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EFEITOS DA COERÊNCIA RELACIONAL SOBRE A PREFERÊNCIA ENTRE FALANTES E O CONTROLE INSTRUCIONAL

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Resumo

O seguimento de regras é afetado por múltiplas variáveis. Um aspecto relevante das regras é que elas "fazem sentido", isto é, em qual medida uma instrução é coerente com padrões previamente reforçados de responder relacional. O presente estudo teve por objetivo avaliar a influência da coerência relacional no seguimento de regras por meio de dois experimentos. Após aprenderem um conjunto particular de relações condicionais (e.g., A1B1, A2B2), os participantes foram expostos a dois falantes, onde um deles declarou relações coerentes (e.g., A1B1, A2B2) com o treino relacional anterior e o outro que declarou relações que eram incoerentes (e.g., A1B2, A2B1). A seguir o controle instrucional foi medido em um teste de preferência no qual os participantes tiveram que escolher qual dos dois falantes iriam lhes fornecer instruções a cada tentativa. Durante o Experimento 1, o seguimento de regras controlado pelos dois falantes foi reforçado em esquema CRF; no Experimento 2, o seguimento de regras foi reforçado em FR10. Após o teste de preferência, um IRAP foi implementado para avaliar a credibilidade de cada falante usando palavras positivas (e.g., confiável) e negativas (e.g., duvidoso). A história de coerência relacional entre falante-ouvinte teve um forte efeito no teste de preferência e no seguimento de regras controlado pelo falante coerente. No entanto, a credibilidade medida no IRAP não foi afetada diferencialmente pela coerência relacional ou pelo controle instrucional.

Palavras-chave: comportamento governado por regras, controle instrucional, coerência relacional, teste de preferência entre falantes, IRAP, persuasão, liderança.

Abstract

Rule-following is affected by multiple variables. A relevant aspect of rules regards whether they "make sense", that is, the extent to which the instruction coheres with previously reinforced patterns of relational responding. The present study aimed to evaluate the influence of relational coherence upon rule-following across two experiments. After mastering a particular set of conditional relations (e.g., A1B1, A2B2), the participants were exposed to two speakers, one of which would “state” relations that cohered (e.g., A1B1, A2B2) with the participant’s previous relational training and the other that would present relations that were incoherent (e.g., A1B2, A2B1). Then, rule-following was measured in a preference test in which the participant would have to choose which of the two speakers would provide instructions in each test trial. During Experiment 1, rule-following controlled by both speakers was reinforced in CRF schedule; in Experiment 2, rule-following was reinforced in FR10. After the preference test, an IRAP was implemented to evaluate the credibility of each speaker using positive (e.g., reliable) and negative words (e.g., unreliable). The speaker-listener history of relational coherence had a strong effect upon the preference test and rule-following controlled by the coherent speaker. However, the speakers' credibility measured during the IRAP was not differentially affected by relational coherence or instructional control.

Keywords: rule-governed behavior, instructional control, relational coherence, speakers preference test, IRAP, persuasion, leadership.

Relational Coherence Effects upon Speakers Preference and Instructional Control

Motivation in public companies has already been studied in different countries due to their differences compared to private companies (Vandenabeele & Van de Walle, 2008; Buelens & Van den Broeck, 2007; Perry, Hondeghem & Wise, 2010). Specifically, the public service in Brazil presents particular features that might influence motivation such as the functional stability (articles 21 and 22 of Brazilian Law 8.112/90) and limitations regarding the use of tangible or conditioned reinforcers, being permitted only when they are part of institutionalized performance evaluation programs (Meireles et al. 2016). Some of these programs consist of annual evaluations of goals achievement set by managers. In these cases, consequences are delayed and remain fixed considering a one-year interval, setting the occasion for punitive consequences when performance is worsen (see Science and Technology Activity Gratification - *Gratificação de Atividade de Ciência e Tecnologia - GDACT*, instituted by Provisional Measure No. 2229-43, of September 6, 2001 and Interministerial Ordinance MP / MCTI No. 428, of 06.09.2012). Given that scenario, Brazilian public sector managers' strategies depend on employees following rules considering that the rule-following maintenance must be extensively based on social reinforcers – as observed in other systems such as nonprofit volunteer work (Bang, Ross & Reio, 2012; Paswan & Troy, 2004; Bidee et al., 2013).

Managers need employees to achieve goals that are important for the organization (O'Hora & Maglieri, 2006). Employees engaged in goal-directed behavior might measure motivation in organizational settings, at least in part (Maraccini, Houmanfar & Szarko, 2016). According to Ramnerö and Törneke (2015), goal-directed behavior might be approached in behavioral terms by the concept of rule-governed behavior. Rule-governed behavior (Skinner, 1968), that is, the part of listener's behavior that is influenced by verbal instructions given by a speaker, in many cases describing contingencies in operation – that is, the context in which the listener should behave, how to respond to that context, and the

consequences arising from that action (Stewart, Barnes-Holmes, Barnes-Holmes, Bond & Hayes, 2006; see also Albuquerque, Mescouto, & Paracampo, 2011).

According to Barnes-Holmes and O'Hora (2001), several factors influence the maintenance of rule-following (or instructional control), including: (a) insufficient control by nonverbal contingencies; (b) authority and ability to mediate reinforcement or punishment, (c) credibility of the speaker, (d) plausibility of the rule, (e) values and purpose. Barnes-Holmes and O'Hora (2001) suggest that speaker credibility can be understood historically, considering that "some speakers are more likely to produce predictive verbal formulas." and, thus, are more credible. Given this definition, we can suppose that if there is a particular story in which a leader becomes identified as a producer of verbal formulas that correspond to the contingencies in operation, he/she would be considered more reliable and therefore there is a greater chance that his/her instructions would be followed.

Behavioral-analytical experiments on rule-following have manipulated the listener history with the presentation of consistent or inconsistent rules in relation to the contingencies in operation (Martinez-Sanchez & Ribes-Iñesta, 1996; Martinez & Tamayo, 2005; Paracampo & Albuquerque, 2005; Perez et al., 2010). Therefore, such studies have investigated how the credibility of the speaker affects rule-following. In Martinez-Sanchez and Ribes-Iñesta's (1996) and Martinez and Tamayo's (2005) studies, participants were exposed to instructional stories that alternate between contingency-consistent and contingency-inconsistent instruction blocks, in alternate order depending on the group the participants were assigned. The participants were exposed to four blocks of matching-to-sample training trials. Before starting each block, participant were instructed on how to perform the task. The instructions could be consistent or inconsistent regarding the description of the contingencies in operation. Half of the participants began with consistent instructions and the other half with inconsistent instruction. Consistent and

inconsistent instructions always alternated across blocks. Those participants that began receiving consistent instructions persisted longer in following instructions when contingency was changed without warning and, thus, became inconsistent with contingencies. Those in the group that started with inconsistent instructions showed greater behavioral variability even when the contingency was changed to consist with the instructions. If we consider, by analogy, that the computer system providing the instructions was the speaker and the participant was the listener, the results indicates a greater adherence to instructions by listeners who had consistent initial instructional histories with their speakers.

Maraccini, Houmanfar and Szarko (2016) and Stewart, Barnes-Holmes, Barnes-Holmes, Bond and Hayes (2006) attributes to the leadership activity the role of persuasion. Studies suggest that persuasion is affected by what has been called the "regulatory fit" between speaker and listener (Cesario, Higgins & Scholer, 2008; Wheeler, Petty & Bizer, 2005). According to Cesario et al. (2008) a possible way to increase the likelihood of rule following (i.e., persuasion) is "making message recipients *feel right* during message reception". In a recent framework provided within Relational Frame Theory (Hayes, Barnes-Holmes, & Roche, 2001), "making sense" or "thinking alike" could be accounted in terms of relational coherence, stated in Barnes-Holmes et al. (2017) as "the extent to which a given pattern of AARRing overlaps functionally with previous patterns of AARRing that were reinforced (or at least not punished) by the verbal community" (p. 17). In this perspective, rule following might depend in what extend the relations stated on the instructions provided by a given speaker cohere with the relational repertoire of the listener.

The present study investigated the effects of coherence upon rule following. First, the participants were trained a set of conditional relations (A1B1, A2B2, B1C1 and B2C2). Then, they were exposed to two characters (speakers) that would present relations that

were coherent (e.g., A1B1) or incoherent (e.g. A1B2) regarding the listener's (the participant) previous relational training. Finally, the "credibility" of the coherent and of the incoherent speakers was evaluated using a preference test and an IRAP to measure implicit bias (Power, Harte, Barnes-Holmes & Barnes-Holmes, 2017; Hussey, Barnes-Holmes & Barnes-Holmes, 2015).

Experiment 1

Method

Participants. Eighteen verbally competent adults (M=14, F=4) ranging in age between 28 to 65 years (M=43.17 SD=10.68) participated. The participants were recruited through personal contacts (sample of convenience). Before the experiment began, participants read a term of consent (approved by the Brazilian platform for ethical committees, Plataforma Brasil, CAAE 19827719.0.0000.5493 - see Annex A). None of them have had previous experience with similar experiments in Psychology. They did not receive any compensation contingent on their participation. By the end of experimental procedures, they were fully debriefed and thanked.

Equipment and Setting. A quiet room equipped with a table, a chair and a notebook computer. The custom-written software "Preferência Entre Falantes CRF" presented the rule-following task; The GO-IRAP software ran the latency-based task and calculated DIRAP scores during the last experimental phase.

Two pictorial representations of "speakers" were presented throughout the phases (see Figure 2); Stimuli from Phase 1-3 were nonsense black forms on a white background (see Appendix C). Stimuli from Phase 4 were nonsense colored shapes (see Appendix B); Phase 5 presented the speakers along with positive and negative words (see procedure section).

Procedure. The procedure is divided into 5 stages: (1) Relational training (RTP), (2) Relational testing, (3) Establishing coherent and incoherent speakers, (4) Preference test and (5) IRAP credibility test, as shown in Figure 1.

Phase 1. Relational training (RTP). A Respondent Type Procedure (RTP; Leader & Barnes-Holmes, 2001) aimed to teach four arbitrary relations: A1B1, A2B2, B1C1 and B2C2. Before starting, the participants read the following instruction: "This is your first task. Pairs of symbols will be displayed on the computer screen. First, a symbol will appear, then it will be followed by its correspondent. You must learn these pairs to answer a test in the next stage, so pay close attention (press spacebar to continue)". The software continues after the participant presses the spacebar twice.

Each RTP trial comprised the successive presentation of a given pair of stimuli arbitrarily designated to relate to each other (e.g., A1B1). Each trial onset started with the presentation of the first stimuli of the pair (e.g., A1) in the center of the screen for 2 s followed by a 1 s interval in which no stimulus was presented. Once the interval ended the second stimulus of the pair was presented for 2s followed by a 3 s intertrial interval (IET) with no stimulus on the screen. Stimulus presentation was organized in blocks. Each block comprised the random presentation of the four stimulus pairs. Each block was presented 8 times, totaling 32 trials.

Phase 2 - Relational testing (MTS). Immediately after the RTP the participants were exposed to a matching-to-sample (MTs) task that assessed the retention of the relations taught during the previous phase using stimulus paring.

Before starting, the participants red the following instruction on the computer screen: “Now, let's test what you have learned. A symbol will appear at the top of the screen, followed by three symbols below. You will have to choose the symbols below that match the symbols above. Choose it by clicking with the mouse cursor. Consider what you learned in the previous stage. The computer will record your hits and errors based on the previous stage, but will not show this information during the task. (press spacebar to continue)”.

Each trial onset presented a sample stimulus on the top of the screen. Elapsed a 1-s interval three comparison stimuli appeared at the bottom, aligned horizontally in random order. The first stimuli of each pair presented on Phase 1 were always presented as sample stimuli (e.g., A1). The second stimulus of each pair was always presented as one of the comparison stimuli (e.g., B1) along with the second stimulus from the other pair (e.g., B2) and a third novel stimuli (e.g., N1, or N2 – to avoid reject control; see Sidman, 1982; Perez, Tomanari, & Vaidya, 2015). The participant should then choose one of the comparison stimuli by clicking with the mouse cursor. Selecting the comparison stimuli that was paired with the sample was considered a correct response while selecting any other comparison was registered as an error. The position of the stimulus, including the correct one, varied based on combinatorial analysis of all combinations possible for 3 symbols, in such way that for each relation 6 possibilities were presented in random order, using a combination of the Fisher–Yates shuffle algorithm with the subtractive random number generator algorithm (Knuth, 2014). No feedback was provided for participant’s responses. Thus, the comparison selection was followed by withdraw of all stimuli from the screen, a .5 s ITI and the next trial onset. Each pair (A1B1, A2B2, B1C1 and B2C2) was randomly presented 12 times, comprising a 48-trial MTS test block. To proceed to the next phase, the participant had to reach 80% of correct responses during the MTS test.

Phase 3 – Establishing coherent and incoherent speakers. The procedure implemented in this phase was similar to the RTP described in Phase 1. However, each trial of stimulus pairing was presented inside a speech balloon by one of two speakers (see Figure 2). Speakers were two characters differentiated by the color of their t-shirts: green or purple (see Figure 3). One of the speakers presented pairs that cohered with stimulus relations used during Phase 1 and 2 (i.e. A1B1, A2B2, B1C2 and C2B2); the other speaker presented pairs that were incoherent with the stimulus relations that were previously established (i.e, A1B2, A2B1, B1C2 and B2C1). The t-shirt color assigned for the Coherent and Incoherent speakers were alternated between participants.

This phase started with the presentation of the following instruction on the screen: "Now you will meet two helpers, one in a green t-shirt and one in a purple t-shirt. They will tell you pairs of symbols, in a similar way regarding your first task. You will have to choose one of them to ask for help in the next stages, so try to form an opinion about them by looking closely at the pairs of symbols they speak to you. (press spacebar to continue)".

Each trial onset started with the presentation of a speaker displayed on the left side of the screen with the addition of a speech balloon that in the center of the screen. The stimulus pairing occurred inside the speech balloon. The stimulus pairs had the same size of Phase 1 and followed the same interval parameters of presentation including the ITI. Coherent and Incoherent speakers were presented alternately in a 32-trial block, always beginning with the Coherent speaker.

Phase 4 – Preference test. This phase started with the presentation of the following instructions on the screen: "Ok, you advanced to the next stage! You will be presented with two images on the screen that you must choose, and only one of them will give you points. Each time you should choose one of the characters from the previous phase to give you a tip to help you proceed and choose one of the images. Once you have asked one of them for

help, you can click on one of the images you decide to select it and proceed. Try to accumulate as much points as possible! (press spacebar to continue)".

As shown in Figure 3, each test trial simultaneously presented the following elements on the screen: on the top right side there was a counter accumulating points; on the left side there were the two speakers with different t-shirts, purple or green, placed one above the other (the green and purple speaker alternated across trial); in the bottom of the screen, two meaningless images were displayed side-by-side, one on the left corner of the screen and one on the right.

Clicking on one of the speakers would immediately display a hint inside a speech balloon located on the right of the character, on the center of the screen. No image could be chosen before clicking in one of the speakers. If the participant tried to select one of the imagens without requesting one of the speakers. a warning message would appear "You must request a hint before choosing an image!" along with an OK button to return to the previous screen of that trial. Once the participant clicked in one of the speakers, the hint inside the speech balloon would be available until the end of the trial and clicking of the other speaker produced no programed consequence. The tips from both speakers were always consistent with the programed contingency and were presented in this way: "Click on [small version of the correct image for that trial] to receive 10 points." It is intended, by making both speakers consistent in this step, to test whether the preference for one, if any, is due to the previous history of relational coherence and not due to a particular effect of differential reinforcement during the test.

By clicking on one of the images, the software would display a feedback message in the center of the screen. Correct responses were followed by the message "+10 points" in CRF schedule; incorrect responses were followed by the message "No points earned" for 1 s. Correct responses were always in accordance with the rule provided inside the speech balloon. The delivery of consequences initiated a 1s ITI.

The preference test comprised 30 trials. In each trial onset, novel abstract colored stimuli were presented from a 60-stimulus pool. The position of the correct stimulus was randomly assigned using an implementation of the subtractive random number generator algorithm (Knuth, 2014) to generate a integer number between 0 and 1, and assigning the correct stimulus to the left if the result was 0 and to the right if it was 1.

Phase 5 – IRAP credibility test. This phase presented a latency-based task to evaluate the speakers using positive and negative adjectives to qualify the "credibility" of each speaker.

As illustrated in Figure 4, each IRAP trial presented one of the speakers (Coherent or Incoherent) on the top of the screen, one word (a positive or a negative adjective) on the center, and two relational response options in the lower left and right corners ("Yes" and "No"). The figures featuring the speakers were the same as those used in the previous phases; the words were bipolar adjectives that related to the context of credibility; the positive adjectives were: sincere, good, reliable, safe, accurate and true; the negative adjectives were: liar, bad, doubtful, insecure, inaccurate and false. Correct responses were followed by the removal of all stimuli presented in that trial and a 400ms ITI; incorrect responses were followed by a red "X" appearing on the center of the screen, as a feedback for error; the withdrawal of all stimuli and the ITI only would not follow until the participant emitted the correct response for that trial.

Participants were exposed to blocks of 24 trials. Each block comprised four trial types that differed regarding the speaker and word presented: Coherent-Positive, Coherent-Negative, Incoherent-Positive, Incoherent-Negative. The IRAP-trial blocks could be consistent or inconsistent regarding the credibility of the speaker. During the consistent blocks, correct responding in the four trials types were (Speaker-Word/Correct Answer): Coherent-Positive/True, Coherent-Negative/False, Incoherent-Negative/True, Incoherent-Positive/False. During inconsistent blocks, the contingencies were reversed

and correct responding in the four trial types were: Coherent-Negative/True, Coherent-Positive/False, Incoherent-Positive/True, Incoherent-Negative/False. The trial types were presented an equal number of times (6x) in each block and were randomized. Consistent and Inconsistent blocks always alternated. Half of participants started with a consistent block and the other half with an inconsistent block.

First, the IRAP presented practice ("warm up") blocks, to familiarize the participant with the task. Once they had achieved criteria on those blocks, test blocks would follow to generate the IRAP scores for data analysis. The practice phase started with a pair of consistent/inconsistent blocks and had the requirement of 80% accuracy criterion of correct responses in both blocks. After reaching the accuracy criterion, participants are exposed to another pair of consistent/inconsistent blocks with an additional criterion of latency, to produce fast responding. Thus, in those blocks, the participants had to maintain accuracy criteria in an average latency of 2000 ms between stimuli onset and the correct choice response. If any participant failed to meet the both accuracy and latency criteria after three pairs of practice blocks, they were dismissed from the experiment and their data discarded. Participants who meet the accuracy and latency criteria during the training phase advanced to the testing phase.

The test phase comprised a fixed set of three pairs of consistent/inconsistent blocks, presented exactly as described for the end of the practice phase. Test blocks were presented without any latency or accuracy criteria to allow participants to advance between blocks. Only the test blocks were considered in the data analysis. Participant's scores were excluded from data analysis in case accuracy felt below 80% in more than one block, or average latency exceeded 2000ms in any test block. At the end of the last test block, a short message appeared ending the IRAP.

Results

From the 18 participants that took part in Experiment 1, 8 were excluded from data analysis for not fulfilling one of the following criteria: for not achieving at least 80% precision at Stage 2 test; or for not maintaining accuracy or latency for at least 5 of the 6 IRAP test blocks. A total of 10 participants met all the criteria for both experiments.

Data analysis is based on 10 participants that maintained criteria across all the experimental phases. In Phase 2 (MTS test) they scored from 39 to 48 correct responses during tests. Table 1 presents results regarding Phase 4 (Preference test). Nine participants chose the coherent speaker to ask for a tip in the first trial. Five participants did not ask the Incoherent speaker in any trial during the preference test. Instructional control (following the rule) for the coherent speaker was 100% (or close to it) for all participants. Among the five participants that chose the incoherent speaker in some of the trials, instructional control was marked by variability from 0% to 100% of rule following.

Figure 5 presents the results from the IRAP credibility test. D_{IRAP} scores from the trial types Coherent +, Coherent – and Incoherent + were different from zero in a Wilcoxon Signed Rank test: Coherent + p=0.0059, W=51.00 and median = 0.744; Coherent –with p=0.0488, W=39.00 and median = 0.3365; Incoherent + with p=0.0273, W=-43.00 and median = -0.3350. This was not the case for the trial type Incoherent –, p=0.0840, W=-35.00 and median=-0.39. Comparing differences between trial types with a repeated measures ANOVA, we found no significant differences $F(3, 27)=1.996$, p=0,1384, $\eta^2_{Partial}$= 0.1815, and a Uncorrected Fisher's least significant difference (LSD) also found no significant difference between columns.

Discussion

Experiment 1 results suggest that relational coherence affected the preference test. Most participants (8/10) preferred the coherent speaker. Even in those cases when the incoherent speaker provided the rule, in most cases (4/5) the rule-following index was not as strong was observed for the coherent speaker.

Regarding the IRAP credibility bias, although a stronger positive evaluation for the coherent speaker was observed by visual inspection on Coherent + trial type, no significant difference was found comparing the four IRAP trial types statistically. Considering that half of the participants also had rules provided by the originally incoherent speaker and that, during the preference test, such rule following was reinforced In CRF schedule, an interaction of relational coherence and direct contingencies might have had an effect upon IRAP scores mitigating the negative evaluation of the incoherent speaker. Considering that the CRF schedule might have influenced the IRAP evaluation in Experiment 1, in Experiment 2 we changed the reinforcement schedule during the preference test for fixed ratio (FR) 10. Besides, we considered that the intermittent reinforcement scheme emulates more accurately the human verbal environment, given that consequences predicted by verbal formulas are often delayed (Maraccini, Houmanfar & Szarko, 2016; Malott, 2003) and that changing the reinforcement schedule, from continuous reinforcement (Experiment 1) to FR 10 during Experiment 2 would possibly influence rule following by the inconsistent speaker and also the implicit bias measured by the IRAP.

Experiment 2

Method

Participants. Fifteen verbally competent adults (M=8, F=7) ranging in age between 21 to 65 years (M=47.8 SD=13.22) participated. The participants were recruited through personal contacts (sample of convenience). Before the experiment began, participants read a term of consent (approved by the Brazilian platform for ethical committees, Plataforma Brasil, CAAE 19827719.0.0000.5493 - see Annex A). None of them have had previous experience with similar experiments in Psychology. They did not receive any compensation contingent on their participation. By the end of experimental procedures they were fully debriefed and thanked.

Equipment and Setting. A quiet room equipped with a table, a chair and a notebook computer. The custom-written software ”Preferência Entre Falantes FR10” presented the rule-following task; The IRAP ran the latency-based task and calculated DIRAP scores during the last experimental phase.

Two pictorial representations of “speakers” were presented throughout the phases (see Figure 2); Stimuli from Phase 1-3 were nonsense black forms on a white background (see Appendix C). Stimuli from Phase 4 were nonsense colored shapes (see Appendix B); Phase 5 presented the speakers along with positive and negative words (see procedure section).

Procedure. The second experiment presented the same sequence of phases and the same tasks to the participants. The only difference compared to Experiment 1 was in Phase 4 (Preference Test). During this Phase, the points were now delivered in FR10 (instead of CRF); that is, in Experiment 2, the points were added to the counter only after 10 correct responses, or instructions followed independent of the speaker. Also, the instructions given to the participant before the task begins were modified to reflect that change, and were stated as: “There you have advanced to the next stage! You will be presented with two images on the screen that you must choose, and only one of them will give you 10 points. You should ask for tips from one of the two helpers from the previous stage once each attempt. After asking for the tip, click on one of the images to select it. Important: The computer will record your correct and wrong answers on every trial, but you will only receive your points at every 10 correct answers! Try to accumulate as much points as possible! (press spacebar to continue)”.

Results

From the 15 participants that took part in Experiment 1, 5 were excluded from data analysis for not fulfilling one of the following criteria: for not achieving at least 80% precision at Stage 2 test; or for not maintaining accuracy or latency for at least 5 of the 6 IRAP test blocks. A total of 10 participants met all the criteria for both experiments.

Data analysis is based on 10 participants that maintained criteria across all the experimental phases. In Phase 2 (MTS test) they scored from 39 to 48 correct responses during tests. Table 2 presents results regarding Phase 4 (Preference test). Eight participants chose the coherent speaker to ask for a tip in the first trial. Four participants did not ask the Incoherent speaker in any trial during the preference test. Instructional control (following the rule) for the coherent speaker was 100% for all participants. Among the four participants that chose the incoherent speaker in some of the trials, instructional control was marked by variability from 0% to 100% of rule following.

Figure 6 presents the results from the IRAP credibility test. D_{IRAP} scores from the trial types Coherent +, Coherent – and Incoherent - were different from zero in a Wilcoxon Signed Rank test: Coherent + p=0.002, W=55.00 and median = 0.399; Coherent – with p=0.0273, W=43.00 and median = 0.3810; Incoherent - with p=0.0098, W=-49.00 and median = -0.3605. This was not the case for the trial type Incoherent +, p=0.375, W=-19.00 and median=-0.172. Comparing differences between trial types with a repeated measures ANOVA, we found no significant differences $F(2.007, 18.06)=1.156$, p=0,3372, $\eta^2_{Partial}$= 0.1138, and a Uncorrected Fisher's least significant difference (LSD) also found no significant difference between columns.

Comparing CRF vs. FR10. The sum of tips asked and followed at preference test, trial by trial, are presented at Appendix A. The differences between the means of tips asked for the Coherent and Incoherent speakers were compared using an Unpaired t test and were statistically significant with $p < 0.0001$, $t=22.27$ and $df=58$ under the CRF condition and with $p < 0.0001$, $t=31.39$ and $df=58$ under the FR10 condition. Also, the means of tips asked to Coherent speaker between CRF and FR10 conditions were compared using an Unpaired t test that resulted in a significant difference with $p=0.0071$, $t=2.790$ and $df=58$, which provides evidence that the FR10 condition might increase the trustworthiness of the Coherent speaker.

The differences between the means of tips followed for the Coherent and Incoherent speakers were also compared using an Unpaired t test and were statistically significant with $p < 0.0001$, t=23.04 and df=58 under the CRF condition and with $p < 0.0001$, t=36.47 and df=58 under the FR10 condition. The means difference of tips followed from Coherent speaker between CRF and FR10 conditions were compared with an Unpaired t test and resulted in a significant difference with p=0.0069, t=2.802 and df=58, and the same comparison between conditions was made for the Incoherent speaker resulting in a significant difference of p<0.0001, t=4.470 and df=58. These last two comparisons provide evidence that the FR10 condition might increase the instructional control of the Coherent speaker, and also decreases the instructional control of the Incoherent speaker.

Comparing the IRAP trial types for CRF and FR10 conditions with a repeated measures ANOVA, we found no significant differences between same trial types, F(4.273, 38.45)=1.394, p=0,2527, $\eta^2_{Partial}$ = 0,1341, and a Uncorrected Fisher's least significant difference (LSD) also found no significant difference between these columns.

Discussion

Experiment 2 results replicate Experiment 1 findings. Although no difference was found on the IRAP as suspected, the reinforcement schedule used during the preference test did affect results from the preference test itself. Rule following was statistically stronger in FR10 schedule compared to CRF. No participant preferred the incoherent speaker. Besides, the instructional control index for cases in which the incoherent speaker provided the rule was weaker compared to Experiment 1 and zero for half of the participants.

General Discussion

The present study aimed to evaluate the influence of relational coherence upon rule following across two experiments. After mastering a particular set of conditional relations (e.g., A1B1, A2B2), the participants were exposed to two speakers, one of which would

“state” relations that cohered (e.g., A1B1, A2B2) with the participant’s previous relational training and the other that would present relations that were incoherent (e.g., A1B2, A2B1). Then, rule following was measured in a preference test in which the participant would have to choose which of the two speakers would provide instructions in each test trial. During Experiment 1, rule-following controlled by both speakers was reinforced in CRF schedule; in Experiment 2, rule-following was reinforced in FR10. After the preference test, an IRAP was implemented to evaluate the credibility of each speaker using positive (e.g., reliable) and negative words (e.g., unreliable). We found that a speaker-listener history of relational coherence had a strong effect upon the preference test and rule following controlled by the coherent speaker. However, the speaker credibility measured during the IRAP was not differentially affected by relational coherence or instructional control.

Previous investigations (e.g., Maraccini, Houmanfar, & Szarko, 2016; Stewart, Barnes-Holmes, Barnes-Holmes, Bond, & Hayes, 2006) highlighted the importance of a persuasive leadership in the organizational setting. However, few experimental studies behavior-analytically designed evaluated behavioral process involved in persuasion. Most of the literature on rule following address the influence of different reinforcement histories and different types of rules upon following novel instructions or persistent when contingencies change and mismatch instructional control (e.g., Perez, dos Reis & de Souza, 2010). The present study used a different approach and demonstrated that both relational coherence play a decisive role on rule following when the participant has the option to chose which speaker to listen to. The relationship between speakers preference by relational coherence and instructional control resembles the concept of persuasion as approached by Cesario, Higgins and Scholer (2008) and by Wheeler, Petty and Bizer (2005). In the present case, in operational terms, persuasion would be measured by number of tips asked to a given speaker that were followed by the listener (the participant). Other concepts such as "regulatory fit" (Cesario, Higgins & Scholer, 2008) or

"self-schema matching" (Wheeler, Petty & Bizer, 2005) could also be interpreted in similar ways using the RFT concept of relational coherence (Barnes-Holmes et al., 2017).

A recent study investigated the relationship between relational coherence and instructional control (Harte et al., in press) by teaching novel arbitrary relations coordinated with similarity and difference relations, and further using these novel relations as part of a MTS task instruction that initially was consistent with the contingency, and without warning were reversed to measure rule persistence. Relational coherence of such novel relations was controlled by the quantity of reinforcement (feedback) participants received at these relations training phase, separating the participants in two groups, one with feedback and the other with no feedback. Results showed that this procedure had a significant effect in relational coherence when the novel relations derivation was lower. That study was the first to evaluate the relationship between relational coherence and instructional control, but it manipulated the relational coherence of the trained relations, and the present study manipulated the speaker's coherence, for being focused on persuasiveness.

Using the IRAP as a measure of credibility bias (e.g., Power, Harte, Barnes-Holmes & Barnes-Holmes, 2017; Hussey, Barnes-Holmes & Barnes-Holmes, 2015) after the relational coherence history and the preference/instructional control test demonstrated that it consistently positively biased both trial types of the coherent speaker, but also positively biased at least one trial type of the speaker considered incoherent, contrary to the initial hypothesis that they would opposite each other, failing to assess the difference between a coherent and an incoherent speaker. That may have happened because the adjectives chosen on credibility IRAP mixed trustworthiness ("sincere", "reliable", "safe"), coherence ("accurate", "true") and the generic "good/bad" adjectives, which could have confused the participants. Also, the credibility IRAP was applied after the preference/instructional control test, what could have biased its results when participants

also asked and followed tips of the incoherent speaker. Future studies should implement the IRAP before the preference test, to assess the direct effects of relational coherence upon implicit bias regarding the credibility of each speaker.

Future studies on rule following could also benefit from the present experimental preparation. The influence of other variables such as the history of following consistent or inconsistent rules by each of the speakers, the probability of correctness of each of the speakers, among others, could be assessed using the preference test and the IRAP. Yet, translational studies applied to organizational behavioral management could implement similar experimental preparations to investigate important aspects of leadership that contributes to management issues and rule following from their staff.

We suggest as an extrapolation of the present findings, that the leadership activity, especially at the public sector, could benefit from enhancing their relational coherence, such as coordinating as much as possible to what their team members say. Relational coherence might be enhanced by coordinating instructions that consider, for instance, (a) previous statements of the team members during meetings with leaderships or (b) the team members' personal and professional values (Barnes-Holmes & O'Hora, 2001). In the context of using corrective feedback as an example, a leader can begin the conversation coordinating their own verbal responding with previous suggestions from the team and with the importance of working on particular changes. In addition, considering that in the present study the relational coherence affected instructional control in a novel context and with novel contents, coordinating the leader speech with networks that might not be directly related to the "corrective feedback" could also increase the likelihood of rule-following. The leader could do that, for instance, while addressing daily issues during "small talks". Last but not least, the present results suggest that rule-following depended on the speaker that provided the rule. In organizational settings, employees are punished for noncompliance or other aspects regarding rule-following. These findings highlight the

fact that rule-following depends on the leader (speaker) as well and is not an exclusive "responsibility" of the listener.

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Table 1

Tips Asked and Followed by Both Speakers in CRF.

		Coherent			Incoherent		
Participant	First tip	Qty tips asked	Qty tips followed	Following index	Qty tips asked	Qty tips followed	Following index
P1	Coherent	30	30	1,00	0	0	N/A
P2	Coherent	30	30	1,00	0	0	N/A
P3	Coherent	30	30	1,00	0	0	N/A
P4	Coherent	16	16	1,00	14	13	0,93
P5	Coherent	11	11	1,00	19	17	0,89
P6	Incoherent	8	8	1,00	22	22	1,00
P7	Coherent	29	29	1,00	1	0	0,00
P8	Coherent	30	30	1,00	0	0	N/A
P9	Coherent	21	21	1,00	9	7	0,78
P10	Coherent	30	29	0,97	0	0	N/A
	Total	235	234		65	59	

Note: Following index was calculated dividing tips followed by tips asked. Trial by trial values are shown at Appendix A.

Table 2

Tips Asked and Followed by Both Speakers in FR10.

		Coherent			Incoherent		
Participant	First tip	Qty tips asked	Qty tips followed	Following index	Qty tips asked	Qty tips followed	Following index
P11	Coherent	30	30	1	0	0	N/A
P12	Coherent	30	30	1	0	0	N/A
P13	Coherent	26	26	1	4	0	0,00
P14	Coherent	30	30	1	0	0	N/A
P15	Coherent	25	25	1	5	0	0,00
P16	Incoherent	16	16	1	14	14	1,00
P17	Coherent	30	30	1	0	0	N/A
P18	Coherent	25	25	1	5	0	0,00
P19	Coherent	15	15	1	15	15	1,00
P20	Incoherent	28	28	1	2	2	1,00
	Total	255	255		45	31	

Note: Following index was calculated dividing tips followed by tips asked. Trial by trial values are shown at Appendix A.

Figure 1. Procedure diagram.

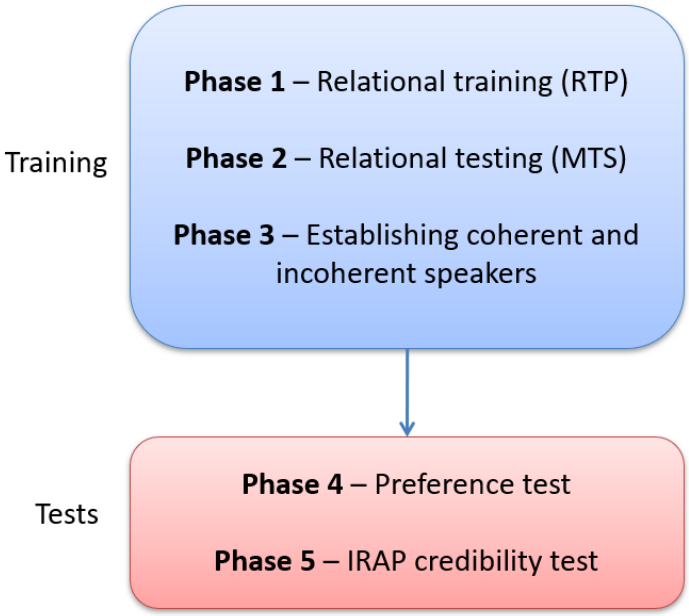


Figure 2. RTP procedure screen sequence, the purple speaker being Coherent.

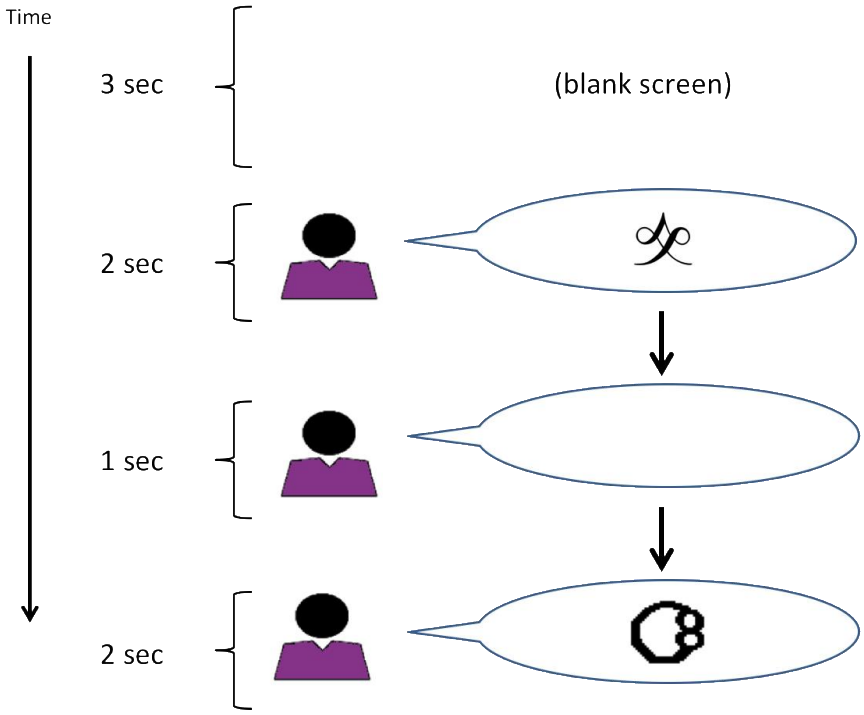


Figure 3. Preference test screen

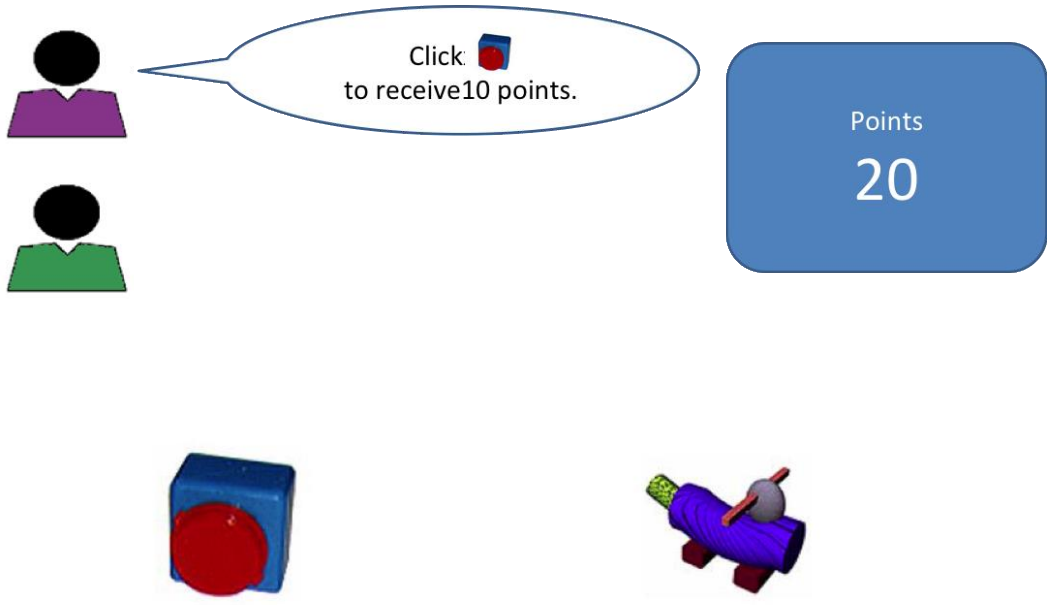


Figure 4. IRAP credibility test trial types. The asterisk below the answers represents the correct response for each trial in each block (consistent or inconsistent).

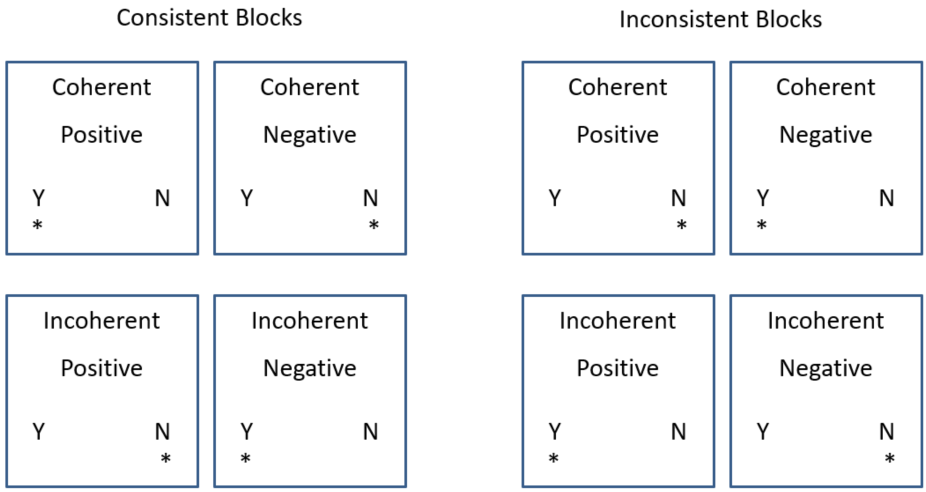


Figure 5. D_{IRAP} Scores for CRF condition

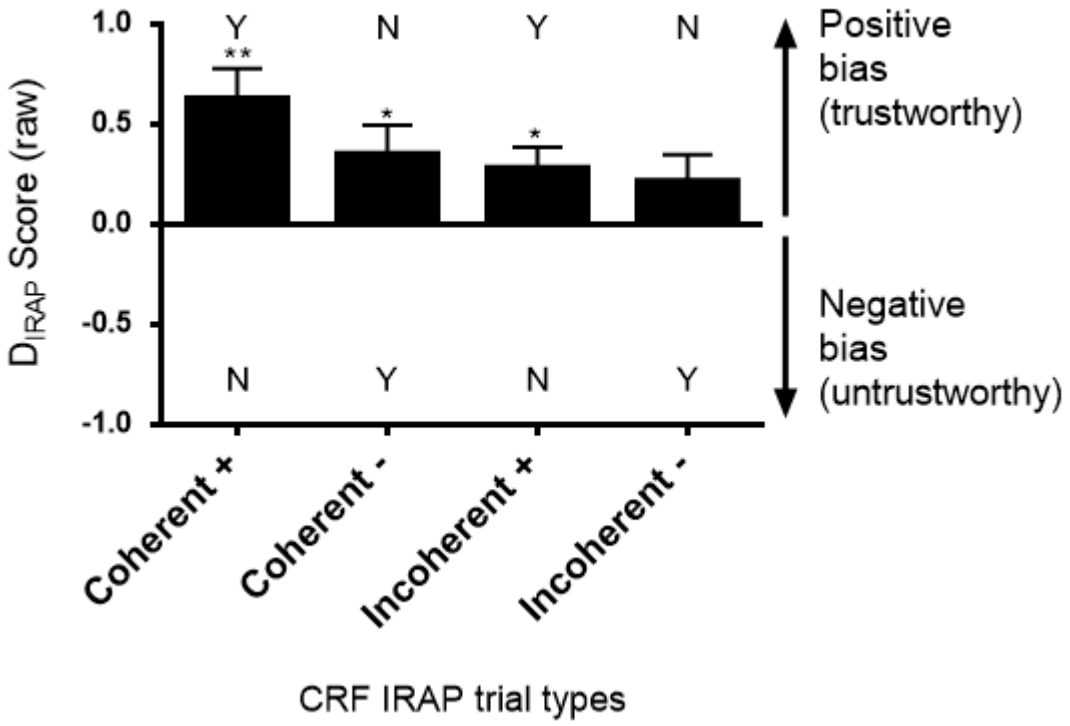
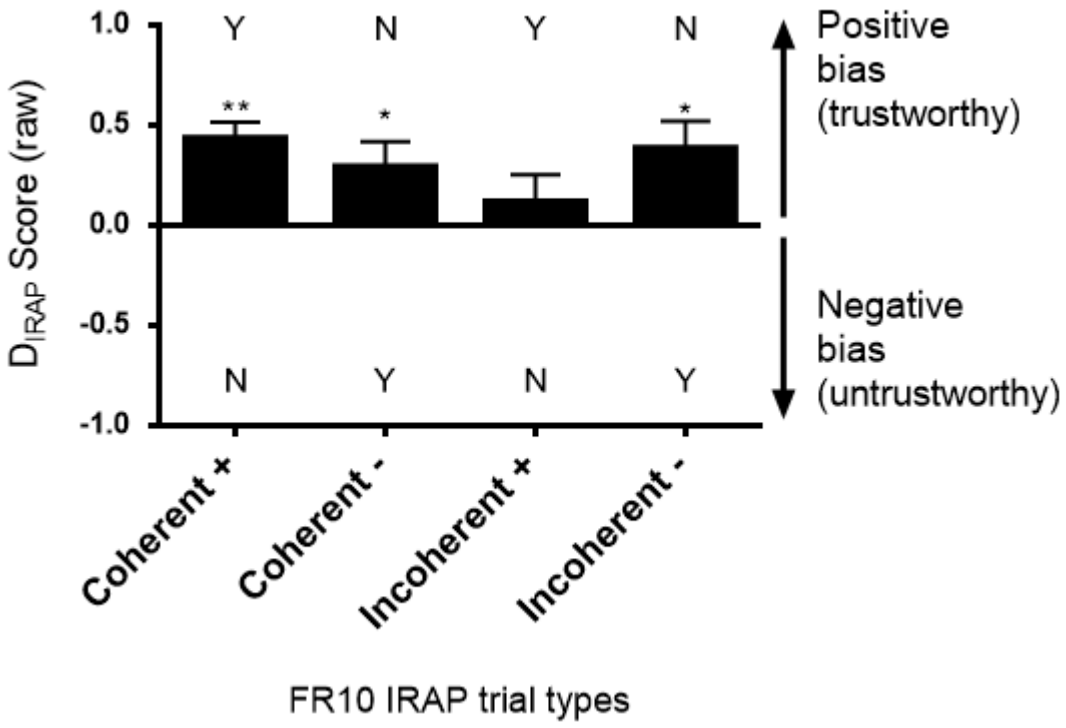


Figure 6. D_{IRAP} Scores for FR10 condition.



Appendix A

Tips asked and followed from Coherent and Incoherent speakers on CRF and FR10 conditions. Each column name initiated with P and followed by a number represents a participant, and trial sequence is represented at the left column with T followed by the trial number.

	Tips asked CRF – Coherent										
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	SUM
T1	1	1	1	1	1	0	1	1	1	1	9
T2	1	1	1	1	0	0	0	1	1	1	7
T3	1	1	1	1	1	0	1	1	1	1	9
T4	1	1	1	1	0	0	1	1	0	1	7
T5	1	1	1	1	1	0	1	1	1	1	9
T6	1	1	1	1	0	0	1	1	1	1	8
T7	1	1	1	1	0	1	1	1	1	1	9
T8	1	1	1	1	1	1	1	1	1	1	10
T9	1	1	1	1	0	0	1	1	1	1	8
T10	1	1	1	0	1	0	1	1	0	1	7
T11	1	1	1	0	1	0	1	1	1	1	8
T12	1	1	1	0	0	0	1	1	1	1	7
T13	1	1	1	0	1	1	1	1	0	1	8
T14	1	1	1	0	0	0	1	1	1	1	7
T15	1	1	1	0	1	0	1	1	1	1	8
T16	1	1	1	0	1	0	1	1	0	1	7
T17	1	1	1	1	0	0	1	1	1	1	8
T18	1	1	1	0	0	0	1	1	1	1	7
T19	1	1	1	1	0	0	1	1	1	1	8
T20	1	1	1	1	0	0	1	1	0	1	7
T21	1	1	1	1	0	0	1	1	1	1	8
T22	1	1	1	0	0	1	1	1	0	1	7
T23	1	1	1	0	0	1	1	1	1	1	8
T24	1	1	1	1	0	0	1	1	0	1	7
T25	1	1	1	0	0	1	1	1	1	1	8
T26	1	1	1	0	0	0	1	1	0	1	6
T27	1	1	1	1	0	1	1	1	1	1	9
T28	1	1	1	1	1	0	1	1	1	1	9
T29	1	1	1	0	1	1	1	1	1	1	9
T30	1	1	1	0	0	0	1	1	0	1	6
	30	30	30	16	11	8	29	30	21	30	235

	Tips asked FR10 – Coherent										
	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20	SUM
T1	1	1	1	1	1	0	1	1	1	0	8
T2	1	1	1	1	1	1	1	1	0	1	9
T3	1	1	1	1	0	1	1	1	1	1	9
T4	1	1	1	1	1	1	1	1	0	1	9
T5	1	1	1	1	1	1	1	1	1	0	9
T6	1	1	1	1	1	1	1	1	0	1	9
T7	1	1	0	1	0	1	1	1	1	1	8
T8	1	1	1	1	1	1	1	1	0	1	9
T9	1	1	1	1	1	1	1	1	1	1	10
T10	1	1	1	1	1	0	1	1	0	1	8
T11	1	1	1	1	0	1	1	1	0	1	8
T12	1	1	0	1	1	1	1	1	1	1	9
T13	1	1	1	1	1	0	1	1	0	1	8
T14	1	1	0	1	1	0	1	1	1	1	8
T15	1	1	1	1	1	0	1	1	0	1	8
T16	1	1	1	1	1	0	1	1	1	1	9
T17	1	1	1	1	0	0	1	0	0	1	6
T18	1	1	1	1	1	0	1	0	1	1	8
T19	1	1	1	1	1	0	1	1	0	1	8
T20	1	1	0	1	1	0	1	1	1	1	8
T21	1	1	1	1	1	1	1	1	0	1	9
T22	1	1	1	1	1	0	1	1	1	1	9
T23	1	1	1	1	1	0	1	0	0	1	7
T24	1	1	1	1	1	1	1	1	1	1	10
T25	1	1	1	1	0	1	1	1	0	1	8
T26	1	1	1	1	1	1	1	0	1	1	9
T27	1	1	1	1	1	1	1	0	0	1	8
T28	1	1	1	1	1	0	1	1	1	1	9
T29	1	1	1	1	1	0	1	1	0	1	8
T30	1	1	1	1	1	1	1	1	1	1	10
	30	30	26	30	25	16	30	25	15	28	255

	Tips asked										
	CRF – Incoherent										
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	SUM
T1	0	0	0	0	0	1	0	0	0	0	1
T2	0	0	0	0	1	1	1	0	0	0	3
T3	0	0	0	0	0	1	0	0	0	0	1
T4	0	0	0	0	1	1	0	0	1	0	3
T5	0	0	0	0	0	1	0	0	0	0	1
T6	0	0	0	0	1	1	0	0	0	0	2
T7	0	0	0	0	1	0	0	0	0	0	1
T8	0	0	0	0	0	0	0	0	0	0	0
T9	0	0	0	0	1	1	0	0	0	0	2
T10	0	0	0	1	0	1	0	0	1	0	3
T11	0	0	0	1	0	1	0	0	0	0	2
T12	0	0	0	1	1	1	0	0	0	0	3
T13	0	0	0	1	0	0	0	0	1	0	2
T14	0	0	0	1	1	1	0	0	0	0	3
T15	0	0	0	1	0	1	0	0	0	0	2
T16	0	0	0	1	0	1	0	0	1	0	3
T17	0	0	0	0	1	1	0	0	0	0	2
T18	0	0	0	1	1	1	0	0	0	0	3
T19	0	0	0	0	1	1	0	0	0	0	2
T20	0	0	0	0	1	1	0	0	1	0	3
T21	0	0	0	0	1	1	0	0	0	0	2
T22	0	0	0	1	1	0	0	0	1	0	3
T23	0	0	0	1	1	0	0	0	0	0	2
T24	0	0	0	0	1	1	0	0	1	0	3
T25	0	0	0	1	1	0	0	0	0	0	2
T26	0	0	0	1	1	1	0	0	1	0	4
T27	0	0	0	0	1	0	0	0	0	0	1
T28	0	0	0	0	0	1	0	0	0	0	1
T29	0	0	0	1	0	0	0	0	0	0	1
T30	0	0	0	1	1	1	0	0	1	0	4
	0	0	0	14	19	22	1	0	9	0	65

	Tips asked FR10 – Incoherent										
	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20	SUM
T1	0	0	0	0	0	1	0	0	0	1	2
T2	0	0	0	0	0	0	0	0	1	0	1
T3	0	0	0	0	1	0	0	0	0	0	1
T4	0	0	0	0	0	0	0	0	1	0	1
T5	0	0	0	0	0	0	0	0	0	1	1
T6	0	0	0	0	0	0	0	0	1	0	1
T7	0	0	1	0	1	0	0	0	0	0	2
T8	0	0	0	0	0	0	0	0	1	0	1
T9	0	0	0	0	0	0	0	0	0	0	0
T10	0	0	0	0	0	1	0	0	1	0	2
T11	0	0	0	0	1	0	0	0	1	0	2
T12	0	0	1	0	0	0	0	0	0	0	1
T13	0	0	0	0	0	1	0	0	1	0	2
T14	0	0	1	0	0	1	0	0	0	0	2
T15	0	0	0	0	0	1	0	0	1	0	2
T16	0	0	0	0	0	1	0	0	0	0	1
T17	0	0	0	0	1	1	0	1	1	0	4
T18	0	0	0	0	0	1	0	1	0	0	2
T19	0	0	0	0	0	1	0	0	1	0	2
T20	0	0	1	0	0	1	0	0	0	0	2
T21	0	0	0	0	0	0	0	0	1	0	1
T22	0	0	0	0	0	1	0	0	0	0	1
T23	0	0	0	0	0	1	0	1	1	0	3
T24	0	0	0	0	0	0	0	0	0	0	0
T25	0	0	0	0	1	0	0	0	1	0	2
T26	0	0	0	0	0	0	0	1	0	0	1
T27	0	0	0	0	0	0	0	1	1	0	2
T28	0	0	0	0	0	1	0	0	0	0	1
T29	0	0	0	0	0	1	0	0	1	0	2
T30	0	0	0	0	0	0	0	0	0	0	0
	0	0	4	0	5	14	0	5	15	2	45

	Tips folowed CRF – Coherent										
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	SUM
T1	1	1	1	1	1	0	1	1	1	1	9
T2	1	1	1	1	0	0	0	1	1	1	7
T3	1	1	1	1	1	0	1	1	1	1	9
T4	1	1	1	1	0	0	1	1	0	1	7
T5	1	1	1	1	1	0	1	1	1	1	9
T6	1	1	1	1	0	0	1	1	1	1	8
T7	1	1	1	1	0	1	1	1	1	1	9
T8	1	1	1	1	1	1	1	1	1	1	10
T9	1	1	1	1	0	0	1	1	1	1	8
T10	1	1	1	0	1	0	1	1	0	1	7
T11	1	1	1	0	1	0	1	1	1	1	8
T12	1	1	1	0	0	0	1	1	1	1	7
T13	1	1	1	0	1	1	1	1	0	1	8
T14	1	1	1	0	0	0	1	1	1	1	7
T15	1	1	1	0	1	0	1	1	1	1	8
T16	1	1	1	0	1	0	1	1	0	1	7
T17	1	1	1	1	0	0	1	1	1	1	8
T18	1	1	1	0	0	0	1	1	1	1	7
T19	1	1	1	1	0	0	1	1	1	1	8
T20	1	1	1	1	0	0	1	1	0	1	7
T21	1	1	1	1	0	0	1	1	1	1	8
T22	1	1	1	0	0	1	1	1	0	1	7
T23	1	1	1	0	0	1	1	1	1	1	8
T24	1	1	1	1	0	0	1	1	0	1	7
T25	1	1	1	0	0	1	1	1	1	1	8
T26	1	1	1	0	0	0	1	1	0	0	5
T27	1	1	1	1	0	1	1	1	1	1	9
T28	1	1	1	1	1	0	1	1	1	1	9
T29	1	1	1	0	1	1	1	1	1	1	9
T30	1	1	1	0	0	0	1	1	0	1	6
	30	30	30	16	11	8	29	30	21	29	234

	Tips folowed FR10 – Coherent										
	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20	SUM
T1	1	1	1	1	1	0	1	1	1	0	8
T2	1	1	1	1	1	1	1	1	0	1	9
T3	1	1	1	1	0	1	1	1	1	1	9
T4	1	1	1	1	1	1	1	1	0	1	9
T5	1	1	1	1	1	1	1	1	1	0	9
T6	1	1	1	1	1	1	1	1	0	1	9
T7	1	1	0	1	0	1	1	1	1	1	8
T8	1	1	1	1	1	1	1	1	0	1	9
T9	1	1	1	1	1	1	1	1	1	1	10
T10	1	1	1	1	1	0	1	1	0	1	8
T11	1	1	1	1	0	1	1	1	0	1	8
T12	1	1	0	1	1	1	1	1	1	1	9
T13	1	1	1	1	1	0	1	1	0	1	8
T14	1	1	0	1	1	0	1	1	1	1	8
T15	1	1	1	1	1	0	1	1	0	1	8
T16	1	1	1	1	1	0	1	1	1	1	9
T17	1	1	1	1	0	0	1	0	0	1	6
T18	1	1	1	1	1	0	1	0	1	1	8
T19	1	1	1	1	1	0	1	1	0	1	8
T20	1	1	0	1	1	0	1	1	1	1	8
T21	1	1	1	1	1	1	1	1	0	1	9
T22	1	1	1	1	1	0	1	1	1	1	9
T23	1	1	1	1	1	0	1	0	0	1	7
T24	1	1	1	1	1	1	1	1	1	1	10
T25	1	1	1	1	0	1	1	1	0	1	8
T26	1	1	1	1	1	1	1	0	1	1	9
T27	1	1	1	1	1	1	1	0	0	1	8
T28	1	1	1	1	1	0	1	1	1	1	9
T29	1	1	1	1	1	0	1	1	0	1	8
T30	1	1	1	1	1	1	1	1	1	1	10
	30	30	26	30	25	16	30	25	15	28	255

	Tips folowed CRF – Incoherent										
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	SUM
T1	0	0	0	0	0	1	0	0	0	0	1
T2	0	0	0	0	1	1	0	0	0	0	2
T3	0	0	0	0	0	1	0	0	0	0	1
T4	0	0	0	0	1	1	0	0	0	0	2
T5	0	0	0	0	0	1	0	0	0	0	1
T6	0	0	0	0	1	1	0	0	0	0	2
T7	0	0	0	0	1	0	0	0	0	0	1
T8	0	0	0	0	0	0	0	0	0	0	0
T9	0	0	0	0	0	1	0	0	0	0	1
T10	0	0	0	1	0	1	0	0	0	0	2
T11	0	0	0	1	0	1	0	0	0	0	2
T12	0	0	0	1	0	1	0	0	0	0	2
T13	0	0	0	1	0	0	0	0	1	0	2
T14	0	0	0	1	1	1	0	0	0	0	3
T15	0	0	0	1	0	1	0	0	0	0	2
T16	0	0	0	1	0	1	0	0	1	0	3
T17	0	0	0	0	1	1	0	0	0	0	2
T18	0	0	0	1	1	1	0	0	0	0	3
T19	0	0	0	0	1	1	0	0	0	0	2
T20	0	0	0	0	1	1	0	0	1	0	3
T21	0	0	0	0	1	1	0	0	0	0	2
T22	0	0	0	1	1	0	0	0	1	0	3
T23	0	0	0	1	1	0	0	0	0	0	2
T24	0	0	0	0	1	1	0	0	1	0	3
T25	0	0	0	1	1	0	0	0	0	0	2
T26	0	0	0	0	1	1	0	0	1	0	3
T27	0	0	0	0	1	0	0	0	0	0	1
T28	0	0	0	0	0	1	0	0	0	0	1
T29	0	0	0	1	0	0	0	0	0	0	1
T30	0	0	0	1	1	1	0	0	1	0	4
	0	0	0	13	17	22	0	0	7	0	59

	Tips folowed FR10 – Incoherent										
	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20	SUM
T1	0	0	0	0	0	1	0	0	0	1	2
T2	0	0	0	0	0	0	0	0	1	0	1
T3	0	0	0	0	0	0	0	0	0	0	0
T4	0	0	0	0	0	0	0	0	1	0	1
T5	0	0	0	0	0	0	0	0	0	1	1
T6	0	0	0	0	0	0	0	0	1	0	1
T7	0	0	0	0	0	0	0	0	0	0	0
T8	0	0	0	0	0	0	0	0	1	0	1
T9	0	0	0	0	0	0	0	0	0	0	0
T10	0	0	0	0	0	1	0	0	1	0	2
T11	0	0	0	0	0	0	0	0	1	0	1
T12	0	0	0	0	0	0	0	0	0	0	0
T13	0	0	0	0	0	1	0	0	1	0	2
T14	0	0	0	0	0	1	0	0	0	0	1
T15	0	0	0	0	0	1	0	0	1	0	2
T16	0	0	0	0	0	1	0	0	0	0	1
T17	0	0	0	0	0	1	0	0	1	0	2
T18	0	0	0	0	0	1	0	0	0	0	1
T19	0	0	0	0	0	1	0	0	1	0	2
T20	0	0	0	0	0	1	0	0	0	0	1
T21	0	0	0	0	0	0	0	0	1	0	1
T22	0	0	0	0	0	1	0	0	0	0	1
T23	0	0	0	0	0	1	0	0	1	0	2
T24	0	0	0	0	0	0	0	0	0	0	0
T25	0	0	0	0	0	0	0	0	1	0	1
T26	0	0	0	0	0	0	0	0	0	0	0
T27	0	0	0	0	0	0	0	0	1	0	1
T28	0	0	0	0	0	1	0	0	0	0	1
T29	0	0	0	0	0	1	0	0	1	0	2
T30	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	14	0	0	15	2	31

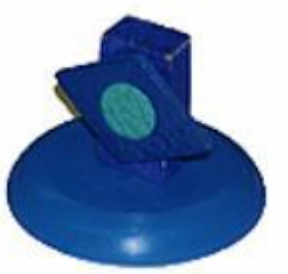
Appendix B

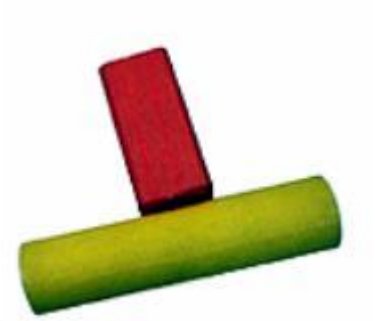
Images used as choice options at Stage 2 for both experiments.



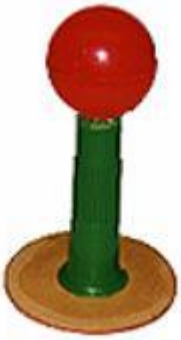


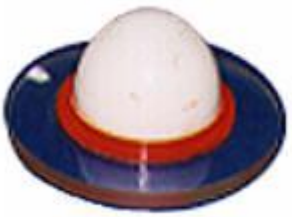




I





Appendix C

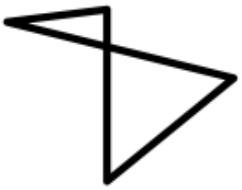
Images used at Stage 1 and Stage 2 for both experiments.

 **A1**	 **B1**
 **A2**	 **B2**

A3

B3

C1



C2

C2

Annex A

Termo de Consentimento Livre e Esclarecido

Título da pesquisa: Avaliação de variáveis que influenciam preferência pelo falante: efeitos da credibilidade e coerência das regras fornecidas

Instituição: Paradigma – Centro de Ciências e Tecnologia do Comportamento

A pesquisa a ser desenvolvida tem como objetivo investigar algumas questões referentes à aprendizagem instrucional. Algumas dessas questões podem ser investigadas por meio de uma tarefa simples de ensino de relações entre figuras. Para tanto, você irá realizar uma série de atividades programadas no computador que, por sua vez, visam lhe ensinar tais relações. Nessa tarefa, serão apresentadas figuras abstratas. Sua tarefa é aprender a responder a essas figuras em acordo com o feedback fornecido pelo computador.

Após esta tarefa, você será solicitado a observar atentamente a apresentação em sequência de figuras abstratas na tela do computador, para posteriormente participar de um jogo que envolve o acúmulo de pontos com a possibilidade de pedir dicas.

A presente pesquisa também envolverá uma outra tarefa computadorizada na qual alguns símbolos utilizados na primeira tarefa serão apresentados junto de adjetivos positivos ou negativos. Um detalhe importante: você será solicitado a responder de forma correta e rápida (em no máximo 2 segundos). Eventualmente, você poderá responder com um pouco de atraso ou cometer alguns erros. No entanto, é importante que você tente responder precisamente, como o computador solicitar.

As atividades da pesquisa poderão durar em torno de 50 minutos e deverão ser realizadas de em um único dia a ser agendado com o pesquisador, em acordo com a sua disponibilidade. As atividades serão realizadas em uma sala silenciosa.

O procedimento que será realizado pode envolver algum grau de desconforto, visto que você precisará ficar um período longo realizando uma tarefa no computador. Por isso, caso você tenha algum problema decorrente do uso frequente do teclado ou mouse (lesão por esforço repetitivo), é melhor que não participe dessa pesquisa. Eventualmente, como o computador fornecerá feedback (pontos) para as suas respostas e às vezes solicitará que você responda rapidamente e com precisão, você poderá sentir que está sendo avaliado com relação às suas capacidades. Fique tranquilo, pois esse não é o caso. Gostaríamos de deixar claro que essa pesquisa não investigará nenhum tipo de medida sobre inteligência, aspectos afetivos ou emocionais. Caso você se sinta ansioso ou pressionado a ponto de preferir parar, fique à vontade para solicitar que o pesquisador pause o programa no computador.

Essa pesquisa não lhe trará nenhuma grande contribuição no sentido do aprendizado de habilidades relevantes para o seu dia-a-dia, no entanto ela o ajudará a compreender como humanos utilizam e são afetados por símbolos. Esses resultados têm importância para aplicações, por exemplo, nas organizações (e.g., técnicas de liderança, motivação, etc) e educação (e.g., no desenvolvimento de tecnologias de ensino, etc). Assim, sua participação ajudará pesquisadores a compreenderem melhor processos básicos sobre aprendizagem simbólica e também a desenvolver tecnologias de liderança.

Poderão participar dessa pesquisa homens ou mulheres acima de 18 anos, que não apresentem lesões por esforço repetitivo (L.E.R.). Você foi convidado para participar deste estudo, por isso, sua participação não é obrigatória e sua recusa não trará nenhum prejuízo em sua relação com o pesquisador ou com a instituição. Além disso, a qualquer momento durante a realização do procedimento, você poderá desistir de participar e retirar o seu consentimento. O pesquisador também tem a obrigação de lhe esclarecer toda e qualquer dúvida a qualquer momento da pesquisa.

Você será ressarcido pelos gastos que obtiver com transporte em decorrência da participação nesta pesquisa (para idas e vindas ao consultório do pesquisador e/ou local onde ocorrerá a pesquisa).

Todas as informações que você fornecer durante a pesquisa serão mantidas em sigilo, conservando o seu anonimato. Após a conclusão do estudo, você poderá ter acesso aos resultados com o pesquisador responsável.

Você irá receber uma via do Termo de Consentimento Livre e Esclarecido. Esta pesquisa atende às resoluções 466/2012 e 510/2016 do Conselho Nacional da Saúde do Ministério da Saúde sobre a participação de humanos em pesquisa. Se você tiver qualquer dúvida sobre a pesquisa e seus direitos enquanto participante, entre em contato com o Pesquisador Responsável, Paulo Henrique Bianchi*, ou com o Supervisor Responsável Prof. Dr. William Ferreira Perez**, ou com o Conselho de Ética e Pesquisa (CEP) da Universidade Anhanguera de São Paulo (UNIAN)***.

Será garantido que, caso você sentir-se prejudicado pela participação no procedimento, será oferecida terapia comportamental gratuita na clínica escola da Associação Paradigma – Centro de Ciências e Tecnologia do Comportamento.

Será garantida indenização por parte do Pesquisador Responsável caso você sofra danos decorrentes da sua participação no procedimento.

Eu _____, aceito participar dessa pesquisa, consentindo na divulgação e publicação dos dados, nos termos apresentados acima.

Declaro que entendi os objetivos, riscos e benefícios de minha participação na pesquisa e concordo em participar. Também concordo que os dados sejam divulgados na forma de comunicação científica, tendo assegurado o anonimato da minha participação.

Local e data: _____ , __/__/___

Assinatura do participante: _____

Assinatura do pesquisador responsável: _____

Paulo Henrique Bianchi

RG: 34.308-215-9

Assinatura do supervisor responsável:_____

Prof. Dr. William Ferreira Perez

RG: MG 12353788

***Contato do pesquisador responsável:**

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**** Contato do supervisor responsável:**

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Telefone: (11) 3672-0194

E-mail: will.f.perez@gmail.com

*****Contato do Comitê de Ética e Pesquisa da Universidade Anhanguera de São Paulo (UNIAN):**

Avenida Raimundo Pereira de Magalhães, 3305, Jd. Iris/Pirituba, São Paulo, SP. CEP: 05145-200. Tel: (11) 3512-8412; e-mail: cep.uniansp@anhanguera.com.