TIME, PERSPECTIVES, VERBS, AND IMAGINING EVENTS

Jeffrey P. Hong, Todd R. Ferretti and Deanna C. Hall
Wilfrid Laurier University

1. Introduction

Representations of imagined events differ in content according to factors such as perceived importance, duration, sensory experience, and vividness. Imagined events also differ in the manner in which temporal information is represented. For example, varying representations of duration are associated with specific events and particular temporal event segments (beginning, middle, end) may be more or less salient for different events (Madden & Ferretti, 2009).

Several linguistic properties can guide the temporal layout of situation models. For example, tense defines an event's date of occurrence as being in the past, present, or future relative to time of speaking. Furthermore, alterations to the narrative timeline force the updating of situation models, creating more cognitive difficulty (Anderson, 1983; Ditman & Kuperberg, 2008; Dwivedi, Phillips, Laguë-Beauvais, & Baum, 2006; Zwaan, 1996).

Grammatical aspect (GA) is morphosyntactic information that references the temporal development of events as being either ongoing or completed (Comrie, 1976; Dowty, 1979). The current study is concerned with the imperfective (ongoing; *I was running*) and perfective (completed; *I ran*) forms of GA. Previous psycholinguistic research has shown that GA influences the mental representation of events (Becker, Ferretti, & Madden-Lombardi, 2013; Carreiras Carriedo, Alonso, & Fernández, 1997; Ferretti, Kutas, & McRae, 2007; Ferretti, Rohde, Kehler, & Crutchley, 2009; Magliano & Schleich, 2000). For example, Madden and Zwaan (2003) found that participants were faster to respond to perfective sentences paired with pictures of completed events than perfective sentences paired with pictures of ongoing events. Conversely, no difference was found for the imperfective sentences, regardless of image provided.

Ferretti et al. (2007) has also examined the role of GA in activating event knowledge. Participants in this experiment read sentences describing actions occurring in locations where they would be commonly expected to occur (high-expectancy condition, e.g., *The diver was snorkelling in the ocean*) or would not be commonly expected to occur (low-expectancy condition, e.g., *The diver was snorkelling in the pond*). Sentences in this experiment were phrased either in the imperfective or in the perfect aspect. EEG was used to record electrophysiological responses as participants read sentences. Differences in two ERP components were expected and analyzed: The N400 and Slow Cortical Potentials (SCPs). The N400 is a negative amplitude that peaks 300-500 ms following stimulus onset. In language processing, the N400 is often used as an index of semantic expectancy (Kutas & Hillyard, 1980). As such, Ferretti et al. (2007) analyzed N400 amplitudes as an index of the expectancy for various locations during sentence processing. The researchers also analyzed SCP amplitudes as an index of cognitive load associated with the processing and integration of locative prepositional phrases in sentences. Following the reading of sentences in the imperfective, but not in the perfect

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aspect, participants were found to exhibit more negative N400 amplitudes in response to low-expectancy versus high-expectancy locations. The researchers concluded that imperfective stimuli are more likely to cause participants to develop expectations for common event locations, whereas locative information in perfect sentences is less expected, regardless of location commonality. As is indicated by differences in SCP amplitudes, these violations of expectation led to greater difficulty of information integration into situation models.

The present research examines how Lexical aspect (LA) and GA interact to constrain event representations. LA refers to the inherent temporal properties of different situation types (Vendler, 1957). For example, accomplishments are verbs (e.g., *build*) that possess natural endpoints and are therefore considered to be telic. Alternatively, activities (e.g., *act*) do not possess natural endpoints and are considered to be atelic. Recent research by Yap et al. (2009) has shown that people have more difficulty constructing mental representations of events when GA forces completion status on events without natural endpoints (activities), or when GA forces ongoing status on events with natural endpoints (accomplishments). Participants in this research heard sentences describing events that contained accomplishment or activity verbs that were phrased in imperfective or perfective aspect. Following each auditory stimulus, participants were presented with a pair of pictures that depicted two variations of the previously heard event: the ongoing event or the event's completion state. Participants were, as quickly as possible, to select the picture most closely described by the preceding sentence. Response times for activity sentences were faster when stimuli were phrased in the imperfective as compared to the perfective aspect. Conversely, accomplishment sentences led to faster selection times when phrased in the perfective as compared to the imperfective aspect.

The current study measures variations in Slow Cortical Potentials (SCPs) while people imagined events. SCPs typically have an extended time course that can last from a few hundred milliseconds to a number of minutes. Several studies have found greater SCP amplitudes to indicate levels of cognitive effort associated with language processing (e.g., Ferretti et al., 2007; King & Kutas, 1998). Importantly, past research has shown that difficulty in the generation of Autobiographical Memories (AM) and imagined events is associated with increases in SCP negativity over different head locations (Conway et al., 2003). Experiment 1 measures SCPs to index the difficulty of imagining events as a function of GA and LA, whereas Experiment 2 measures SCPs to index difficulty with adopting a first or third person perspective during imagining. This article begins with the presentation of two experiments and their corresponding results followed by a discussion of results for both studies.

2. Experiment 1

2.1. Method

Participants

Participants were 50 (29 female) students from Wilfrid Laurier University, ranging in age from 18-21 years. All participants were right-handed native English speakers. Participants were granted course credit for their participation.

Materials

The experimental stimuli consisted of 46 activity verbs and 46 accomplishment verbs. A Google search of the activity and accomplishment verbs was conducted to ensure they did not differ in frequency across their aspectual forms. A GA (imperfective vs. perfective) X LA ANOVA was conducted on the collected frequencies. Verb stimuli were not found to differ based on GA, $F(1,180) = 1.27$, $p > .26$, LA, $F(1,180) = 1.06$, $p > .30$, and there was no GA X LA interaction, $F(1,180) = .39$, $p > .53$. These verbs were presented in short statements that always began with the pronoun "I". Half of the phrases were presented in the imperfective form (e.g., *I was skating*) and the other half presented in the perfective form (e.g., *I skated*). Thus, there were 4 conditions presented in the form of the following examples (1):

(1) Imperfective Accomplishment: I was building
Perfective Accomplishment: I built
Imperfective Activity: I was acting
Perfective Activity: I acted

Two experimental lists were created such that each participant saw each verb only once and received 23 trials in each of the 4 conditions. Across the 2 lists, each verb appeared in both its imperfective and perfective form. Each list also contained 2 additional trials at the beginning that served as practice trials.

A booklet was provided to each participant that consisted of a set of questions to be answered following each trial. These questions included 1) the perspective of the imagined event; from my eyes (first person) / looking at self (third person), 2) sensory vividness (sight, touch, taste, smell, sound) on a 1-7 scale (1 = not at all, 7 = very), 3) vividness of people, objects, and locations on a 1-7 scale (1 = not at all, 7 = very), 4) the temporal component of the events imagined (beginning, middle, end), 5) the number of people and objects present in the imagined event, 6) the estimation of the duration of the imagined events in the real world, and 7) the importance of the imagined events in the real world (1 = not at all, 7 = very).

Procedure

Participants were seated in an electrically shielded room facing a monitor and a push-button switch. Participants were then outfitted with an EEG cap. Participants were instructed to imagine themselves participating in the event that appears on the screen. It was emphasized that the imagined action should not simply be a memory. On each trial the stimulus presentation began with a "Ready?" prompt, to which participants responded by pressing a button to begin the trial. Following this prompt, a fixation, "XXXX", was presented in the centre of the screen for 5000 ms. Participants were instructed to focus on this fixation. The fixation was followed by a stimulus phrase with either the first (perfective condition) or first two words (imperfective condition) presented one at a time in the centre of the screen. These words were always presented for 300 ms and then followed by 200 ms of blank screen). The last word in the phrase (i.e., verbing/verbed) remained on the screen for 8 seconds. After the verb was on the screen for 8 seconds, it was replaced by the instruction, "Record answers now". Participants then completed the behavioural questionnaire regarding the properties of the preceding imagined event.

EEG Recording

The electroencephalograph (EEG) was recorded via a cap that contained 64 Ag/AgCl electrodes distributed evenly across the scalp. Electrodes were placed on the left infra and supra orbital ridge of each participant as well as the outer canthii. EEG was processed through a Neuroscan Synamps2 amplifier, set at a bandpass of 0.05-100 Hz and digitized at 250 Hz. Electrical impedance was kept below 5 KΩ.

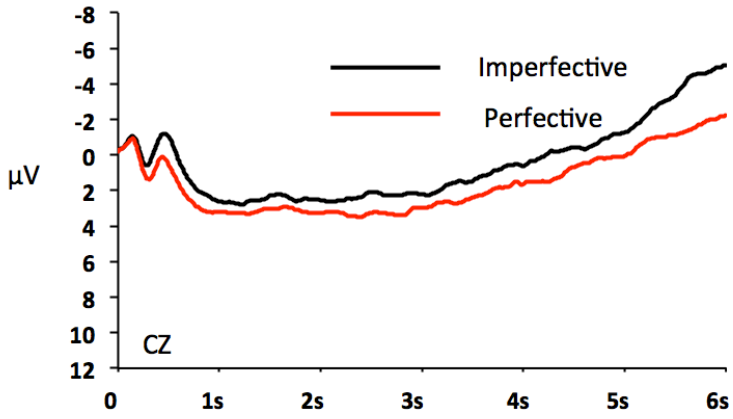
2.2. Results

EEG Results

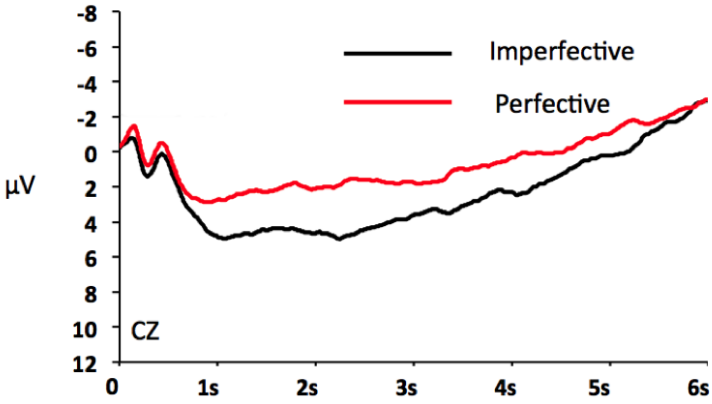
The raw data was re-referenced off-line to the average of the left and right mastoids. A low-pass filter set at 30 Hz was applied to remove high frequency noise. Trials contaminated by artifacts (blinks, excessive muscle artifacts, etc.) were removed before averaging. ERP averages were then created for each participant that spanned 200 ms before the onset of the verbs in each phrase to 6 seconds following the verbs. For analysis purposes, the averages for all participants were separated into 500 ms time segments for the first 3 seconds following the onset of the verbs in the phrases, and then separated into 1000 ms segments for the remaining 3 seconds of the imagining period. The shorter time measurements for the first half of the imagination periods allowed examination of changes in amplitudes that reflect the transition from comprehending the phrases to actively trying to imagine the events over the six second period.

A significant GA/LA was found for the 4 time blocks spanning the 0-2000 ms time range, (all p's < .04). Planned comparisons were conducted to determine the nature of these interactions. For the 0-500 ms time block, imperfective-accomplishment cues were associated with more negative SCP amplitudes than were perfective-accomplishment cues, $F(1,48) = 4.36$, $p < .05$ (2). For the 1000-1500 ms and 1500-2000 ms time blocks, perfective-activity cues were associated with more negative SCP amplitudes than were imperfective-activity cues, $F(1,48) = 5.49$, $p < .03$; $F(1,48) = 5.15$, $p < .03$ (3). A GA/Anteriority interaction was also observed for the 0-2000 ms time range, $F(4,192) = 14.89$, $p < .001$; $F(4,192) = 8.12$, $p < .001$; $F(4,192) = 10.23$, $p < .001$; $F(4,192) = 4.85$, $p < .02$. Imperfective stimuli were associated with greater negativity in anterior regions in the early and late phases of imagining. Perfective stimuli were associated with greater negativity in central and posterior regions in the early and middle phases of imagination.

(2) Accomplishment SCP Amplitudes:



(3) Activity SCP Amplitudes:



Behavioural Results

Behavioural results indicated that participants more often used the first-person perspective than the third-person perspective, based on activity stimuli than based on accomplishment stimuli. This was also the case for perfective-accomplishment stimuli as compared to imperfective-accomplishment stimuli. See below for a summary of the behavioural results (4).

(4) Behavioural Means:

Measure	Activities Imperfective	Activities Perfective	Accomplish-ments Imperfective	Accomplish-ments Perfective
Perspective (%)	63.7	65.6	**53.7**	**58.0***
Sight (1-7)	4.778	4.811	4.922	4.998
Smell (1-7)	1.956	2.028	2.001	2.017
Sound (1-7)	3.353	3.346	3.909	3.821
Taste (1-7)	1.51	1.435	1.542	1.594
Touch (1-7)	3.749	3.744	3.392	3.397
Location Vividness (1-7)	**4.21**	**4.085***	4.527	4.592
Object Vividness (1-7)	4.683	4.601	4.146	4.137
People Vividness (1-7)	**4.013**	**3.842***	4.454	4.436
Beginning (%)	37	36.6	38.6	38.3
Middle (%)	**82.2***	**78.5**	82.9	82.4
End (%)	**22.5**	**31.1***	**20.2**	**26.4***
People (Number)	4.368	4.211	10.351	9.261
Objects (Number)	6.053	8.89	8.01	9.097

*$p < 0.05$

3. Experiment 2

The purpose of Experiment 2 was to investigate the influence of visual perspective on the representation of imagined events. This experiment was motivated by the finding in Experiment 1 that perspective use varied based on GA and LA of imagined-event cues.

A series of studies conducted by Nigro and Neisser (1983) examined whether people tended to recall past events from a first- or third-person perspective. In one study, participants read sentence-long descriptions of familiar events and were told to recall specific events from their past in response. For events rated highly on self-awareness and emotionality, it was found that participants were more likely to adopt the third-person perspective (looking at self) than the first-person perspective (looking from one's eyes). However, first-person recollections were usually those that had occurred more recently and were rated higher in vividness than third-person events.

Further research on perspective by Macrae, Raj, Best, Christian, and Miles (2012), has shown that the visual perspective taken during an imagined event can have an impact on social perceptions. Participants who were told to imagine talking to an individual while holding a hot cup of coffee associated that individual with a higher degree of social warmth in comparison to those told to imagine the same interaction but while holding an iced coffee. These results were observed only for those who imagined the conversation from the first-person as opposed to the third-person perspective. These results emphasize the idea that certain methods of sensory perception can be enhanced when utilizing a first-person perspective, and that this can impact the outcome of social judgements.

The present experiment adds to this small but growing body of literature by examining how perspective-taking influences brain potentials (SCPs) during event imagining. We begin our examination by focusing on activities. These events are naturally represented as ongoing because they do not have inherent endpoints.

3.1. Method

Participants

Participants were 42 (34 female) students from Wilfrid Laurier University and other persons from the surrounding area, ranging in age from 18-51 years. All participants were right-handed native English speakers. Participants were granted course credit or paid $22 for their participation.

Materials

The experimental stimuli consisted of the same 46 imperfective activity verbs used in Experiment 1. These phrases began with the pronoun "I". Each of these phrases was preceded by instructions to imagine the described event, "From my eyes", while the other half were preceded by instructions to imagine the described event from the perspective, "Looking at self".

Two experimental lists were created for counterbalancing purposes. Verb phrases were presented in the same order in both lists but with each phrase being preceded by the opposite perspective instruction from the other list. Each list also contained 2 additional trials at the beginning that served as practice trials.

Similar to Experiment 1, a booklet containing a short questionnaire to be answered after every trial was also provided to each participant.

Procedure

The procedure for Experiment 2 was identical to that of Experiment 1, save for two differences: Each "Ready?" prompt was followed by an instruction to imagine the event described by the coming verb phrase from a given perspective; and final word of the phrase only remained on the screen for 5 seconds.

EEG Recording

The EEG recording parameters were identical to Experiment 1.

3.2. Results

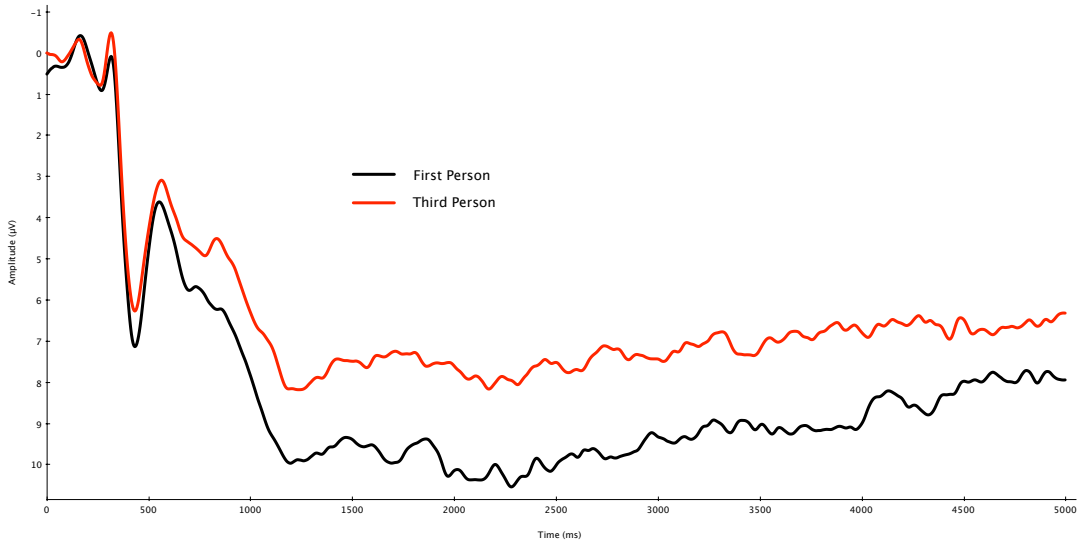
EEG Results

The mean amplitudes for each temporal region of interest were subjected to a Perspective (first-person vs. third-person) X Anteriority (prefrontal vs. frontal vs. central vs. parietal vs. occipital) X Hemisphere (left vs. right) X List (1 vs. 2) ANOVA. A significant main effect of perspective was found for the 3 time blocks spanning the 500-2000 ms period, $F(1,48) = 4.9$, $p < .04$; $F(1,48) = 4.37$, $p < .05$; $F(1,48) = 4.65$, $p < .04$ (5). Imagination from the third-person perspective was associated with greater SCP negativity than imagining from the first-person perspective in these time blocks.

A GA/Anteriority interaction was observed for the time blocks from 500-3000 ms, $F(4,160) = 3.62$, $p < .02$; $F(4,160) = 4.35$, $p < .01$; $F(4,160) = 4.46$, $p < .01$; $F(4,160) = 3.98$, $p < .01$. Planned contrasts revealed that the third-person perspective was associated with greater negativity than the first-person perspective in these time blocks for prefrontal, frontal, central, and occipital regions but not for parietal regions.

Results from the behavioural questionnaire showed that imagining from the first-person perspective was associated with greater vividness of touch than was imagination from the third-person perspective, $t(47) = 2.60$, $p < .05$. Other ratings of sensory vividness, with the exception of sight, also displayed a trend in this direction (6).

(5) Perspective SCP Amplitudes:



(6) Behavioural Means:

Measure	First-person	Third-person
Sight (1-7)	4.993	4.976
Touch (1-7)	3.416*	3.164
Taste (1-7)	1.471	1.339
Smell (1-7)	1.869	1.780
Sound (1-7)	3.812	3.733
People Vividness (1-7)	4.280	4.429
Object Vividness (1-7)	3.995	3.921
Location Vividness (1-7	4.354	4.515
Difficulty (1-7)	2.888	2.841
Beginning (%)	38	40
Middle (%)	79	78
End (%)	14	16
People (Number)	15.983	31.451
Objects (Number)	8.966	10.082
Duration (Seconds)	1081262.107	1328378.252
Importance (1-7)	3.258	3.280

*$p < 0.05$

4. General Discussion

The results of the SCP analyses in Experiment 1 revealed that LA and GA interacted to influence the ease of imagining events. Amplitudes were more negative when phrases contained perfective activities relative to imperfective activities throughout the first 6 seconds of the imagination period. Alternatively, over the same period amplitudes were more negative for imperfective accomplishments than perfective accomplishments. This crossover interaction reached significance or was marginally significant up to 4 seconds into the imagination period. These results show that imagining events without natural endpoints (activities) as completed, or imagining events with natural endpoints (accomplishments) as ongoing, is more difficult than when the same events are referenced as ongoing or completed, respectively.

It is important to note that the GA by LA interaction began within 500 ms of the onset of the verbs, which is likely to be a period that still captures comprehension of the phrases in general. Later time frames are less likely to capture comprehension per se and more likely to reflect the participants actively trying to imagine the described events. In this regard, the current findings show that GA and LA had a similar influence on the electrophysiological correlates associated with comprehending and imagining the events described in the phrases. It is possible, however, that the task demand of actively imagining the events is leading to the similarities in the results between the early and later time frames.

The results of Experiment 1 extend recent research by Yap et al. (2009). Recall that this study employed a picture-matching task and used matching latencies as a measure of cognitive effort. In that study and the present study, GA and LA were found to interact in a similar manner. The results of both studies point to the conclusion that activities require more effort to mentally represent in the perfective than in the imperfective form and that accomplishments require more effort to represent in the imperfective than in the perfective form. Experiment 1 builds on the findings of Yap et al. (2009) by showing that GA and LA similarly constrain the imagination of events when cued by written stimuli, and provides electrophysiological evidence of the effects of differences in GA/LA on event representation.

The SCP results in Experiment 1 also demonstrated either a significant or marginally significant interaction between GA and anteriority across all time regions examined. Mean amplitudes were more negative for imperfective than perfective aspect at prefrontal and frontal locations, whereas amplitudes were more negative for perfective than imperfective aspect at posterior locations. During the last second of the measured imagination period, amplitudes were more negative for imperfective than perfective aspect at all topographical areas, although this difference remained much larger at anterior head locations. According to Conway et al. (2001; 2003), left prefrontal cortex activation during the process of event construction is associated with the retrieval of knowledge relevant to the real or imagined event being represented, while occipital-temporal activation is associated with accessing sensory-perceptual information. Thus, the current research suggests that event construction based on imperfective phrases is more effortful than event construction based on perfective phrases. Conversely, sensory-perceptual information is more accessible given imperfective cues as compared to perfective cues.

The behavioural findings demonstrated that the people and locations in the imagined activities were more vivid when the phrases were in the imperfective than perfective form. In contrast, GA had no influence on the vividness of people and locations for accomplishments. Our findings suggest that when participants imagine events, enhanced vividness of people and locations is obtained for imperfective aspect when the events have an ongoing nature and no natural, temporal endpoint. These findings are consistent with Ferretti et al.'s (2007) finding of enhanced activation of location knowledge for imperfective events. Accomplishments and activities differentially influenced vividness for the different event properties examined. For example, accomplishment phrases led to higher vividness ratings for people and locations, and also higher ratings for sensory attributes of sight, sound, and taste. In contrast, activity phrases led to higher vividness ratings for imagined objects and the sensory attribute of touch.

Imagined accomplishments were rated as more important than imagined activities. This result is consistent with previous research, which has found that more important events elicit more vivid event recollections (Conway & Pleydell-Pearce, 2000).

Participants rated the activities as having longer "real world" durations than the accomplishments. They also indicated that they imagined more people for accomplishment phrases, but a similar amount of objects for both verb types. The imperfective aspect was found to increase the number of objects present in the imagined events, but this effect was only found for activity verbs.

As expected, the middle component of events was imagined with greater frequency for activities than for accomplishments. This component was also imagined more frequently based on imperfective-activity verbs than based on perfective-activity verbs. This result is consistent with previous literature that has found that imperfective and activity verbs to be associated with a focus on the ongoing stage of events (Madden & Zwaan, 2003; Yap et al., 2009).

Perfective stimuli were found more often than imperfective stimuli to lead to representations of an event's end. This result is consistent with the idea that perfective stimuli place focus on the endpoints of events (Madden & Zwaan, 2003). Unexpectedly, participants indicated that they represented the end of events more often following activity stimuli than following accomplishment stimuli. This finding highlights the need for further investigation into the roles of GA/LA in shaping the temporal element of event representation.

Regardless of event cue, participants were most likely to represent events from the first-person perspective than from the third-person perspective. However, the frequency of first-person perspective usage was influenced by the GA/LA of stimuli. Specifically, imagining from the first-person perspective seems to occur more for activities than it does for accomplishments. It was also found for accomplishments that the spontaneous use of the first-person perspective occurred more readily given in the perfective than when given in the imperfective form.

Taken together, these findings show that events that are naturally ongoing or that naturally have a goal that is obtained, lead to event representations that are consistent with reliving the events (i.e., embodied) as opposed to a third person (or disembodied perspective). As such, our findings extend previous research examining perspective-taking while forming event representations (Avraamides & Kelly, 2005; D'Argembeau &

Van der Linden, 2012; Eich et al., 2009; Ferretti & Katz, 2010; Nigro & Neisser, 1983; Valenti, Libby, & Eibach, 2011).

The SCP results of Experiment 2 indicate that imagining activities requires greater cognitive effort when imagined from the third-person as compared to the first-person perspective. This effect was evident from 500 ms after the onset of the final word of the phrase ("verbing") and lasted at least another 3500 ms while people continued to imagine the activity. Topographical analysis further revealed that event imagination was more difficult from the third-person perspective than from the first-person perspective in prefrontal, frontal, central, and occipital regions. Notably, this effect was consistently not found for electrode sites located over parietal regions. It is also interesting to note, from topographical contrasts, that this effect was observed for prefrontal, frontal, and occipital regions in the 3000-4000 ms timeframe but that, in this same timeframe, this effect becomes only marginally significant in central regions. In the subsequent 4000-5000 ms timeframe this effect remains significant in the prefrontal, frontal, and occipital regions, while becoming non-significant in central regions.

Collectively, the observed pattern of SCP negativity indicates that imagining from the third-person perspective is associated with greater cognitive effort than imagining from the first-person perspective across various timeframes and topographical regions. This effect begins in prefrontal/frontal regions, becomes more widely distributed across the scalp (with the exception parietal regions), and is observed only in prefrontal/frontal and occipital regions in the later period of analysis.

A possible explanation for the observed absence of a perspective-based difference in parietal regions comes from participant-reported ratings of sensory vividness. The senses of smell, sound, taste, and touch would be expected to diminish with decreasing physical proximity. A representation from the third-person perspective necessarily involves the usage of a viewpoint that is at least somewhat physically removed from the representation of the self, taking part in the cue-described action. Thus, vividness of smell, sound, taste, and touch would be expected to be lesser for third-person than for first-person representation. Indeed, behavioural measures showed vividness of touch to be greater for first-person versus third-person perspective representation. There was also a trend towards greater vividness from the first-person versus the third-person perspective for smell, sound, and taste. The aforementioned absence of a perspective-based difference in parietal regions may be explained by the increased cognitive effort required to represent these senses with a greater degree of vividness for the first-person than for the third-person perspective.

A possibility for why differences in vividness of taste, smell, and sound did not reach statistical significance is due to the particular list of verbs used in this study. As uncovering differences in sensory vividness was not the primary focus of this study, the currently employed verbs were not designed to evoke events that feature any particular sense with a great degree of salience. It is hypothesized that these differences would reach statistical significance, given a stimulus list featuring a variety of sensory-rich events.

A number of previous examinations have used fMRI to investigate how changes in perspective use are reflected in the fMRI blood-oxygen-level dependent (BOLD) response, in various neural regions, during the representation of autobiographical memories (Eich et al., 2009; Freton et al., 2013). This body of research has found

perspective-related differences in a number of neural regions. In all regions in which perspective-related responses were found, response levels were either equivalent for first-person and third-person perspective recall or were greater for first-person than for third-person perspective recall. SCP negativity has previously been taken as an indicator of neural activation, including sub-cortical activation (Conway et al., 2001; Skinner & Yingling, 1976) as indicated by BOLD responses (He & Raichle, 2009; Nagai et al., 2004). Thus, the SCP amplitudes recorded in the current study may be indicative of a similar difference in activation as that observed in previous research. As with GA/LA in Experiment 1, differences in perspective-taking behaviour were associated with differences in the cognitive effort required for event representation.

5. Conclusions

Collectively, these two experiments investigated how event imagination is affected by GA/LA and perspective use. Experiment 1 established that perspective tendency and ease of event imagining differed as a function of the GA/LA of stimuli. Experiment 2 extended this finding by establishing the causality and directionality of the relationship between perspective and the ease of event imagining. This research provides novel insight into the electrophysiological correlates of event imagination, including information on the timeline and topography of SCP responses to imagining events, as this process is impacted by differences in GA/LA and perspective use.

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