

CHARLES UNIVERSITY  
FACULTY OF ARTS

DOCTORAL THESIS SUMMARY

*Gesture and Eventuality*  
*A Crosslinguistic Study*

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# 1 Introduction

This thesis deals with multimodal construals of events in Czech and English. Specifically, it explores the association of gestural formal features (movement manner and ending) and semantic features that constitute an aspectual contour of an event (i.e. the construal of the temporal and qualitative unfolding of an event).

The present study follows on from the previous research on gesture and eventuality expression in various languages. Apart from providing evidence from languages that have not yet been approached comparatively in this respect, the present study departs from the previous research in three major aspects:

- (i) focus on gesture production “in the wild” rather than during narratives in controlled settings;
- (ii) analysing the data using multifactorial methods and usage-based factors;
- (iii) embedding the analysis into the Multimodal CxG framework.

The study was carried out in two stages: first, a corpus survey was performed to analyse the multimodal eventuality expressions spontaneously produced by speakers of English and Czech in interactional settings. Subsequently, a behavioural experiment was conducted, designed to validate the findings of the production part of the study from the comprehension perspective (with Czech subjects only).

## 2 Theoretical and methodological background

Three notions related to the integration of gesture with speech into a single meaningful unit are central to this study. First is *multimodal utterance* or *multimodal expression* (Enfield, 2009; Kendon, 2004), which refer to an aggregate of speech and gesture segments combined to convey the same content. A type of multimodal utterance, *multimodal construction* (Andr en, 2010; Zima and Bergs, 2017) is a conventionalized and entrenched multimodal form-meaning pairing that is, in both production and perception, processed as a gestalt-like unit. The third key term is *multimodal construal*, which refers to a cognitive operation underlying the production and comprehension of multimodal utterances.

In the domain of multimodal expression of event structure, the evidence accumulated by previous studies (McNeill and Levy, 1982; Duncan, 2002; Becker et al., 2011; Parrill et al., 2013; Hinnell, 2018; Cienki and Iriskhanova, 2018) converges towards a linkage between the *complex* types of gestures (i.e. gestures with salient movement modulations within the gesture stroke or by repetition of the stroke) and *imperfective* or *open*

aspects (Frawley, 1992). In particular, there is a strong evidence for an association between complex gestures and the English *progressive* verb forms. Gestures that exhibit some kind of BOUNDARY marking have been associated with *perfectivity* in general, or to Aktionsarten that either highlight the event's ending or its punctual nature.

Across languages, event BOUNDEDNESS may be embodied in the forms of co-speech gestures which can be considered conventional to a certain degree, whereas the unbounded events *per se* do not seem to be systematically associated with specific gestural forms. However, some types of unbounded events, particularly those with grammaticalized verbal representations (such as the English *progressive*), may be associated with recurrent formal features (such as various types of complex gestures).

This study presents a novel approach that can overcome some problematic issues of the previous studies. An onomasiological approach to the linguistic encoding of eventuality is adopted, drawing on William Croft's (2012) model of event semantics. Analysis of gesture is based on the phonological features and uses the parameters from the annotation system developed by Jana Bressem (2013).

Croft's model is two-dimensional, it captures an event's progress on temporal (*t*) and qualitative (*q*) axis. It elaborates on the canonical Vendler's (1967) distinction of the four situational types: *achievements* (ACH), *accomplishments* (ACC), *activities* (ACT) and *states* (STATE). These four types are further classified into specific *aspectual types* and *subtypes* determined by their aspectual contours understood in terms of profiling of event's *phases* unfolding along the *q*- and *t*-axis. Two additional features are relevant for the description of aspectual contours: *directedness*, that refers to the event pointing towards a natural endpoint, and *incrementality* which concerns the character of an event's phasal structure. In this study, an adapted version of the model (Lehečková under review) was applied. Table 1 provides an overview of the model.

Gestures were annotated with respect to (i) *outer boundedness* and (ii) *complexity*:

- (i) *ended* (e) gestures are characterized by a visually discriminable, abrupt stop (Figure 1), whereas *continuous* (c) gestures progress gradually, without a marked halt or rapid deceleration of the movement (Figure 2);
- (ii) *complex* gestures are characterized by internal phases marked by repeated movements (multiple strokes) that either "divide up" the event into bounded segments by a sequence of ended movements or introduce unbounded complexity to the event profile by continuous movements, as in a repeated cyclic gesture. Figures 1 and 2 both depict complex gesture types.

The modification of Croft's model together with the compositional approach to gesture boundedness allows for addressing not only the association between the event and gestural boundedness as such but also – and above all – to investigate potential gesture-speech integration at the level of event contours.

<b>Vendler class</b>	<b>aspectual (sub)type</b>	<b>characteristics</b>	
<i>state</i>	state	does not involve change on q-axis; holds for a certain time span (potentially also temporally unbounded on both sides) ( <i>contain, be a teacher</i> )	
<i>activity</i>	undirected	q-unbounded (no natural endpoint implied); the internal structure of the process can be construed either as cyclic (similar internal phases) or heterogeneous (dissimilar internal phases); ( <i>bark, run, breathe, sing</i> ); including inactive actions ( <i>sit, lie, think, consider</i> )	
	directed	incremental	q-unbounded, but a natural endpoint implied, not profiled; gradual development of an event ( <i>running a mile</i> )
		non-incremental	q-unbounded, but a natural endpoint implied, not profiled, heterogeneous development of an event ( <i>be looking for a solution</i> )
<i>accomplishment</i>	directed	incremental	q-bounded (a natural endpoint profiled), durative, gradual development of an event ( <i>run a mile</i> )
		non-incremental	q-bounded (a natural endpoint profiled), durative, heterogeneous development of an event ( <i>sort it out</i> )
<i>achievement</i>	cyclic	punctual/semelfactive, q-bounded change from one state to another point in time (extreme contraction on time axis) ( <i>sneeze once, give a wink</i> )	
	directed	t-/q-bounded, change within a limited t-phase ( <i>push down</i> )	

Table 1: *Simplified model of aspectual types (adapted from Croft, 2012)*

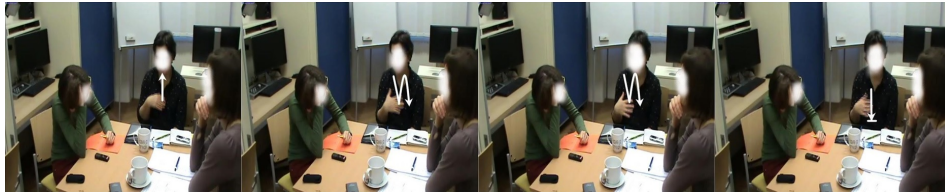


Figure 1: *Ended gesture with multiple ended phases*



Figure 2: *Continuous gesture with multiple continuous phases*

### 3 Corpus study

Based on the aggregated evidence from the previous studies, the following assumptions were postulated for the corpus part of this study:<sup>1</sup>

- (i) *ACH* and *ACC* (i.e the telic aspectual types) will tend to attract ended gestures in both languages;
- (ii) the directed subtypes will also tend to attract ended gestures in both languages;
- (iii) the incremental subtypes will, in both languages, tend to attract complex gestural forms;
- (iv) the English *PRG* will be associated with continuous and/or complex gestures;
- (v) in Czech, ended and continuous gestures will tend to cluster together with *PFV* and *IPFV*, respectively.

#### 3.1 Material

The English production was sampled from the AMI corpus (Carletta, 2006). It consists of more than 100 hours of recordings of business meetings, with native as well as non-native participants (all meetings held in English).

Four sessions from the AMI corpus were selected as the English sample, featuring meetings of 3-4 people, mostly native speakers of English. The non-native speakers were excluded from the analysis (as well as one native speaker who produced almost no speech or gesture), leading to the final number of 9 speakers (mean age of 29)

<sup>1</sup>The results of the corpus study were published (Jehlička and Lehečková, 2020).

whose speech and gesture production was analysed. Each session lasted on average 46 minutes and the total duration of the subcorpus is 3 hours and 4 minutes.

The Czech counterpart to the AMI corpus was built from scratch for the purpose of the present study. All recordings were made in Prague at the Faculty of Arts of Charles University with faculty members and students in 2016–2017. Some of the participants were (to various extent) aware of the multimodal corpus project, some were not. Such a heterogeneity within the participant group was intended as it made the Czech subcorpus perfectly comparable to the English subcorpus.

Four sessions were recorded with 2–5 speakers and the total number of 9 speakers. All speakers were native speakers of Czech with an average age of 33 years.

### 3.2 Annotation

In total, 575 multimodal units (multimodal constructs) were annotated: 332 in the English subcorpus, 243 in the Czech subcorpus. Nineteen cases were discarded from the final analysis due to coding issues – these cases were instances where gestural input was necessary for attributing an aspectual type.

Table 2 provides an overview of the annotation categories.

<b>variable</b>	<b>values</b>
<i>aspectual type</i>	achievement, accomplishment, activity, state
<i>incrementality</i>	incremental, non-incremental
<i>directedness</i>	directed, undirected
<i>gesture boundedness</i>	ended, continuous
<i>gesture complexity</i>	simple, complex
<i>complement number</i>	singular, plural
<i>complement countability</i>	countable, uncountable
<i>complement definiteness</i>	underdeterminate, determinate, indeterminate
<i>modifier boundedness</i>	bounding, non-bounding
<i>negation</i>	yes, no
<i>aspect</i>	English: progressive, perfect, simple Czech: imperfective, perfective

Table 2: *Overview of the variables*

A part of the dataset (18%) was annotated for gestures independently by two coders. The degree of agreement was substantial with  $\kappa= 0.79$  and raw agreement in 75.25% cases. Such a level of agreement suggests that the parameters of the annotation scheme were well operationalized – crucially, the formal features selected for annotation were indeed distinguishable by human coders.

In the case of eventuality types, 19.20% were annotated by two coders. The inter-annotator agreement was lower than in the case of gestures, but still acceptable: Cohen’s  $\kappa= 0.55$  (i.e. moderate agreement), with raw agreement rate at 64.49%. A

relatively weaker agreement was to be expected: aspectuality types are rather elusive semantic constructs as the speaker may profile the same event as ACH or ACT, and the actual construal depends on a number of contextual cues, including gestures. Gestures, as the dependent variable in the present study, could not be taken into account when coding eventuality.

### 3.3 Results

Figure 3 and Table 3 show the distribution of the combinations between gesture outer boundedness types and general aspectual types (Vendler classes).

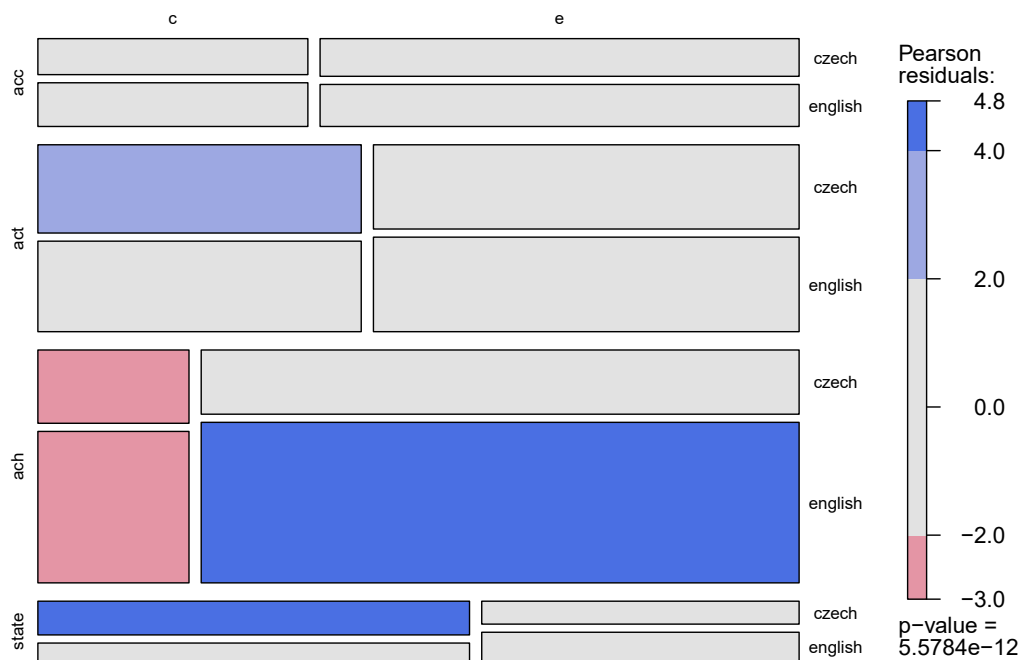


Figure 3: *Mosaic plot – associations between gesture boundedness and Vendler classes in English and Czech samples*

	outer bound.	Vendler class			
		ACH	ACT	ACC	STATE
<i>Czech</i>	e	0.38	0.36	0.19	0.08
	c	0.17	0.43	0.16	0.24
<i>English</i>	e	0.57	0.24	0.13	0.06
	c	0.31	0.40	0.17	0.12

Table 3: *Relative frequencies of gesture outer boundedness – Vendler class combinations*

The *e*-types are significantly ( $M^2_{(3)} = 37.244, p < 0.001$ ) associated with ACH in English, while the *c*-types are underrepresented with ACH in both languages. ACT and

ACC, classes sharing the feature of *durativity* and the *incrementality* distinction, while still more frequently co-occurring with *e*-gestures, have a greater proportion of *c*-gestures. In Czech, the observed frequency of *c*-gestures was significantly greater than expected. Lumped together, the distribution of outer boundedness types with ACC does not show a significant difference, while with STATE, *c*-gestures are significantly more frequent in Czech.

The relative frequencies of simple and complex forms with the particular Vendler classes are presented in the Table 4.

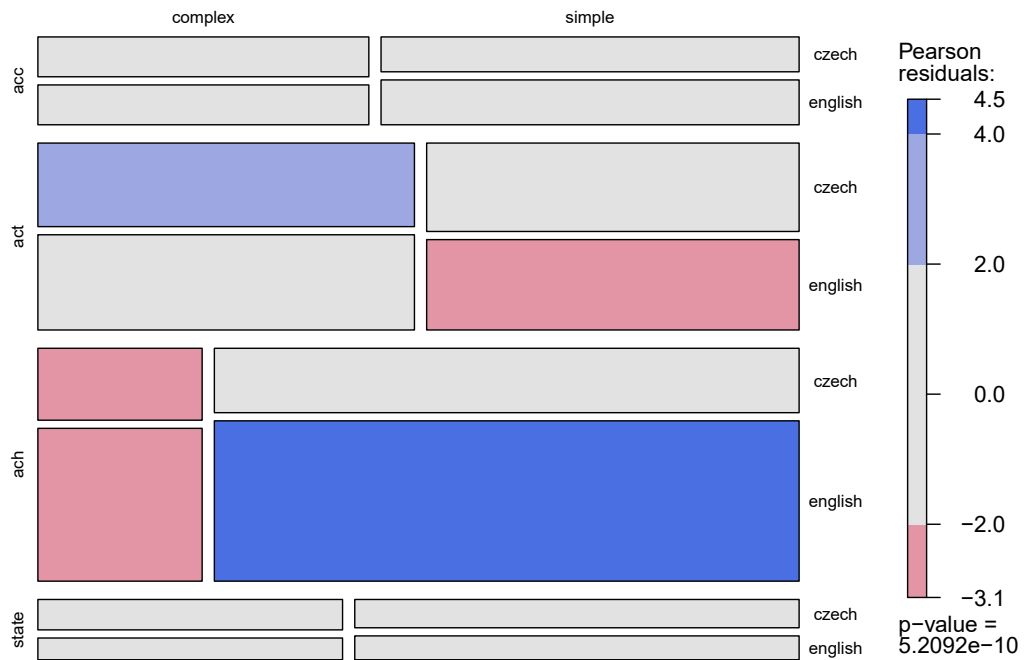


Figure 4: Mosaic plot – associations between gesture complexity and Vendler classes in English and Czech samples

	complexity	Vendler class			
		ACH	ACT	ACC	STATE
Czech	simple	0.38	0.33	0.15	0.14
	complex	0.17	0.47	0.21	0.15
English	simple	0.59	0.21	0.13	0.07
	complex	0.30	0.44	0.17	0.09

Table 4: Relative frequencies of gesture complexity – Vendler class combinations

The mosaic plot (Figure 4) reveals significant associations between complexity and ACH and ACT ( $M^2_{(3)} = 36.422, p < 0.001$ ). A pattern similar to the above plot (Figure 3) is not surprising as outer boundedness and gestural complexity were highly correlated:



the majority of *c*-gestures occurred in complex forms – 77%, compared to only 16% in the case of *e*-gestures. Importantly, this pattern was present in both languages),

In the former case, simple gestures are significantly over-represented in English and complex gestures are significantly underrepresented. In both languages, there are twice as many simple gestures with ACH than complex one, in English the majority of all simple gestures (60%) occurred with ACH. An opposite tendency was found with ACT in both languages. The positive association with complex gestures was significant in Czech, in English there was a significant value of a negative Pearson residual in *simple*-ACT combination.

To investigate the role of the finer-grained aspectuality features (directedness and incrementality) as well as the other factors and the interactions between the individual variables, a *conditional inference trees* and *random forests* analysis (Tagliamonte and Baayen, 2012) was used – a non-parametric alternative to logistic regression models suitable for the datasets violating the regression assumptions (which is the case of the present study).

As regards the gesture *outer boundedness* in English, it is the aspectual types and aspect that predict the distribution of ended versus continuous gestures – with ACH with the highest prevalence of *e*-gestures and ACT (realized by PRG forms) mostly attracting *c*-gestures. The multimodal pattern associated with ACH may be attributed to their internal structure: ACH take place in a very limited time span, which is either compressed to a mere point in time, as in cyclic ACH (*hiccup (once)*), or partially extended (in directed ACH, e.g. *Something happened there*) but relatively shorter than in other aspectual types, especially ACC that are durative and directed. Thus, the relatively limited period during which ACH develop, seems to be the strongest trigger for the presence of ended gestures in English. The second finding, i.e. the patterning of *c*-gestures with ACT in progressive forms, is in line with the previous findings (Duncan, 2002; Parrill et al., 2013). Both of these results confirm the initial predictions. According to the model 1, it is also the complement number that explains the variation of outer boundedness types within non-ACH + non-PRG cluster (which supports the theoretical account of aspectuality encoding in English, cf. e.g. Filip, 1999). However, this might very well be a side effect of the correlation between gesture boundedness and complexity: ended gestures tend to occur in simple forms whereas continuous gestures are typically complex – in this cluster, cases with plural complements had indeed higher proportion of complex gestures (0.62) compared to singular complements (0.39). Throughout the data, a pattern is apparent that gestural boundedness and complexity closely interact and it is often hard to tease the individual effects apart.

In the English dataset, gestural *complexity* is linked, on the one hand, to progressiveness and, on the other, to incrementality, which, in both cases, can be straightforwardly attributed to specific aspects of the corresponding aspectual contours. For activities expressed in progressive forms, it is the relative internal unboundedness of this construal that prompts the gestural profiling as the most prominent feature, the

complex gesture being the proper choice for supporting this aspect.

In the Czech dataset, the grammatical distinction of PFV versus IPFV aspect correlates with the distribution of gesture boundedness types. From the perspective of aspectual types, this also corresponds with the distinction between ACH and ACC on the one hand and ACT and STATE on the other, i.e. there are only marginal instances of  $q$ -unbounded (*atelic*) perfectives as well as only one type of TAM constructional pattern of  $q$ -bounded IPFV in Czech.

As for the gesture complexity, we should again be reminded that it correlates with gestural boundedness (in Czech data, 75.56% of  $c$ -gestures were complex). Bearing in mind the lower predictive power of the model, it indeed suggests the same pattern – with a prominent role of directedness and incrementality. Another possibly noteworthy pattern (although with limited evidence at the moment) emerges from the combinations of continuous and simple gestures. In Czech, there is a tendency of these gestures to accompany STATE predicates with a simple internal contour, referring to mental states, attitudes or intentions (such as *vědět* (‘know’), *potřebovat* (‘need’) or *těšit se* (‘look forward’)). However, this pattern is based on only a limited number of instances and needs to be further attested on a larger sample.

## 4 Experimental study

The aim of the experimental study was to investigate to what extent Czech speakers perceive the multimodal patterns observed in the corpus study as *multimodal constructions*, in particular the  $e$ -gestures + directed events and the  $c$ -gesture and undirected events encoded in IPFV. This question is addressed by assessing the speakers’ judgements about “congruent” and “incongruent” combinations between gesture outer boundedness types and aspect (and directedness).

The analysis of the speakers’ sensitivity to multimodal constructions was based on three types of data:

- (i) participants responses in a forced choice task based on presentation of two sentences differing in aspect (and, in some cases, directedness), otherwise identical;
- (ii) reaction times required to perform the task;
- (iii) participants sensitivity’ to the experimental conditions reflected by the measures from the Signal Detection Theory framework (Swets et al., 1961).

### 4.1 Methods

Building upon the previous studies (primarily on Becker et al., 2011, and Becker and Gonzalez-Marquez, 2018), the experimental study was assisted by a combination of

data sources that has not yet been exploited (in this combination) before in gesture-speech comprehension experiments: the stimulus material used in the present study was designed with the help of (i) *corpus data*, (ii) native-speaker linguistic intuition (data from a special-purpose *rating study*) and (iii) *motion capture* (MoCap) data.

The experimental study involved two kinds of stimulus items: gestures and sentences. In order to test the assumptions about multimodal constructions with PFV and IPFV verbs, the idea behind the design of the stimulus sentences was that they should represent “aspectual minimal pairs”, i.e. pairs of identical sentences that differ only in the verb’s aspect.

Prior to construction of the stimulus sentences, a list of verbs was selected in a two-stage process. First, a list of one hundred most frequent transitive verbs (regardless of aspect) was obtained from the Czech National Corpus (Křen et al., 2016, version Syn2015). After the exclusion of the verbs that were not transitive, the bi-aspectual verbs and the (*im*)*perfectiva tanta*, the list consisted of 61 verbs.

The second stage of the selection process considered what I call the *gestural affordance* of the verbs, i.e. the fact that meanings of certain verbs afford representation in visuo-motoric modality easier than others. To rule out possible interference of gestural representation of the lexical meaning of the verbs, only the verbs with low gestural affordance were suitable for the purposes of the present study. The degree of gestural affordance was estimated by means of a rating study. As a proxy of gestural affordance, the established lexical subjective norms of *imageability* (Paivio et al., 1968) and *sensory experience* (Juhász and Yap, 2013) were used.

The list of 61 verbs was rated by 12 native speakers of Czech in terms of the degree to which the verb evoked a vivid sensory or motoric experience. The least imageable verbs belonged to *verba cogitandi* or verbs of mental states (e.g. *know*, *find out* or *decide*), the verbs with high imageability ratings were all verbs of physical action or object manipulation (e.g. *throw*, *enter* or *write*). Twenty-four least imagineable verbs were selected for the stimulus items. The stimulus sentences were all simple transitive sentences with a verb-final word order and in the past or present tense. The PFV sentences were all directed ACH or directed non-incremental ACC, the IPFV included directed as well as undirected ACT and STATE, however, as most of the verbs in the sample did not allow for an aspectual pair that would also differ in directedness only three sentence pairs out of 24 involved an undirected IPFV predicate.

The examples below illustrate the two types of sentence pairing: PFV<sub>dir</sub> – IPFV<sub>undir</sub> (1) and PFV<sub>dir</sub> – IPFV<sub>dir</sub> (2).

- (1) A (IPFV): *Aritmetiku jsem dobře chápal.* — B (PFV): *Aritmetiku jsem dobře pochopil.*  
(‘I had a good grasp of arithmetic / I understood arithmetic’)
- (2) A (PFV): *Ten zápas jsme vyhráli.* — B (IPFV): *Ten zápas jsme vyhrávali.*  
(‘We won / were winning the match’)

To account for the possible effect of the predictors that were found important in the production study, the stimulus items varied in terms of the object number and deixis.

As distractors, 14 sentence pairs were used with the same syntactic structure as the critical items, but with two different verbs (partly selected from the high-imageability verbs from the rating study).

The video stimuli captured a person producing a single gesture and were recorded using a motion-capture system to provide an exact assessment of the phonological parameter in question: the slope of acceleration and deceleration. To ensure that the gesturer's rendition of an ended (simplex) gesture in contrast to a continuous (simplex) gesture really involved a clearly distinguishable difference in the execution of the stroke phase.

The experiment was distributed online and was completed by 40 subjects who were presented with videos (gesture production without sound, half of the critical stimuli contained an *e*-gesture, half a *c*-gesture), followed by two sentences. Their task was to decide which of the presented sentences belongs to the video. Responses and reaction times (RT) were recorded.

Figure 5 depicts the setting of the stimulus videos as well as the visualization of the motion capture data that shows the marked difference in the execution of an *e*- and a *c*-gesture in terms of acceleration.

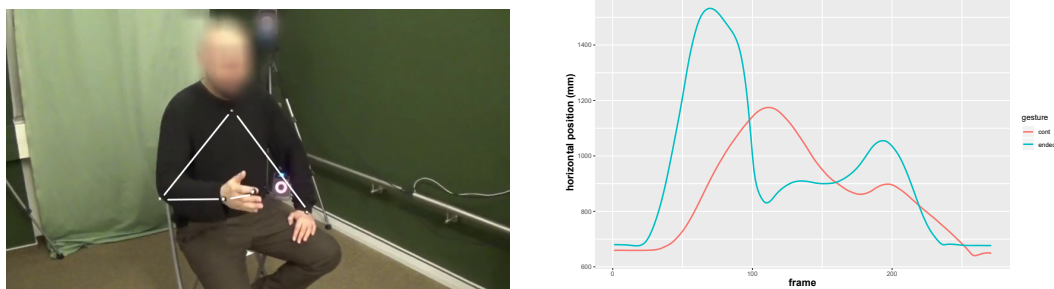


Figure 5: *Left: Setting of the stimulus videos (The white lines highlight the position of the MoCap markers (grey dots) – they were not visible during the stimulus presentation). Right: Horizontal position of the right-hand index finger mo-cap marker during the stroke phase (continuous (red line) vs. ended gesture (blue line) superimposed)*

## 4.2 Results

In both conditions, the majority of responses were congruent with the gesture type. A PFV choice followed after presentation of an ended gesture in 80% of responses. In the continuous gesture condition, 62% of responses were IPFV. Table 5 shows the proportions of particular response types (PFV/IPFV) in the two gestural conditions in interaction with directedness.

response	condition – gesture * directedness			
	cont. (IPFV = undir)	cont. (IPFV = dir)	ended (IPFV = undir)	ended (IPFV = dir)
IPFV	57 (0.71)	231 (0.60)	13 (0.33)	80 (0.19)
PFV	23 (0.29)	157 (0.40)	26 (0.69)	350 (0.81)

Table 5: *Response types in two conditions in interaction with directedness of the IPFV sentence*

Two multiple regression analyses were carried out to investigate (i) the predictors of the aspectual choice and (ii) the factors influencing the participants’ reaction times. As the factors in the model of aspectual choice, a selection of the variables from the corpus study was used: *outer boundedness* of the stimulus gestures, predicate *directedness* of the IPFV sentence, *deixis* and *object number*. The model for the RT data included also *aspect* as predictor as well as an additional variable: *PFV-IPFV frequency ratio*.

A logistic regression model with random effects (subjects and items) was fit for the aspectual choice data. According to the model, the type of gesture was the only significant predictor of aspectual choice (logit coefficient 2.545, SE = 0.552,  $z = 4.608$ ,  $p < 0.001$ ). The model predicts an 89% chance of a PFV response after presentation of an *e*-gesture, compared to a 39% probability of a PFV response after a *c*-gesture.

A generalized linear regression model with random effects (subjects and items) was fit for the RT data. The only significant factor was the gesture type in interaction with the response type ( $\chi^2_{(1)} = 4.93$ ,  $p = 0.026$ ). As simple effects, gesture and response type were not significant. According to a model with fixed effects only, directedness was also a reliable predictor, however, the mixed-effect model was a significantly better fit compared to the fixed-effect-only model.

The analysis of participants’ sensitivity to the stimulus groups ( $d'$  statistic) revealed that the participants were able to discriminate between the conditions and that they had a significant tendency for choosing the PFV responses.

### 4.3 Discussion

Participants’ choice between the two stimulus sentences was driven by outer boundedness of the accompanying gestures. When the presented gesture was ended, subjects chose the PFV sentence in 80% of cases. In the continuous gesture condition, 68% of responses favoured an IPFV sentence. The ended + PFV responses were also characterised by the fastest RT.

Unlike the corpus analysis, the experiment did not reveal an effect of predicate directedness. However, no definitive conclusion can be drawn from this observation, as the undirected predicates, expected to prompt IPFV responses in the *c*-gesture condition, were underrepresented in the stimulus material.

## 5 Conclusion

The findings from the corpus study point towards language-specific patterns. In English, the ended gestures tend to co-occur with the *ACH* predicates most frequently, while the continuous gestures are significantly associated with the progressive predicates. In Czech, on the other hand, *e*-gestures are generally associated with directed and non-incremental predicates. Gestural complexity and outer boundedness were found to be correlated: majority of *c*-gestures occurred in the complex forms, whereas *e*-gestures were typically produced in the simplex form. Thus, it is possible to associate directedness with *e*-gestures and incrementality with complex gestures in Czech. In English, incrementality as well as progressive marking increase the chance of observing complex gestural forms.

The results of the experiment, focusing on perception of multimodal eventuality expressions in Czech, albeit limited, provide evidence for the gestural semantic discrimination effect beyond the level of *concrete* lexical semantics. However, to address the role of gesture in the processing at the level of grammatical constructions, a follow-up experiment is required to factor in the missing piece of the integrated system: the role of prosody and phonetic processing.

While the experiment clearly demonstrated that the association between *PFV* and *e*-gestures is also manifested during the comprehension processes, the results of the mixed-effect regression models did not confirm the effect of directedness. Nevertheless, a closer inspection of the data suggested that the possible effect of directedness cannot be ruled out and needs to be revisited in a follow-up study, taking a different methodological approach that would allow for teasing apart the factors of aspect and directedness.

Two different typological motivations suggest themselves for the crosslinguistic divergencies revealed in the present study. First is the overt morphological marking of aspect in Czech, which may be linked to a greater role of gesture in the construal of finer-grained lexical-semantic features such as directedness and incrementality. In English, gesture takes part in *ACH/ACT* discrimination (in Czech it is marked morphologically by *PFV/IPFV* distinction).

Second, both in English and Czech, specific clusters of gestural forms appear to be associated with different lexicalization patterns at the morphological level. This is the case of English *PRG* constructions and Czech *PFV*.

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## Publications, teaching and research activities

### Publications

#### Peer-reviewed articles

**under review**— [with Martina Vokáčová, Eva Lehečková and Jan Bičovský]

V kůži posledního mluvčího. Případová studie gamifikace výstavy o jazykové diverzitě [In the shoes of the last speaker. Gamifying a linguistic diversity exhibition.]

**2020**— [With Eva Lehečková] Multimodal event construals: the role of co-speech gestures in English vs. Czech interactions. *Zeitschrift für Anglistik und Amerikanistik*, 68(4), 351–377.

**2019** — [with Eva Lehečková] Gestikulace ve sdíleném prostoru jako kooperativní utváření významu (Gesture in shared space as co-operative meaning-making). *Časopis pro moderní filologii*, 101(2), 150–169.

**2018** — [with Eva Lehečková] Multimodální konstrukční gramatika [Multimodal Construction Grammar]. *Studie z aplikované lingvistiky / Studies in Applied Linguistics*, 9(2), 89–103.

**2013** — Benjamin Lee Whorf a kritika hypotézy jazykové relativity [Benjamin Lee Whorf and the refusal of the linguistic relativity hypothesis]. *Studies in Applied Linguistics*, 4(1), 53–73.

#### Book chapters

**2016** — Influence of spatial language on the non-linguistic spatial reasoning of sign language users. A comparison between CzSL signers and Czech non-signers. In: Anja Gattnar – Tanja Anstatt – Christina Clasmeier (Eds.), *Slavic Languages in Psycholinguistics: Chances and Challenges for Empirical and Experimental Research*. Tübingen: Narr Verlag, pp. 279–298

**2015** — Zkoumání jazykové relativity a prostorová kognice. [Exploring linguistic relativity and spatial cognition] In: Monika Czok et al. [eds.], *Między regionalizmami a kosmopolityzmem*, Leipzig – Dresden – Wrocław: Neisse Verlag, pp. 165–173.

**2012** — Ponor do nevědomí jako emblematický rys moderny. (Poznámka k jednomu z aspektů středoevropské literatury konce 19. století) [Descent into the Unconscious as an emblematic feature of the fin de siècle literature. Remarks on one of the aspects of Central European literature of the end of the 19th century]. In: Julia Nesswetha – Zuzanna Czerwonka – Kateřina Rysová [eds.], *Grenzüberschreitungen*, Hildesheim – Zürich – New York: Georg Olms Verlag, pp. 55–66.

## Reviews

- 2019** — The many whys of the psycholinguistics of gesture. (Review of Church, R. B., Alibali, M. W., & Kelly, S. D. (Eds.) (2017). *Why gesture? How the Hands Function in Speaking, Thinking and Communicating*. Amsterdam: John Benjamins.) *Studies in Applied Linguistics*, 10(2), 84–89.
- 2016** — Breaking the myth of Universal Grammar (again). *Studies in Applied Linguistics*, 6(2), 137–144.

## Translations (from English to Czech)

- 2016** — Perniss, P., & Vigliocco, G.: Ikonicitá jako pojítka mezi prožíváním světa a prožíváním jazyka. [Translation of: „The bridge of iconicity: from a world of experience to the experience of language“] *Studies in Applied Linguistics*, 7(1), 139–166.
- 2013** — [with Eva Lehečková]: Evans, N. & Levinson, S. C.: Mýtus jazykových univerzálií: Jazyková diverzita a její význam pro kognitivní vědy. [Translation of The myth of language universals: Language diversity and its importance for cognitive science] In: Eva Lehečková – Jan Chromý [eds.], *Teoreticko-metodologické výhledy současné lingvistiky*. Praha: FF UK, pp. 15–70.
- 2013** — Casasanto, D.: Kdopak by se Whorfa bál? [Translation of Who is afraid of the “Big Bad Whorf?”] *Studies in Applied Linguistics*, 4(1), 77–90.
- 2011** — Whorf, B. L.: Vztah habituálního myšlení a chování k jazyku. [Translation of The Relation of Habitual Thought and Behavior to Language] *Studies in Applied Linguistics*, 2(2), 69–85.

## Reports

- 2018** — [with Hana Prokšová & Lucie Stanovská] Korpus polského znakového jazyka [Corpus of Polish Sign Language]. *Studies in Applied Linguistics*, 9(1), 137–140.
- 2017** — Workshop “Types of Iconicity in Language Use, Development and Processing”. *Studies in Applied Linguistics*, 9(2), 97–101.
- 2012** — [with Eva Lehečková] Lipský workshop dokumentace k projektu dokumentace ohrožených jazyků [Report: Workshop on the documentations of the endangered languages in Leipzig]. *Studies in Applied Linguistics*, 3(1–2), 170–172.
- 2011** — Zimní škola kognitivní psychologie 2011 [Report: Winter School of Cognitive Psychology, 2011], *Studies in Applied Linguistics*, 2(1), 148–150.

## Popularization

- 2020** — [with Eva Lehečková] Nenápadný půvab gestikulace [The Discreet Charm of Gesture]. *Vesmír*, 99(152), 2–4.
- 2019** — [with Eva Lehečková] Ruka pohledem lingvistiky [The hand from the linguistic perspective]. *Umění fyzioterapie*, 7.

## Conference talks and posters

- 2021** — [with Eva Lehečková] “Multimodal aspectual contours: a CxG perspective on gesture and event structure”, *International Multimodal Communication Centre, University of Oxford Research Seminar Series, Hilary Term 2021*, Oxford, United Kingdom, 19 Feb 2021 [online]
- 2020\*** — [talks accepted for presentation at conferences in Aachen, Prague and Atwerp were postponed due to the COVID-19 pandemic]
- 2019** — [with Eva Lehečková, Tomáš Doischer & Martina Vokáčová] “Empirický výzkum stupňování „nestupňovatelných“ adjektiv v češtině”, *1st Conference of the Czech Association for Language & Cognition*, Prague, Czechia, 21—22 Nov 2019
- 2019** — [with Eva Lehečková, Tomáš Doischer & Martina Vokáčová] “The so-called non-gradable adjectives in gradable contexts: the case of Czech”, *The 16th Conference of the Slavic Cognitive Linguistics Association*, Cambridge (MA), USA, 12—14 Oct 2019
- 2019** — [with Eva Lehečková] “Constructional potential of flat-hand–palm-lateral–away-body gestures: a crosslinguistic corpus-based study”, *GeSpln* 6, Paderborn, Germany, 11—13 Sep 2019
- 2019** — [with Eva Lehečková & Magdalena Zíková] “Interplay of information structure, pitch contour, and gesture in spontaneous interactions”, *15th International Cognitive Linguistics Conference*, Nishinomiya, Japan, 6—11 Aug 2019
- 2019** — [with Eva Lehečková] “Taming multimodal constructions in spontaneous interactions”, *Gesture-Sign Workshop Prague '19*, Prague, Czechia, 16—17 May 2019
- 2018** — [with Eva Lehečková]. “Emergence of multimodal constructions in spontaneous conversations”. *Societas Linguistica Europaea*, Tallinn, Estonia, 29 Aug — 1 Sep 2018
- 2018** — [with Eva Lehečková]. “The use of shared gesture space during business meetings: a multimodal corpus-based study”. *2nd Symposium on Embodied Interaction: Gesture, Touch and Embodied Meaning-Making*, 2018, Odense, Denmark, 26—27th June
- 2017** — [with Eva Lehečková] “Eventuality and gesture in Czech and English”. *14th International Cognitive Linguistics Conference*, Tartu, Esto-

- nia, 10—14 Jul 2017
- 2017 — [with Eva Lehečková] The “Iconic-Metaphoric-Deictic-Beat Quartet” revisited: are there really non-iconic co-speech gestures?” *CLS-MPI Iconicity Focus Group Workshop ‘Types of iconicity in language use, development and processing’*, Nijmegen, The Netherlands, 6–7 Jul 2017
- 2017 — [with Eva Lehečková] “Functions of beat gestures in spontaneous interaction: evidence from English and Czech”. *International Conference on Multimodal Communication (ICMC) 2017*, Osnabrück, Germany, 9—11 Jun 2017
- 2017 — [with Eva Lehečková] “Towards multimodal constructions: bounded events, bounded gestures” ICAME38, Prague, Czechia, 24—28 May 2017
- 2017 — workshop “Multimodal corpora: annotation practices, tools and analysis of the (multimodal) spoken and sign language corpus data” (at the *Prague Linguistics 2017 conference*, Prague, Czechia, 29 Apr 2017
- 2016 — “Korpus a multimodalita: vztah gestikulace a gramatiky v mluveném projevu” *Register variation in Czech and Polish*, Berlin, Germany, 14 Dec 2016
- 2016 — [with Eva Lehečková] “Třetí kognitivní revoluce? Jazyk a gesto jako vtělená kognice” [Third Cognitive Revolution? Language and gesture as embodied cognition], *Diskontinuity – ve vědě, umění, zkušenosti*, Prague, Czechia., 2 Dec 2016
- 2016 — “Gesture and eventuality – multimodal constructions in English” *46th Poznan Linguistic Meeting*, Poznan, Poland, 17 Sep 2016
- 2016 — “Alignment of sentence focus and gesture in spontaneous English conversations” *7th conference of the International Society for Gesture Studies*, Paris, France, 18—22 Jul 2016
- 2016 — [with Karolína Vyskočilová] “Vliv osvojování českého znakového jazyka na prostorovou kognici” [Influence of CzSL acquisition on spatial cognition], *Winter School of Cognitive Psychology 2016*, Nepřívěc, Czechia, 5 Feb 2016
- 2016 — “Influence of the acquisition of a sign language on the non-linguistic spatial reasoning” *SheffLing PGC*, Sheffield, United Kingdom, 27 Jan 2016
- 2015 — [with Karolína Vyskočilová] “Mental Rotation Abilities of Czech Speakers and Czech Sign Language Users: Linguistic Effects on Spatial Cognition?” *Slavic Cognitive Linguistics Conference 2015*, Oxford, United Kingdom, 12 Dec 2015
- 2014 — “How differences in encoding of space in Czech Sign Language and in spoken Czech affects the non-linguistic spatial thought of the users of the respective languages.” *Slavic Languages in the Black Box*,

*Workshop on Empirical Psycholinguistics Methods*, Tübingen, Germany,  
26 Sep 2014

## Supervision

- since 2019 — Veronika HYLENOVÁ (Faculty of Education, Charles Uni.):  
*Cups, Mugs and Glasses vs. šálky, hrnky a sklenice: Cross-Linguistic Influence on Czech-English Bilinguals' Drinkware Naming* [BA thesis]
- 2018–2020: — Karolína ŠIKOVÁ (Faculty of Arts, Charles Uni.): *Genderlect in Czech Sign Language: a sociolinguistic analysis of lexicon*, [BA thesis, defended in 2020]
- Since 2018: — Dominika ZOUFALÁ (Faculty of Arts, Charles Uni.): *Analysis of noun incorporation as a basis of future CzSL corpus annotation* [BA thesis]

## Teaching

- 2020–21: Charles Uni., Inst. of Deaf Studies: *Introduction to Sociolinguistics*
- 2018–19: Charles Uni., Dept. of Linguistics: *Bachelor Seminar* (with Tomáš Doischer), *Introduction to Linguistics* (selected lectures), *Introduction to Linguistic Analysis* (with Tomáš Doischer);  
Charles Uni., Inst. of Deaf Studies: *Introduction to Psycholinguistics*, *Introduction to Sociolinguistics*, *Iconicity across Modalities*
- 2017–18: Charles Uni., Dept. of Linguistics: *Bachelor Seminar* (with Tomáš Doischer), *Introduction to Linguistics* (selected lectures), *Introduction to Linguistic Analysis* (with Tomáš Doischer);  
Charles Uni., Inst. of Deaf Studies: *Introduction to Psycholinguistics*, *Introduction to Sociolinguistics*, *Reading of the Contemporary Works on Sign Languages* (with Hana Prokšová), *Czech Sign Language Corpus Project Workshop* (with Hana Prokšová);  
Charles Uni., Inst. of Czech Language and Theory of Communication: *Co-speech Gestures in Czech* (with Eva Lehečková)
- 2016–17 Charles Uni., Inst. of Deaf Studies: *Introduction to Psycholinguistics*, *Introduction to Sociolinguistics*, *Reading of the Contemporary Works on Sign Languages* (with Hana Prokšová);  
Charles Uni., Dept. of Linguistics: *Multimodal communication*

## Foreign stays & other international experience

- Oct 2019 – Mar 2020: RWTH Aachen, Germany, visiting researcher (mentor: Irene Mittelberg)

Jun 2019: University of Birmingham, UK, Birmingham Statistics for Linguists Summer School 2019  
Nov – Dec 2018: University of Sheffield, UK (visiting PGR, supervisor: Dagmar Divjak)  
Feb 2018: University of Warsaw, Poland (Erasmus+ teaching mobility)  
Feb 2016 – Jul 2016: University of Sheffield, UK (visiting PGR, supervisor: Dagmar Divjak)  
Sep 2015 – Feb 2016: University of Sheffield, UK (Erasmus+)  
Sep 2011 – Feb 2012: Ruprecht-Karls Universität, Heidelberg, Germany (Erasmus)

## Scholarships

2015: Anglo-Czech Educational Fund: £8000

## Academic and research positions

since 2018–: Researcher at Department of Linguistics, Faculty of Arts, Charles University, Prague (KREAS project)  
2019–2020: Visiting Researcher at RWTH Aachen, Germany  
2017–2019: Assistant lecturer at Department of Linguistics, Faculty of Arts, Charles University, Prague

## Selected projects

since 2018–: European Regional Development Fund – *Project Creativity and Adaptability as Conditions of the Success of Europe in an Interrelated World*, no. CZ.02.1.01/0.0/0.0/16\_019/0000734 ("KREAS")  
since 2018–: Charles University project Progres 4, *Language in the shiftings of time, space, and culture*  
2019–2020: Charles University project *International Mobility of Researchers at Charles University*. no. CZ.02.2.69/0.0/0.0/16\_027/0008495 – visiting researcher in Germany  
2017–2019: Operational *Programme Research, Development and Education*, no. CZ.02.2.69/0.0/16\_015/0002362 – lecturer  
2013: Faculty of Arts grant, Charles University in Prague (VG068): "Experimentální výzkum mentální rotace u mluvčích českého znakového jazyka a mluvené češtiny" [Experimental research of mental rotation in users of Czech Sign Language and users of spoken Czech]

Other academic, non-academic and organizational activities

since 2020 — National Museum, Prague: education programmes for the Children's Museum

2019 — organization of the *1st Conference of the Czech Association for Language & Cognition*, 21–22 Nov 2019

2019 — organization of the *Gesture-Sign Workshop Prague '19*, 16–17 May 2019

2019 — interactive exhibition *Biosphere of Languages*, HYB4 Gallery, Prague (with Martina Vokáčová, Jan Bičovský, Veronika Pleskotová and Filip Kazda)

since 2018 — organization of the annual *European Day of Languages* festival at Kampus Hybernska, Prague

2018–2020 — member of the Publication committee of the Faculty of Arts, Charles University

2018–2020 — executive editor of the journal *Studies of Applied Linguistics*, ISSN: 0008-7386

since 2017 — secretary of the *Czech Association for Language & Cognition*

since 2017 — member of the interdisciplinary research team *Empirical Perspectives on Communication & Cognition*, Faculty of Arts, Charles University

2017 — organization of the conference *Interakce v socio-kognitivní, antropologické a historické perspektivě*. Faculty of Arts, Charles University, Prague, 11–12 Apr 2017

2015 — member of organizing team of the *14th Slavic Cognitive Association Conference*, Sheffield & Oxford, UK

2014–2018 — editor of the journal *Studies of Applied Linguistics*, ISSN: 0008-7386

2010–2014 member of the Academic Senate of the Faculty of Arts, Charles University