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# POTENTIALS AND LIMITATIONS OF PANTOMIME STORYTELLING

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An experimental study with intersemiotic translation

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## **Abstract**

When in need to tell stories we often find ourselves using not only our words but also accompanying gestures, as well as pictures. However, what if we were to use only gestures to narrate? Would the stories we tell be clear enough to understand? The thesis investigates the potentials and limitations of pantomime, which consists mostly of gesture, for storytelling. Concretely, through a unique two-step approach using intersemiotic translation (from language to gesture and then back to language) the thesis explores whether pantomimic narration used to tell a story can be understood without knowing the specific story – primary narrativity.

An experiment was conducted with 24 participants who formed pairs and took turns telling stories by translating them from English to pantomime and interpreting them by translating them from the observed pantomimes back to English. The material included 15 stories designed to fall into three groups based on the nature of the characters in the stories – generic human (man, woman, boy, girl), specific human (e.g., nurse and patient) and animal (e.g. lion and zebra). It was hypothesised that (a) most of the stories will be accurately interpreted, (b) actions will be the easiest story component to interpret, (c) the stories with specific characters will score less than the stories with generic characters and (d) that animal characters would be harder to communicate than human characters. All hypotheses were corroborated apart from the last, as it turned out that it was hardest to communicate stories with specific human characters.

The results support the potential of pantomime for primary narrativity and highlight the significance in the role of differences in level of semantic detail, or characteristic traits, within each character description. Such differences in the level of detail exist in other components as well which was not taken into consideration and should be of interest for the future research.

*Keywords:* bodily mimesis, cognitive semiotics, common ground, facial expressions, gesture, iconicity, intersemiotic translation, language, pantomime, polysemiotic communication, primary narrativity, secondary narrativity, semiotic systems, signs

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## Chapter 1. INTRODUCTION

Stories are part of daily life. We share our everyday experiences, discuss past events, plan adventures or even make up bedtime stories to put little ones' minds at ease when it is time to enter the dreamland. What life would be like without stories is unimaginable.

Commonly, we formulate stories using language, which can describe anything, including things that do not exist, like fantasy creatures or mythological events. But can we also “tell” stories using only our bodies, through gestures and other non-conventional bodily expressions, without using conventional signed languages, such as American Sign Language (ASL)? In other words, can we communicate a story via bodily movements, gestures, facial expressions, and maybe even some non-verbal sounds – apart from language?

Narratology (e.g., Bal, 2009), the interdisciplinary field of storytelling, usually points out that there are many ways in which a story can be conveyed without language. For example, by means of pictures and sculptures displayed in galleries, by films on tv screens, and perhaps even by purely musical pieces like a piano sonata (Ryan, 2012). But are the potentials of such media, and their underlying *semiotic systems* (see Chapter 2) for storytelling really the same?

The answer to this firstly depends on what is meant by a “story”, and there is lack of consensus in this regard. Minimally, for something to be considered a full-fledged story, it must have a beginning, middle and end structure, as pointed out by Aristotle. In addition, once that is established, a distinction recently made by scholars in cognitive semiotics should be applied: between *primary and secondary narrativity* (Li & Zlatev 2022; Stampoulidis, 2019; Zlatev et al in press). In brief, in the first case, the narration (in a particular semiotic system, for example, gestures) is sufficient for understanding the story. In the latter, knowing the story in advance is a precondition for understanding the narration.

In this thesis, I focus on the narrative potentials and limitations of *pantomime*, understood as a communicative system dominated by gesture (see Chapter 2). Concretely, the question is whether pantomime is expressive and structured enough to allow primary narrativity. The relevance of this topic lies in the fact that pantomime is often mentioned as a precursor and precondition for the evolution of language (e.g., Zlatev et al., 2020) and it is possible that language evolved for the sake of complex storytelling, including the creation and transmission of myths (Donald, 1991).

Recently, Sibierska et al. (2023) and Zlatev et al. (in press) focused on the potential of pantomime to communicate simple and (more) complex narratives and concluded that pantomime is fully capable of primary narrativity when the events are chronologically ordered. As I discuss in Chapters 2 and 3, however, more research is needed to support this claim, including better definitions of what counts as “simple” and “complex” narratives. Therefore, the topic in this thesis is studied by adapting the experimental design of these studies to address the following research questions:

- RQ1. Is pantomime truly capable of primary narrativity?
- RQ2. Does the nature of characters in stories (e.g., human vs. animal) have an impact on the accuracy of communicating and interpreting pantomime-based narratives?
- RQ3. Is it easier to communicate actions than characters, objects, and places in pantomime-based narratives?

The thesis is structured as follows. Chapter 2 provides the relevant theoretical background. Some of the key methodological tools of cognitive semiotics are defined, including various concepts crucial for the argumentation such as pantomime, narrative, primary narrativity and intersemiotic translation. I also review the most relevant recent empirical studies, point out remaining issues, and formulate general hypotheses.

Chapter 3 is dedicated to methodology where the experimental design is explained in detail with the reasoning behind the choices made as well as the operationalizations required for making a quantitative analysis. Chapters 4 and 5 outline the results and discuss possible interpretations and implications. Finally, in Chapter 6 I summarize the study in relation to the research questions and offer suggestions for future research.

## Chapter 2. THEORETICAL BACKGROUND

### 2.1 Cognitive semiotics

Cognitive semiotics is a discipline established in the early 2000s that combines methods and concepts from relevant approaches in linguistics (e.g., Jakobson, 1959), cognitive science (Donald, 1991; Varela et al., 1991) and semiotics (Eco, 1986). For many researchers in cognitive semiotics (e.g., Sonesson, 2012; Zlatev, 2018), this has required the help of phenomenology, the systematic study of conscious experience (Merleau-Ponty, 1956; Sokolowski, 2000; Thompson, 2007; Zahavi, 2003).

*The International Association for Cognitive Semiotics* (IACS) was founded in 2013, and on its web site ([www.iacs.dk](http://www.iacs.dk)) the following characterization of the discipline is given:

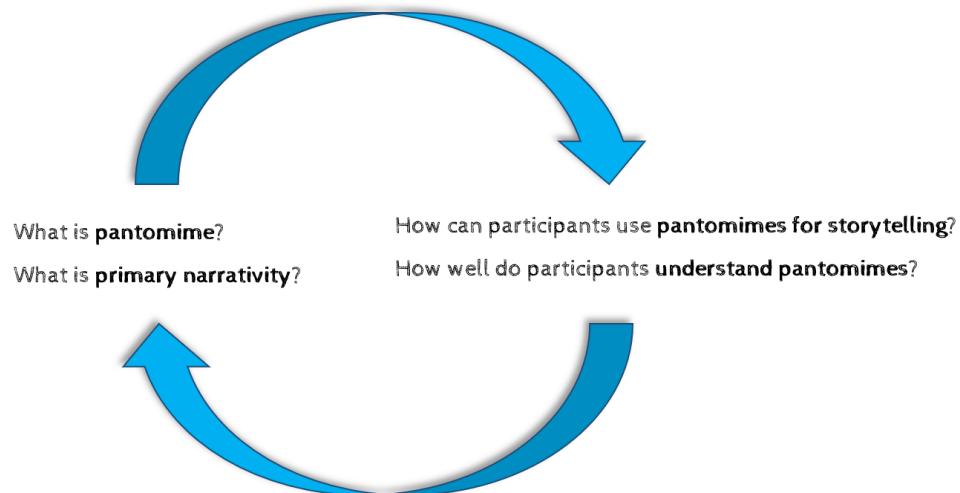
Cognitive semiotics is the study of meaning-making, both in language and by means of other sign vehicles, as well as in perception, and in action. Cognitive semiotics investigates the properties of our meaningful interactions with our surroundings in all domains. We integrate perspectives, methods and insights from cognitive science, cognitive linguistics and semiotics, placing signs and sign use (in the broadest sense) into the wider context of cognitive, social, and neurobiological processes, using experimental methods, as well as classical text analysis and theory.

This section explains some distinguishing characteristics of the cognitive semiotics discipline such as the *conceptual-empirical loop* and *phenomenological triangulation*, and how they relate to the present thesis. I then continue with some key concepts, relevant for the present research, such as *signs* (in contrast with signals) *semiotic systems*, and *polysemiosis*.

#### 2.1.1 Conceptual-empirical loop and phenomenological triangulation

The conceptual-empirical loop is a methodological aid that is characteristic of cognitive semiotics. It highlights that conceptual (i.e., philosophical) and empirical (i.e., scientific) aspects of any study of meaning-making must be interrelated (Zlatev, 2015). The notion emerged in reaction to the largely speculative nature of most studies in traditional semiotics, due to the lack of incorporation of empirical research (Konderak, 2018). On the other hand, it is also a reaction against too empirical approaches in linguistics and cognitive science, which forget the philosophical aspect of their research questions. Schematically, on the conceptual side, there are questions of the type *What is X?* – where X stands for the concepts in focus. Turning to the empirical side, the researcher asks *How does X...? Can X...? Is X...?* etc. From there, the researcher completes the circular movement and returns to the *What is X?* questions on the basis of the results of the empirical research conducted (Mendoza-Collazos, 2022).

Figure 1 shows the conceptual-empirical loop tailored to the purpose of this thesis. I start by asking about the nature of pantomime, narrative and primary narrativity (see Sections 2.2 and 2.3). Followingly, I turn to the empirical methodology of “experimental semiotics” when applied to these notions (Section 2.4) and then develop my own empirical-experimental study (Chapter 3, 4). Finally, I return to the conceptual side in Chapters 5 and 6, outlining how the findings establish a ground for further research.



**Figure 1.** Conceptual-empirical loop design, adapted from Zlatev (2015)

The second key methodological aid, also widely used within the cognitive semiotics discipline is *phenomenological triangulation*, formerly called “methodological triangulation” (Zlatev, 2015) but renamed due to the broader meaning of the latter term. The principle is to use three different kinds of methods, from three different perspectives – first-person perspective, second-person perspective and third-person perspective – in a single study, starting once again from the most “subjective” and ending with the most “objective” (Mendoza-Collazos, 2022; Pielli & Zlatev, 2020).

First-person methods like systematic intuition are subjective in the sense that they are based on the “lived experience” of the researcher, as pointed out by phenomenology (Gallagher & Zahavi, 2008). But they are not subjective in the sense of “private” and “idiosyncratic” as they are based on how the world reveals itself to us in consciousness, in an intersubjective manner (Mendoza-Collazos, 2022). Second-person perspective methods include a certain level of empathy and interaction between the researcher and participant(s). Furthermore, interviews, for example, fall under that perspective too, probing the participant’s experience which consequently provides additional insight relevant to the topic in discussion. Also, engagement with the literature also counts as the second-person perspective, since as Zlatev, Sonesson and Konderak (2018, p. 10) state: “every form of scientific exploration is an act of communication.” Lastly, third-person perspective methods, such as detached observations, experiments, and quantitative analysis, are the most “objective” in the sense of being most



distanced from the object of study. Those follow more or less rigid protocols and principles of scientific ethic, like not allowing modifications to the data so as to “fit” the hypotheses better (Konderak, 2018). But it is important to note that this is still a perspective (i.e., that of the detached scientist and the scientific community), not “a view from nowhere” (Zahavi, 2010).

Table 1 outlines the methodology of the present thesis in terms of phenomenological triangulation. The first-person methods of intuition and reflection allowed me to define and operationalize the key concepts in a way that is relevant for the present study. The second-person perspective concerned interpretations of past theoretical and empirical studies (thus, in “dialogue” with the authors), discussions with my supervisor throughout the various stages of the project, as well as interactions with the participants, who shared their experiences after the experiment. Lastly, the third-person perspective was used when I analyzed the data collected and calculated them based on the established operationalization and specific hypotheses.

**Table 1.** Phenomenological triangulation as applied in the present study, adapted from Zlatev (2015)

<b>Type of perspective</b>	<b>Method</b>	<b>Applied</b>
<i>1<sup>st</sup> person perspective</i>	Intuition-based analysis Systematic reflections	Conceptual analysis Designing the materials
<i>2<sup>nd</sup> person perspective</i>	Empathy Interview	Engaging with literature Discussions with supervisor Interactions with participants
<i>3<sup>rd</sup> person perspective</i>	Experiment Quantification	Conducting the experiment Statistical analysis

### 2.1.2 Signs and signals

In his well-known definition of the sign, Sonesson (2010) provides a concept that is broader than the language-centered notion of Saussure (1916), and yet more constrained than that of Peirce (1894), for whom any kind of meaning-making, even in visual perception, is based on signs. According to Sonesson, the sign consists of *expression* and *content*, in such a way that the former is more directly experienced by the senses (e.g., smoke) while the latter is more “thematic,” or important (e.g., fire). Further, there is a distinction between the content and *referent*. While the content is still something “mental,” the referent is something in the world. The relation between expression and content/referent is that of *semiotic ground*, falling in three different kinds: (a) proximity/space-time contiguity (indexicality), (b) similarity/resemblance (iconicity) and (c) conventionality (symbolicity). A single sign can involve more than one ground (Jakobson, 1965), but usually one dominates, making for example the previous smoke-fire example an *index*, a photograph an *icon*, and word a *symbol*.

Building on Sonesson's sign concept, Zlatev et al. (2020, p. 160) propose the following definition:

DEF. A sign  $\langle E, O \rangle$  is used (produced or understood) by a subject S, if and only if:

(a) S is made aware of an intentional object O by means of expression E, which can be perceived by the senses.

(b) S is (or at least can be) aware of (a).

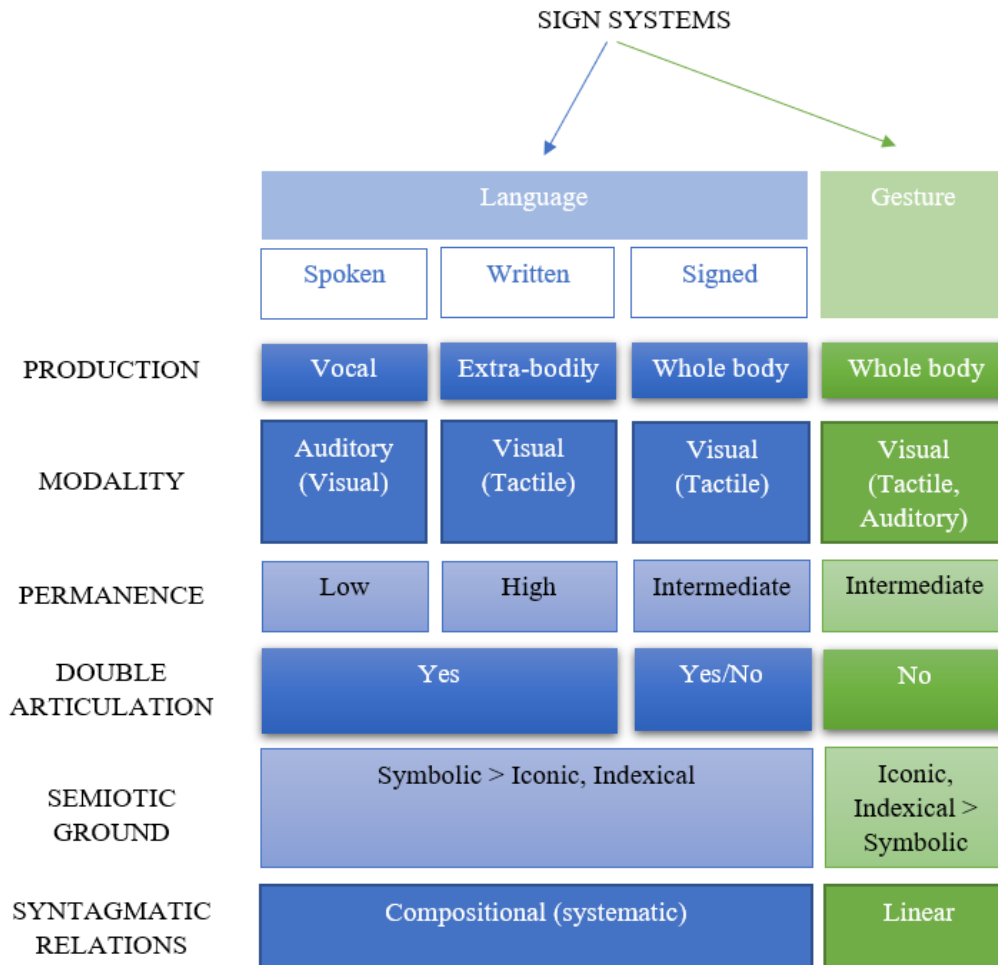
It should be noted that the notion of "intentional object" used in this definition corresponds mostly to that of the referent in Sonesson's, with the difference that this object does not have to exist in the actual world, but only in a "possible world". So, unicorns and dragons are possible examples of intentional objects. The notion of "content" does not figure in the definition, but it can be seen as the *construal* of the object by the particular expression. For example, "dog" and "mut" have the same object but different contents/construals (Zlatev & Möttönnen, 2022).

A key feature of the definition is clause (b), implying that a sign can only be used – interpreted or produced – by a subject with *reflective* consciousness, understanding the directed link between expression and object. This also corresponds to the "double asymmetry" in Sonesson's definition. If (b) is not fulfilled, the semiotic element is a *signal* rather than a sign. Such signals (and signal systems), like human facial expressions and animal alarm calls, are meaningful, but in an automatic, non-reflective way (Zlatev et al., 2020).

Both signs and signals form systems: semiotic systems, which can be divided in sign systems and signals systems. The most relevant for the present thesis are sign systems. Li and Zlatev (2022, p. 2) state that a sign system "consists of signs of a particular kind, and their characteristic interrelations and combinations". I elaborate on this in the following subsection.

### 2.1.3 Sign systems and polysemiosis

The three universal human sign systems are Language, Gesture, Depiction, written with initial capitals to highlight the fact that these everyday English terms are used in a special sense. Figure 2, based on recent work by Zlatev et al. (2020), outlines six criteria that facilitate identification of each sign system in comparison with other systems.



**Figure 2.** The sign systems of Language (in three different kinds) and Gesture, based on Table 1 in Zlatev et al. (2020); the sign system of Depiction was excluded since it is not of primary focus for the thesis

As can be seen in Figure 2, the six criteria concern (a) how the signs are communicated (production), (b) through which perceptual sense they are typically received (modality), (c) how long the expressions are perceivable (permanence), (d) whether they are made up of systematic combinations of meaningless elements (double articulation), (e) the dominant relationship between the expression and the object (semiotic ground), (see Section 2.1.2) and (f) how the simple signs are composed into complex signs, such as sentences (syntagmatic relations).

The sign system of Language can be realized as three different kinds of sub-systems: Spoken language (speech), Written language (writing) and Signed language (signing). The difference lies in the use of the vocal system, extra-bodily tools such as pen and paper, or the whole body as in signing. With respect to modality, vision is the basic modality for both writing and signing, but the tactile sense can also be employed, for example, for books written in Braille for the visually impaired – and must be employed for the specific signed languages of the deaf-blind.

As described by Herrmann (1999), Helen Keller, probably the most famous member of the deaf-blind community, learned several languages, received a PhD, and wrote many books.

Speech is perceived for a limited time, and signing for somewhat longer, given that visually perceived signs can be “held” in the air, but writing can in principle last forever. All spoken languages have phonemes, and most writing systems have graphemes, or other components, and this is also the case for some if not all signed languages. All three sub-systems, however, have their expression-object relations dominated by conventionality, and are in this sense predominantly *symbolic*. These conventions can be used for specifying in detail “who did what to whom” with *grammatical categories* like subject and object, and the relation between propositions can be likewise specified with *connectors* like “because” and “but” (Louhema et al., 2019). Language is, in other words, a more articulated semiotic system than Gesture (Sokolowski, 2000).

The sign system of Gesture is similar to Signed language in that it involves the use of the entire body and is mostly perceived through vision, but also touch and sound (e.g., handclapping). However, its signs are not composed of meaningless elements in a systematic way and the prominent semiotic ground is iconicity (resemblance) and indexicality (contiguity), rather than conventionality. This has implications for the last feature: there is no clear systematicity in the ordering of its signs, and to the extent that they can be combined, this is done linearly, one gesture after another.

It appears that different sign systems have somewhat complementary properties. When a given sign system, such as Language or Gesture, is used on its own, we have *monosemiotic* communication. For example, when speaking on the phone, where the technology does not allow gestures or facial expressions to be transmitted, even when the speaker is using them.

However, by default people communicate with more than one system at the same time: polysemiotic communication, or *polysemiosis* (Zlatev et al., 2023). The most common form of polysemiotic communication is the use of speech and accompanying gestures in face-to-face communication (Clark, 1996). Note that the present approach distinguishes polysemiosis – the combination of semiotic systems – from *multimodality*, understood as the combination of sensory channels in perception: visual, auditory, felt, taste, smell – and possibly proprioception. For example, note that the term “visual” appears for Written and Signed language as the dominant modality in Figure 2, as well as in face-to-face speech: we not only listen to but look at the faces and lips of our interlocutor.

## 2.2 Bodily mimesis and pantomime

### 2.2.1 Bodily mimesis

Donald (1991, 2007) presented one of the most influential models of human cognitive evolution, with a strong influence on cognitive semiotics (e.g., Dunér & Sonesson, 2016). This model consists of four macro-stages, and three transitions, as shown in Table 2.

**Table 2.** Donald’s 4-stage model of human cognitive-semiotic evolution, adapted from (Donald, 2007)

STAGE	KEY FEATURES	COGNITIVE-SEMIOTIC OUTCOMES
Episodic (Primate)	Self-awareness Event sensitivity	Episodic and reactive thought Limited voluntary expression
Mimetic (ca. 2MYA)	Skills improvement Nonverbal communication Shared attention	Mimetic thought Increased variability of custom Pantomime
Mythic (ca. 0,2MYA)	High-speed phonology Oral language Oral social record	Narrative thought Lexical invention Mythic framework of governance
Theoretic (ca. 5000 YA)	Formalisms Large-scale theoretic artifacts Massive external memory	Institutionalized paradigmatic thought and invention

The model assumes that the Episodic stage was shared by our predecessors and other non-human primates at least since 20 million years ago (MYA). But the Mimetic stage, starting with *Homo erectus* or some other ancestor ca. 2 MYA, is what gave rise to the uniquely human trajectory in evolution. According to Donald (1991), this was based on a cognitive adaptation for (bodily) mimesis, which boosted motor skills, social abilities and imagination all leading to the development of communication skills, and eventually sign use (see Section 2.1.2). As Donald (2013, p. 169-170) states:

Mimesis was conceived as an archaic (more than 2 million years old) neuro-cognitive adaptation that formed the initial foundation of a distinctively human mindsharing culture. This innovation ultimately enabled hominins to create the rudiments of a community of mind (or more properly, a community of brains). Although it was primarily an adaptation for refining skill, it was also the first step towards the formation of shared cognitive-cultural networks, so characteristic of human beings, which would serve as a means of accumulating culturally stored knowledge and skill. This had consequences for the future evolutionary trajectory of the hominin brain and the eventual shape of human culture. It also established the social conditions in which the later evolution of language became possible.

Especially relevant for the thesis is the transition between the Mimetic and Mythic stages in Donald’s model since it represents the transition from nonverbal communication which includes pantomime (see Section 2.2.2) to language. Donald (1991) places “narrative thought”

first on the Mythic stage, implying that narrative would not have been possible without language. However, this can be and has been questioned: is it not possible to have pre-linguistic narratives (e.g., Boyd, 2018)? And consistently with Donald’s model, language could have evolved in part for the sake of potentiating more complex narratives (Zlatev et al., 2017).

In short, the transition from mimesis to language appears as too blunt in Donald’s model, which is why Zlatev (2005, 2008, 2014) proposed an elaboration of the model, focusing on *bodily mimesis* and defining it with the following features:

- (1) it involves a cross-modal mapping between exteroception (e.g. vision) and proprioception (e.g. kinesthesia);
- (2) it is under conscious control and is perceived by the subject to be similar to some other action, object or event;
- (3) the subject intends the act to stand for some action, object or event for an addressee, and for the addressee to recognize this intention;
- (4) it is not fully conventional and normative, and
- (5) it does not divide (semi)compositionally into meaningful sub-acts that systematically relate to other similar acts, as in grammar (Zlatev, 2014, p. 206).

Since the five elements of the definition can be seen as building atop one another, the outcome is a stage model, called the Mimesis Hierarchy, shown in Table 3.

**Table 3.** The Mimesis Hierarchy of five stages, to be read from left to right, adapted from (Zlatev, 2008, 2014)

Stage	PROTO-MIMESIS	DYADIC MIMESIS	TRIADIC MIMESIS	PROTO-LANGUAGE	LANGUAGE
New capacity	Exteroception proprioception mapping	Volition Representation	Communicative Intentions	Conventionality Normativity	Systematicity
Communication Cognition	Emotional and attentional contagion Neonatal imitation Mutual gaze	Imitation Cognitive empathy Shared attention Mirror self-recognition	Declarative pointing Iconic gestures (Full) Joint attention	One-word utterances Holophrases	Spoken, signed language

On the stage of *Proto-mimesis* – shared with other primates – communication is involuntary and there is a lack of conscious control on production and interpretation. This means that it is limited to signals, such as vervet monkey calls and bee dance, rather than signs (Section 2.1.2). Zlatev (2008) presents “neonatal imitation” as well as emotional and attentional contagion as examples of proto-mimetic behaviors. The second stage in the hierarchy is *Dyadic mimesis*, allowing conscious imitation and full self-other differentiation. However, communicative intention is still absent, which appears first with *Triadic mimesis*, as manifested in pantomime (see below). *Proto-language* still lacks systematic (grammatical) structure, and *Language*

represents the stage that includes all modern languages. A question relevant for this thesis is: what is the nature of triadic mimesis, and what is its relation to narrative?

### 2.2.2 Pantomime

The term “pantomime” is used broadly in the current literature without complete agreement concerning its definition. Often it is understood as synonymous with iconic gesture (Brown et al., 2019), i.e., gestures used are understood due to the resemblance-based semiotic ground. However, if pantomime was the dominant communicative system of mimetic culture, as proposed in Donald’s model, there is no reason to assume that it was completely silent. Żywicznyński et al (2016, p. 315) provide the following definition, in the context of evolutionary studies:

[W]e take pantomime to be a non-verbal, mimetic and nonconventionalised means of communication, which is executed primarily in the visual channel by coordinated movements of the whole body, but which may incorporate other semiotic resources, most importantly non-linguistic vocalisations. Pantomimes are acts of improvised communication that holistically refer to a potentially unlimited repertoire of events, or sequences of events, displaced from the here and now. In doing so, pantomime does not depend on semiotic conventions.

This, however, leaves notions like “mimetic” and “holistically” undefined. Mapping this to the notion of triadic mimesis defined in the previous sub-section makes it much clearer. Thus, Zlatev et al. (2020) propose to define pantomime as follows, which is both conceptual/definitional and makes a strong empirical claim:

a communicative system, with *gesture* as the sign system at its core, but also containing vocalizations, and at least some aspects of depiction. The latter systems would with time evolve into full-fledged speech (a sub-system of language) and drawing (a sub-system of depiction), respectively. We thus propose that pantomime was from its onset *polysemiotic*, combining different semiotic systems, as well as *multimodal*, involving different sensory channels.

This definition highlights that pantomime includes drawing-like movements, to be further developed into Depiction with cultural evolution (Zlatev et al., 2023), which makes it a polysemiotic communicative system. In addition, spontaneous facial expressions are part of pantomime too. These are a separate signal system (Section 2.1.2) and thus another semiotic system, enhancing the polysemiotic nature of pantomime. When vocalizations are included, pantomime turns multimodal – perceivable not solely via sight but also hearing.

Given that Gesture is the semiotic system at the core of pantomime, what kind of gesture should this be? Based on the gesture studies and semiotic literature, Zlatev et al. (2020) propose that “pantomimic gesture” can be defined in terms of the features shown in Table 4.

**Table 4.** The six dimensions, as characteristics of pantomimic gestures, reproduced from Zlatev et al. (2020), Table 3

<b>Dimension</b>	<b>More pantomimic</b>	<b>Less pantomimic</b>
<b>Dominant semiotic ground</b>	Iconic ground	Symbolic ground
<b>Type of iconicity</b>	More primary iconicity	More secondary iconicity
<b>Body</b>	Using more of the body	Using less of the body
<b>Viewpoint</b>	Mostly first-person	Mostly third-person
<b>Space</b>	Action in peripersonal space	Action in extrapersonal space
<b>Modes of representation</b>	More Enacting	More Embodying and Tracing

It is important to read the features of Table 4 as a cline, so that for each dimension the first column represents something that is more typical for pantomime, while the second – something less typical. As pointed out above (e.g., Figure 2), iconicity is one of the dominant semiotic grounds for gesture. However, some gestures are conventionalized, such as *emblems* (OK or PEACE gestural signs) or so-called *recurrent gestures* that are culture-specific (Kendon 2004) – these are less typical for pantomime.

Further, what kind of iconicity? Sonesson (1997) made the important distinction between *primary* and *secondary iconicity*, where the first is the kind that is so transparent that it is sufficient to understand the sign on its basis, as in a realistic drawing. The second is the case when you first need to know what something means to be able to see the resemblance, as in a doodle. Typical pantomimes would be of the first kind, understood through primary iconicity. An emblem like THUMBS-UP is also iconic, since pointing toward the sky is cross-culturally seen as positive, while pointing downward is negative. But this kind of similarity is secondary, as one first needs to know the meaning of the gesture to be able to see it.

Concerning the question of how much of the body should be involved in pantomime (see the definition by Żywiczyński et al. (2016) quote above), this approach is flexible – the more of the body, the more pantomimic, but it is also possible to perform pantomime, for example, sitting.

A gesture can represent its object either as if “from the outside” or “from the inside”, i.e., involving different viewpoints. To account from this, McNeill (1992) and Zlatev and Andrén (2009) used the following terms: *character vs observer viewpoint* and *first-person vs third-person perspective*, respectively. In the first case, the gesture “becomes” the object represented, so to speak: usually something animate, but also an object, as a house. In the second, the object is seen from the side, and gesturally “depicted”.

The fifth dimension, adopted from Brown et al (2019) is how far from the body the represented action or object usually is. Note that this is in principle orthogonal to the viewpoint dimension, as one can “become” a bird, and thus use character viewpoint to represent something in extrapersonal space.



Lastly, there are five different modes of representation, as adopted in the work of Müller (2016). There is (I) *enacting*, where body is mapped to the body of the referent, (II) *moulding* – the use of hand to showcase the shape of the communicated object, (III) *embodying* – the use of certain body parts to represent the communicated object, (IV) *tracing* – the mapping of the movement – and (V) *drawing* – the shape representation in the 2-dimensional view. Zlatev et al. (2020) claim that the first mode is the most pantomimic. Again, note that this is not the same as viewpoint, as a person pantomiming a tree would be doing this from a first-person viewpoint, but this would be embodying, not enacting.

To sum up, the advantage of this approach is that it defines pantomime – and its core system, pantomimic gesture – as a prototype-based concept. That is, the gesture is considered more pantomimic the more features in the six dimensions from the first column it has (see Table 4).

## 2.3 Narrative

### 2.3.1 Structural aspects of narrative

The field of narratology, baptized by Todorov (1969), emerged some fifty years ago to be able to study what narrative is, what are its forms and what can influence its nature such as culture. Bal (2009, p. 3) characterizes the field as follows:

Narratology is the ensemble of theories of narratives, narrative texts, images, spectacles, events; cultural artifacts that ‘tell a story’. Such a theory helps to understand, analyse, and evaluate narratives.

The notion of “narrative,” studied within the narratology field, is much used in the last decades, and arguably overused (Ryan, 2007). Ryan (2007, p. 24) lists various characteristics she believes the notion is represented by:

Narrative is about problem solving.  
Narrative is about conflict.  
Narrative is about interpersonal relations.  
Narrative is about human experience.  
Narrative is about the temporality of existence.

So how should narrative be defined, especially from the perspective of cognitive semiotics? As several researchers point out (e.g., Landa, 2004), Aristotle’s notion of a “a well-constructed plot” remains influential:

A whole is that which has a beginning, a middle, and an end. A beginning is that which does not itself follow anything by causal necessity, but after which something naturally is or comes to be. An end, on the contrary, is that which itself naturally follows some other thing, either by necessity, or as a rule, but has nothing following it. A middle is that which follows something as some other thing follows it. A well-constructed plot, therefore, must neither begin nor end at haphazard, but conform to these principles. (*Poetics* VII)

Note that in this definition, Caesar’s famous “I came, I saw, I conquered” is a (minimal) narrative, while “I saw, I came, I conquered” is not.

The definition offered by Prince (2008, p. 19): “the logically consistent representation of at least two asynchronous events that do not presuppose or imply each other”, often cited in the literature, also highlights the need for coherence in the representation of events. But note that allowing for only two events, as in “John met Mary. They got married.”, the condition from beginning, middle and end from Aristotle is not met.

The characteristics of narrative presented up till now are helpful, but they have assumed that narratives are verbal, i.e., expressed in language. However, as noted in the Chapter 1, and as acknowledged by narratologists, there is no inherent reason to limit the concept in this respect. Thus, Bal (2009), described the concept of a narrative using a three-level structure: *narrative text* (in a particular semiotic system), *story* (how is the story organized/told) and *fabula* (the sequence of events):

A *narrative text* is a text in which an agent or subject conveys to an addressee (‘tells’ the reader) a story in a particular medium, such as language, imagery, sound, buildings, or a combination thereof. A *story* is the content of the text, and produces a particular manifestation, inflection, and ‘colouring’ of a *fabula*; the *fabula* is presented in a certain manner. A *fabula* is a series of logically and chronologically related events that are caused or experienced by actors. (Bal, 2009, p. 5)

This can be presented as in Table 5, using the terms *narration*, *story*, and *fabula* for the three levels, reserving the term narrative for the whole structure. There must be an intrinsically ordered sequence of events (*fabula*) that needs to be organized into a story and expressed in one or another semiotic system (*narration*).

**Table 5.** Three-level structure of narrative, adapted from Li and Zlatev (2022, Figure 4, p. 9)

Level	Explication
<b>NARRATION</b>	Storytelling via one or more semiotic systems: novel, picture book, film, theatre, opera
<b>STORY</b>	Organizing the <i>fabula</i> in terms of beginning, middle and end structure, not necessarily in this order.
<b>FABULA</b>	Logically and chronologically linked series of events

Researchers in cognitive semiotics have used and elaborated on this three-level structure. Diget (2019) applied it to Audio description, where the visually represented events of films are inter-semiotically translated (see Section 2.3.3) for visually impaired audiences. Stampoulidis (2019) applied it to street art, and simplified it, with *underlying story* corresponding to the

lower two levels. Li and Zlatev (2022), from where Table 5 is adapted, applied it to the topic of sculpture also linked to intersemiotic translation.

Such a level or layer-based concept of narrative is intuitive and convenient for operationalization when empirical studies are conducted. However, the way it has been described so far, the focus is on the structure of the narrative and not on how the narrative can be understood. The following section will dive into how this concept of narrative can be used to study understanding narratives, and how it relates to the thesis.

### 2.3.2 Primary and secondary narrativity

Currie (2012) highlights the dynamic nature of storytelling, and thus the focus on *narrativity* – the process of producing and interpreting narratives. As pointed out by Stampoulidis’s (2019, p. 33-34): “narrativity is something that we perform, both when we produce and when we interpret narrative.” In this context, one should consider not only the narrator’s intentions but also the perspective of the interpreter, with potential differences in expectations or diverse points of view (Currie, 2012). This is related to what Stampoulidis (2019) calls *frame setting*, which is not to be understood as an extra layer, but as the background that is presupposed by the narrative: “the sedimented socio-cultural experiential background, which shapes human experience and collective memory, and gives perspectives on shared cultural beliefs, histories and myths.” (2019, p. 33)

More generally, this appears to be a special case of the notion of *common ground*, defined by Clark (1996, p. 93-94) as follows:

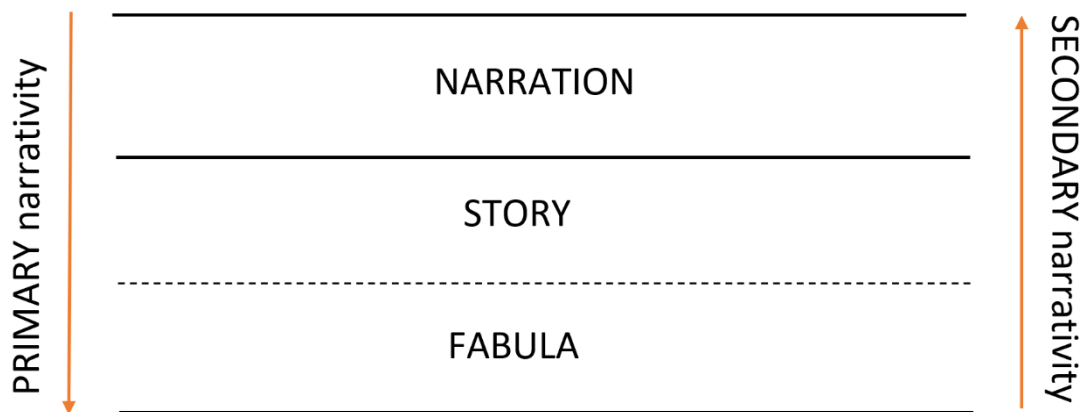
Two people’s common ground is, in effect, the sum of their mutual, common, or joint knowledge, beliefs, and suppositions...common ground is a form of self-awareness – self-knowledge – self-belief – self-assumption – in which there is at least one other person with the analogous self-awareness.

Clark (1996) provides a list of categories which can influence the knowledge within *communal* common ground: nationality, residence, education, occupation, employment, hobby, language, religion, politics, ethnicity, subculture, cohort, gender. The more of these that are shared by participants in interaction, and in our case, in narrativity, the better the communication will be. In other words, this implies that common ground is a backdrop to all communication.

Circling back to narrativity, both Stampoulidis (2019) and Li and Zlatev (2022) make the distinction between *primary* and *secondary narrativity*, inspired by Sonesson’s distinction between primary and secondary iconicity (Section 2.2.2) and interlinked with the three-layered notion of narrative defined above.

As shown in Figure 3, primary narrativity is the process of understanding a narrative based on the narration – when the semiotic system is capable of information transmission without any

prior knowledge of the specific story. Analogous to primary iconicity, the expression side of semiosis must have all the information that is needed to understand the story/fabula: the content. For example, when listening to a fairy tale about a dragon, a princess, a prince and their dynamic interactions, the child does not need to know the story in advance (even though she will need to know at least something about the fairy tale genre and its typical components). Primary narrativity is, in short, how we produce and understand *new* stories. What kind of semiotic systems allow this? Language, as noted in Section 2.1.3, has more articulated structure compared to Gesture, and is a key candidate. But so are some modern media based on depiction, such as cartoon books, and film (Zlatev et al., in press). The potentials of pantomime (2.2.2) for primary narrativity are still under investigation, as described below.



**Figure 3.** Primary and secondary narrativity

In contrast, secondary narrativity presupposes that the story/fabula (or “underlying story” for Stampoulidis) is already known, and on this basis the expression is being understood as narration. Stampoulidis (2019, p. 34) details how this works with respect to Greek street art, “under the constraints of the frame-setting”. Li and Zlatev (2022) analysed the famous statue of the Little Mermaid in Copenhagen as a case of secondary narrativity. In short, participants (from Western and Chinese background) gave very different narrative interpretations of the statue, based on the different prior stories that they already knew, for example the one in the Disney movie, or the original H.C. Andersen fairy tale.

### 2.3.3 Narrative and intersemiotic translation

*Intersemiotic translation*, where a message – such as narrative – is being “moved” from one semiotic system to another, can easily convert the narrative from primary to secondary narrativity (Li & Zlatev, 2022). The notion dates back to Jakobson (1959), where he

distinguished three types of translation: *intralingual*, *interlingual* and *intersemiotic*. The former represents the translation within one language, as in rewording. The middle is the traditional conceptualization of translation, from one language to another. And the latter, the one of interest here, is the translation of the content expressed in one semiotic system to another semiotic system.

Jakobson's (1959) definition of intersemiotic translation was limited since it does not include translation from any other semiotic system but language. However, others have extended the definition, such as the following: "Intersemiotic translation is the transfer of a source message expressed in one or more semiotic systems into a target message that at least in part involves different semiotic systems" (Li & Zlatev, 2022).

The notion has been productive in cognitive semiotics. Louhema et al (2019) opted for investigating translations from monosemiotic (in either pictures or speech) to polysemiotic narratives (in speech and gesture). The study included two groups: one was shown a pictorial story and asked to narrate it, while the other group listened to the story in the form of audio recording. The narrations of both groups included both speech and gestures and differed in characteristic ways. Interestingly, it was those who translated from pictures who produced the most vivid narrations, as well as gestures, for example more often using the Enacting mode (see Section 2.2.2)

Diget (2019) focused on how Audio Description can be understood as a practice that involves intersemiotic translation from a polysemiotic narrative to another polysemiotic narrative, since the target includes a musical score and sounds. But such intersemiotic translation concerns changes in modality (see Section 2.1.3). It was shown how the transition between multimodal (vision and hearing) to unimodal (hearing only) narratives gave rise to challenges, for the translator and the audience.

Based on this short review, it is obvious that there is quite a variety in the semiotic systems and media that have been studied in the context of intersemiotic translation - speech and gestures, statues, audio descriptions – with respect to narrative. So, it is natural to use intersemiotic translation also in the present context, where narration is expressed in pantomime.

However, what all the studies mentioned so far have in common is their "one step" approach: from pictures to speech-gestures, from statue to speech etc. This thesis rather uses a "two step" approach: a narrative is to be first translated from language to pantomime, and then from pantomime (back) to language. Prior to explaining the design of the study, the following section first reviews the most relevant previous studies in the field, thus establishing the gap in the up till now conducted research.

## 2.4 Pantomime in experimental semiotics

Pantomime and its narrative capacity have recently begun to be investigated. The preferred methodology for such studies is based on experimental semiotics which “focuses on the experimental investigation of novel forms of human communication [...] which people develop when they cannot use pre-established communication systems” (Galantucci & Garrod, 2011, p. 1). The key point in this experimental paradigm is to prohibit people from using “their shared language” (Nölle & Galantucci, 2023, p. 68) and to explore both the potentials of other semiotic systems, and to see if novel ones can emerge.

With respect to pantomime, Zlatev et al. (2017) designed a matching experiment where one set of participants had to inter-semiotically translate from a matrix of pictures showing 4 kinds of *agents* (man, woman, boy, girl) engaged in four *actions* (kissing, waving, pushing, slapping) to pantomime. The outcomes were unimodal (gestures only) and multimodal (gestures with non-linguistic vocalizations) pantomimes. Another group of participants had to match these pantomimes to the depicted events from the original matrix. The results showed significant success, but the polysemiotic pantomimes (with vocalizations) not only were not more effective than the unimodal ones, but less so. It was only in the case of recognizing emotions that the vocalizations helped, but this did not help the general task, as the four kinds of actions were so different that participants never confused them, e.g., slapping from kissing.

Żywicznyński et al. (2021) adapted the experimental design of the former study and shifted its focus on cultural background differences. Yet again, the participants were exposed to video recordings of (monosemiotic) pantomimes based on the matrix of pictures, but these were produced by mimers of different cultures, Italian and Polish. The task was again to match the recorded pantomimes with the original pictures, but the participants were also from the two different cultures. The hypothesis was that when the person pantomiming and the person matching the performance had the same culture, the matching rate would be higher, due to a higher degree of common ground (see Section 2.3.2) in the way the pantomimes were performed. However, the results showed that the pantomimes performed by the Italian group were more successful, irrespective of the culture of the matchers. Arguably, there was more (expressive) iconicity in the pantomimes of the Italians, which is in line with the presumed dominant semiotic ground of pantomime (see Section 2.2.2).

However, in none of these studies was the message to be communicated/translated a narrative. Sibierska et al. (2023) extended the experimental semiotic paradigm in this respect, focusing on three-event stories, including solely two characters, a man and a woman. Pairs of participants were asked to “play a game,” where they took turns to (a) translate the three-event narratives from language to pantomime and (b) to match the observed pantomime with one of four comic strips. When the selection was completed, the participants received feedback in the form of a smiley or frown face on the computer screen. Two of the comic strips were of a different narrative, and thus relatively easy to rule out. But the key ones were

of the *same fabula but different stories* (see Section 2.3.1) – in different orders, corresponding to the way they were given in language to begin with. For example, (1) and (2) show two such different stories.

(1) A man opened the door. He saw a bear. He ran away.

(2) A man ran away, because when he opened the door, he saw a bear

The results showed that participants were highly successful when the narratives to be inter-semiotically translated via pantomime were of the first, “chronological” type, and as expected had more difficulties when they were of the second, non-chronological kind.

Zlatev et al. (in press) elaborated on this study theoretically and empirically and investigated in more detail what factors contributed to communicative success in the second condition, i.e., with (2)-types stories. Interestingly, it transpired that since pairs “played the game” repeatedly, six times with sometimes repeating stories, they learned how to mark cases where the order of event was non-chronological. Zlatev et al. (in press) called signs of this kind Markers of Event Order (MEOs), for example a pointing gesture BEFORE, performed after the participant has mimed *a man ran away*, but before they perform the next two events *he opened the door, he saw a bear*. These can be compared to conventionalized “connectors” in language such as “before” and “because”, and thus it could be argued that the participants were solving the more complex task by moving from pantomime to protolanguage (for definitions, see Section 2.2).

Since the simple task was, however, successful, Zlatev et al. (in press) concluded their review of the study as follows:

Thus, we can draw the conclusion that pantomime, as a communicative system anchored in the semiotic system of gesture and characterized by highly iconic expression, is fully capable of primary narrativity as long as the stories to be communicated are of “moderate” complexity...”

This is plausible, but it cannot be fully concluded due to two methodological issues. The first is that the stories were repeated many times, and after the first round it could have been secondary rather than primary narrativity that lead to correct “matching”. The second is that matching one comic strip out of four, where two are clearly wrong, is a rather dubious operationalization of comprehension. Both these issues are admitted by Zlatev et al. (in press), who call for future research to help redress them.

The present thesis therefore addresses these problems, seeking stronger support for the claim cited above. This is done by redesigning the experiment, operationalizing narrative complexity differently, and making sure that participants were not exposed to the same story twice, as explained in detail in Chapter 3.

## 2.5 General hypotheses

On the basis of the concepts and research presented in this chapter, the research questions given in the introduction can be matched with the following (still) general hypotheses:

- GH1. Pantomime has the potential for primary narrativity.

Given its high degree of iconicity and ability to represent (simple) sequences of events, pantomime indeed has the potential for primary narrativity.

- GH2. Stories with more general (as opposed to specific) and human (as opposed to animal) characters will be more easily communicated through pantomime.

Given the bodily mimetic nature of pantomime (see Section 2.2.1) and its features such as dominance of first-person viewpoint, peripersonal representation and Enacting mode (see Section 2.2.2), it is expected that it would be harder to represent animal than human characters, and more specific human characters like “mechanic” than more generic ones like “man”, by using pantomime.

- GH3. It is easier to successfully pantomimically represent actions than “things” (agents and objects) and places.

Again, given the bodily mimetic nature of pantomime actions should be inherently easier to represent than objects.



## Chapter 3. METHODOLOGY

This chapter provides the details for how the study was carried out, including the recruitment process, the design of the materials, the detailed procedure and how the data was analyzed. It ends with specific hypotheses, operationalizing the general ones provided at the end of the previous chapter.

### 3.1 Participants

Recruitment was mostly done using posters displayed at several Lund University buildings. 24 individuals (13 female) were recruited to participate in the study, with ages ranging between 22 and 57 (mean age 30). Most were recruited in pairs, all but one set of participants knew each other in advance (classmates, flat mates, friends, co-workers, married couples), thus contributing to the common ground (see Section 2.3.1) between them.

Proficiency in English was the only set requirement for the participants to take part in the study. Most of the participants were either university students or employees who upon entry to the institution were asked for the proof of English language proficiency. The rest were either native English speakers or individuals who have participated in an immersive English language education – studying abroad in an English-speaking country for at least one academic year – and use the language on a professional level every day.

It should be noted that the majority of the participants had other languages than English as L1 (native language), and they were requested to state these prior to the experiment. While this factor was not an independent or controlled variable, it was a useful piece of information, as shown in the subsequent debriefings (see Chapter 5). For example, some participants found it useful to use their mother tongue in preference to English to start with during the interpretation part of the experiment (i.e., trying to understand the story told via pantomimes) in the form of notes and/or the whole story – eventually rewriting and translating the story into English.

### 3.2 Materials

Designing the materials for the study was done through several iterations, including discussion with my supervisor and pilot runs, making sure that the necessary criteria were carefully met. The process included many different options, and only the most consistent ones were retained at the end. Thus, the process followed the first-person and second-person methods outlined in Section 2.1.1.

One of the foci of the study is the ability of pantomime to represent characters of different kinds, an aspect of narrative complexity that is different from that studied in previous research (Section 2.4). Therefore, the materials included *three types of stories* (see Appendix A) with characters of diverse nature:

- a) *generic human*: a man, a woman, a girl, a boy, as in Table 6.
- b) *specific human*: professions and social roles such as: a teacher, a student, a mechanic, a customer, etc., as in Table 7.
- c) *animals*, such as a cat, a dog, a lion, a zebra, etc. as in Table 8.

Each story was written in simple English, and consisted of 5 sentences, each one representing a single event, corresponding to real-life example situations.<sup>1</sup> For example, there were no fantasy creatures or magic-enhanced warriors, as that would have been an extra layer of complexity, reserved for future research.

The structure of the stories followed the Beginning, Middle, End schema, with causal links between the parts (see Section 2.3.1). Each part was represented by one or two sentences, and contained a similar number of *key components*, as shown in Tables 6-8. Note that these are here marked for the purposes of analysis, and the markers were not shown to the participants.

**Table 6.** Story with generic human characters, with 15 key components

Beginning	A man (AGENT 1) was jogging (ACT 1). A woman (AGENT 2) was drinking (ACT 2) coffee (OBJECT 1) at a bus stop (PLACE 1).
Middle	The man (AGENT 1) bumped (ACT 3) into her (AGENT 2).
End	The woman (AGENT 2) spilled (ACT 4) the coffee (OBJECT 1) over her skirt (PLACE 2). She (AGENT 2) got angry (ACT 5).

**Table 7.** Story with specific human characters, with 14 key components

Beginning	A librarian (AGENT 1) was organising shelves (ACT 1) at a library (PLACE 1). A visitor (AGENT 2) was reading (ACT 2) at a desk (PLACE 2).
Middle	The visitor (AGENT 2) started eating (ACT 3) a sandwich (OBJECT 1).
End	The librarian (AGENT 1) was shocked (ACT 4). The librarian (AGENT 1) sent (ACT 5) the visitor (AGENT 2) out.

<sup>1</sup> Upon the conclusion of the experiment, it was found that the material included a spelling error resulting in a parallel semantic error: in the story # 5 – *She petted her on the shoulder* instead of *She patted her on the shoulder*. Luckily, only one group picked up, resulting in confusion in the interpreted action: PETTING instead of PATTING.

**Table 8.** Story with animal characters, with 14 key components

Beginning	A dog (AGENT 1) was sleeping (ACT 1) under a table (PLACE 1). A cat (AGENT 2) walked in (ACT 2).
Middle	The cat (AGENT 2) poked (ACT 3) the dog's nose (OBJECT 1).
End	The dog (AGENT 1) chased after (ACT 4) the cat (AGENT 2). The cat (AGENT 2) hid (ACT 5) under a couch (PLACE 2).

Again, each story was carefully analyzed in a number of key components: actions, agents, objects and places, and all stories were made comparable in this respect, ranging from 13 to 16 components. Lastly, an additional two stories (one specific and one animal) were created for the practice round. See Appendix A for a complete list of all the stories.

### 3.3 Procedure

The study was conducted on the premises of the Centre for Languages and Literature, Lund University. A room was equipped with several chairs and tables. There were three stations, one for each role: researcher, communicator, and interpreter, with the participants changing the latter two roles.

The researcher kept the stories (one per sheet of paper), keeping track of the procedure. The communicator had a table for placing the printed story, and an open space in the middle of the room available for pantomiming. The interpreter sat on the opposite side of the room, by another table with a notepad and pens, right in front of the space dedicated to the communicator's performance.

First, the participants were welcomed and asked to read and sign the consent form (see Appendix B), and to fill in a short participant survey, with information on gender, age, field of knowledge, native language, other languages, experience with English if not native (see Appendix C). Then the participants were asked to carefully read the instructions shown in Figure 4, and to ask any questions if anything was not clear. As can be noted, the term "pantomime" was not used in the instructions, given that participants could interpret it differently given the lack of consensus on its meaning (see Section 2.2).

*You will receive short stories of 5 lines each including characters of both human and non-human nature. In total, there will be 15 rounds (15 stories). Both of you will therefore be asked to tell a story using your body/gestures (8 times - the communicator's role) and understand a story (7 times - the interpreter's role). There will be 2 practice rounds (2 stories); each of you will get a chance to practice both the communicator and interpreter's role.*

*Your task as the communicator will be to tell the stories using bodily movements and gestures so that the other participant can try to understand them and translate them back to English. First read the whole story. Then communicate it line by line, giving the other participant (the interpreter) time to write down what you had communicated. Use only your body and its movements to tell the story, no words or vocalizations should be used. Even though there is no strict time limit, each story should take you about 3 minutes.*

*When you take the role of the interpreter, you will be the one to observe the communicator. Try then to understand the story you are being told (via communicator's body movements) and write the story down in English – again, line by line. You are allowed to revise/change anything you write down before you hand the story in. Also, note that as the interpreter you cannot gesture back to the communicator.*

**Figure 4.** The study instructions given to all participants prior to the experiment

Then two practice rounds, with the extra two stories were performed, so that the participants experienced both roles – communicator and interpreter – and had the chance to ask additional questions. The performance of the participants was not video recorded, which would have been ideal, as acknowledge in Section 6.2. The reasons for excluding this in the present study were of practical nature. First, it would have included an extensive work on gestural analysis, and second, video-recorded material counts as personal data, and would have required a more rigid protocol of data collection and storage according to GDPR.

Subsequently, the second and main part of the experiment took place. The participants took turns to play the roles of communicator and interpreter for the 15 stories (15 rounds), given to them in randomized orders. Notably, the stories were never repeated, ensuring that the participants had to rely on primary narrativity to solve the task (see Sections 2.2.4).

For each round, the communicator took time to read a story; they kept the story in its designated space so they could go back to it and not have to rely on memory, since that was not a variable of concern. When ready they had to communicate the story using their body and gestures in the best way, they could think of so that the interpreter would have a chance to understand the story and be able to translate it back to English. Therefore, two steps of intersemiotic translation were performed: from English to pantomime, and from pantomime to English. Since communicators were also interpreters in every second turn, they became aware of the pantomime-to-English translation challenges and tried to be as helpful as possible.

The participants were allowed to use anything in the room as part of their performance in the communicator's role, but not to vocalize. The reason for this is that while pantomime as such

may include vocalizations (see Section 2.2), previous research had not shown that this gives advantages in communicating propositional information (see Section 2.4). Interpreters were not allowed to use gestures (e.g., to ask for more information), but of course they could not be restricted from using facial expressions. For example, they used spontaneous expressions showing confusion or uncertainty. This could function as a repetition request inviting the communicator to perform the pantomime again, perhaps with changes, until the facial expressions of the interpreter signaled comprehension. However, as this form of communication was highly implicit, it did not intervene with the design of the experiment.

Communicators were encouraged to pantomime “line by line,” and they often did so by marking the start of each sentence with the number of fingers shown. After each sentence, they gave the interpreter as much time as they needed to write down their answer. This manner of intersemiotic translation was implemented upon completion of pilot runs (the experiment try outs) where we noticed that pantomiming the entire story caused confusion, primarily on the interpreter’s side. Further, it allowed for control over operationalization translation correctness/accuracy, by breaking the story into smaller “chunks” – sentences and key elements (see Section 3.4).

The third part of the experiment consisted of a semi-structured voice-recorded interview the purpose of which is to understand how participants experienced the task. Thus, it is an example of the second-person perspective in the overall methodology. In particular, the participants were asked about their experiences, what they found hard and easy in both or their roles separately, when pantomiming and understanding the stories. The following questions about translating the story from English to pantomime were asked:

- Which aspects of the stories did you find easier to communicate?  
What made them so?
- Which aspects of the stories did you find harder to communicate?  
What made them so?
- So, what do you think about using your body/gestures for telling stories?  
Did you feel that it was an effective way to tell a story?

And the following questions were asked about the second step, translating from pantomime to English, focusing on their comprehension:

- What was easier to understand?  
Why do you think this was so?
- What was harder to understand?  
Why do you think this was so?
- So, how did you find understanding the stories part of the experiment?  
Tell me about your experience from your perspective.

### 3.4 Analysis

The analysis of the data gathered was done in the following way. The collected data was inserted in an Excel table including columns for:

- (a) the participant group (1-12)
- (b) participant code (A-X)
- (c) story code (1-15)
- (d) story type (generic, specific human, animal)
- (e) storylines (1-5 per story)
- (f) source story English text (one per line)
- (g) target story English text (one per line)
- (h) Agent 1
- (i) Agent 2
- (j) Action
- (k) Object
- (l) Place

For each line of each story (f) and (g) were compared with respect to the key components, and if the component was present in the source (f) it was judged if the translation (via the intermediate representation of pantomime) was correct (1) or incorrect (0). The following criteria were used for operationalizing correct translation:

- exact wording: *frog - frog*
- a synonym: *woman - lady*
- semantically implied: *frog – animal*, but *animal* does not imply *frog* so that would have been incorrect, unless:
- specified by the context: if the translation in former line was *an animal*, but in a later one *the frog*, and it was clear that this was co-referential, this was counted as correct.

Table 9 shows an example of a “perfect” interpretation of a story according to the current operationalization: all the key components were correctly translated, giving it the maximal value (here 15). In complete contrast, Table 10 illustrates an example or a complete misinterpretation: all of the key components were mistranslated, giving the total value 0.

**Table 9.** An example of a “perfect interpretation”, correctness value 15

SOURCE story	TARGET story
A dog was sleeping under a table.	A dog is sleeping under a table.
A cat walked in.	A cat walks in the room.
The cat poked the dog’s nose.	The cat pokes the dog in the nose.
The dog chased after the cat.	The dog chases the cat.
The cat hid under a couch.	The cat hides under the sofa.

**Table 10.** An example of a “complete misinterpretation”, correctness value 0

SOURCE story	TARGET story
A lion was resting beside a bush.	A great goat was asleep beneath a stone bridge.
A zebra emerged from grass.	The goat woke up and went up to the bridge.
The lion moved towards the zebra.	The big goat tripped across the bridge.
But the lion stepped on a branch.	Suddenly he fell to the ground.
The zebra fled.	The bridge broke and was washed away, along with the goat.

But such cases were relatively rare, and usually participant pairs managed to get an intermediate number of key components correctly translated. Table 11 shows such an example of an intermediately correct translation, which omits two places (garden, house), an object (the water hose), and mistranslates the second character (prince vs. lord) as well as some of the actions (turn around vs. to water, shouted vs. angry). At the same time, one can notice that such intermediately correct translation captures the gist of the story. For all the interpretations see Appendix D.

**Table 11.** An example of an “intermediate interpretation”, correctness value 7 out of 14

SOURCE story	TARGET story
A gardener was watering plants in a <b>garden</b> .	A gardener was watering the flowers.
A <b>lord</b> was walking towards his <b>house</b> .	A prince is walking down the path in the garden.
The gardener <b>turned around with the water hose</b> .	The gardener is watering around.
The <b>lord</b> got soaked.	The prince gets sprayed with water.
He <b>shouted</b> at the <b>gardener</b> .	The prince is angry.

Once the classification was completed, the correctness values for each story were calculated, and converted to percentages (given that the key components varied from 13 to 16). The total correctness values for each of the categories Agent, Action, Object and Place were also calculated providing descriptive statistics analysis.

### 3.5. Specific Hypotheses

At the end of the previous chapter, I presented general hypotheses upon reviewing the theoretical background. The methodology and operationalizations outlined in this chapter allowed to “translate” these to the following specific hypotheses:

- H1. Most stories in the study will be inter-semiotically translated correctly, i.e., with translation accuracy over 50%. As noted in relation to the example in Table 11, 50% correct translation, according to the operationalization adopted, generally resulted in “good enough” correspondences between the source and target stories.
- H2. Stories with general human characters will be correctly inter-semiotically translated more often than specific human characters, and stories with human characters will be translated correctly more often than stories with animals.
- H3. Actions will be correctly inter-semiotically translated more often than agents, objects and places.



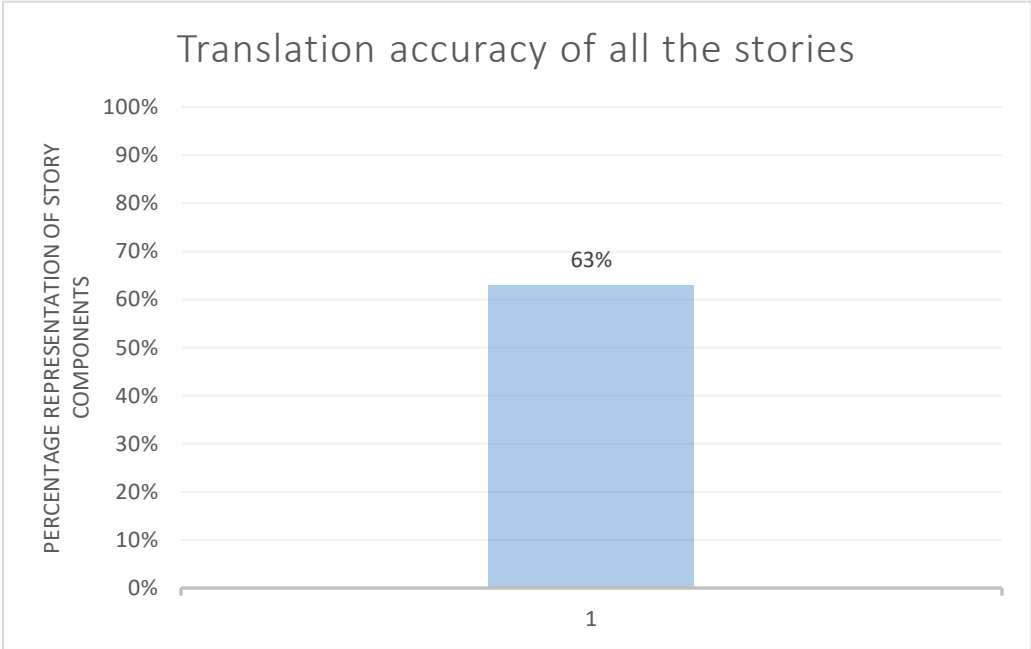
# Chapter 4. RESULTS

This chapter describes the results of the experiment with respect to the three specific (operationalized) hypotheses presented at the end of the previous chapter. More detailed discussions, informed by the interviews, are deferred for the following chapter.

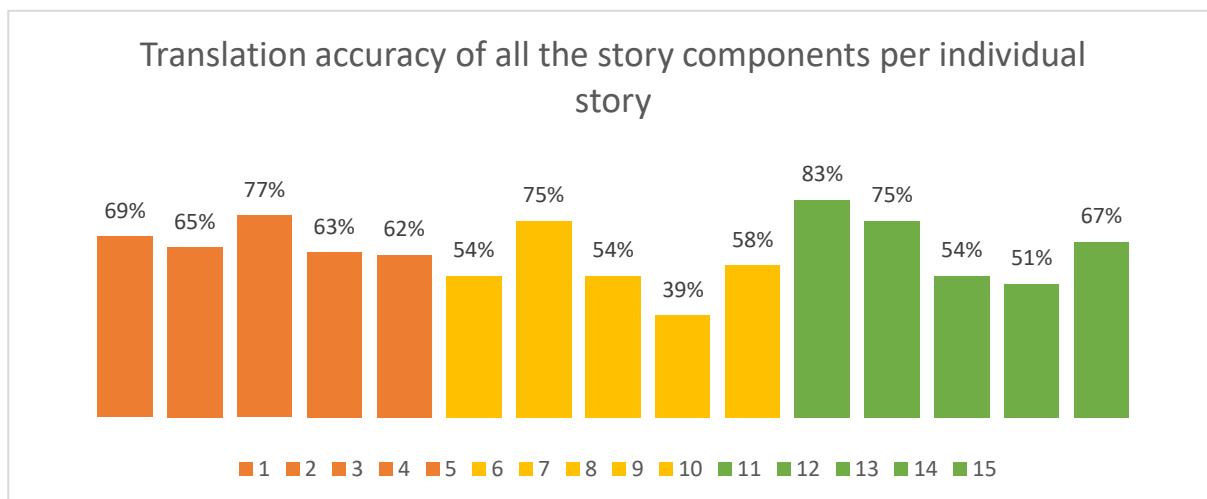
## 4.1 Hypothesis 1

In overall, there were 2617 key components (agents, acts, objects, places) in the source stories and based on the criteria for correct intersemiotic translation, 1647 were judged as correct, summing up to 63% (see Figure 5). Figure 6 presents the same results for each story, color-coded based on which type of character does the story include (red = generic human, yellow = specific human, green = animal), showing that only one story (#9) did not surpass the average correctness value of 50%.

Thus, according to the operationalization, H1 which stated that “most” stories would be translated correctly with the help of pantomime as intermediate semiotic system, can be considered corroborated.

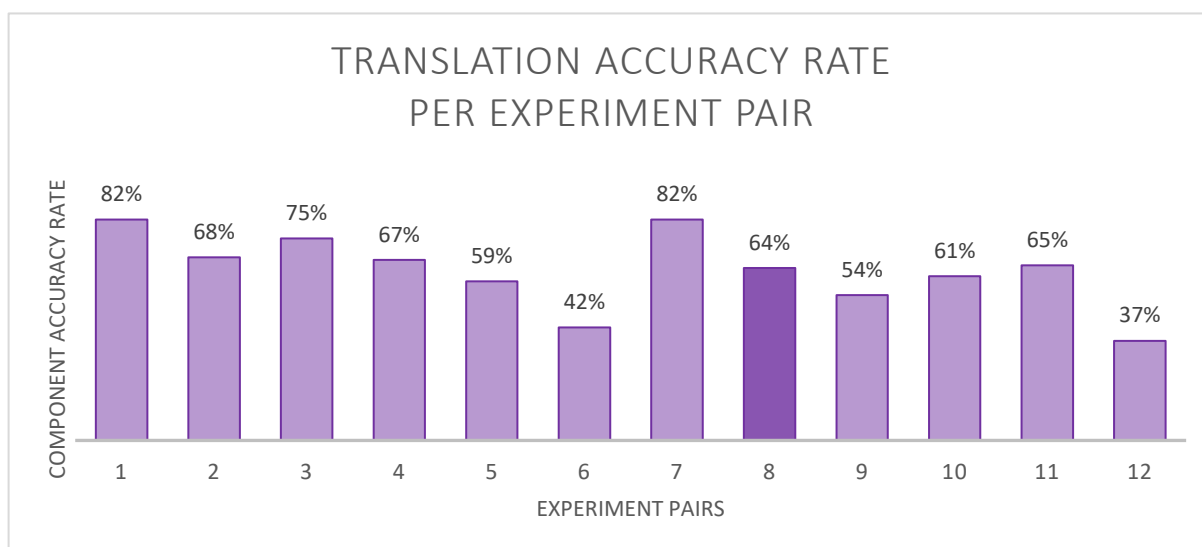


**Figure 5.** The translation accuracy of all the stories in percentage, N = 2617 (all components in all stories)



**Figure 6.** The translation accuracy of all the story components per individual story

In addition, the data can be viewed in terms of the experiment pairs, indicating that only two pairs scored below average correctness value of 50% (#6 and #12). The highlighted pair #8 is the only one including participants who did not know each other prior to the experiment, which, as can be seen, did not convert them into an outlier.

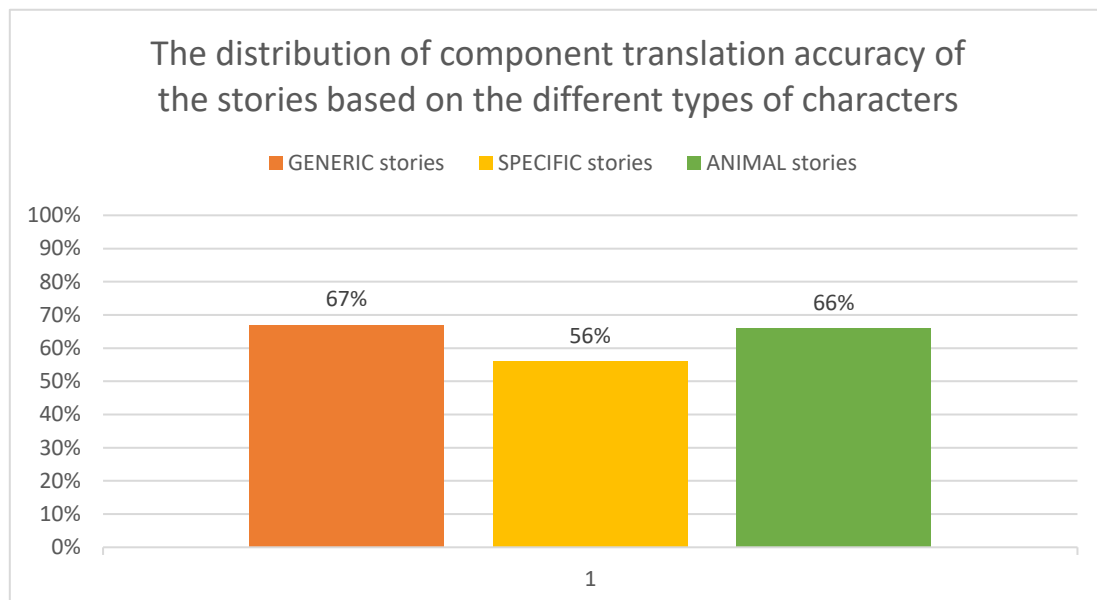


**Figure 7.** The translation accuracy rate of all the story components per experiment pair

## 4.2 Hypothesis 2

The stories with generic human characters included 877 key components out of which 586 were correctly translated. The specific human character stories had 863 components out of which 483 were accurately translated. And the animal stories had 877 components out of which 578 were correctly translated. As shown in Figure 8, the proportions of correctly translated stories with generic human agents and animals were practically the same (67% and 66%), while that for specific human characters was considerably lower (56%). This implies that the first part of the hypothesis was confirmed, but not the latter: that human characters in general would be easier to translate with the help of pantomime than animals. As to why that could have occurred is further discussed in the next chapter.

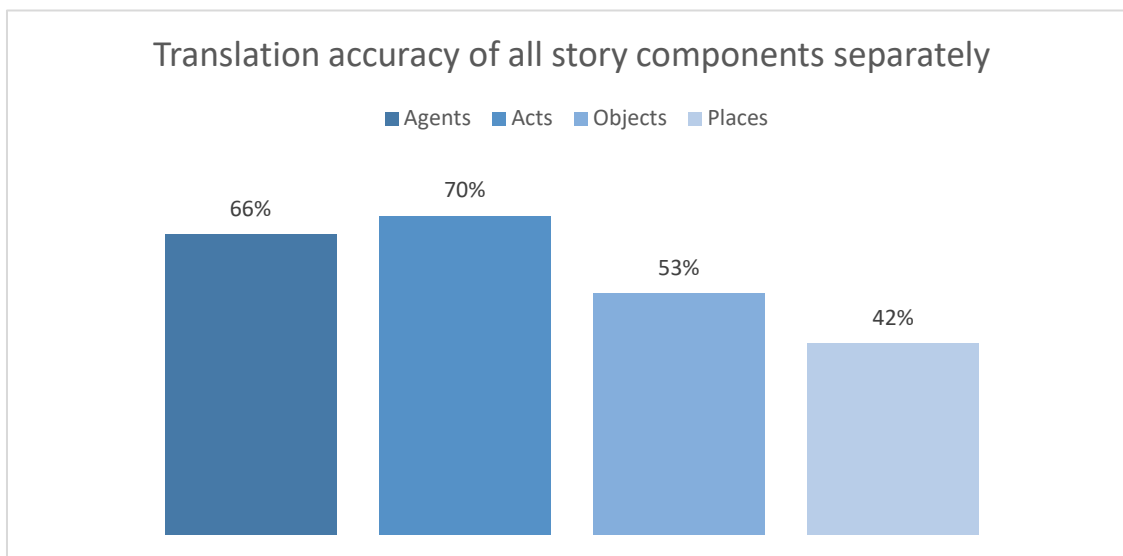
Furthermore, returning to the Figure 6, the correctness values of the stories with generic human characters were more stable, and always over 50%. On the other hand, there was much more variation on those of the other two classes of stories (see 4.1)



**Figure 8.** The distribution of component translation accuracy of the stories based on the different type of characters

## 4.3 Hypothesis 3

As Figure 9 shows, the category of Actions was indeed the most correctly communicated group of components (630 out of 900 components, 70%) followed by the categories of Agents (66%, 738 out of 1118 components), Objects (53%, 127 out of 239 components) and Places, scoring the lowest accuracy rate (42%, 152 out of 360 components). But these are only the means, while looking at it from story to story shows much variation, as shown in Table 12.



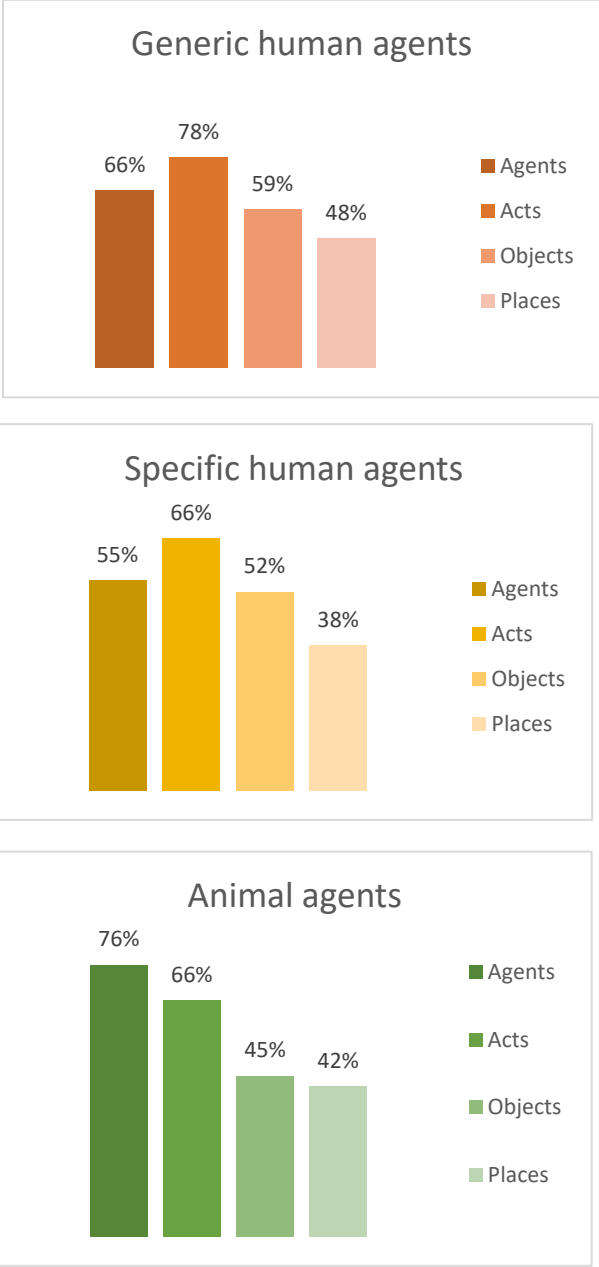
**Figure 9.** The translation accuracy of all the story components separately

As can be seen in Table 12, Actions were indeed most often the “winning” category (scoring the highest translation accuracy value most frequently), but Agents were not far behind, with 100% correct translations in #7 (as opposed to 56% for Actions). For two stories (#3 and #8) it was the Objects category that was most successfully translated. Places were as expected hard to translate, but even here there were outliers, with #4 being a near ties with the winner Actions. The implications of such variety in results are deferred for the next chapter.

**Table 12.** Interpretation accuracy of the four categories of components in percentages

STORY #	AGENTS	ACTIONS	OBJECTS	PLACES
1	69	<b>90</b>	79	13
2	61	<b>78</b>	63	46
3	72	82	<b>83</b>	75
4	61	<b>72</b>	38	71
5	<b>69</b>	68	33	33
6	50	<b>66</b>	16	54
7	<b>100</b>	56	33	66
8	46	66	<b>75</b>	13
9	25	<b>66</b>	33	13
10	54	<b>72</b>	50	42
11	<b>97</b>	83	58	50
12	<b>100</b>	58	50	42
13	55	<b>63</b>	50	33
14	<b>58</b>	52	33	33
15	71	<b>75</b>	33	50
<i>The “winner”</i>	5x	8x	2x	0x

Also, when considering the three kinds of stories separately, i.e., those with generic and specific human agents, and those with animal agents, an interesting difference was revealed. As shown in Figure 10, the hypothesis of “supremacy” for Actions was confirmed for the stories with human characters, but surprisingly not for those with animal characters, where Agents were the most often correctly translated category.



**Figure 10.** The translation accuracy of the story components separately for each type of story

## Chapter 5. DISCUSSION

The discussion chapter goes through the results in relation to the general hypotheses presented at the end of Chapter 2, using the results from the interviews to assist the interpretation.

### 5.1 Hypothesis 1: Pantomime and primary narrativity

As described in the previous chapters, to see whether pantomime could indeed have the potential for primary narrativity, the design of the experiment operationalized primary narrativity in terms of always using new stories, never repeated for each pair of participants. Since pantomime has predominantly (primary) iconic semiotic ground (see Chapter 2) and is capable of representing sequences of events (Sibierska et al., 2023), it was expected to indeed display a high degree of primary narrativity.

As expected, the average success rate of the components being accurately translated surpassed the average correctness value of 50% reaching the total of 63% (see 4.1). The participants used iconicity to help understand one type of character or another, as shown in participant comments from the interviews such as the following:

- (3) “I think, for me, the easiest was probably animals, like imitating animals...” (Participant N)
- (4) “I think the easiest was to impersonate the subject.” (Participant H)

In these examples, the participants are referring to cases where the communicator was using the Enacting mode, i.e., when their body is full-on mapped onto the body of who-ever is being described. Many participants opted for such an iconic pantomimic gesture as opposed to using the Drawing or Embodying modes when describing characters, making such gestures highly pantomimic (see Section 2.2.2) On the other hand, participants also often decided to trace a movement (e.g., going under the couch) or “draw” the outline of objects/places (teddy bear, forest), making such gestures less pantomimic. However, I could not look for possible correlations between the nature of the pantomime performances and translation accuracy, since the performances were not video-recorded.

The results do support the capacity of pantomime for primary narrativity: understanding the stories based on the narration via pantomimic gesture, rather than vice versa, understanding the narrations on the basis of the stories. However, it is challenging to determine all relevant factors concerning this conclusion. For example, how significant the 63% quantified result actually is, and how this compares with narrations in other semiotic systems.

It can be concluded that within the data set gathered for the purposes of this thesis, pantomime portrays much potential for telling stories. The question, however, is what can impact the level of primary narrativity – how well and to what detail can the stories be

understood? The following sections focus on several variables in play, highlighting both potentials and limitations of pantomime as a communication system in relation to the general hypothesis 2 and 3.

## 5.2 Hypothesis 2: The nature of the main characters

The nature of characters in the stories indeed seems to have an impact on how well stories expressed in pantomime can be understood. A generalization that can be made, based on the results reported in the previous chapter, but also by the comments of the participants gathered upon the completion of the experiment, is that the more *details* the characters require to be communicated – the more challenging the translation task becomes. This can be seen expressed in various ways in comments (5-7).

- (5) “...what was hard was like professions, some were harder than others...” (Participant E)
- (6) “yes, that’s what I was gonna say as well, the jobs... cause you can describe a man or a woman or a mouse or a lion easy...some professions or like descriptions of people I feel like are more difficult than others but some I feel like I got right away, like teacher or the librarian...” (Participant F)
- (7) “What was difficult was to mediate what kind of animal you were describing, different occupations/titles and if it was a woman or a man.” (Participant W)

Another factor was differences in the degree of *familiarity* in the concepts and words used, as shown in (8).

- (8) “...especially the words that are not...we don’t use in our everyday language or don’t stumble upon in books such as...maybe like the lord, the gardener... like in my life I don’t have that experience...” (Participant T)

Hypothesis 2 expected the stories with generic human characters to be more easily communicated and understood than the stories with the specific human characters. That part of the hypothesis was corroborated with the difference between 67% and 56% in average correctness value (see 4.2). However, the second part of Hypothesis 2 expecting animal characters to be in general harder than human characters, was not supported. The question remains as to how that can be explained.

As seen in comment (6) above, participants often found animals to be quite easy to communicate and understand. However, this interacted with familiarity, as a character found to be easy by one participant could be found hard by the other. For example, *lion* was

mentioned as both easy and hard, and sometimes this character got interpreted as a cat (see Appendix D).

In general, when components of all the three types of stories were analyzed, the animal group was the only one with the Agent (character) component winning over the Actions component (see 4.3) which could have been influenced by several factors. For example, the complexity of actions could have been higher than the complexity of the animal character as in the case of the snake sunbathing in the story #13 where the Action was recognized only four times out of twelve. Also, perhaps the majority of the animals figuring in the stories have too diverse characteristic traits, potentially leading to an easier identification, and thus translations.

In fact, the average correctness value of Agents in the case of animal-based stories surpassed the value of the stories with generic and specific human characters (see Figure 10). In the case of a latter, that is not a surprise, taking into account the described struggles of participants with the amount of detail needed for the description of professions. However, the question is, why is the value lower in the case of the generic characters (66%) than the animal characters (76%) (see Section 4.3). One apparent factor was that the communicators often used *themselves* as representations for the characters, and the interpreters used the pronoun *I* instead of phrases like *a woman* or *a man*. This is a good example of how using features of pantomimic gesture such as the Enacting mode, dominance of first-person viewpoint and peripersonal space action (see 2.2.1 and 2.2.2) in fact did not facilitate the communication, but rather the opposite.

Moreover, sometimes the participants struggled with establishing the difference between the two characters in the story, misgendering, falsely allocating them in the corresponding age group (woman, girl, man, boy), or generalizing (as in saying, someone, somebody, person...) as reflected in comment (9).

(9) “I know for me it was difficult when there were two people, involved, to... how to write it down properly because you know the structure of the sentences because you do both roles but it’s very difficult when it’s like a lady and a lady...in that sense it was easier when it was like animals...” (Participant N)

Lastly, the most successfully translated story belonged to the group of stories with animal characters: story #11 starring a cat poking at a dog which resulted in a chase. The reason for this is that such a story is probably familiar, and thus part of the common ground (see Section 2.3.2) of most of the participants, either through animated cartoons and movies about Garfield, the famous cat not favoring the owner’s dog, or simply by being a pet owner, as shown in (10).

(10) “So sometimes when I was interpreting, I wasn’t like purely relying on what I saw but also on what I...what kind of story I think would happen. Like there were two animals, one annoyed the other and I was like I bet it’s a cat annoying a dog.” (Participant J)



In this case the strength of the common ground seemed to have significantly boosted the pantomime's potential for primary narrativity.

In sum, pantomime does not in general appear to be better suited for representing human vs animal characters, but rather what seems to matter most is (a) how many characteristic traits (details) the character has and (b) how familiar the characters, and their interactions, are. For example, *a man vs nurse* and *a cat vs lion*. To perform the characteristic traits of *a man* and *a cat* requires less detail than the characteristics of *a nurse* or *a lion*. To bodily represent *a man*, it is sufficient to show a gender relevant feature, while to communicate *a nurse*, a gender relevant feature will not facilitate understanding, not mentioning that once one starts imitating using the depiction of props like stethoscope, chances are, one might think it is a doctor and not a nurse. The same goes for the *cat vs lion*. Lions move similarly to cats and have comparable visual features but differ in size.<sup>2</sup> As shown in (11), it was difficult to distinguish between characters which have similar movement patterns, but otherwise differ.

(11) "...is it a bird? Is it a butterfly?... It is hard to show scale..." (Participant F)

### 5.3 Hypothesis 3: Actions vs. other components

Actions were anticipated to be the easiest type of component to translate through pantomimic gesture given the fact that pantomime is a form of bodily mimesis (see Section 2.2.1), and this was indeed confirmed with 70% overall translation accuracy. However, when the results were analyzed in more detail (e.g., each story analyzed separately or based on the character group it belongs to), interesting cases of variety were revealed. In Section 4.3., the cases when Agents were the "winners" were discussed with the help of participants' comments. Here are some of their thoughts towards the other components, the Actions, Objects and Places, that show that other factors played a role as well.

Firstly, it is quite clear that Places were the most difficult component to both communicate and interpret, as witnessed in (12-17).

(12) "I think the location was tricky but once...like sometimes later in the story it was revealed...so then I found myself crossing it off and changing it." (Participant G)

(13) "...scenery was hard to describe, for example, having many trees it was hard for me to show you the difference between a forest and a park." (Participant F)

(14) "...the setting was difficult, and it took some steps to explain where the story took place." (Participant N)

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<sup>2</sup> Of course, lions have the specific feature MANE but despite its familiarity, it can be hard to represent and interpret.

- (15) “One thing that I struggled a lot with was the waterlily... it was a butterfly drinking nectar from a waterlily... I had no idea what I was doing... that was a complicated one.” (Participant O)
- (16) “I thought that the hardest for me was to express space or location I am in, I noticed that I wouldn’t really think how hard it is to describe a bus stop or a hospital... and actions sometimes...like, the exact expression that was written down is harder to display as there is quite many synonyms.” (Participant H)
- (17) “I think for me the hard part was when I was trying to do the context instead of the action...to give you context was the hardest part because I felt like you were very focused on the action so like when I did an action you instantly got it but if I try to give you context then that was hard.” (Participant S)

The last comment addresses the issue of place complexity in comparison with actions, pointing out how easy actions felt when these were being communicated. Some participants expressed the same feeling when comparing actions with characters. However, some found particular actions rather challenging in some cases as in (18).

- (18) “...specific action was more difficult I think because not just walking through the grass but emerging from the grass...” (Participant F)

This refers to the lion and a zebra story, where a zebra emerged from the grass and that is when the lion noticed its presence. Interestingly, none of the participant pairs interpreted the zebra’s movement accurately, as words like *walk* and *come* do not capture the sudden nature of the concrete component. Therefore, the same explanation in terms of relevant details could be applicable to other components as well. As for Objects, participants yet again agreed that some were quite easy and some quite hard to both communicate and interpret pointing towards the same conclusion:

- (19) “...like, woman holding coffee, how do I communicate the fact that it’s not just a drink, when actually it’s coffee in particular.” (Participant C)

Similarly, *a bus stop* and *over her skirt*, as opposed to *on herself*, was much harder to communicate and followingly understood (13% translation accuracy rate) than *an airplane* and *on the seat beside* (75% translation accuracy rate). In the case of Objects, *cloth* was significantly harder to interpret (16% translation accuracy rate) compared to *headphones* (83% translation accuracy rate), since the latter were both more familiar and more distinct in terms of characteristic traits.

## 5.4 Strengths and limits of the study design

How well was the study designed in order to enrich the field of pantomime and primary narrativity-focused research in cognitive semiotics? To start with, at least in some respects it can be considered novel. There was no repetition of the stories and no feedback for the participants during the experiment, unlike in the study of Sibierska et al (2023). It used two-

step intersemiotic translation, with written English as the source and ultimate target, allowing accuracy to be operationalized with a high degree of systematicity.

Avoiding story repetition benefited clarity in the operationalization of primary narrativity and the lack of explicit feedback (i.e., the researcher confirming whether the translations were correct or not, or to what extent) did not prove to decrease the participants' chances to fulfil the task or keep them motivated.

Nevertheless, participants commented on the lack of feedback in more general sense. Despite being instructed not to gesture in the interpreter's role, participants occasionally showed a THUMBS-UP gesture or nodded. While not consisting of explicit feedback on performing correctly or not (as was the case in the Sibierska et al 2023 study) such interpersonal feedback seemed to facilitate communicative success. However, being restricted from any further gestural communication, with no option of going back and forth,<sup>3</sup> participants often expressed frustration, as shown in the following comments:

(20) "...you couldn't give any feedback...cause normally when you play like charades... you just guess and guess and guess and it's eventually right but here it's just like, I don't know, I think I understood something but... you never know if it's correct. Like normally when you communicate you get feedback whether it's the gestures or words and here it was just no communication... it felt unnatural." (Participant Q)

(21) "...I think the hardest thing for me as the writer (the interpreter's role) was if there was a part that I was confused about, there was no way for me to tell you: No, THAT'S the thing I want you to do again..." (Participant F)

Further, the focus of the study on different kinds of *characters* enhanced the focus and revealed the importance of the factors of *familiarity* and *perceptual details* - which go hand in hand with that of iconicity when it comes to representation with the help of pantomime.

As pointed out, the two-step translation approach was, at least for now, a unique intersemiotic translation design feature. One potential problem, however, was that participants had somewhat different competence in English. There was quite some variety in native tongues (L1): English, Swedish, Russian, Lithuanian, German, Icelandic, Turkish, Brazilian Portuguese, Ukrainian, Chinese, and French. Indeed, some participants reported adding extra layers to the intersemiotic translation: English in the source story → L1 in thought → Pantomime → L1 in the notes – English. So, while differences in native languages were not anticipated to have any impact on the results, and did not appear to have any, this could have been a potential confounding variable.

Another possible limitation was that the experimental material – the stories – could have been more elaborately designed, concerning not solely the complexity of the characters but also the acts, objects and places. Sometimes participants found a component to be hard to communicate but easy to interpret (before all the stories were available for them to look at after the experiment was done) or the other way round. The opinions there were highly

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<sup>3</sup> Allowing such back and forth communication in order to reach a unanimous response would radically change the experiment design and its purpose.

individual and often in contradiction. This means that the design of the two-step approach was not without its flaws, and each translation layer would deserve better operationalization. In the present study, due to the lack of video recordings of the pantomime performances, the language to gesture part of the two-step approach in relation to the translation accuracy could not be analyzed.

A last point concerns the operationalization of “common ground”. In Chapter 3 it was revealed that eleven pairs of participants out of twelve were familiar through various relationships – partners, co-workers, friends – prior to the experiment. This naturally could have influenced the results. Nevertheless, the pair of individuals that did not have any kind of relationship scored 64% of correctness value of all story components, suggesting that relation of any sorts concerning the participants might not be an essential factor for explaining the relatively high rates of translation accuracy. This is also supported by a comment of one of the participants in this pair:

(22) “I think as we don’t know each other we found each other, we did meet at some point and found that we are doing, we have almost the same movements...we do interpret the things maybe in a similar way... we establish a contact quite early and I also think... feel that we are relaxed... it’s okay even if we don’t know each other, it’s not awkward.”  
(Participant P)

On the other hand, the participants within that pair agreed that they might have felt differently if the other individual were of a different gender, as expressed in (23), which directly followed that in (22).

(23) “It would have been interesting if we didn’t have the same sex... would that have happened if one of us was a male?... I think I would have been restricted in a way because I feel more comfortable together with a woman.” (Participant P)

Thus, gender is a variable to be potentially controlled for, especially if participants are unfamiliar with each other.

## Chapter 6. CONCLUSIONS

This thesis used a cognitive-semiotic approach to investigate the potentials and limitations of pantomime storytelling, adding to the pool of research which as of now is still relatively small. This chapter returns to the research questions stated in the Introduction with at least preliminary answers and outlines some suggestions for future research.

### 6.1. Answering the RQs

- RQ1. Is pantomime truly capable of primary narrativity?

The study described by this thesis has given the so-far strongest support for the claim that the communicative system of pantomime, with the semiotic system of gesture at its core, is fully capable of primary narrativity. Maybe not to the same degree as other communicative systems like literature, film and sequences of pictures (Ryan 2012), but nevertheless. Naturally, the degree to which this holds depends on the complexity of the narratives in question, as also pointed out by Zlatev et al. (in press) (see Section 2.4).

Sibierska et al. (2023) defined story complexity as in the order of events being either chronological (simple story) or non-chronological (complex story). This thesis added an alternative dimension: the complexity in terms of familiarity and nature of the different kinds of characters, or protagonists, in the stories. The focus here was on story characters of three different kinds – generic human, specific human and animal protagonists – as a possible factor affecting the success of communicating stories through pantomime.

- RQ2. Does the nature of characters in stories (e.g., human vs. animal) have an impact on the accuracy of communicating and interpreting pantomime-based narratives?

Changing the nature of story characters was shown to impact how well stories can be both communicated through and interpreted from pantomime-based narratives. The stories with generic human characters (man, woman, boy, girl) were found to be equally easy as the stories including animal characters and significantly surpassed the results of the stories with specific human characters which included professions and social roles (e.g., nurse and patient, librarian, and visitor). These were shown to be hard to translate with the help of pantomime. But differences in transition accuracy depended not only on the number of relevant distinctive features, but on how familiar participants were with the characters in questions, i.e., an aspect of conventionality, or common ground. Unsurprisingly, intersemiotic translation involving dogs and cats was easier than such concerning lions and zebras.

- RQ3. Is it easier to communicate actions than characters, objects, and places in pantomime-based narratives?

Indeed, it was shown that actions were for the most part easiest to communicate and interpret, in line with the bodily mimetic nature of pantomime. As Donald (2013) reminds, bodily mimesis is primarily about acting. But it turned out that even within the group of the easiest to translate components, some were harder than others and the same applies for the generally harder components such as objects and places (see Section 5.3). The implications of such finding should be considered in future research.

In sum, pantomime has strong potentials for storytelling, and it is quite possible that the first narratives in human evolution were indeed expressed in pantomime rather than in speech (Boyd, 2017). The bodily mimetic nature of pantomime was the basis for the hypotheses and research questions formulated, as much as the pantomimic gesture features where certain characteristics are seen as more pantomimic or less pantomimic (see Sections 2.2.1 and 2.2.2). However, as the thesis discussion suggests, the use of more pantomimic gesture does not necessarily guarantee better understanding or more accurate translation. Specifically, when it comes to the modes of representation (Enacting vs. Embodying) (see Section 5.1) combining the two modes may lead in fact to more communicative success than only using the Embodying mode; this points towards future research.

Lastly, most stories were inter-semiotically translated with considerably high accuracy. However, some cases of complete miscommunication were also present. The major thesis finding is that two additional factors need to be considered in determining the capacity of pantomime to express primary narrativity: the distinctive features of the story characters and their (joint) familiarity. These are two aspects of story complexity to be further investigated. For example, how well would fantasy-inspired stories with imaginary characters be narrated using pantomime?

## 6.2. Suggestions for future research

Section 5.4 highlighted some strengths and limitations of the study, but let me here summarize, given the theoretical conclusions made above.

Firstly, the study would have benefited from video recording of the pantomime performances, so that these could be analyzed, allowing for investigations of which of the two steps of the inter-semiotic translation procedure was more difficult: English-to-pantomime, or pantomime-to-English. Having all the participants' gestures analyzed could also potentially lead to different conclusions from those made here. For example, in the present study participants omitted or did not stress certain components for variety of reasons – some components were labelled by the participants upon the experiment completion as too hard to gesture – or not feeling the need to emphasize some components or decided to simply not put too much importance or effort on those. This would thus clearly be a failure of the first step of the translation.

Furthermore, it would be interesting to see what aspects of narrative complexity are challenging for pantomime. The present study did not systematically account for the complexity of actions, objects, and places in the operationalization; there were no groups for each component, solely the agents. However, yet again, the results and participants' comments revealed the relevance of the distinctive traits and the familiarity of the story characters. These are variables to be more carefully operationalized or controlled for in future studies.

Lastly, what would the results look like if one needs to pantomime full-on fantasy stories: creatures, activities, objects and places out of the borders of our world? Based on the findings of this thesis, it would appear that fantasy stories like fairy tales and myths with *unconventional* characters are likely to be placed on the list of pantomime's limitations. Unconventional, since miming a wizard or a unicorn for present day audiences would probably not be much of a challenge. But telling stories about completely made-up creatures which are not as frequently represented and lacking distinctive features, like some of the monsters of Stephen King would. The latter case could be one aspect where language is, and probably originally was, essential. However, to determine this, more cognitive-semiotic explorations would be required.

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# APPENDICES

## Appendix A – Stories

### Practice rounds

#### #A. A policeman, car owner (a parking lot), 15 components

A policeman (AGENT 1) walked (ACT 1) across a parking lot (PLACE 1).

He (AGENT 1) started to write a ticket (ACT 3) for a car (OBJECT 1).

The car owner (AGENT 2) was returning (ACT 2) from a store (PLACE 2).

He (AGENT 2) noticed (ACT 4) the policeman (AGENT 1).

So he (AGENT 2) rushed (ACT 5) to the car (OBJECT 1).

#### #B Rabbit, fox (in the grass), 14 components

A rabbit (AGENT 1) was sleeping (ACT 1) under a tree (PLACE 1).

A fox (AGENT 2) was walking (ACT 2) in the grass (PLACE 2).

An acorn (OBJECT 1) fell (ACT 4) on the rabbit (AGENT 1).

The fox (AGENT 2) saw (ACT 3) the sleeping rabbit (AGENT 1).

And (AGENT 2) jumped (ACT 5) on the rabbit (AGENT 1).

### Test stories

#### GENERIC CHARACTERS

#### #1. Man, woman (a bus stop), 15 components

A man (AGENT 1) was jogging (ACT 1).

A woman (AGENT 2) was drinking (ACT 2) coffee (OBJECT 1) at a bus stop (PLACE 1).

The man (AGENT 1) bumped (ACT 3) into her (AGENT 2).

The woman (AGENT 2) spilled (ACT 4) the coffee (OBJECT 1) over her skirt (PLACE 2).

She (AGENT 2) got angry (ACT 5).

#### #2 Man, man (a restaurant), 15 components

A man (AGENT 1) entered (ACT 1) a restaurant (PLACE 1).

He (AGENT 1) started to take off (ACT 2) his coat (OBJECT 1).

Another man (AGENT 2) was sitting (ACT 3) at a table (PLACE 2).

The first man (AGENT 1) hit (ACT 4) the other man (AGENT 2) with his coat (OBJECT 1).

The first man (AGENT 1) apologised (ACT 5).

#3 Woman, woman (an aeroplane), 13 components

A woman (AGENT 1) was sitting (ACT 1) in an aeroplane (PLACE 1).

On the seat beside (PLACE 2) another woman (AGENT 2) was talking on a phone (ACT 2).

The first woman (AGENT 1) was irritated (ACT 3).

She (AGENT 1) put (ACT 4) her headphones (OBJECT 1) on.

The other woman (AGENT 2) rolled her eyes (ACT 5) at her.

#4 Boy, girl (a playground), 15 components

A boy (AGENT 1) was sitting (ACT 1) on a swing (PLACE 1).

He (AGENT 1) was crying (ACT 3).

A girl (AGENT 2) with a teddy bear (OBJECT 1) was sliding down (ACT 2) a slide (PLACE 2).

The girl (AGENT 2) gave (ACT 4) the boy (AGENT 1) the teddy bear (OBJECT 1).

The boy (AGENT 1) was happy (ACT 5).

#5 Woman, girl (in a park), 15 components

A woman (AGENT 1) was walking (ACT 1) in a park (PLACE 1).

A girl (AGENT 2) was sitting (ACT 2) under a tree (PLACE 2) with a book (OBJECT 1).

The woman (AGENT 1) approached (ACT 3) the girl (AGENT 2).

She (AGENT 1) petted (ACT 4) her (AGENT 2) on the shoulder.

The girl (AGENT 2) was startled (ACT 5).

**SPECIFIC HUMAN CHARACTERS**

#6 A nurse, patient (a hospital), 14 components

A nurse (AGENT 1) was walking (ACT 1) down the hospital corridor (PLACE 1).

A patient (AGENT 2) screamed in pain (ACT 2).

The nurse (AGENT 1) rushed (ACT 3) to the patient's room (PLACE 2).

The nurse (AGENT 1) wiped (ACT 4) the patient's head (AGENT 2) with a cloth (OBJECT 1).

The patient (AGENT 2) felt relieved (ACT 5).

#7 A teacher, student (a classroom), 14 components

A teacher (AGENT 1) was writing (ACT 1) on the blackboard (PLACE 1).

A student (AGENT 2) sneaked (ACT 2) into the classroom (PLACE 2).

The teacher (AGENT 1) turned around (ACT 3).

The student (AGENT 2) pretended to read (ACT 4) the textbook (OBJECT 1).

The teacher (AGENT 1) called up (ACT 5) the student (AGENT 2).

#8 A mechanic, customer (a garage), 16 components

A mechanic (AGENT 1) was repairing (ACT 1) a motorcycle (OBJECT 1) in a garage (PLACE 1).

A customer (AGENT 2) walked in (ACT 2).

The mechanic (AGENT 1) pulled (ACT 3) the motorcycle (OBJECT 1) out (PLACE 2).

He (AGENT 1) gave it (OBJECT 1) back (ACT 3) to the customer (AGENT 2).

The customer (AGENT 2) drove away (ACT 5).

#9 A lord, gardener (house/garden), 14 components

A gardener (AGENT 1) was watering plants (ACT 1) in a garden (PLACE 1).

A lord (AGENT 2) was walking (ACT 2) towards his house (PLACE 2).

The gardener (AGENT 1) turned around (ACT 3) with the water hose (OBJECT 1).

The lord (AGENT 2) got soaked (ACT 4).

He (AGENT 1) shouted at (ACT 5) the gardener (AGENT 2)

#10 A librarian, visitor (library), 14 components

A librarian (AGENT 1) was organising shelves (ACT 1) at a library (PLACE 1).

A visitor (AGENT 2) was reading (ACT 2) at a desk (PLACE 2).

The visitor (AGENT 2) started eating (ACT 3) a sandwich (OBJECT 1).

The librarian (AGENT 1) was shocked (ACT 4).

The librarian (AGENT 1) sent (ACT 5) the visitor (AGENT 2) out.

**ANIMAL CHARACTERS**

#11 Cat, dog (in a flat), 14 components

A dog (AGENT 1) was sleeping (ACT 1) under a table (PLACE 1).

A cat (AGENT 2) walked in (ACT 2).

The cat (AGENT 2) poked (ACT 3) the dog's nose (OBJECT 1).

The dog (AGENT 1) chased after (ACT 4) the cat (AGENT 2).

The cat (AGENT 2) hid (ACT 5) under a couch (PLACE 2).

#12 Elephant, bird (by a lake), 15 components

An elephant (AGENT 1) was bathing (ACT 1) in a lake (PLACE 1).

A bird (AGENT 2) was flying (ACT 2) in the air above (PLACE 2).

The elephant (AGENT 1) looked up at (ACT 4) the bird (AGENT 2).

The bird (AGENT 2) landed on (ACT 3) the elephant (AGENT 1).

And the elephant (AGENT 1) flicked (ACT 5) its trunk (OBJECT 1).

#13 Mouse and snake (at a forest), 15 components

A mouse (AGENT 1) was searching (ACT 1) for food (OBJECT 1) in a forest (PLACE 1).

A snake (AGENT 2) was sunbathing (ACT 2) under a tree (PLACE 2).

The mouse (AGENT 1) made some noises (ACT 3).

The snake (AGENT 2) saw (ACT 4) the mouse (AGENT 1).

And (AGENT 2) ate (ACT 5) it (AGENT 1).

#14 Lion and zebra (savanna), 14 components

A lion (AGENT 1) was resting (ACT 1) beside a bush (PLACE 1).

A zebra (AGENT 2) emerged (ACT 2) from grass (PLACE 2).

The lion (AGENT 1) moved towards (ACT 3) the zebra (AGENT 2).

But (AGENT 1) stepped (ACT 4) on a branch (OBJECT 1).

The zebra (AGENT 2) fled (ACT 5).

#15 Frog and butterfly (pond), 15 components

A frog (AGENT 1) was swimming (ACT 1) in a pond (PLACE 1).

A butterfly (AGENT 2) was drinking (ACT 2) nectar (OBJECT 1) on a water lily (PLACE 2).

The frog (AGENT 1) saw (ACT 3) the butterfly (AGENT 2).

And (AGENT 1) jumped (ACT 4) after it (AGENT 2).

The butterfly (AGENT 2) flew away (ACT 5).

**Informed consent to participate in a study on gestural communication**

- 1. Background and purpose** This study is part of the examination in course SPVR01 (Master’s thesis), at faculties of Humanities and Theology, at Lund University, with teacher/supervisor Jordan Zlatev. The purpose is to investigate gestural communication.
- 2. The study** The study starts with a short survey on language background.

Followingly, I will be working in pairs, taking turns telling stories (provided by the researcher) using body movements and gestures and interpreting them. No vocalizations are allowed. No strict time limit is set to complete either of the tasks.

At the end, there will be a short interview consisting of questions about my experience.
- 3. Handling and storing the data** The study will not be video recorded. The short interview will be sound recorded for data analysis purposes. All data (researcher’s notes, answers to the questions, etc.) will be anonymized and there will be no way to trace these back to me as a person. The sound recording will be deleted once the thesis is finalized.
- 4. Voluntary participation** Participation is voluntary, and I can cease participation in the study at any time.
- 5. Responsible person** **Barbora Dadlíková ([ba1303da-s@student.lu.se](mailto:ba1303da-s@student.lu.se))(student), Prof. Jordan Zlatev (supervisor)**
- 6. Compensation** Upon completion of the study, I will receive a cinema ticket (Filmstaden)

**I have been made aware of the following prior to the study:** *I confirm by my signature that I have read the information about the study, and that I consent to participate. This form is made in two copies, one for me, and one for the responsible person.*

Date, Place

Signature / clarification of signature /



Participant's code:

### SURVEY ON LANGUAGE BACKGROUND for participants

**Gender:**

Female

Male

Non-binary

Other: \_\_\_\_\_

**Age:**

**Previous studies (the field/knowledge):**

**Native language(s):**

**Other languages (and approx. levels: beginner/intermediate/proficient):**

**Experience with English language:**

(leave blank if English is your native language)

## Appendix D – Participants' interpretations

### Story 1:

A man is running.  
A woman is drinking coffee at a bus stop.  
The man knocks into the woman.  
He spills the drink on the woman.  
The woman is upset.

A man is running.  
A woman is drinking coffee while she is waiting for a traffic light.  
The man accidentally crushes the lady.  
The drink splashed on the lady's clothes.  
The lady is pissed off and yells at the man.

A man was jogging.  
A woman was drinking coffee.  
The man bumped into the woman.  
The woman spilled her drink on her skirt.  
She shouted at the man.

A woman is running late.  
A woman is waiting at the coffee shop for her.  
The person running late arrives to the coffee shop in a tizzy.  
The person knucks into the table spilling the coffee all over the woman.  
The woman who had her coffee spilled, is so irritated.

Someone is running.  
A woman is waiting and drinking something.  
The runner bumps into the woman.  
She spills her beverage all over her clothes.  
She complains and get angry.

A man is running.  
A woman was drinking coffee.  
The running man bumped into the woman!  
The woman spilled coffee all over herself.  
The woman is angry - blamed the man.

A man was running.  
A woman was drinking coffee at a cafe.  
The man ran into her.  
The woman spilled coffee on her dress.  
The woman got angry.

A man with moustache is running  
and (the man) accidentally bumps into a person sitting and enjoying a drink  
and (the man) accidentally bumps into a person sitting and enjoying a drink  
The bump makes the person to spill the drink all over  
and the person gets very upset about and yells at the person running.

A woman is running.  
Another person is having coffee on a bench.  
The woman trips and fall on the coffee drinker.  
The coffee drinker spills coffe on their lap.  
They get upset with the runner.

A boy was jogging.  
A woman was drinking coffee.  
The jogging boy bumped against the coffee drinker.  
The woman spilled the coffee on her clothes.  
The woman got angry.

A man was running.  
A woman was drinking coffee at the bus stop.  
The man bumped into the woman.  
The woman spilled coffee on her dress.  
The woman was angry.

I am out jogging.  
I take off my clothes and sit and relax and drink afterwards.  
Another runner sees me sitting down.  
I see the other runner and spill the coffee all over myself.  
And feel upset and soaked.

### Story 2:

A man enters a restaurant.  
He leaves his coat on the hanger.  
People are eating.  
As he undresses he hits a customer in the face by accident.  
He apoligises sincerely.

A man enters a restaurant with a jacket and a hat.  
He takes of his jacket/coat and hangs it up.  
He is seated at a restaurant table to eat.  
Another person hits the man with a coat by accident.

The other person apologises to the man.

A man come into a restaurant, asked for a table.

They took of their coat.

Another man was eating nearby.

The first man accidently hit the second customer with their coat.

The first man apologised.

A guy walked into a restaurant to eat.

He took off his jacket.

Another person was sitting at a table.

The guy who took off his jacket at the restaurant hit the guy who was sitting at the table with his jacket.

The guy apologised for hitting him with his jacket.

Someone walks into a room.

The person unbuttons a coat (and takes it off).

Another person eats something.

The person entering the room hits/attacks the eating person (with the coat).

The person entering realizes they attacked a loved one/friend (probably thought it was a robber) and apologises.

restaurant, customer arriving

takes coat of

other customer eating

other customer hit in face by coat being taken of.

customer apologises.

A man enters a restaurant.

He took of his jacket.

Another man was sitting and eating.

The first man hits the other man with his jacket.

The first man was very apologetic.

A man opens a door and walks inside and closes the door behind him. Inside people are eating a meal.

The man takes off his coat and hangs it up, puts his cane down.

A man at the table eating his meal sees the man at the door.

The man at the door puts his coat back on and picks up his stick. He hits the man at the table with the stick.

Then the man regrets it.

Someone gets home to have dinner.

First they take off their jacket.

The other are already sitting at the dinner table.

The person coming home throws the jacket on a person sitting at the table, by mistake.  
The tell the person who got hit by the jacket "sorry".

A man walked into a restaurant.  
He took off his coat.  
The man next to him looked at the menu.  
While he took off his coat, he brushed it against the man next to him.  
The first man apologised.

A man walks in and sets the table.  
A man in coat.  
The other man sits down.  
The first man throws the coat on the second man.  
The first man apologises.

I walk into a restaurant.  
I hang off my jacket and hat.  
And I sit down and eat.  
Someone steals my clothes.  
And I finish eating and then say thank you and leave.

### Story 3:

A woman was sitting in a plane.  
The woman next to her was on the phone.  
She was getting annoyed at the person on the phone.  
She puts earplugs on.  
The woman on the phone notices it and rolls her eyes.

A man sits in an airplane, taking off.  
A woman is arguing next to the window on her cellphone.  
The man next to the woman is frustrated by her talking on the cellphone.  
The man puts on headphones to try to cancel out the noise from the woman.  
The woman notices that the man thinks she is loud but she is annoyed.

A woman is waiting for something sitting a long time.  
A woman is on the phone talking.  
The first woman is annoyed by the woman on the phone.  
The first woman puts in headphones to play music.  
The woman on the phone notices the headphones and rolls her eyes at the first woman.

A woman was sitting in a plane.  
A person next to her was talking on a phone.  
The woman got annoyed.  
So she put on headphones.

The person next to her rolled their eyes.

A woman is sitting on a plane.  
The woman beside her is talking on the phone.  
The first woman gets annoyed.  
She puts on headphones to block.  
The second woman notices this and rolls her eyes.

Plane passenger.  
Woman across aisle talking loudly on the phone.  
Man is grumpy.  
Man puts on headphones.  
Woman rolls her eyes at man and keeps talking.

A lady sits down in an airplane.  
Another lady sits next to her and talks loudly on the phone.  
The first lady is annoyed.  
She puts on headphones.  
The second lady rolls her eyes.

There is a bird flying in the sky above 2 girls sitting on a bench.  
one is talking loudly on the phone.  
the other girl gets annoyed. Someone shouts at the other one.  
the second girl put on her headphones, now she can't hear the other girl talking on the phone.  
The second girl is happy.

A woman is sitting on a plane.  
Next to her sits a passenger that speaks loudly on her phone.  
She gets annoyed at the telephone speaking woman.  
So she puts on her ouriculars?  
The telephone speaking person rolls her eyes.

A woman is travelling on an airplane.  
The person sitting next to her keeps talking on the phone.  
The woman gets annoyed.  
she puts on earphones.  
The person next to her gets annoyed.

A woman sits in an airplane.  
A woman next to her is talking on the phone.  
The first woman is annoyed.  
She puts on headphones and listens to music.  
The second woman is annoyed with that.

One lady walked in the plane.  
One passenger started to talk on the phone.  
Another passenger was shocked that the first passenger was using the phone.  
The first passenger took the earphone in order to continue the phone call.  
The second passenger was shocked how the first passenger solved the problem.

#### Story 4:

A boy is swinging on a swing.  
He is crying.  
A girl is sliding down a slide with her stuffed animal.  
She sees the boy and gives him her toy.  
The boy then smiles.

A boy is playing/sitting on a swing.  
The boy is crying.  
A girl is playing on a slide with her doll.  
The girl saw the crying boy and gave him her doll.  
The boy received the doll and being happy again.

A boy is swinging on a swing.  
The boy is sad and crying.  
A girl is sliding down the slide.  
The girl sees the boy crying and brings him a toy lion.  
The boy feels better.

A boy was sitting on a swing.  
He was crying.  
A girl put her toy down the slide.  
She gave the crying boy her toy.  
The crying boy turned happy.

Guy doing a gym machine (chest or rows).  
He's crying while working out.  
Someone carrying a gift on a bicycle is speeding downhill.  
The person carrying the gift sees him but the crier doesn't notice through all the tears.  
The crier gets the gift and is happy.

The parent is pushing a child on the swings.  
The child starts crying.  
The mother tries to comfort the child, but runs away.  
She gives a toy - doll- to the sad child.  
The child becomes happy.

A boy swings on a swing.

He is crying.  
A girl with a teddy bear goes down a slide.  
She gives the teddy bear to the boy.  
The boy got happy.

A boy is sitting on a swing at the play park  
crying  
A girl is approaching the slide, she is holding a stuffed animal, climbs up and run the slide.  
She is happy.  
The girl sees the boy and approach the boy giving him her stuffed animal/doll  
and the boy smiles again.

A child sits in a swing.  
The child starts to cry/cries.  
Another child slides down the slide with a teddy bear in his arms.  
The child with the teddy gives it to the crying child on the swing.  
Then the crying child starts to smile.

A man is at the gym.  
He starts to cry.  
A small girl walks in.  
The girl offers the crying man a teddy bear.  
The man gets happy.

A boy swings.  
He is sad.  
A baby girl with a doll goes on a slide.  
She gives the doll to the crying boy.  
The boy is happy.

I am on a swing.  
and I am crying at the same time.  
A woman walks by with her child.  
She is comforting the child.  
She gives the child to the crying on the swing and he/she feels better.

#### Story 5:

A woman was strolling in the park.  
A little girl was reading a book under a tree.  
The woman walked up to the little girl.  
The woman tapped the girl on the shoulder.  
The girl was startled.

A woman is walking on a countryside road.



A girl is reading under a tree.  
The woman walking close to the girl.  
The woman touched the girl's shoulder.  
The girl gets shocked.

A woman was walking in the park.  
A girl was reading a book under a tree.  
The woman saw the girl.  
She tapped the girl on the shoulder.  
The girl was surprised.

A girl walked down the street.  
A boy sat down reading a magazine.  
The girl walked up to the boy.  
The girl touched the boys shoulder and he looked surprised.  
The boy was in disgust.

A woman was walking.  
Another woman was reading under a tree.  
The first woman walked up to the tree.  
And patted the reader on the head.  
The reader was weirded out.

The woman is walking.  
The woman is walking to the bank.  
The woman walked.  
She saw a tiny child.  
She startled the child.

A woman was walking in a forest.  
A little girl was reading under a tree.  
The woman walked towards the girl.  
She patted the little girl on the shoulder.  
The little girl was surprised.

A woman is walking along a row of trees.  
There is a girl reading a book.  
The woman sees the girl  
The woman pats the girl on the shoulder.  
The girl gets a fright.

A woman walks around in a garden.  
She walks past another person that sits under a tree and reads.  
She stops to say hi to the person that reads.  
She taps him on his shoulder.

He gets surprised and looks up at her.

A woman walked in the woods.

The little girl sat down and read a book amongst the trees.

A woman approached her from behind.

The woman tapped her shoulder.

The little girl was surprised.

A woman was walking on the forest path.

She sat down between a bush and a tree and started reading.

Another woman walked up to her.

The second woman patted the first one on the shoulder.

The first woman was surprised.

A girl is out walking in the forest.

She sits down and starts to read.

Another girl comes by and she asks her why she is sitting and reading there?

The other girl pets her on the back.

And the girl gets scared.

#### Story 6:

A doctor is walking down the hall.

Someone is screaming.

The doctor runs to the room where the person is screaming.

He wipes the brow of the patient who was upset and puts the cloth in his pocket.

The patient is relieved.

A doctor is walking around and checking in hospital.

A patient is feeling bad on the bed.

The doctor saw it and rushed to the patient.

The doctor check the patient's body condition.

The person is feeling well now.

A doctor was swimming.

He saw a person who was bit by a shark.

The doctor ran to help them.

They stopped the bleeding.

The patient felt better.

A nurse is checking in on patients.

A patient is crying in pain.

The nurse runs over to the patient.

The nurse gives the patient an ice pack for their head.

The patient is relieved.

The doctor was making his rounds at the hospital.

A patient was screaming on the floor.

The doctor heard the screams and ran in and saw the patient.

The doctor stroked the patient's forehead.

The patient felt better.

A man is marking wares - someone walks past.

The person walking past stepped on a sleeping person.

Someone comes running.

The running person dabs the face of the person that got stepped on.

The person who got stepped on feels better.

A nurse is walking down the corridor of a hospital.

A patient is screaming about a hurt knee.

The nurse rushes into the room.

The nurse pats/puts a wet cloth on the head of the patient.

The patient feels better.

A person, maybe a doctor, walking

hearing a person screaming for help, that person have hurt its arm.

the person running, the doctor

calms the person who is hurt

that person hurting feels better.

A priest walks along a street.

There is a sick person in a bed who throws up and screams.

The priest hears the screams and goes inside the house. He hurries/runs to the bed.

The priest dries the forehead of the sick person with a towel.

The sickling feels better.

A nurse walked along the hallway.

A patient had a fever.

The nurse ran to the patient to check on him.

She padded his forehead.

The patient felt better.

A nurse walks in line in a hospital.

Somebody's arm hurts.

The nurse runs over.

The nurse pets their head.

The person sighs in relief.

The doctor observed the patient.  
The patient slept and the nightmare came to him.  
The patient was stressed and the doctor ran to his room where the patient lived.  
The doctor calmed down the patient.  
The patient was so thankful and happy that the doctor came to him and helped.

#### Story 7:

The teacher writes on the blackboard of the classroom.  
A student enters the classroom (he is late).  
The teacher notices the late student.  
The student pretends he is following.  
The teacher calls up the student.

A professor writes/reads a list on a board, as he is teaching his classroom and instructs the students to take notes.  
A late student tries to sneak to a desk without being seen by the professor.  
The professor notices but turns back to the board.  
The student tries to pretend they've been there entire time and that they are reading the class textbook.  
The professor calls out the student to answer a problem written on the board.

A teacher is writing on the board.  
A student enters the class late.  
The teacher notices the late student.  
The student tries to hide and look busy.  
The teacher is angry and calls the student to the front of the class.

A teacher was giving a lesson.  
A late student came into class.  
The teacher saw the pupil sneaking in.  
And so the student did not understand what's going on in class.  
The teacher called up the late pupil.

A teacher writes something on a board.  
A student comes in late and quietly takes a seat.  
The teacher turns around and notices the student.  
The student quietly grabs a book and acts very interested in what the teacher is doing.  
The teacher acts like: and if you are so interested you can do it here on the board in front of the class.

Teacher teaching.  
Student is late sneaking in.  
Student is noticed.  
Student pretends nothing is wrong.

Teacher won't take excuse, tells student to come to front of class.

A professor was writing on a blackboard.

A student tries to sneak into the class.

The teacher turns around.

The student pretends that they were there the whole class.

The teacher calls out the student.

A teacher is teaching a class and writing on the whiteboard.

The students are copying the work. One student sneaks in and sits down, joining the other students.

The teacher turns around and is surprised to see the new student.

She calls them to the front.

A teacher is giving a lecture.

A student arrives late.

The teacher turns around and looks at the student.

The student opens their book but is not focused.

The teacher asks the student to join her standing in the front.

A teacher was writing on the board.

A late student snuck into the classroom.

The teacher turned around.

The student hid behind his book.

The teacher pointed to the student and asked him to stand up.

A teacher writes on a board.

A student sneaks in.

The teacher sees the student.

The student plays it cool.

The teacher calls up the student.

The teacher is standing in front of the class.

There are students in the classroom, one student is walking in late.

The teacher looks annoyed at the student.

The student is being loud and talks.

But the teacher thinks it's okay.

### **Story 8:**

A mechanic is servicing a motorbike in a garage store.

The customer enters the garage store.

The service job is finished.

The mechanic gives back the motorbike to the customer.

The customer takes his motorbike and leaves.

A man is fixing his motorcycle.

Another person walks up to look at the motorcycle.

The first man moves the motorcycle.

The first man gives the motorcycle to the second person.

The second person thanks the first man and then drives the motorcycle away.

A car mechanic is working on a motorcycle tire.

The customer arrives and waves at him.

The mechanic waves back and backs the bike out of the way.

The mechanic says the bike is ready for the customer.

The customer drives away satisfied.

A mechanic was fixing a motorbike.

The owner of the motorbike walked into the shop.

The mechanic brought the motorbike over to the owner.

The mechanic gave the motorbike to the owner.

The owner got on the motorbike and rode away.

A mechanic is fixing a motorcycle.

Customer happy enters the room/repair shop.

The mechanic registers it, stops and approaches the customer with the motorcycle.

The mechanic hands over the bike.

The customer takes the bike, says good buy and drives away.

Man cleaning a motorbike while sweating.

Man 2 walks in.

Man 1 greets man 2 and leads motorbike forward.

Man 1 gives bike to man 2.

Man 2 thanks man 1 and drives off.

A mechanic is fixing a bike in a garage.

A customer walks in.

The mechanic brings out the motorcycle.

The customer takes the bike.

The customer drives away.

A mechanic is fixing a motorbike.

The owner walks up to fetch the bike.

The mechanic takes the person the bike.

The person thanks the mechanic and

gets on the bike and rides away.

Someone is sitting down fixing a bicycle.

Someone else enters the room.  
The person fixing the bicycle finishes and starts to roll it backwards.  
The bicycle mechanic gives the bicycle over to the other person.  
The person who got the bike rides away on it.

A mechanic worked on the/a car.  
The car owner came into the room.  
The mechanic had just finished his car.  
The mechanic returned the car to the owner.  
The car owner waived goodbye and drove away.

A man is working on MC(?).  
Another man walks under something and wants to pay.  
The first man comes, moves the MC.  
The 2 man get his bike  
The 2 man drives away.

One man came into the cafe.  
The cafe is located inside a building. The man opened the door of this building where the cafe is.  
He ordered presents from cafe.  
The cashier gave presents to the man.  
The man took presents and the cashier smiled him back.

### Story 9:

The gardener is watering the plants.  
The wealthy land owner (rich man) is walking the grounds.  
The gardener turns with the running hose.  
He hits the rich man with the water and gets him wet.  
The rich man yells at the gardener.

An old man is watering plants.  
Another old man is walking.  
The water is accidentally splashed to the walking man.  
The walking man gets wet.  
The walking man is yelling to the watering man

A gardener was watering plants.  
A rich hotel guest arrived.  
The gardener turned and sprinkled water on the guest.  
The woman was splashed.  
She was angry at the gardener.

A gardener was watering plants.

Another person came to take a look.  
The gardener sprayed the other person with a hose, by accident.  
The person got wet.  
They started shouting at the gardener.

A farmer was watering the plants.  
Some guy walked by.  
The farmer sprayed the guy with the hose.  
The guy got totally drenched.  
He complained at the farmer and shook his fist.

Someone is watering the plants.  
A person with a hat is walking.  
The other person keeps watering, accidentally on the man!  
The hat-man got wet.  
The hat-man got angry.

A gardener is watering the garden/flowers.  
A prince is walking down the path in the garden.  
The gardener is watering around.  
The prince gets sprayed with water.  
The prince is angry.

A person plants some trees watering them with a hose.  
Another person walks behind and startle the person watering.  
The person watering turning around  
and accidentally spray water on the other person.  
The person getting wet verbally yells at the person with the hose.

A gardener waters the plants.  
Someone else is in the greenhouse, the gardener sees him and walks towards the  
greenhouse.  
The gardener turns around.  
The person that stands there gets all the water on him and gets all soaked.  
The soaked person gets angry at the gardener.

A man was watering his garden.  
A priest walked towards the house.  
The man turned around.  
The priest got all wet.  
The priest told the man off.

A woman was gardening.  
He walked into the greenhouse.  
The woman accidentally sprayed water on him.



The man was dripping wet.  
The man yelled at the woman.

A man was scanning the ground with special device and noticed something.  
The woman was walking with the umbrella and came into the cafe.  
This man notices the woman and he was quite shocked seeing her.  
The woman was also quite shocked seeing the man who was scanning the ground with this special device.  
The woman started to quarrel with the man about his activity with scanning of the ground.

#### Story 10:

The librarian works in a library.  
People are reading books.  
Someone eats a sandwich.  
The librarian sees the person eating.  
The librarian orders the person to leave.

A person is trying to find a space to put a book onto a library bookshelf.  
The person gets frustrated and just starts reading the book.  
The person takes a break because they are hungry and eats a sandwich.  
The librarian sees the person eating food in the library and is shocked.  
The librarian orders the person to leave library.

A librarian is putting books on a shelf.  
A visitor is sitting at a desk/table reading.  
The visitor takes out food and starts eating (a sandwich?).  
The librarian sees the person eating and is surprised and upset.  
The librarian throws the visitor out of the library.

A librarian was cataloguing books.  
A student was studying in the library.  
The student started sneaking a sandwich.  
The librarian turned around and caught the student who was eating the sandwich. The librarian was so shocked to see.  
The librarian threw the student out of the library.

A librarian throws the books in a shelf.  
Someone is reading the newspaper/ a book.  
The person gets hungry and eats a sandwich.  
The librarian stops sorting the books.  
The librarian says the person isn't allowed to eat here and forces the person to leave.

Putting groceries away.  
Tired/bored person reading.

Tired person eating some snack.  
Person putting groceries away sees snacker snacking, screams.  
"go to your room!"

The librarian was organizing the shelves.  
A person comes in and sits down to read a book.  
Another person comes in and sits down and starts to eat a banana.  
The librarian sees the person eating the banana.  
The librarian tells that person to leave the library.

A librarian putting books in the shelf.  
A person is sitting in the library  
eating  
The librarian horrified  
pointing finger at the person eating to get out of the library.

A woman goes to a library to look for something to read and she starts to rearrange the books.  
Another visitor sits there in the library and reads.  
He starts to eat something.  
The one that rearranged the books sees the eating person and reacts in a surprise but also annoyed manner.  
She walks up to the person and tells him to leave, he gets up and leaves.

A librarian was organising books on a shelf.  
A student is studying by a desk in the library.  
The student begins eating a piece of toast on their desk.  
The librarian sees the student and is shocked!  
The librarian kicks out the student from the library.

A librarian was putting books back on a shelf.  
A visitor was reading at a table.  
The visitor started eating.  
The librarian was shocked.  
The librarian threw the visitor out.

I am a librarian and I put up books of the shelf.  
I see a note somewhere.  
A student walks in a look at the list.  
The librarian gets upset at the student when she sees that there are crumbs all over the note/sheet.  
The librarian gets upset and kicks out the student.

### Story 11:

A dog is sleeping under a table.  
A cat sees the sleeping dog.  
The cat touches the nose of the sleeping dog with its paw.  
The dog wakes up suddenly and runs after the cat.  
The cat hides under the couch.

A dog is sleeping under a table.  
A cat snuck up to the dog under the table.  
The cat paws the dog in the nose.  
The dog chases the cat.  
The cat hides underneath some chairs.

A dog was sleeping under a table.  
A cat comes into the room  
The cat poked the dog's nose.  
The dog chased the cat.  
The cat hid under the couch.

A dog was sleeping under a table.  
A cat approached the dog.  
The cat tapped the dog on the nose.  
The dog woke up and started chasing the cat.  
The cat ran to her owner sitting on the swing and hid under.

A dog was sleeping.  
A cat was walking on all four.  
It went to the dog and began to poke at it.  
It woke the dog up and the dog chased the cat.  
The cat ran and hid under the table.

The dog is sleeping.  
A cat is walking past.  
The cat hits the sleeping dog on the nose.  
The dog chases the cat.  
The cat ran underneath a chair.

A dog is sleeping under a table.  
A cat walks in the room.  
The cat pokes the dog in the nose.  
The dog chases the cat.  
The cat hides under the sofa.

There is a dog napping under the table.  
A cat sneaks up and  
pokes the dog with its nose

The dog wakes up and gets a fright. It chases the cat and the cat hides under a chair. The dog can't get it, the cat mocks/laughs at the dog.

A dog sleeps under a table.  
A cat walks in.  
The dog smells the cat.  
The dog walks up and approaches the cat aggressively.  
They run off, and then the dog comes back and continues to sleep.

A thirsty cat was sleeping under the table.  
The cat went to the water bowl.  
The cat tipped the bowl over.  
The cat got soaked and ran away.  
The cat laid down under a bed.

A dog sleeps under a table.  
A cat comes in through the door.  
The cat smells the dog.  
The dog runs after the cat.  
The cat hides under a bed.

A dog came to its house and started to sleep.  
But a cat came to the dog's house after that.  
A cat touched the dog's nose.  
The dog awoke and run after the cat.  
The cat run into the house.

### Story 12:

An elephant is bathing.  
There is a bird flying.  
The elephant sees the bird.  
The bird lands on the elephant.  
The elephant hits the bird.

An elephant is playing in a pond (lake).  
The elephant saw a bird.  
The elephant splash water to the bird.  
The bird landed on the elephant's head.  
The elephant hits the bird away.

An elephant is standing in the savanna.  
The bird/butterfly flies over the elephant.

The elephant looks up and sees the bird/butterfly. They look at each other.  
The bird/butterfly lands on the elephant's trunk.  
The elephant shakes bird/butterfly off.

An elephant was bathing-washing up.  
A bird was flying over.  
The elephant saw the bird.  
The bird landed on the elephant.  
The elephant flicked the bird away with his big nose.

An elephant is swimming/taking a bath.  
A bird is flying (over the river/lake).  
The elephant notices the bird.  
The bird is landing on the elephants shoulder.  
The elephant tries to hush the bird away.

Elephant swimming.  
Bird flying above, sees elephant.  
Elephant sees bird.  
Bird lands on elephant.  
Elephant protests loudly.

An elephant was washing itself with their trunk.  
A bird comes flying.  
The elephant notices the bird.  
The bird lands on the elephant.  
The elephant flicks the bird off their back with their trunk.

An elephant is taking a bath throwing water with the trunk.  
A bird flies above the elephant  
The elephant looked up at the bird  
(the bird) lands on the elephant's back  
the elephant tries to get rid of the bird with the trunk.

An elephant swims in the water.  
Above the elephant, a bird is flying.  
The elephant looks up at the bird.  
The bird lands on the head of the elephant.  
The elephant splashes water on the bird with its trunk.

An elephant was washing itself on a lake.  
A bird was flying above it.  
The elephant looked up and saw the bird.  
The bird flew down towards the elephant.

The elephant scoffed.

An elephant swims.

A bird flies.

The elephant sees the bird.

The bird lands on the elephant's back.

The elephant swings with its trunk.

An elephant is bathing and enjoying itself.

A bird comes flying.

The elephant sees the bird.

It lands on the elephant's head.

It takes the trunk and sprays water on the bird.

### Story 13:

A hungry mouse looks for food on the forest floor.

A snake is resting under a tree.

The mouse hears a thud sound.

The snake looks up.

The snake sees the mouse and eats it.

A rat is seeking food in field.

A snake is resting under a tree.

The rat is eating.

The snake moves towards the rat.

The snake ate the rat.

A mouse was going through the grass.

A snake was sleeping under a tree.

The mouse was making a lot of noise.

The snake saw the mouse.

The snake ate the mouse.

A squirrel was searching for food on the forest floor.

A snake was bathing in the sun by a lake.

The squirrel scared the person.

The snake saw the squirrel.

The snake ate the squirrel.

A hungry mouse is running around (searching for food).

A snake is sleeping.

The mouse is stepping on to the snake.

The snake sees the mouse.

The snake eats the mouse.

A hamster is riding in a car.  
The flower is photosynthesising.  
The hamster got afraid by loud stomping.  
The flower sees the hamster.  
The hamster ate the flower.

A hungry mole was digging in the forest.  
A snake was laying in the sun.  
The mole was making noise.  
The snake saw the mole.  
And ate it.

A little mouse is sniffing out food in a forest.  
A snake is asleep at the top of the tree.  
The mouse makes a noise (by stomping?).  
The snake wakes up and sees the mouse.  
It gets down the tree and attacks the mouse.

A squirrel walked around in a forest to look for something to eat.  
The sun shone through the leaves and the squirrel walked and saw a snake.  
The squirrel made some noises.  
The snake sees the squirrel.  
The snake eats up the squirrel.

The snake was full after eating a rat and rattled away.  
The snake got into the water and enjoyed the sunlight.  
Another rat appeared.  
The anaconda noticed the rat.  
The snake swallowed the whole rat.

A rabbit eats under the trees.  
The snake is sunbathing.  
The snake hears the rabbit.  
The snake sees the rabbit.  
The snake eats the rabbit.

The fish was searching for something in the water and came into the muddy  
territorium.  
Another sea animal did not expect to meet the fish here.  
This sea animal awoke seeing the fish.  
The fish and this sea animal was seeing each other.  
This another sea animal caught the fish and ate it.

#### Story 14:

A lion is sleeping in front of a bush.  
A zebra sees the lion through the tall grass.  
The lion sees and approaches the zebra.  
The lion makes a noise.  
The zebra hears it and runs away.

A lion rests underneath a tree.  
A zebra walks nearby on a hill.  
The lion wakes up, notices the zebra, and starts to approach it.  
The lion steps on a twig that breaks.  
The zebra hears the noise, runs down the hill and escapes the lion.

A lion was resting next to a bush.  
The skunk come through the grass.  
Skunk saw the lion.  
Lion -- on the skunk plus was shocked.  
The skunk ran away.

A lion sleeping under a tree.  
A zebra looking around.  
The lion goes over to the zebra.  
The lion stomps on a root of a tree.  
The zebra hears the lion and runs away.

A tiger was sleeping in the jungle.  
An elephant was marching through.  
The tiger stalked the elephant in the grass.  
The tiger made a noise.  
The elephant heard it and ran away.

Opened cage to get bait.  
A tiger sneaked through grass.  
Man rigged a trap.  
Something stepped in trap.  
Tiger ran away.

A lion was resting by a bush.  
A tiger was walking through the grass.  
The lion walked towards the tiger.  
The lion stepped on a twig.  
The tiger ran away.



A lion is laying and sleeping.  
A zebra is walking by, waking up the lion.  
The lion sneaks up in a tree  
and positions on a branch.  
The zebra under the tree gets suspicious and runs away.

An angry cat attacks another cat that sleeps in the rabatt.  
The cat gets hurt and has scratcher on his leg.  
The angry cat sees the other and starts to follow it.  
He puts down his paw on the ground and it sounds a lot.  
Then the other cat starts to run.

A great goat was asleep beneath a stone bridge.  
The goat woke up and went up to the bridge.  
The big goat tripped across the bridge.  
Suddenly he fell to the ground.  
The bridge broke and was washed away, along with the goat.

A lion was resting beside a bush.  
A zebra was swimming.  
The lion walked to the zebra.  
The lion stepped on a branch.  
The zebra ran away.

A zebra was walking and noticed a lion who was sleeping in the cage.  
This lion awoke.  
The lion started to come closer slowly to the zebra.  
But the zebra heard that someone was coming closer to it.  
The zebra run away after that.

#### Story 15:

A frog is swimming in a pond.  
A flying insect lands on a floating flower to drink.  
The frog sees the insect.  
The frog jumps on the dragonfly.  
The dragonfly flies away.

A frog swimming around in a pond.  
A bird lands and starts eating a worm.  
The frog notices the bird.  
The frog jumps onto the bird.  
The bird escapes the frog and flies away.

A frog is swimming.

A butterfly lands on a lily pad/rock.  
The frog sees the butterfly.  
The frog jumps on to the lily pad/rock.  
The butterfly flies away.

A frog was swimming in a pond.  
A bird took a breath of air.  
The frog saw the bird.  
The frog jumped the bird.  
The bird flew away.

A frog was hopping and swimming.  
A butterfly landed on a flower and drank its nectar.  
The frog saw the butterfly.  
It jumped towards the butterfly.  
The butterfly noticed the frog and flew away.

A frog jumped into a pond.  
A fly came to the pond.  
The frog saw the fly.  
The frog jumped at the fly.  
The fly saw the frog - flew away.

A frog was in a pond.  
A butterfly was drinking nectar from a lily.  
The frog saw the butterfly.  
The frog jumped on the butterfly.  
The butterfly flew away.

A frog is swimming in a pond  
A small bird is flying  
frog sees  
frog hops  
the small bird startle the frog out of the pond.

A frog jumps into the water.  
a butterfly drinks the nectar from a water lily.  
The frog sees the butterfly.  
the frog jumps over to the butterfly.  
The butterfly flies away.

A frog was jumping around a pond.  
Butterfly, water, rain, baby, couple?  
The frog saw the butterfly.  
The frog ran towards the butterfly.

The butterfly flew away.

The frog is swimming in the pond.

The butterfly is drinking nectar from a lotus flower.

The frog sees the butterfly.

The frog jumps to the butterfly.

The butterfly flies away.

A frog is by a lake.

A fly comes by and sits on a big leaf.

The frog wants to eat it.

And jumps on it.

The fly flies away.