How verb tense affects the construal of action: The simple past tense leads people into an abstract mindset

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Two experiments examined the influence of verb tense on how abstractly people construe action representations. Experiment 1 revealed that written descriptions of several daily events using the simple past tense (vs. simple present tense) resulted in actions and the action's target being seen as less likely and less familiar, respectively. In Experiment 2 participants wrote about a personal episode of binge drinking (using the simple past tense vs. simple present tense), and the resulting narratives were coded using the Linguistic Category Model (see Semin & Fiedler, 1991). Results revealed that events were described at a more abstract level when texts were written using the simple past tense (vs. simple present tense). The results are discussed in the context of other effects of verb form and in relation to construal level of events.

Part of the art of designing persuasive communications is to choose language that will communicate the intended message and beliefs. Focusing on these aspects entails thinking about how we say what we say, and then adding this *how* to the study of communication, which has classically focused on "*Who says what in which channel to whom with what effect*"

(Lasswell, 1948). The research we report in this paper contributes to this understanding by exploring how the verb tense used in a narrative message determines how events are represented. Will describing an event in the present tense make it appear more concrete and familiar than describing the same event in the more "distancing" past tense?

People make mental representations through a dynamic interaction of pragmatic, semantic, and grammatical linguistic cues to create *situation models*, which involve a mental simulation that integrates the agents, causality, goals, thoughts, actions, location and temporal cues involved in an event (see Zwaan & Radvansky, 1998). Subtle changes in language produce different mental representations (Givón, 1992), depending on how action is perceived. Past research has shown that the use of the perfective (vs. imperfective) verb aspect to write a description of a prior behavior reduces the tendency to perceive the described actions as ongoing. Events reported in the imperfective aspect are described as ongoing more frequently than events reported in the perfective aspect (Madden & Zwaan, 2003). Locations of specific situations become more active when verbs reference situations as ongoing rather than completed (Ferretti, Kutas & McRae, 2007), and the characters in a story are more memorable when their behaviors are described using the imperfective aspect (Carreiras, Carriedo, Alonso, & Fernández, 1997). Furthermore, individuals are more likely to want to continue actions described in the imperfective than the perfective aspect and to recall details of the actions at hand (Hart & Albarracín, 2009, 2011).

Verb aspect is often associated with verb tense. In the Spanish language, for example, the simple tenses (e.g., *camino, caminaba, caminaré; I walk, I was walking, I will walk*) have imperfective aspect, whereas most compound tenses (e.g., *he caminado; I have walked*) and the *indefinite* simple past (e.g., *caminé; I walked*) have perfective aspect (see Liroz, 2006). Mental representations based on actions described in the simple past collapse all actions into a whole with an emphasis on the achieved goal of the action (e.g., "*The girl bought a piece of chocolate*" provides the reader with knowledge that girl has acquired the piece of chocolate). In contrast, mental representations based on actions described in the present tense include the action's internal stages rather than revolving around the completion of a goal (e.g., "*The girl buys a piece of chocolate*" gives readers a picture of the girl choosing the chocolate, asking about its price, and paying for it). Previous findings about locations and details of events being more memorable in the imperfective aspect suggest that the imperfective encourages thoughts about the internal structure of the action and the situation, the action stages, and the context of the action, because

incomplete actions need to be monitored more closely. Thus, the *form* of the language (verb aspect or verb tense) affects how actions are represented: whether perceived as ongoing or completed.

Construal Level Theory (CLT; see Liberman, Trope, & Stephan, 2007; Trope & Liberman, 2003; Trope, Liberman, & Wakslak, 2007) has shown that people represent distant events by their more abstract features (i.e., goals and ends), but near events by features related to feasibility (i.e., stages needed to achieve goals). Although recent research suggests that verb tense influences mental representations (see Carrera, Muñoz, Caballero, Fernández, & Albarracín, 2012), there has been no direct evidence in the domain of construal level. In the present research we conducted two experiments to test whether the use of the simple past tense (*indefinite simple past* tense in Spanish) activates more abstract representations (i.e., abstract mindset) than the present tense.

Previous research has shown that improbable events are represented at a higher level of abstraction than more probable events (Wakslak, Trope, Liberman, & Alony, 2006). Since people do not know incidental details about unlikely events, they represent them focusing on general features and essential abstract information. Following this reasoning, Wakslak and Trope (2009) showed that people use their current construal level as a cue to form judgments of probability, abstract representations generating a sense of improbability and distance, while concrete representations induce a sense of likelihood and proximity. The relationship between construal level and probability judgments appears to be bidirectional. In the frame of CLT this relation has been demonstrated across different and well-tested types of construal level manipulations, such as categorization priming or why-how priming. In Experiment 1 we extended this proposal to the role of verb tense, as a new procedure for inducing different construal levels, which would be abstract when the simple past tense is used and concrete when the simple present is used.

In a similar line of reasoning, Stephan, Liberman and Trope (2011) tested the effect of manipulating temporal distance, the major determinant of construal level (see Trope, & Liberman, 2003), on perceived familiarity. They explored how imagining a situation of getting acquainted with someone *in the near future* led people to estimate the action's target as highly familiar, but when the event was presented *in the distant future*, participants evaluated the target as less familiar.

Thus, Experiment 1 examined whether probability and familiarity judgments made after verb tense manipulation resembled those obtained in previous research when construal level had been manipulated via other

well-known construal level induction procedures. People who adopted an abstract mindset estimated that events are less probable (Wakslak & Trope, 2009) and social targets less familiar (Stephan, et al., 2011) than people who adopted a concrete mindset; the same effects are expected to be found by manipulating verb tenses. If past tense (vs. present tense) induces an abstract mindset then it should also induce a lower sense of likelihood and familiarity. Experiment 2 included assessments of the level of abstraction of narratives written in the past or present tense. We coded abstraction level by using the Linguistic Category Model (LCM) developed by Semin and Fiedler (1991). LCM allows us to differentiate between the types of psychological processes involved in a verbal message by providing a quantitative measure of abstraction level. In our research the messages written by participants (using the past tense or the present tense) describe personal experiences in binge drinking. We hypothesized that the use of past vs. present tense would result in the use of more abstract terms in participants' narratives.

EXPERIMENT 1

The first experiment examined whether using the simple past tense creates more abstract representations, as judged by lower reported probability and familiarity of the actions and the action's target, respectively. To test this hypothesis we followed the procedures used by Trope and colleagues (see Stephan et al., 2011; Wakslak & Trope, 2009) to evaluate probability and familiarity. Participants read ten sentences describing different events using the simple past or the simple present tense, of which five were used to measure likelihood and the other five to measure familiarity. The participants then estimated the likelihood of each of the five actions and the familiarity attributed to the social characters involved in each of the five events. Each participant only read sentences in one of the verb tenses manipulated (simple past or simple present). The order of the probability and familiarity measures was counterbalanced.

METHOD

Participants. Fifty students (60% females; average age 18.64 years, *SD* = 1.12) from the Autónoma University of Madrid participated voluntarily in the study.

Procedure and Measures. One half of the sample (16 females and 10 males) was randomly assigned to read ten items written in the simple

present tense, while the other half (14 females and 10 males) read the same items written in the simple past tense (the *indefinite past* in Spanish). Five sentences described an action in the simple present or simple past followed by a question about its probability (e.g., "Caroline decides/decided to take the subway back home. How likely is it that the train arrives half an hour late?) (see Table 1). The task also included five sentences describing a person in an everyday situation. This action was described in the simple present or simple past and was followed by a question about how familiar the person described was (e.g., "Henry joins/joined a gym. How familiar does a person like Henry seem to you?") (see Table 2). Thus, each participant answered five questions about the action's probability and five questions about the target's familiarity. These procedures maintained the content domain constant, varying only the verb tense (i.e., the experimental conditions); the topics chosen were very similar to those used by Wakslak and Trope (2009) and Stephan and collaborators (2011). All scales ranged from 1 (*not at all likely* or *not at all familiar)* to 7 (*very likely* or *very familiar*). We calculated a probability index averaging data from items presented in Table 1 (alpha = .65), and a familiarity index averaging data from items presented in Table 2 (alpha = .70). Half of the sample made likelihood judgments followed by familiarity evaluations, while the other half answered the questions in the opposite order. Order had no significant effect in any verb tense condition.

RESULTS AND DISCUSSION

Tables 1 and 2 show means and standard deviations in probability and familiarity judgments for each item in both verb tenses. Following Wakslak and Trope's analysis (2009), we examined the effect of verb tense on probability assessment across the five judgments (see Studies 2, p. 54 and 3, p. 55, in Wakslak & Trope, 2009); influence on specific events was not our main goal. An analysis of variance across events revealed that participants estimated lower probability for events described using the simple past tense (*M past* = 3.91, *SD* = .77 vs. *M present* = 4.40, *SD* = .66; $F(1, 48) = 5.81$, $p < .05$, $\eta_p^2 = .10$). The same analysis using familiarity evaluations across events showed that participants perceived less familiarity in social targets whose action had been described in the simple past tense (*M past* = 4.80, *SD* = 1.04 vs. *M present* = 5.73, *SD* = .94; $F(1, 48) = 10.88$, $p < .01$, $\eta_p^2 = .18$). The results were in line with those obtained in previous research manipulating abstract-concrete primes and temporal distance. As in Wakslak and Trope's (2009) research, there were specific items in which the effect was not significant (see Tables 1-2), but the influence was

assessed considering the actions as a whole. Thus, the use of the past tense yielded similar results in familiarity and probability to those obtained when participants were in the abstract mindset or distant future decision conditions. In sum, the results supported the notion that the past tense activated more abstract features (abstract mindset) than the present tense.

Table 1. Means and (SDs) for base frequency and likelihood judgments (Experiment 1).

	Base	Past	Present
1. John participates/participated in a cross country car race. How likely is it that he meets a friend from his city?	2.21 (0.16)	2.66 (1.04)	2.69 (1.34)
2. Caroline decides/decided to take the subway back home. How likely is it that the train arrives half an hour late?	3.13 (0.33)	3.33 (1.55)	3.69 (1.51)
3. Jane goes/went to an open-air drinking session. How likely is it that she drinks excessively?	4.87 (0.36)	4.95 (1.23)	5.61 (1.06)
4. George hires/hired a car. How likely is it that he exceeds the speed limit and gets a speeding ticket?	3.39 (0.33)	3.08 (0.97)	3.88 (1.32)
5. Mary buys/bought an electric toothbrush. How likely is she to use it daily?	5.08 (0.32)	5.54 (1.55)	6.23 (1.14)

Control Checks. Although we were not interested in specific actions, the base frequency of each action could have biased the results, so we carried out a control check in order to evaluate how the base frequency changed the verb tense effect. Twenty-three participants (65% females; average age 19.1 years, $SD = 0.60$) voluntarily evaluated the frequency of the action described in each item. We used the infinitive verb form (in the Spanish version) to avoid verb tense influence (e.g., *How frequent is the*

action "to buy an electric toothbrush and use it on a daily basis?"). Means for estimated base rate are shown as control in Tables 1-2. ANOVAs (within-subjects) revealed significant differences between actions in probability judgments ($F_{(4, 88)} = 22.85$, $p < .001$, $\eta_p^2 = .51$) and also in familiarity evaluations ($F(4, 88) = 18.29$, $p < .001$, $\eta_p^2 = .45$). Taking into account these results, we split the actions into high versus low base frequency by using Bonferroni tests. In probability judgments, events with the numbers 1 and 2 (see Table 1) were significantly lower in base frequency than the other actions. In familiarity evaluations, events with the numbers 1 and 5 (see Table 2) showed lower base frequency than the rest of the actions. Actions with different levels of frequency (low vs. high) were averaged.

Table 2. Means and (SDs) for base frequency and familiarity judgments (Experiment 1).

	Base	Past	Present
1. Henry joins/joined a gym. How familiar does a person like Henry seem to you?	4.47	4.37	5.15
	(1.56)	(1.88)	(1.68)
2. Anne waits/waited for the bus back home. How familiar does a person like Anne seem to you?	6.04	5.33	6.38
	(1.06)	(1.97)	(1.02)
3. Joe joins/joined a social network. How familiar does a person like Joe seem to you?	5.34	5.12	5.84
	(1.52)	(1.54)	(1.51)
4. Louise goes/went on holidays with her friends. How familiar does a person like Louise seem to you?	5.21	5.58	6.07
	(1.27)	(1.24)	(1.23)
5. Sara tastes/tasted a new light food brand. How familiar does a person like Sara seem to you?	3.78	3.58	5.19
	(0.79)	(1.69)	(1.49)

For each type of judgment (i.e., probability and familiarity), we conducted a (2 ×2) mixed ANOVA using high-low base frequency as a within-subjects factor and verb tense as a between-subjects condition. The results were as expected. In probability judgments we found both main effects to be significant (high-low base frequency $F(1, 48)= 85.50, p < .001$, $\eta_p^2 = .64$ and verb tense $F(1, 48)= 4.42, p < .05, \eta_p^2 = .08$), but not the interaction ($F(1, 48)= 1.67, p = .20$): the more frequent an action, the higher its estimated likelihood in both verb tense conditions. However, more importantly for our control proposal, we found that estimated likelihood was always lower in the past than in the present condition, at both the high and low base frequency levels. In familiarity judgments the results were similar, the main effects being significant (high-low base frequency $F(1, 48)= 39.16, p < .001, \eta_p^2 = .45$ and verb tense $F(1, 48)= 11.21$, $p < .001, \eta_p^2 = .19$), but not the interaction ($F(1, 48)= 1.47, p = .24$): the more frequent an action, the higher its estimated familiarity in both verb conditions, but familiarity was always lower in the past than in the present condition, at both the high and low base frequency levels.

We also carried out a supplementary control check to assess how distant the actions in the past verb tense condition were considered. We took into account the fact that participants could have imagined a very distant past in which the actions would have a very different base frequency as compared to nowadays (e.g., hygiene habits were very different some decades ago). Twenty participants (70% females; average age 19.6 years, $SD = 0.57$) were asked to estimate when the events described in the past tense happened (e.g., *"When do you think the following action happened: Henry joined a gym?"*). Participants responded using an ordinal 6-point scale (*some minutes-hours ago, some days ago, some weeks ago, some months ago, some years ago or some decades ago*). We did not find significant differences between actions described using the past tense ($F (9, 171) = 1.49, p = .16$). No participant marked the longest period of time (decades), so that all actions were situated in the relatively recent past (*some weeks ago*) ($M =3.05$ $SD= 0.33$).

EXPERIMENT 2

These results dovetail with previous research regarding temporal distance and judgments of familiarity and probability, but further research was required to test the direct influence of verb tense on construal level. Thus, we designed Experiment 2 to determine whether verb tense influences abstraction level in verbal descriptions according to the Linguistic Category

Model developed by Semin and Fiedler (1991). Previous studies have shown that high-level construal (i.e., abstract mindset) is associated with the use of more abstract language (see recently, Gong & Medin, 2012)[1]. The *linguistic category model* (LCM) captures the level of abstraction in narratives, a meta-semantic property of language, making a distinction between four different levels of abstraction from the most concrete to the most abstract: *descriptive-action-verbs* (DAV), *interpretive-action-verbs* (IAV), *state-verbs* (SV), and *adjectives* (ADJ). We expected higher abstraction levels when participants used the simple past tense (vs. simple present tense) to describe a personal episode of excessive drinking.

METHOD

Participants. Participants were 63 undergraduate psychology students, of whom 56 were women and 7 were men (average age 21.22 years, *SD* = 3.16). All were studying at the Autónoma University of Madrid. They agreed to participate in this study voluntarily, and were randomly assigned to the simple past verb tense condition (27 women and 3 men) or simple present verb tense condition (29 women and 4 men).

Procedure and Measures. Participants in all conditions were asked to write about a personal episode of excessive drinking (see instructions in the Appendix). Half of the sample used only the simple past tense (*indefinite past* form), whereas the other half used only the simple present tense (because participants had to describe a past episode using the simple present tense, this form is called the *historical present*). Before describing specific results, it would seem appropriate to explain how linguistic abstraction was measured using the Linguistic Category Model (LCM; Semin & Fiedler, 1988, 1989, 1991).

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[1] We set out to check this relation by designing a construal level task. In this control, participants were required to write their narratives about binge drinking after completing a construal level prime developed by Freitas, Gollwitzer, and Trope (2004). This test included an abstract-why condition (26 women and 5 men) and a concrete-how condition (22 women and 7 men) (see prime procedure in Freitas et al., 2004). In this case verb tense was not manipulated, and participants could use any verb tense they wished. An analysis of variance indicated that narratives yielded a higher abstraction index in the abstract-why condition (*M* = 2.22, *SD* = 0.37) than in the concrete-how condition (*M* = 1.78, *SD* = 0.43, $F(1, 58) = 17.65$, $p < .001$, $\eta_p^2 = .23$), and these results supported previous findings (see Gong & Medin, 2012).

Linguistic Abstraction Index. All verbs and adjectives appearing in texts written by participants were coded using the Linguistic Category Model. This model includes four linguistic categories along a dimension of abstractness to concreteness, with descriptive-action verbs being the most concrete and adjectives being the most abstract. Following the LCM manual, we calculated the inter-rater reliability between two independent coders, taking into account all linguistic categories, and the reliability index was found to be acceptable (Cohen's Kappa = .75); discrepancies were discussed and the final coding was decided by consensus among judges. We also calculated an agreement index for each linguistic category (agreement index= [agreements – disagreements]/total number of observations), and the results were also acceptable (*descriptive-action-verbs* (.77); *interpretive-action-verbs* (.74)*; state-verbs* (.57)*; adjectives* (.64)). From this coding, the *linguistic abstraction index* for each narrative was calculated. Following the scoring procedure developed by Semin and Fiedler (1989), frequencies for each category (see Table 3) were weighted by means of a numerical value in order to obtain an abstraction score: *descriptive-action-verbs* (1), *interpretive-action-verbs* (2)*, state-verbs* (3)*, adjectives* (4). We used a 1,2,3,4 weighting scheme to convert linguistic categories into a numerical measure of abstraction, and calculated a weighted abstractness index score for each participant by dividing each weighted score by the number of coded predicates in the narrative. Thus, this average degree of language abstraction varies between 1 (very concrete) and 4 (very abstract), reflecting the concreteness or abstractness of the narrative (see the detailed description of this index in Semin and Fiedler, 1989 or in Gil de Montes, Semin, & Valencia, 2003).

RESULTS AND DISCUSSION

An analysis of variance comparing the *linguistic abstraction index* between verb tense conditions revealed that participants used more abstract language in the simple past tense condition ($M = 2.12$, $SD = 0.30$) than in the simple present tense condition ($M = 1.58$, $SD = 0.26$, $F (1, 61) = 57.34$, $p < .001$, $\eta_p^2 = .48$). Table 3 shows frequencies (*M*s and *SD*s) of the LCM categories assigned to each experimental manipulation. As shown, the greatest differences between the simple past and simple present conditions were found between adjectives and descriptive action verbs. These results were replicated after normalizing the data. The first category, adjectives, is typically found in abstract predicates and, as we expected, showed higher frequency in the simple past tense condition (vs. present tense). In contrast, descriptive action verbs were the most representative category of concrete

thinking, and coherent with this, yielded higher scores in the present tense condition than in the past tense condition. In conclusion, when participants described a personal experience using the simple past they behaved as if they were in an abstract mindset, using more abstract language in their writing, but when they wrote about a past event using the simple present, they used more concrete linguistic terms, as if they were in a concrete mindset.

Table 3. Means and (SDs) for the frequencies assigned to LCM categories and Linguistic Abstraction Index.

	Verb condition	
	Past	Present
Descriptive action verbs	5.73$_a$ (2.59)	8.45$_b$ (3.27)
Interpretive actions verbs	2.20$_a$ (1.62)	1.87$_a$ (1.81)
State verbs	2.56$_a$ (1.75)	2.30$_a$ (1.35)
Adjectives	2.30$_a$ (1.23)	0.42$_b$ (1.01)

Note. Means with different subscripts in the same row differ significantly at $p < .05$.

GENERAL DISCUSSION

Two experiments presented in this paper showed how verb tense changes the construal level at which people represent and describe actions and events. These predictions are linked to theoretical approaches that support the form of language as an important tool for changing mental representations. Experiment 1 revealed that verb tense can induce effects on probability and familiarity judgments that are similar to those observed after manipulating construal level: the use of the past tense to describe an event captures the essential aspects of an event, rather than details. The resulting representations are less vivid and more difficult to imagine, in turn reducing likelihood assessments and increasing psychological distance

(i.e., participants evaluated the target as less familiar). These results support previous findings in construal level research (see Stephan, et al., 2011; Wakslak & Trope, 2009), and also confirm that the simple past (versus the simple present) induces an abstract mindset.

Experiment 2 explicitly demonstrated how the use of the simple past tense to describe an event induces more abstract mental representations. We would like to highlight how verb tense produced greater differences between the past and present tenses in the extreme abstraction-concretion poles defined by LCM (i.e., adjectives and descriptive action verbs). Adjectives are the most abstract terms, and refer to a characteristic or feature qualifying different persons, objects or situations. We found a larger number of adjectives in the past tense condition than in the present condition. In contrast, descriptive action verbs are the most concrete category, and were more frequent in the present than in the past tense. These verbs refer to a single specific action with a clear beginning and end and with a physically invariant feature (e.g., walking).

All in all, our results suggest that the analysis of verb tense is a fruitful and optimal strategy for manipulating construal level, contributing to our understanding of the factors underlying it. The use of the simple past tense allows people to take into account the most general information contained in the message (i.e., the *leitmotiv*), so that the event described will be perceived as having lower probability and the agent will be perceived as having lower familiarity. When the simple present tense is used, the audience focuses on specific details, blurring the general message but attributing high likelihood to the event and perceiving the target as familiar. Current research suggests that health promotion campaigns should be careful when delivering messages, as verb tense can reduce or increase appraisals of the probability of the events described and the agent's perceived familiarity. For instance, on designing emotional messages such as fear appeals, use of the simple present tense to describe a situation can increase the emotional reaction and thus make the event appear closer and more vivid. Therefore, our findings dovetail with previous research regarding verb aspect, while confirming that mental representations are changed by *simply reading or writing* about a person's behavior or an event using the past tense or present tense

In addition to highlighting how language affects cognitive operations and behavior (Semin, 2000), these findings specifically support the link between language and construal level, showing new applications of the use of language in social cognition. Our research stresses the importance of analyzing language to better understand how communication affects

psychological processes. By lacing together verb tense and construal level and identifying the given abstraction level, we open the door to a better understanding of the role of language in social psychology.

RESUMEN

Cómo el tiempo verbal afecta a la interpretación de las acciones: El pasado simple conduce a las personas a un nivel de representación abstracto. Dos experimentos examinan la influencia del tiempo verbal en el nivel de abstracción con el que las personas representan las acciones. El Experimento 1 mostró que descripciones escritas de eventos cotidianos utilizando el pasado simple indefinido (vs. presente simple) daba lugar a que las acciones descritas y los protagonistas de las mismas fueran evaluados como menos probables y menos familiares respectivamente. En el Experimento 2 los participantes escribieron sobre un episodio personal de borrachera (usando el tiempo verbal pasado simple vs. el tiempo verbal presente simple) y esas narraciones fueron analizadas utilizando el Modelo de Categorización Lingüística (LCM) (ver Semin & Fiedler, 1991). Los resultados mostraron que el episodio era descrito con mayor nivel de abstracción cuando las narraciones habían sido escritas utilizando el pasado simple indefinido (vs. presente simple). Los resultados son discutidos en el contexto de la influencia de otras formas verbales y en relación al nivel de constructo con el que se representan las acciones.

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APPENDIX

Instructions in Verb tense manipulation (Experiment 2):

"Piensa en una situación en la que hayas bebido alcohol en exceso. Por favor, describe lo sucedido. Por exigencia del programa de análisis lingüístico que vamos a utilizar, te pedimos que uses en tu descripción de los hechos EXCLUSIVAMENTE VERBOS EN TIEMPO PASADO SIMPLE (pasado indefinido) (p.e. yo llegué, ellos hablaron, yo me senté…)// TIEMPO PRESENTE SIMPLE (p.e. yo llego, ellos hablan, yo me siento…). POR FAVOR USA SIEMPRE ESTE TIEMPO VERBAL en tu relato es muy importante que cumplas esta instrucción para facilitar el análisis de tu respuesta".

English version

"Think of a situation in which you drank too much. Please describe what happened. Given the requirements of the linguistic analysis program we are going to apply, we ask you to use, in your description of the events, ONLY VERBS IN THE SIMPLE PAST TENSE (indefinite past) (e.g., I arrived, they talked, I sat down)// PRESENT SIMPLE (e.g., I arrive, they talk, I sit down). PLEASE USE THESE VERB TENSES AT ALL TIMES in your narrative; it is very important that you follow these instructions so as to facilitate the analysis of your response."