risk of underestimating effects or obtaining false negatives (e.g., strong associates can lead to a ceiling effect). Thus, our second recommendation is to test the material before the experiment, and only select those pairs of trait-implying and rearranged sentences in which the activation of the trait is significantly stronger in the critical sentence when compared with its control version. In order to pretest the material, we suggest the use of activation measures such as the lexical decision task (e.g., Zárate, Uleman, & Voils, 2001). In the lexical decision task, words (some of them traits)

and non-words are presented to the participants, and the activation of the trait can be accessed via the speed of the decision when the trait-implying sentence versus rearranged sentence precedes the presentation of the trait word. If traits are more accessible after reading the trait-implying version than after reading the rearranged version, then it can be deduced that participants generated "true" trait inferences from the trait-implying sentences, beyond any word-based priming effects.

Finally, an important aspect which is still unclear is how word-based priming processes might differentially impact performance in different tasks used to study STI. For that, it would be necessary to clearly understand the mechanisms underlying word-based priming and text-based priming, as well as how both processes interact during text comprehension. For example, if word-based priming is a shorter-lived effect and text-based priming has a longer duration, then the effect of word-based priming would be particularly problematic for activation measures as the probe recognition paradigm. In contrast, memory measures, as the savings in re-learning and the false recognition tasks, should be less affected, or maybe not affected at all, by this contamination. Unfortunately, although there are models which can be used to make predictions about the processes underlying lexical and text level effects (Kintsch, 1988; see also Sharkey & Sharkey, 1992), we still don't understand how lexical activation emerging from single words interacts with a more elaborate and holistic processing of the text (Stafura & Perfetti, 2014). Thus, knowing to what degree this confounder influences performance in different STI tasks remains an empirical question which needs to be carefully addressed in future studies.

To conclude, the present paper is the first one which explicitly addresses the role of word-based priming in STI studies, discusses how this issue might affect and distort the interpretation of previous findings, and proposes specific steps which should be taken by future research in order to avoid this problem.

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O primeiro objetivo deste artigo é chamar a atenção para um artefacto existente nos estudos que exploram o fenómeno das Inferências Espontâneas de Traço (IETs). Esses estudos utilizam, na maior parte das vezes, descrições comportamentais que implicam fortemente um traço de personalidade acerca do ator do comportamento. No entanto, uma potencial limitação deste tipo de material é a possibilidade de os traços ficarem ativados devido à presença de palavras específicas na frase (primação com base na palavra) e não, ou não apenas, devido a uma inferência feita a partir do comportamento descrito na frase como um todo (primação com base no texto). Este aspeto tem sido recorrentemente ignorado na literatura. Neste artigo, discutimos como a primação com base na palavra pode estar a afetar a interpretação dos resultados existentes na literatura. O segundo objetivo é fornecer uma solução para esta limitação. Criámos, assim, um conjunto de materiais constituídos por 122 frases implicativas de traços, acompanhadas pelos seus traços correspondentes (implicados nas mesmas) e por frases controlo. As frases controlo têm aproximadamente as mesmas palavras que as frases implicativas de traços, mas rearranjadas de tal forma a não implicarem mais os traços críticos. Mantendo as palavras contantes, consegue-se controlar para a ativação vinda de palavras específicas da frase. Assim, diferenças de ativação entre os dois tipos de frases, pode ser atribuída a inferências verdadeiras que considerem a frase como tudo. Investigadores interessados em investigar as IETs na língua portuguesa, podem utilizar este material nos seus estudos. Com este artigo, esperamos estimular a discussão acerca dos mecanismos responsáveis pela ativação de traços personalidade em estudos sobre IETs.

Palavras-chave: Inferências, Inferências espontâneas de traço, Ativação com base na palavra, Frases rearranjadas.

Appendix 1

In this appendix, we provide a list of the traits for which the judges that took part in our pre-test 2 generated a word that was opposed in meaning to the trait implied in the trait-implying sentence. When there is only one response provided, it means that the second judge did not provide a trait with an opposite meaning.

Aberta:	retrógrada, conservadora;
Cuidadosa:	desastrado;
Dedicada:	procrastinado, irresponsável;
Desorganizada:	organizado;
Entusiasmada:	aborrecido;
Esquecido:	prevenida;
Formal:	não profissional;
Forreta:	solidariedade;
Fria:	carinho;
Habilidosa:	desleixo;
Ineficiente:	eficaz;
Interessante:	aborrecido;
Rápida:	atrasado;
Respeitadora:	desrespeito;
Simpática:	egoísta.

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