

# Bringing stories to life

*Animacy in narrative and processing*

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# Bringing stories to life

Animacy in narrative and processing

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# Chapter 1

## Introduction

What does it mean to be alive? A question as old as humankind, and not one the current work will pretend to answer. Instead, we will concern ourselves with the subtle ways life enters our language, or what it means to be alive – linguistically speaking. We refer to this as *animacy*: a distinction between living and non-living things that permeates language at every level. As in biology, a definition of linguistic life has proven challenging: we know it when we see it, but there are many nuances and edge cases that are hard to capture. This is further complicated by the explosive creative potential of language: in our stories, we readily transform inanimate objects into living, breathing characters. The following chapters will explore how these animacy transformations are accomplished, how the result influences our narrative experience and our processing preferences, and ultimately, what this may teach us about animacy as a factor in linguistics.

### 1.1 Animacy

A linguistic distinction between living and non-living things will be most immediately obvious to speakers of e.g. English, Dutch or German when looking at interrogative pronouns. Asking ‘Who is that?’, we would be surprised to find the answer to be an inanimate object. ‘What is that?’, on the other hand, allows us to mostly rule out animate entities as potential referents. Other more or less obvious distinctions are found in personal pronouns (‘he’/‘she’ versus ‘it’), indefinite pronouns (e.g. ‘someone’ versus ‘something’), or certain Dutch quantifiers (e.g. *beide* / *beiden*, ‘both’).

Not all animacy distinctions are as immediately apparent, but decades of research in corpus linguistics and linguistic typology have found that animacy permeates grammars cross-linguistically. Animacy is involved in such factors as referential expressions (e.g. Dahl & Fraurud 1996; Yamamoto 1999), gender (e.g. Dahl 2000; Audring 2009), number (e.g. Comrie 1989; Corbett 2000), agreement (e.g. Croft 1990; Siewierska 2004), case and differential marking (e.g. Aissen 2003; de Hoop & Narasimhan 2005; de Swart 2007; Malchukov 2008), word order and grammatical role distributions (e.g. Tomlin 1986; Siewierska 1988; Øvrelid 2004; Jäger 2007; Rosenbach 2008; Dahl 2008; van Bergen 2011) and topicality (e.g. Givón 1976; 1983; Brunetti 2009), prompting Dahl and Fraurud to conclude that animacy is “so pervasive in the grammars of human languages that it tends to be taken for granted and become invisible” (Dahl & Fraurud 1996:47). To get a better idea of the ‘invisible’ patterns an investigation of animacy in the following chapters will have to reckon with, we will go over some of these first.

### 1.1.1 Reference

We started this chapter with referential expressions, where we already noted an animacy distinction *within* specific types of pronouns (e.g. ‘who’ versus ‘what’). Animacy has also been shown to influence the incidence of pronominalization itself: animate entities are more often referred to by pronouns than inanimate entities (Yamamoto 1999; Dahl & Fraurud 1996; Dahl 2008; Fukumura & van Gompel 2011; Vogels et al. 2013). Yamamoto (1999: 132) reports a study on a small English corpus of news articles, finding that out of 427 references to animate entities, 87 are pronominal (26%), whereas pronouns were only used for 35 out of 1,189 (or 3%) inanimates. Similarly, Dahl and Fraurud (1996), on the basis of a corpus of written Swedish, show that third person reference to animate entities is pronominal in 36% of cases, whereas for non-human reference this was 8%. If we also take first and second person reference into account, the correlation between animacy and pronominal reference is even larger. Dahl (2000) reports on a corpus study of spoken Swedish where animate reference to first, second and third person was pronominal as opposed to nominal in a massive 92% of cases. This is explained in Dahl (2008) as a result of egophoric reference: first and second person pronouns refer to discourse participants, and to participate in discourse, one is necessarily animate. Dahl notes that reference to animate noun phrases is egophoric in about 60% of cases, leading him to claim “[w]e speak more about our-

selves than about others" (Dahl (2008:143). This might also explain why animates are mentioned more frequently than inanimates in general (e.g. Givón 1976), at least in spoken language (cf. Yamamoto 1999 above).

The tendency for animate entities to be referred to more often using pronouns is supported by processing evidence. Fukumura and van Gompel (2011) report a story completion experiment in English, presenting participants with story prompts containing animate and inanimate referents in contrasting constituent orders, e.g. *The hikers carried the canoes a long way downstream. Sometimes...*, versus *The canoes carried the hikers a long way downstream. Sometimes...* . They find that participants completed the prompts more often by referring to the animate constituent ('the hikers'), regardless of constituent order in the prompt. In addition, they were more likely to pronominalize the animate referent than the inanimate referent. Lending additional support to the latter, Vogels et al. (2013) present an animation-retelling experiment. They created visual displays in which geometric shapes, lexically labeled as either animate or inanimate (e.g. a shape labeled 'toddler' versus a shape labeled 'shoe') moved across the screen. Participants were asked to describe the actions on the display. Vogels et al. (2013:6) find that shapes with a lexically animate label were referred to with pronouns in 86% of cases, against 79% of lexically inanimate shapes<sup>1</sup>.

### 1.1.2 Word order

Animate referents tend to occur at the start of linguistic constructions. The most 'natural' – unmarked, most frequently attested – transitive event contains an animate referent acting on an inanimate undergoer (Bever 1970; Hopper & Thompson 1980; Siewierska 1988; Comrie 1989). In active transitive sentences (i.e. sentences with a subject and an object) these roles translate into the grammatical subject and the grammatical object, respectively. As subjects precede objects in the vast majority of the world's languages (Dryer 2013), animates thus also precede inanimates in linear ordering. The influence of animacy on subject-object distributions has been attested in corpus studies in e.g. English (Snider & Zaenen 2006), Swedish (Dahl & Fraurud 1996), Norwegian (Øvrelid 2004) and Dutch (Bouma 2008; van Bergen 2011). Dahl and Fraurud (1996), on the basis of a corpus of written Swedish, find that the subject outranks the object on

<sup>1</sup>Note that these proportions are significantly higher than those found by Dahl (2000; 2008), presumably due to task effects: participants communicated about referents in the 'here and now' of the available visual display as opposed to Dahl's natural language data.

animacy in 48% of cases and are of equal value in approximately 50% of cases. This leaves the object outranking the subject on animacy in only 2.5% of all transitive constructions. Similar results are obtained by Bouma (2008) from a corpus of spoken Dutch. Bouma (2008) finds that subjects are for the overwhelming majority animate (96%), whereas direct objects are for the most part inanimate (90%). In transitive sentences, the object outranks the subject in only 1% of attested cases (Bouma 2008:257).

The distributions in these languages represent statistical tendencies; whilst transitive sentences with inanimate subjects and animate objects are rare in e.g. English, Dutch and Swedish, they are attested and grammatical. Bresnan et al. (2001) observe that tendencies which act as 'soft constraints' in one language can emerge as grammatical rules or 'hard constraints' in others. In the case of animacy patterns in transitive sentences, this results in grammatical constraints against inanimate subjects. Fauconnier (2011) reports on a comparative sample of a large number of languages. She finds that non-agentive or inanimate referents are unexpected in the subject role to such a degree that in some languages, they are not just rare but simply ungrammatical as the subject of a transitive sentence. Kuno (1973) notes this for Japanese, where active sentences with inanimate subjects, e.g. 'the typhoon broke the window', are held to be ungrammatical. Similar constraints have been attested in Mayan languages, where it has been shown that this is not a grammatical rule against inanimate subjects in transitive sentences *per se*, but a rule against objects outranking subjects on animacy (e.g. Craig 1977 for Jakeltek; Minkoff 2000 for Mam-Mayan; see de Swart et al. 2008 for a brief overview). For example, 'the rock hit the man' would be ungrammatical, whereas 'the rock hit the window' is grammatical.

The preference for animate entities to appear at the start of linguistic constructions is known as the Animate First principle (e.g. de Swart et al. 2008; Tomlin 1986), and is not restricted to (active) transitive sentences. For instance, passive sentences are generally less common than active sentences, but passive sentences in turn are more common with animate Patients as opposed to inanimate Patients (van Nice & Dietrich 2003; Prat-Sala 1997; Branigan et al. 2008; Verhoeven 2009). Passivisation may be seen as a grammatical tool to place the (animate) Patient as the grammatical subject of the sentence. Animacy effects also emerge in the dative alternation; i.e. in the choice of the double object versus prepositional object construction in German (Kempen & Harbusch 2004), English (Bresnan & Hay 2008) and Dutch (Geleyn 2016), such that inanimate recipients are more acceptable with the double object construction (i.e. 'she gave

the car a push' versus 'she gave the child a toy') whereas the prepositional construction is preferred with animate recipients (i.e. 'she gave a toy to the child'). Another alternation sensitive to animacy is that of the English possessive (Rosenbach 2008). English allows for the use of both a prenominal 's-genitive' as well as a postnominal 'of-genitive', e.g. 'John's wife' versus 'the wife of John'. Rosenbach (2008) reviews corpus and production studies showing the use of the former is attested decidedly more often with animate possessors, whereas the latter is the default choice for inanimate possessors (e.g. 'the roof of the house'), and furthermore, that this influence cannot be reduced to other factors.

Finally for our introduction, animacy is a factor in the grammatical distributions within relative clauses. Relative clauses are modifiers of noun phrases and may introduce an additional argument, e.g. 'the director, [who watched the movie], ...'. They can occur as either a subject relative, in which the relative clause head is also the subject of the relative clause ('the director' is the subject of 'watched', above), or as an object relative, in which the relative clause head is the object of the relative clause ('the director, who the movie pleased, ...', cf. Traxler et al. 2002). Subject-relative clauses are more common than object-relative clauses and show an animacy distribution akin to that of the transitive sentences as discussed above: the two constituents are either equal in animacy or the subject outranks the object. The object-relative is also consistent with this distribution, with the difference being that the head is now the grammatical object – meaning it is often inanimate whilst the embedded relative clause subject is animate (Fox & Thompson 1990; Roland et al. 2007; Reali & Christiansen 2007 for English; Mak et al. 2002 for Dutch and German); e.g. 'the movie, [that the director watched], ...'. Thus, object-relative clauses present a tension between the Animate First principle and the tendency for animates to pattern with grammatical subjects (cf. also Lamers & de Hoop 2014), which might be resolved by taking into account an additional factor associated with animacy: that of topicality (cf. Mak et al. 2006; 2008).

### 1.1.3 Topicality

Topicality is broadly defined as 'what the sentence is about' (Reinhart 1981; Lambrecht 1994; Brunetti 2009). Givón (1976) identifies several features prototypical for topics, including definiteness, animacy and the person hierarchy – consistent with Dahl's (2008) observation that "[w]e speak more about ourselves than about others" – as do Mak et al. (2006), identi-

fyng animate and pronominal constituents as more ‘topicworthy’ than inanimate or noun phrase constituents. Cross-linguistically, both subjects and topics tend to occupy sentence-initial position (Reinhart 1981; Vogels & van Bergen 2013), and in many cases the topic and the grammatical subject are coreferential (Li & Thompson 1976; Comrie 1989), as sentences also tend to ‘be about’ the grammatical subject. More interesting are cases in which the grammatical subject does not take sentence-initial position, or in which the sentence topic and the grammatical subject do not overlap. Dutch exhibits a strong tendency to place the subject in sentence-initial position (as discussed above), but other, more topical constituents may occupy this sentence-initial position instead, relegating the grammatical subject to post-verbal position (Bouma 2008). Vogels and van Bergen (2013) present a corpus study demonstrating that grammatical subjects are more easily moved from sentence-initial position when they are inanimate and indefinite, suggesting animacy and definiteness contribute to making a constituent more topical. Another case in which the subject does not occupy sentence-initial position is that of the object-relative clause discussed above. Fox and Thompson (1990) suggest that object-relatives (e.g. ‘the movie, that the director watched, ...’) are grammatical tools used to introduce a discourse-novel inanimate referent by grounding it to a previously established discourse topic. This established discourse topic is often definite and animate (e.g. ‘the director’), consistent with the prototypical topic qualities as set out by Givón (1976), and takes the role of the grammatical subject of the relative clause.

## 1.2 Cognitive animacy

What we know so far is that some semantic property is at the heart of reference, word order, and topicality, and a range of other linguistic phenomena. This property has been identified as animacy, commonly defined as a distinction between living and non-living entities; e.g. ‘who’ refers to living beings, ‘what’ refers to inanimate objects. This is a simplification that requires correction on two counts. First, that animacy is a binary distinction (i.e. ‘*between* living and non-living’), and second, that this is based on some inherent biological classification (i.e. ‘*between* *living* and *non-living*’). We will discuss these nuances next, for a conceptual update of the semantic property under investigation.

### 1.2.1 Animacy scales

Further inspection of the ‘animacy’ split underlying linguistic patterns such as those described in Section 1.1 has found that the distinction between ‘animate’ and ‘inanimate’ is subject to further subdivisions that hold more or less universally. Silverstein (1976), interested in explaining the split between nominative-accusative and ergative-absolutive case marking patterns, found that this split was contingent on the animacy of the noun phrase receiving case marking. He formulated a hierarchy from personal pronouns, to proper nouns, to human animates, to non-human animates, to inanimates. Pronouns show nominative-accusative case marking; inanimates ergative-absolutive case marking, and the likelihood of the latter case-marking strategy increases as the animacy of a noun phrase descends the scale. Since Silverstein (1976), multiple animacy hierarchies have appeared in the literature to account for different linguistic phenomena, all following more or less the same structure:

- (1) human > animate > inanimate  
(e.g. Aissen 2003; Croft 2003)
- (2) human > animate > inanimate > abstract  
(Siewierska 2004)
- (3) 1 > 2 > 3 > kin > human > animate > inanimate  
(Corbett 2000)

Note that Silverstein's proposal (1976; see also e.g. Smith-Stark 1974; Langacker 1991; Corbett 2000) subsumes the person hierarchy (1 > 2 > 3) under the animacy hierarchy, whilst other authors make these explicit as separate but highly related hierarchies (e.g. Croft 2003; Siewierska 2004). A similar treatment is given to the related hierarchy of definiteness (e.g. Comrie 1989; Aissen 2003), with Comrie (1989:128) noting that in transitive constructions, the A-argument will most prototypically be animate and definite whereas the P-argument is low in animacy and definiteness, as we already saw in regards to topicality above. Stripped of these related dimensions, the consensus view emerges that, at the minimum, language distinguishes not just animate from inanimate but human from non-human animate from inanimate noun phrases<sup>2</sup>.

The literature employs animacy hierarchies in two ways (de Swart & de Hoop 2018); two ways we would argue are subtly but fundamentally

<sup>2</sup>A comprehensive overview of the animacy hierarchies on offer in the typological literature and their history is available in Gardelle and Sorlin (2018).

distinct. The first is in description of some grammatical phenomenon, as in Silverstein (1976) above. Here, the animacy hierarchy is implicational. That is to say, not all languages will necessarily make all possible distinctions, or the same distinctions across different grammatical constructions, but when a certain grammatical phenomenon (e.g. case or number marking) applies to a certain category on the hierarchy it will also apply to categories higher in the hierarchy but not to those lower in the hierarchy. Haspelmath (2008) provides examples from object marking in Spanish (4), where differential marking applies to the human category only, and Russian (5), where differential marking is used for the human and non-human animate category. Other languages, he notes, may opt to mark all objects (e.g. Hungarian) or not to mark any objects (e.g. Vietnamese), completing the four possible patterns.

- (4) *El director busca el carro / el perro / a su hijo*  
'The director is looking for the car / the dog / his son.'
- (5) *Miša uvidel dom / kot-a / brat-a.*  
'Misha saw the house / the cat / the brother.'

That this results in only four possible patterns follows from the implicational nature of the hierarchy, which prohibits languages from marking non-contiguous categories, i.e. case-marking humans and inanimates but not non-human animates. From this it also follows that the common core of the animacy hierarchy – human > animate > inanimate – can effectively be reduced to a binary distinction grouping non-human animates either with humans or with inanimates (de Swart & de Hoop 2018; Ortmann 1998; cf. Toivonen 2018; de Hoop & de Swart 2018), which Ortmann (1998) terms 'vitalist' and 'homonist', respectively. In this sense, reference to an animacy hierarchy for the description of individual grammars may be superfluous (cf. also the binary use of  $\pm$ animate and  $\pm$ human features which have proven adequate in generative description), and the animacy hierarchy is better seen instead as a description of grammar cross-linguistically (de Swart & de Hoop 2018).

This cross-linguistic comparison has given rise to the second application of the animacy hierarchy: the animacy hierarchy as reflecting conceptual organisation. This step in interpretation is not trivial, as it minimally assumes that linguistic universals are a reflection of universal human cognitive mechanisms and organisation. This assumption is by no means unjustified (as demonstrated by e.g. Branching Direction Theory, cf. Dryer 1992; 2009; see also Bever 1970 for an early and Bornkessel-Schlesewsky



& Schlesewsky 2013 for a recent explicit formulation), but an assumption nonetheless, which we should be careful to note as it shifts the level of description.

As the two applications of the animacy hierarchy differ in their level of description, they are different in kind. The animacy hierarchy in the first instance is a description of grammars cross-linguistically, emerging from a typological comparison of mostly binary oppositions. This 'grammatical' animacy hierarchy may be applied to inform, but does not necessarily describe, the content of a cognitive organisation of animacy. In other words, assuming linguistic universals reflect cognitive organisation, a cognitive categorisation of animacy must minimally be able to account for languages distinguishing humans from non-human animates from inanimates in light of the grammatical evidence, but this human > animate > inanimate hierarchy need not be the extent of the cognitive categorisation.

### 1.2.2 Anthropocentrism and empathy

What, then, is contained in the cognitive categorisation of animacy? The distinction between the human and non-human animate categories in grammar – and most languages categorising plants as inanimate – allows us to rule out a purely biological categorisation. At the same time, it suggests a compelling alternative: an organisation along egocentrism or anthropocentrism (Yamamoto 1999; Langacker 1991; Dahl 2008; Rosenbach 2008; Gardelle & Sorlin 2018). Yamamoto (1999), observing that animacy scales depart from a human category, tells us that this should hardly be surprising given that linguists are human beings observing language from their own point of view. This, she argues, is a reflection of a broader human tendency to view the world, not just language, from an egocentric viewpoint: as things like us – identities, selves – experiencing and acting on the environment around us.

In this, Yamamoto (1999) notes, animacy is clearly linked to empathy. Linguistic empathy is defined as “the speaker’s identification, with varying degrees, with a person who participates in the event that he describes in a sentence” (Kuno & Kaburaki 1977:628). Thus, the animacy hierarchy can be seen as an *empathy* hierarchy (as indeed it has been, cf. Langacker 1991; DeLancey 1981). A cognitive categorisation based on identification and empathy – on ‘likeness to oneself and common concerns’ (Langacker 1991:307) – allows for a more fine-grained, culturally and contextually dependent linguistic expression of animacy. For example, Yamamoto

(1999) observes that 'higher' animals and pets are routinely expressed using grammatically animate constructions usually reserved for human beings; e.g., cats being referred to with masculine or feminine pronouns in English and other languages (cf. Gardelle & Sorlin 2018; Kaiser 2018), or kangaroos, dogs and emus grouping with humans in the aboriginal language Ritharngu (Aissen 2003:456). Yamamoto (1999) further notes that this is not a property of the animal itself but depends on the attitude of the language user: a person who has a dislike for cats would be more likely to use a neuter pronoun than someone crazy about cats. In a related example, Peltola (2018) presents corpus data from a Finnish radio programme where listeners call in with nature observations. She found that certain grammatical constructions that are only open to human reference in Finnish can nevertheless be acceptable with non-human animates, provided they share certain human-like characteristics. We discussed Rosenbach (2008) in Section 1.1, showing that animacy influences word order in the English genitive construction. Rosenbach (2008) found that this can also be further subdivided on a cognitive scale. For example, nouns referring to geographical locations are more animate when conceptualised as political entities rather than places (e.g. 'Germany's intentions' versus 'the main streets of Germany'). Yamamoto (1999:18) discusses more borderline cases such as supernatural beings and 'particular kinds of modern machines which operate in a rather human way' such as computers – 'clever like us', and cars – with 'headlights as eyes, numberplates as mouths and tyres as four legs'. Nelson and Vihman (2018) analyzed the language used with the various living toys in *Toy Story*. They find that the more human toys (e.g. the main characters Woody and Buzz) are referred to with the full range of human expression: definite and indefinite noun phrases, gendered pronouns, names and nicknames, indicating familiarity. As the toys become less human-like some of these features are lost, but even the 'inanimate' toys such as an Etch A Sketch, a toy car and a pair of binoculars gain some animate expressions like names and nicknames.

To conclude, Yamamoto (1999:22, cf. Nelson & Vihman 2018:208) suggests an anthropocentric scale of cognitive animacy that is radial in nature. It departs from an 'individual human being' prototype, with proximal peripheral categories like supernatural entities, human-like machines and higher animals and more distal categories like physical objects and lower animals. This radial cognitive scale matches the criterion set out above: it is able to account for the 'human > animal > inanimate' hierarchical scale we find reflected in grammars cross-linguistically, whilst also allowing for individual, cultural or contextual variation depending on viewpoint.

### 1.2.3 The psychology of animacy

A classification as fundamental as animacy is of obvious relevance to other cognitive domains, and consequently, there is an established tradition of animacy studies in psycholinguistics and psychology more generally. Evidence for a neurological basis for some form of animacy classification comes from the deficit and developmental literature. Semantic memory deficits due to injury or disease result in patients being unable to recognise animals but unimpaired on inanimate objects such as tools, whereas the reverse pattern can also occur (e.g. Nielsen 1946; Forde & Humphreys 1999; Devlin et al. 2002). The categorisation process itself emerges early in development and is one of the last to be lost (e.g. Rakison & Poulin-Dubois 2001; Fong et al. 2017). A variety of neuroscientific studies show category-specific organisation of animate and inanimate representations in different brain regions (e.g. Price & Friston 2002; Proklova et al. 2019).

Behavioural evidence for a processing difference between animate and inanimate stimuli comes from New et al. (2007). New et al. (2007) present a visual experiment using a change-detection paradigm. They presented participants with pairs of complex visual scenes which differed by the presence or absence of one object from different categories, e.g. animals (including humans) and various subcategories of inanimate objects. Participants reacted substantially faster to the appearance or disappearance of animals relative to changes in other objects. New et al.'s results show that visual attention mechanisms are specifically sensitive to animate stimuli. Similar processing sensitivities have been found for morphological features specific to animates such as faces (e.g. Leopold & Rhodes 2010), hands (Leslie 1984), and eyes (Looser & Wheatley 2010).

Inanimate entities which do not match typical 'animate' biology or morphology can nevertheless be considered to be cognitively animate based on their behaviour (Scholl & Tremoulet 2000; Primus 2012; Vihman & Nelson 2019). In a very early study, Heider and Simmel (1944) presented participants with visual displays in which several simple geometric shapes were shown moving in distinct ways. A display might be one square approaching another, static square. Upon the approaching square reaching the static square, the latter quickly moves away in a random direction, resting only when it is again quite some distance away from the approaching square. This repeats several times. Although this display contained nothing more than geometric cutouts moving in paths, participants readily ascribed intentions and feelings to the shapes. Heider and Simmel's (1944) result has been replicated consistently, with varying shapes, tra-

jectories and tasks (Tremoulet & Feldman 2000; see Scholl & Tremoulet 2000 for an overview), demonstrating that certain types of autonomous motion are classified and described as animate even when these apply to clearly inanimate objects such as geometric shapes. Another example comes from Vogels et al.'s (2013) animation-retelling experiment, briefly introduced in Section 1.1, where we saw that geometric shapes with an animate lexical label (e.g. 'toddler') were pronominalized in retellings more often than shapes with an inanimate lexical label (e.g. 'shoe'). Vogels et al. (2013) did not only manipulate the lexical label of the geometric shapes, but also their paths. The path could either be 'inanimate', e.g. the shape rolling down a slope on the screen, or 'animate', e.g. the shape climbing up that same slope under its own energy. In the absence of a lexical label, inanimate paths led to a pronominal expression in 69% of cases. When the path was animate, pronominalization rate increased to 88%. They conclude that participants readily conceptualized objects as more animate or more inanimate based on motion cues.

Motion and implied causation can also lead to grammatically animate expression in the absence of perceptual cues. Lowder and Gordon (2015) present an eye-tracking study demonstrating that participants experience less processing difficulty with inanimate subjects of action verbs in sentences like 'the tornado injured the farmer' as opposed to 'the revolver injured the farmer', which they argue is due to the cognitive attribution of agency and volition to natural forces.

To conclude our conceptual update: grammatical animacy is a reflection not of a distinction 'between living and non-living', but of the extent to which we consider a referent to be alive. Animacy is driven by a cognitive ontology (Fraurud 1996; Dahl 2008) organised along an anthropocentric prototype structure – gradient and somewhat culturally and contextually-dependent – based on a universal human sensitivity to referents 'like us' in both identity and behaviour (Yamamoto 1999; Dahl 2008; Primus 2012; Gardelle & Sorlin 2018; Vihman & Nelson 2019).

### **1.3 Animacy and processing**

What are the mechanisms by which cognitive animacy finds its way into grammar? To answer this question we depart from a property of language at once both trivial and fundamental: we can only communicate one word at a time. The linguistic signal is linear, so when we think of language in the broadest sense as expressing a collection of ideas, these ideas can

necessarily only be expressed one after the other (de Saussure ([1916] 2011). The second piece of the puzzle is a property of ideas: not all ideas are created equal. In our experience of the world, we are more sensitive to and communicate more about some referents over others, e.g. to cognitive animates over inanimates as we saw in Section 1.2.

Combined, these properties lead to an account of production that is grounded in *conceptual accessibility* (Bock & Warren 1985; Prat-Sala & Branigan 2000; Branigan et al. 2008; Gennari et al. 2012; Vogels et al. 2019). During the incremental process of language production, concepts have to be retrieved and put in a linear grammatical structure (Garrett 1980; Levelt 1989), and the degree to which these concepts are activated in memory – because they are inherently more topical or have already been established as discourse topics – determines how quickly a referent can be retrieved. From a diachronic perspective, these parameters naturally evolve into the most efficient organisation of the language system: to place the referent which is retrieved most quickly first in the linguistic structure, consequently allowing more time for the retrieval of the less activated concept. The more accessible referent will more often than not turn out to be the more animate noun phrase, leading to its prominent place in the linguistic structure – the Animate First principle. Further diachronic evidence comes from the emergence of the Animate First principle in novel linguistic systems (e.g. Meir et al. 2017), whilst synchronic evidence is provided by production experiments on e.g. active/passive and dative alternations (cf. Branigan et al. 2008; Gennari et al. 2012; Lamers & de Hoop 2014) where participants produce that structural alternative which allows them to place the animate constituent first in linear ordering even when it is not the Agent of a transitive event.

The language system can then make use of these established patterns in comprehension to facilitate processing or to resolve temporary ambiguities (e.g. Bates & MacWhinney 1989; Bornkessel-Schlesewsky & Schlewsky 2009). A classic example comes from Ferreira and Clifton (1986):

- (6) a. The witness examined by the lawyer turned out to be unreliable.  
b. The evidence examined by the lawyer turned out to be unreliable.

Both sentences in (6) are temporarily ambiguous: ‘examined’ can serve either as the finite verb of a main clause – the most common function –

or as the verb of a reduced relative clause – the function it serves in (6). The language user prefers the more common function, as indicated by processing difficulty observed on the *by*-phrase – we expect ‘examined’ to be a finite verb followed by a direct object. In (6b), however, this difficulty is reduced: ‘evidence’ is inanimate, and thus not a good thematic fit for the verb ‘examined’. Interaction models of language comprehension (MacDonald et al. 1994; Trueswell et al. 1994) assume that semantic information, e.g. animacy, is used immediately to guide interpretation: noting that the first constituent is inanimate gives us non-zero information on its likelihood to be the grammatical subject, especially in languages in which word order is less fixed and thus a less reliable cue (MacDonald et al. 1994; Bornkessel-Schlesewsky & Schlesewsky 2009).

Traxler et al. (2002), introduced briefly in Section 1.1, demonstrate such an effect of animacy on the processing of relative clauses, in which the first constituent – the relative-clause head – can either take the subject or object role in the relative clause, as in (7), adapted from Traxler et al. (2002).

- (7) a. The director that the movie pleased received a prize at the film festival. (Object-relative)  
b. The director that watched the movie received a prize at the film festival. (Subject-relative)

Object-relative clauses are significantly harder to process than subject-relative clauses (e.g. Frazier 1987; King & Just 1991; Gibson 1998). As previously discussed, this processing difference is reduced or even absent when the head of the relative clause (‘the director’ in (7)) is inanimate (e.g. Traxler et al. 2002; Traxler et al. 2005; Mak et al. 2006; Gennari & MacDonald 2008); i.e. we experience no, or a significantly reduced, processing difference comparing the sentence pair in (8).

- (8) a. The movie that the director watched received a prize at the film festival. (Object-relative)  
b. The movie that pleased the director received a prize at the film festival. (Subject-relative)

Whilst debate remains as to exactly how and when animacy is used to guide interpretation of relative clauses or language in general – in a single stage or through facilitating reanalysis in two-stage models, mediated through or independent from thematic roles (cf. Paczynski & Kuperberg 2011; Bornkessel-Schlesewsky & Schlesewsky 2009; Gennari & MacDon-

ald 2008 for discussion) – the evidence for our present purposes is clear: the language user is able to make use of the semantics of animacy to facilitate comprehension or resolve temporary ambiguities during sentence comprehension.

## 1.4 Contextual animacy and the narrative experience

The picture so far is that cognitive animacy diachronically and synchronically gives rise to the grammatical patterns observed cross-linguistically through processing mechanisms such as conceptual accessibility, and that language comprehension is sensitive to the resulting grammatical patterns.

Importantly, this influence is not uni-directional: as cognitive animacy influences linguistic expression, so too does linguistic expression influence cognitive animacy. This idea is made explicit in de Swart and de Hoop (2018). They consider a grammatical phenomenon known to be sensitive to animacy distinctions – differential object marking. De Swart (2014) describes an instance of differential object marking in Dutch, associated with a set of verbs of physical contact which take animate arguments as direct objects but inanimate arguments as prepositional objects, as in (9) and (10).

(9) *De hond beet de man.*  
 the dog bit the man  
 ‘The dog bit the man.’

(10) *De hond beet in het brood.*  
 the dog bit in the bread  
 ‘The dog bit the bread.’

De Swart and de Hoop (2018), following Dahl (2008), argue that the distinction between ‘the man’ in (9) and ‘the bread’ in (10) is one of *ontological type*, i.e. the animate ‘man’ and inanimate ‘bread’ represent distinct categories of existence. They further argue that the verb, *bijten* ‘to bite’, comes with selectional restrictions requiring an object of the animate type. To overcome the mismatch between the ontological type of the object and the selectional restrictions of the verb in (10), the preposition is inserted as an *overt* type shifter: the resulting *bijten in* is a complex verb selecting an object argument of the inanimate type.

A further observation made by de Swart (2014) is that these verb selection restrictions can be violated, as in (11), without resulting in outright ungrammaticality.

- (11) *De gier beet in de man.*  
the vulture bit in the man  
'The vulture took a bite out of the man.' (lit. 'bit in the man')

In de Swart and de Hoop's (2018) analysis, this construction presents a *covert* type shift. Conceptually, the grammatical context has transformed the cognitively animate 'man' into the ontological type consistent with the selectional restrictions of the complex verb: that of a cognitively inanimate 'man', which de Swart (2014) argues signals a lack of sentience.

Thus, verb selectional restrictions or "the context in general" (de Swart & de Hoop 2018:14) can conceptually shift referents between ontological types, i.e. transform cognitively inanimate referents into cognitively animate ones and vice versa based on the linguistic environment. In this view, the language system will attempt to analyse 'ungrammatical' mismatches between cognitive animacy types and verb selectional criteria as cognitive animacy shifts (e.g. 'the man' as one lacking sentience, as in (11)), or as a shift in reference (as in the metonymic 'ham sandwich' sitting at table 7 – made famous by Nunberg 1979 – referring to the person ordering the ham sandwich).

The ease with which the linguistic system is able to adopt covert type shifts is demonstrated in two EEG studies by Nieuwland and van Berkum (2006). In the first, participants were presented with short narrative contexts in which an 'animate role' was taken by either a person or an inanimate object, as in (12)<sup>3</sup>.

- (12) Once upon a time, a psychotherapist was consulted in her home office by a **yacht / sailor** with emotional problems. (...) The psychotherapist consoled the **yacht / sailor** by stating that everybody experiences these kinds of trouble every now and then. (...) The psychotherapist advised the **yacht / sailor** to be honest not only with her, but especially with himself.

The first mention of an inanimate object in such a role elicited an N400 effect, an event-related potential reliably elicited by semantic or discourse-

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<sup>3</sup>The narrative contexts in this study consisted of six sentences, with ERP recording at the first, third and fifth sentence. These three sentences are represented here, with the second, fourth and sixth sentence omitted for brevity.



level violations, compared to the animate referent. Continuing the story, however, the N400 to subsequent mentions of the troubled yacht decreased, indicating participants gradually adapted to a narrative world in which yachts are cognitively animate to the extent they are conceived of as sentient. In their second study, participants were presented with an inanimate character which received either an ‘inanimate’, lexically appropriate predicate, or an ‘animate’, contextually appropriate predicate, as in (13).

- (13) A woman saw a dancing peanut who had a big smile on his face. The peanut was singing about a girl he had just met. And judging from the song, the peanut was totally crazy about her. The woman thought it was really cute to see the peanut singing and dancing like that. **The peanut was salted/in love**, and by the sound of it, this was definitely mutual. He was seeing a little almond.

Nieuwland and van Berkum (2006) found that the lexically appropriate predicate, i.e. ‘salted’, elicited an N400 compared to the contextually appropriate but semantically anomalous ‘in love’, which they take to extend their finding from the first study showing that context can not only neutralize, but actively overrule local animacy violations.

We would make this explicit, following de Swart and de Hoop (2018), as the narrative context somehow accomplishing a type shift of the inanimate peanut towards a cognitively animate entity. This raises many questions, however. What linguistic characteristics were employed in accomplishing this shift? Is the resulting cognitive construct identical to a ‘canonical’ animate? What would it mean to be ‘canonically’ animate in the first place? Furthermore, the animacy shift in Nieuwland and van Berkum’s (2006) peanut led to predictions on the semantic and discourse level, i.e. participants preferred the peanut to be in love rather than salted. Do animacy shifts also lead to grammatical predictions, i.e. does a dancing peanut grammatically pattern with animates or inanimates?

The narrative environment provides a unique perspective towards answering these questions. Non-human or even inanimate characters such as Nieuwland and van Berkum’s (2006) peanut are well-established in literary fiction. An example we will discuss extensively in subsequent chapters is the narrator of Willem Jan Otten’s 2004 novel *Specht en zoon* ‘The portrait’ – a painting, passively observing and commenting on the interaction between its creator and his client. *Specht en zoon*’s painting is only one example of many, with counterparts such as Mulisch’s statue in

*Het beeld en de klok* ‘The statue and the clock’, a strawberry in Biesheuvel’s *Lieveheersbeest* ‘Ladybug’, a book in Kerbaker’s *Diecimila* ‘Ten Thousand’, and an assortment of substances in Carey’s *Autobiographies*. Literary science has noted that the narrative experience of such inanimate or non-human characters is associated with a sense of defamiliarization or distancing (Bernaerts et al. 2014). By explicitly drawing the reader’s attention to the ‘counter-ontological’ status of the inanimate character, we are reluctantly invited to share the viewpoint of an entity which is ontologically incapable of having a viewpoint.

The narrative experience has, in part, been successfully analysed using linguistic features. The cognitive mechanisms of narrative viewpoint specifically have been extensively studied in cognitive poetics (Dancygier 2017; Herman 2013; Stockwell 2002), down to very fine-grained, quantitative levels of description (e.g. Eekhof et al. 2020; Wildschut 2018). We might take a similar approach to animacy shifts. At the global level, Stockwell (2009:25) provides a hierarchy of ‘empathetic recognisability’, i.e. those characters which are especially good targets for a shared cognitive viewpoint, represented in (14).

(14) human speaker > human hearer > animal > object > abstraction

Stockwell’s (2009) hierarchy in (14) is clearly reminiscent of the animacy or empathy scales we saw in Section 1.2. Like many of the hierarchies discussed in that section (e.g. Langacker 1991; Silverstein 1976), it also incorporates elements of the related person hierarchy by making a further distinction between human speakers and human hearers. This is promising, as the person hierarchy has been successfully linked experimentally to empathy and the narrative experience (e.g. Hartung et al. 2016; Brunyé et al. 2011). Arguably, we should also be able to quantify the narrative experience of animacy shifts as paintings or peanuts move from objects to human-like characters and narrators, identifying which contextual features contribute to animacy-based narrative empathy in the absence of a cognitive framework for living paintings or peanuts.

A better understanding of the narrative experience can in turn inform linguistic theory. The effects of animacy on online comprehension discussed in Section 1.3 were uncovered mostly using single sentences. Willems (2013) observes that the practice of investigating isolated stimuli is not rare in psycholinguistics. Indeed, the elimination of potential confounds – in practice: context – is often seen as a hallmark of good experimental design. Willems (2013) argues that this not only leads to

'boring experiments', but more importantly, that some ecological validity is inevitably lost: in the real world, language is surrounded by context, which may influence the processing of isolated sentences in interesting ways.

We believe animacy-shifting narratives to be one of these interesting ways. We saw earlier in the discussion of de Swart and de Hoop (2018) that animacy shifts may be accomplished by as much as a single construction, as in the case of the differentially-marked object (cf. de Swart's (2014) *de gier beet in de man*) or that they may emerge gradually over the course of a whole narrative (e.g. Nieuwland & van Berkum 2006). In the case of the singular construction, animacy shifts may appear to be idiosyncratic at first glance. Why should differential object marking with verbs of physical contact in Dutch lead to an implicature of a lack of *sentience*, specifically, out of all animate features? The full, uncontrolled context of an entire narrative as in Nieuwland and van Berkum (2006), conversely, brings in a plethora of animate features, from agency to sentience – from dancing to falling in love –, leaving open which of these features contributes to animacy shifts and to what extent.

It is here that an analysis of the narrative environment can inform linguistic theory. Can we identify and quantify those lower-level linguistic features in the narrative context that are associated with animacy shifts? Are these the same features as those associated with 'canonical' animates, or can we detect subtle differences resulting from the animacy shift? Having identified these features, can we reintroduce them into processing studies along the lines of Nieuwland and van Berkum (2006) in a more controlled way?

## 1.5 Bringing stories to life

The current work explores animacy through the lens of processing and narrative. From Section 1.1, we learnt that animacy is pervasive across the world's languages, giving rise to distinctive linguistic patterns that are to a large extent universal. Section 1.2 discussed the cognitive organisation of referents on which these distinctions are based. In Section 1.3, we explored the mechanisms by which animacy influences language production and comprehension. Section 1.4 introduced animacy shifts and the narrative environment as a testing ground for some of our assumptions. How do we bring stories to life? What is linguistic life, when even inanimate objects can come to possess it during the course of a narrative? How

might an analysis of the narrative environment enrich what we already know about animacy from studying it as a static, dichotomous property in processing studies?

We continue, in **Chapter 2**, by investigating the nature of animacy as a predictor for grammatical variation in Japanese and Persian using cognitive ratings and grammatical acceptability studies. Specifically, we look into using cognitive ratings of ‘how alive’ an entity is, to predict how that entity is expressed grammatically. We contrast this to an explanation of grammatical expression based on a binary biological distinction.

If animacy is to be based on more than just a biological distinction between living organisms and inanimate objects, this raises the question of what further properties conspire to make an entity more or less ‘alive’ in a linguistic sense. In **Chapter 3** we take our first steps into narrative, using a comparative corpus study to map the grammatical expression associated with an inanimate object turned animate narrator. We focus on two thematic roles that might contribute to a linguistically animate expression: Agentivity and Experiencerhood.

Our next step, in **Chapter 4**, is to investigate the influence of these thematic roles on the narrative experience. We manipulate narrative to transform an inanimate object into an animate character in a controlled way, by constructing short stories with an animate or inanimate character that was either an Agent or an Experiencer. We ask readers about their narrative experience whilst reading the story; specifically, the extent to which they feel empathy for the character.

In **Chapter 5** we investigate the processing of inanimate characters in real time, using short narratives in an attempt to transform lexically inanimate objects into cognitively animate entities using a self-paced reading study. Here, we are interested in the extent to which cognitive animacy, captured in shifting thematic roles as the narrative unfolds, is able to explain grammatical patterns previously uncovered by using lexical animacy distinctions.

The general discussion in **Chapter 6** summarises the findings from the previous chapters. This chapter presents our own answer to the meaning of linguistic life. We address some shortcomings and pitfalls in our line of research, and discuss implications for further research into animacy in narrative and processing.

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## Chapter 2

# Gradient cognitive animacy: a universal predictor for grammatical variation

### Abstract

Animacy, commonly defined as the distinction between living and non-living entities, is a useful notion in cognitive science and linguistics employed to describe and predict variation in psychological and grammatical behaviour. In the psycholinguistics literature we find grammatical animacy dichotomies which are (implicitly) assumed to correspond to biological dichotomies. We argue this is problematic, as it leaves us without a cognitively grounded, universal description for non-prototypical cases. We show that ‘animacy’ can be better understood as a gradual, cognitive property by collecting animacy ratings for a great range of nouns from Japanese and Persian. We used these cognitive ratings in turn to predict grammatical variation in these languages traditionally explained through a dichotomous distinction. We show that whilst languages may subtly differ in their conceptualisation of animacy, the mapping of conceptual animacy to grammatical variation can be assumed to be universal.

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## 2.1 Introduction

Few cognitive distinctions are as salient as that based on animacy. Classifying an entity in the world as either living or non-living has direct consequences for the way we conceptualise it, and in turn its behavioural entailments and affordances – the way we predict it to act and the way we are expected or able to act upon it. A cognitive classification of animacy has been widely attested in a great number of studies in varying psychological and developmental domains. Perhaps not surprisingly, given its apparent cognitive relevance, a great number of the world's languages exhibit some effect of animacy (Vihman & Nelson 2019; Dahl & Fraurud 1996; Yamamoto 1999).

Here we should immediately note that 'animacy' may be defined differently from field to field, and even within fields there is often surprisingly little consensus on how to operationalize its effects. From our first paragraph alone we can distinguish three separate senses: 1) biological animacy, the extent to which an entity is living or non-living according to some biological criteria; 2) cognitive or semantic animacy, the way we conceptualise the entity based on some notion of attributed 'animate' behaviour such as agentivity, motion and volitionality, and 3) linguistic or grammatical animacy, which is the ultimate grammatical reflection of some assumed cognitive animacy classification process. Prototypically, the classification of entities will overlap on every level of distinction: human beings and non-human animals, as biologically living entities, exhibit certain behaviour that we conceptualise cognitively as animate in contrast to biologically inanimate objects – such as independent motion, volitionality and sentience. This is reflected semantically in the thematic role of the (Proto-)Agent (Dowty 1991; Grimm 2005; Primus 2012), which in turn is expressed linguistically in e.g. grammatical role distributions (through prototypical transitivity, cf. Hopper & Thompson 1980), case marking patterns (e.g. Aissen 2003), and even seemingly unrelated linguistic dimensions such as number agreement (Corbett 2000).

More illuminating are non-prototypical cases in which the biological classification does not correspond to the linguistic one, as these allow us to reconstruct what is actually reflected linguistically. One will note first off that the majority of the different animacy scales on offer in the linguistic literature (e.g. Silverstein 1976; Comrie 1989; Yamamoto 1999) will minimally distinguish humans from non-human animals – and group plants with inanimates –, a distinction that is biologically questionable but cognitively understandable (Yamamoto 1999). This also brings us to



an important distinction between cognitive animacy on the one hand and both biological and linguistic animacy on the other: granularity. Linguistic animacy, as we define it in its ultimate expression, is necessarily discrete, almost without exception dichotomous: the language user produces either a subject or an object, either a singular or a plural verb suffix, either an unmarked or a marked case. Cognitive animacy, conversely, resists a binary classification as its properties are constructed or ascribed rather than referentially based: ‘animate’ properties can be present in a given cognitive construct to varying degrees and are contextually dependent. As an example, many animacy effects in language are sensitive to criteria not inherent to the referent’s biology: e.g. supernatural entities, vehicles, electronics and natural phenomena are routinely ascribed some (degree of) animate properties such as agentivity, experience, motion or volitionality (Lowder & Gordon 2015; Yamamoto 1999; Dahl 2008; Rosenbach 2008) and gain linguistically animate expression as a result. This ascription can differ contextually, and is highly flexible: given the right contexts, non-human animals and even inanimate objects can receive linguistically human expression (Peltola 2018; Trompenaars et al. 2018), to the extent that, in extremis, it makes more sense to speak of e.g. peanuts falling in love than being salted (Nieuwland & van Berkum 2006).

Thus, there is a great degree of flexibility in the cognitive dimension of ‘animacy’. Far from a binary factor that directly maps biology to linguistic constructions, the ‘animacy’ expressed in language is a fine-grained cognitive, gradient scale (de Swart & de Hoop 2018; Fraurud 1996). Entities enter into ‘animate’ constructions when they are cognitively construed to have the capacity for certain animate-like behaviour, either inherently or through contextual application, rather than as a direct reflection of an ontological categorization on the basis of biology. The implications of this are often understated and not widely applied beyond the linguistic literature.

### **2.1.1 Animacy as a cognitive universal**

Neglecting the cognitive nature of animacy can potentially make ‘animacy’ classifications cross-linguistically and cross-culturally problematic. We take, as a case study, the grammatical dichotomies present in Japanese existential verbs and Persian number agreement. These distinctions are traditionally explained in terms of (biological) animacy: living entities gain one type of expression, non-living entities gain another type of expression. This explanation is appealing, since it maps a discrete

grammatical dichotomy onto a discrete biological dichotomy. Furthermore, if indeed linguistic animacy were based on biological animacy, the universality of this explanation is also straightforward. Since biological animacy is inherent to the referent – which remains universally fixed – we can assume ‘animacy’ to be objective, and there should be no issues applying the same (dichotomous) notion of animacy cross-linguistically and cross-culturally as an explanatory factor for grammatical variation. If, however, linguistic animacy is translated through a level of cognitive animacy, then the classification of specific nouns need not be universal or culturally independent, and applying the same concept universally becomes problematic. Cognitive animacy, whatever its content, is flexible and gradient, and in principle it may or may not differ considerably contextually and culturally. This difference can also be one of degree rather than polarity, i.e. the conceptual animacy of a noun might not be animate in one and inanimate in another culture, but might be sufficiently more or less animate.

There are grounds to assume cognitive animacy might not be universal, if only because of simple linguistic drift. Accidents of history or phonology can lead to languages grammatically classifying e.g. strawberries as inanimate and raspberries as animate (Anderson 1997; de Swart, Lamers & Lestrade 2008). Since the interface between cognitive and linguistic animacy runs both ways, grammatical animacy can in turn influence cognitive animacy. The single fact that a novel entity resembles an established entity that is grammatically classified as animate or inanimate can influence the categorization of the novel entity by analogy, or the single fact that an inanimate entity is expressed in a linguistically animate construction might make it cognitively animate in that instance (cf. de Swart & de Hoop 2018; de Swart 2014), regardless of biological criteria. For example, we would not be surprised to find raspberries rated higher in animacy than strawberries in some cultures whereas this difference is completely absent in others.

Thus, typologically explaining grammatical variation by a limited, culturally biased and/or ad-hoc definition of animacy in one’s first language is not without risk if cognitive animacy is allowed to vary considerably, and it seems eminently sensible to first establish whether cognitive animacy is indeed universal before applying it universally. This was also the motivation behind Radanović et al. (2016). Radanović et al. (2016) were interested in the content and universality of ‘semantic’ (cognitive) animacy ratings, noting that animacy is too often applied dichotomously, especially in the psychology literature. They carried out an off-line subjective

rating task on 72 Serbian and English nouns. The nouns denoted a variety of animate and inanimate categories, such as humans, animals, plants, vehicles, supernatural entities and objects, which they asked participants to judge on a 7-point Likert scale on 'how alive they were'. They obtained ratings in Serbian and English that were gradual, with no clear category boundaries between e.g. humans and non-human animals. They also found that 'lower animals' seem to consistently rank below humans and non-human higher animals. For these reasons Radanović et al. (2016) speculate that cognitive animacy ratings are codetermined by biological animacy as well as a 'linguistic' anthropocentrism – although it remains unclear why anthropocentrism should primarily be linguistic in nature.

With regard to universality, they found that animacy ratings were highly correlated between the Serbian and English questionnaires. A limitation Radanović and colleagues note (2016:1493) preventing them from making strong claims about universality is that English and Serbian are quite close linguistically, and, we would additionally argue, culturally. Our first study is aimed at gathering cognitive animacy ratings by replicating and expanding upon Radanović et al. (2016) in two additional, more distantly related languages: Persian (Indo-Iranian) and Japanese (Japonic), also making a within-language, between-culture comparison (Iranian speakers of Persian in Iran and Dutch-Iranian speakers of Persian in the Netherlands), to see what differences, if any, may be introduced by linguistic or cultural factors.

Armed with cross-linguistic ratings of cognitive animacy, we move on to the grammatical level of animacy in our second study. Attempts to explain grammatical variation with discrete – implicitly biological – animacy scales inevitably run into category 'leakage': some obstinate referents do not adhere to their category expectations. We have already mentioned inanimate strawberries and animate raspberries; Aissen (2003:456) notes that in e.g. Yiddish, Differential Object Marking (DOM) is restricted to, but does not extend to the entire category of humans, and in Ritharngu, DOM 'leaks' across the human-animate boundary where kangaroos, dogs and emus grammatically group with humans, rather than other non-human animates. Explanations to account for this 'leakage' are forced to specify even more fine-grained discrete categorisations, and/or resort to cultural differences, and the universality is lost. Alternatively, novel analyses of the grammatical phenomenon might arise, which introduce factors to attenuate or even replace animacy as the explanatory variable. So too in Japanese and Persian. The grammatical dichotomies present in Japanese existential verbs and Persian number agreement are traditionally explained mostly

in terms of biological animacy. We will discuss how exceptions to the biological dichotomy have led to more nuanced analyses which introduce additional factors. In our second study, we ascertained whether the analyses can be enriched by a better appreciation of the cognitive level of animacy instead. Specifically, we investigated the effects of cognitive animacy (as measured by our first study) on the grammatical dichotomies present in Japanese and Persian by means of grammatical acceptability studies. We will first discuss these grammatical animacy effects in our target languages, Japanese and Persian, before turning to our cognitive rating and grammatical acceptability questionnaires.

### 2.1.2 Animacy in Japanese existential constructions

The Japanese existential construction distinguishes two existential verbs, *aru* and *iru*, which can enter into locative sentences. A generalization common to reference grammars and L2-materials (e.g. Maynard 2011:102; Banno et al. 1999:77) – or gleaned from a quick Internet search – is that the verbal distinction is based on the animacy of the referent: *iru* is used with animate subjects; *aru* with inanimate subjects, as illustrated by the locative constructions in (1) and (2).

- (1) *kuruma no naka ni okāsan ga iru*  
car GEN inside LOC mother NOM EXIST  
'There is a mother in the car.'
- (2) *sōko no naka ni hako ga aru*  
warehouse GEN inside LOC box NOM EXIST  
'There is a box in the warehouse.'

This distinction is also found in reference grammars, with slightly more nuance, where existence, possession and location are often discussed in conjunction. A thorough overview is available in Strauss (2008). Morita (1977) has *aru* as the verb used to denote the existence of (inanimate) objects in a location, but also notes the verb being used in possessive constructions, as in (3).

- (3) *Nihon ni wa jiyuu ga aru*  
Japan LOC TOP freedom SUBJ EXIST  
'Japan has freedom. / There is freedom in Japan.'

Morita (1977) further states that animate referents can enter into this possessive construction with *aru*, but only if these 'exist in a strong rela-

tionship to the speaker such that it is impossible to break that relationship' (Strauss 2008:182). Strauss (2008) also discusses Kitahara (1984), which has *aru* as acceptable for animate referents provided these are indefinite, as in (4), and Mikami (1972), which has *aru* as acceptable for animate referents when these denote no 'record of movement', as in (5).

- (4) *kiboosha ga attara itsudemo uketsukemasu*  
 applicant SUBJ EXIST.COND anytime receive-POL  
 'If there are any applicants, I will accept them at any time.'
- (5) *oori no kata wa arimas-en ka?*  
 get.off GEN person TOP EXIST.POL-NEG Q  
 'Is there anybody who wants to get off here?'  
 (announced by a train conductor)

In contrast, *iru* is treated as applicable for existence only, in combination with volitional, sentient, prototypically animate subjects (Morita 1977). For inanimate subjects to occur with *iru*, Mikami (1972) argues they must be volitional, and Morita (1977) and Mikami (1972) argue they must be personified as being capable of movement (Strauss 2008).

Strauss' (1993; 2008) own cognitive account centres the definition of *aru* and *iru* not on existence, but on movement, associating *aru* with a lack of expected movement and *iru* with the expectation of movement. She tested this hypothesis using a rating study. Participants were asked to rate the acceptability of sentences including animate, inanimate and, specifically, inanimate vehicle nouns, which were completed with either *aru* or *iru*. She found that animate nouns combined almost exclusively with *iru*, unless conceptualized by participants as 'a thing', such as a crowd waiting at a bus stop. Inanimate vehicle nouns were sensitive to a potential for motion evoked by context: participants more readily accepted *iru* for a ship at sea or an elevator car between floors than they did for a yacht in port or an elevator entrance on a certain floor. Clearly, the biological animacy of the referent is not the only factor determining the acceptability of *aru* and *iru*, but we do not follow Strauss' (2008) analysis for the distinction as a mere artefact of motion or prescriptive grammar either. We will return to this in the discussion.

### 2.1.3 Animacy in Persian number agreement

Animacy is also held to play a role in Persian subject-verb agreement. Lazard (1992), in a contemporary grammar of Persian, notes that 'plural

animate beings (having will or feeling)' combine with plural agreement, whereas 'inanimate beings (or things considered as inanimate)' combine with singular agreement. Mahootian (1997), in a descriptive grammar of Persian, describes the number agreement system as verbs agreeing with their subject on number and gender, but further notes that "[a]n important exception to subject-verb agreement is with inanimate plural subjects, which can take a singular verb" (Mahootian 1997:145). The optionality is exemplified by Mahootian (1997:136) in (6) and (7).

- (6) *chamedun-â tu-ye mâshin-e*  
suitcase-PL in-EZ car-COR.SG  
'The suitcases are in the car.'
- (7) *chamedun-â tu-ye mâshin-and*  
suitcase-PL in-EZ car-COP.PL  
'The suitcases are in the car.'

Animacy effects on number marking are not exceptional typologically, with optional or absent plural marking, if such exists, typically possible only in combination with noun phrases towards the inanimate end of the scale (Corbett 2000; Comrie 1989).

Here too alternative or more nuanced explanations exist. As already noted by Lazard (1992), 'plural animate entities (having will or feeling)' may be contrasted with 'animate beings which are not conceived of as the agents of the process or as affected by it', the latter also optionally combining with singular agreement, hinting at an additional effect of Agency independent of the referent's biological status. Furthermore, Lotfi (2006) and Sharifian and Lotfi (2007) argue that plural agreement for inanimate noun phrases is not truly optional, but depends, amongst other factors, on the conceptualisation of the plural subject as more or less 'autonomous', i.e. whether its individual units are understood as carrying out the action denoted by the verb independently of each other or not. Sharifian and Lotfi (2007), in a variety of tasks, find that participants prefer and produce both singular and plural agreement with inanimate plural noun phrases, with the incidence of plural agreement increasing with autonomy and, indeed, with "inanimate subjects which share certain characteristics with animate ones" (Sharifian & Lotfi 2007:800), such as clouds and boats moving in the absence of a visible Agent. Note that strikingly here too, as in the Japanese questionnaire by Strauss (2008), it is the ship at sea that exemplifies the more animate expression through its capacity for self-actualized movement. Following these results, we would

expect the acceptability of singular agreement to increase gradually as the plural noun phrases with which the verbs combine decrease in their cognitive animacy rating.

## 2.2 Grammatical reflections of cognitive animacy

From the literature on the Japanese existential construction and Persian number agreement it is clear that an explanation purely in terms of biological animacy is indeed untenable. The more nuanced alternative explanations on offer show promising and striking similarities cross-linguistically, and are based on cognitive notions firmly related to animacy such as perceived capacity for motion, independence and agency.

If the cognitive animacy construct is informed by these properties, we would expect nouns possessing these properties to be rated higher on cognitive animacy, and for this effect to be reflected in corresponding gradually increasing acceptability ratings for these expressions. To test this hypothesis, we first obtained measurements on the cognitive animacy of nouns by means of rating studies. The ratings were collected from three groups: Japanese speakers of Japanese ( $n=40$ ), Iranian speakers of Persian ( $n=36$ ), and Dutch-Iranian speakers of Persian ( $n=47$ ). We based the collection of nouns on a shared set of concepts adopted from Radanović et al. (2016). The cognitive animacy questionnaires will be discussed in Section 2.2.1. Next, we carried out two grammatical acceptability rating studies on simple sentences in Japanese and Persian. The cognitive ratings entered as predictors into these acceptability rating studies, with the (in)animate noun serving as the subject of simple sentences. The Japanese experiment explored the distinction between the *aru* and *iru* existential verbs; the Persian experiment explored the acceptability of singular verbal agreement with plural subjects. These acceptability rating studies are the topic of Section 2.2.2.

### 2.2.1 Cognitive animacy rating studies

#### Cognitive animacy - Japanese

##### *Participants*

40 Japanese native speakers (22 female, mean age 31) were recruited, currently residing in Japan. Since we were interested in cultural conceptions,

we asked participants about their cultural background and the number of years spent abroad. All participants identified exclusively or primarily as Japanese in terms of cultural heritage.

### Materials

Seventy-two nouns by Radanović et al. (2016) were used as a basis for the cognitive rating studies in both languages. We expanded the Japanese list with 17 additional nouns adopted from Strauss (2008), including nine vehicle nouns to specifically explore the motion hypothesis in our subsequent experiment. We omitted three nouns from the combined questionnaire due to translation difficulties or overlap, for a total of 86<sup>1</sup>.

### Procedure

The materials were implemented in an online questionnaire (Qualtrics, Provo, UT). After obtaining informed consent, collection of metadata, and a short introduction, all respondents were presented with all nouns in the set, and were asked to rate the nouns on a 7-point Likert scale, 1 being least animate and 7 being most animate. Animacy was defined to our participants in the instruction as (the translation equivalents of) ‘living’ and ‘non-living’. An example question from the Japanese questionnaire is given in Figure 2.1.



Figure 2.1: Example rating question from the Japanese questionnaire. The noun *kappu* ‘cup’ is presented, to be rated between 最小有生性 ‘least alive’ (1) and 有生性 ‘alive’ (7).

Participants were first presented with a practice item (an inanimate, stationary noun not in the list), after which the items were presented one page at a time. The order of items was randomized per participant.

### Results

The mean ratings for all nouns in all questionnaires are included in the

<sup>1</sup>We omitted *raitaa* ‘lighter’, which in Japanese is ambiguous between ‘lighter’ and ‘writer’. ‘Queen’ was omitted due to semantic overlap with ‘empress’ from Strauss (2008), ‘girlfriend’ as we were worried the Japanese *kanojo* ‘girlfriend/she’ might lead to ambiguities.



Appendix. As a general pattern, human and animate nouns are rated above inanimate stationary nouns, with nouns referring to plants, lower animals and landscape features in the middle. No clear boundaries may be observed between the human and non-human animate nouns, or animate versus inanimate nouns. This pattern is best illustrated by the raw score counts, sorted by mean cognitive animacy ratings, in Figure 2.2. The vehicle nouns adapted from Strauss (2008) consistently rank in the 2.2-2.6 range, which is slightly higher than more prototypical inanimate nouns.

### **Cognitive animacy - Persian**

#### *Participants*

83 native speakers of Persian were recruited from two distinct backgrounds: 36 (18 female, mean age 29) Iranian native speakers of Persian and 47 (15 female, mean age 38) native speakers of Persian residing in the Netherlands. On average, participants had been in the Netherlands for 9 years [1-35 years].

#### *Materials*

Seventy-two nouns by Radanović et al. (2016) were used as a basis for the Persian questionnaire. One noun was omitted due to a mistranslation<sup>2</sup>, for a total of 71.

#### *Procedure*

The materials were implemented in an online questionnaire (Qualtrics, Provo, UT). After obtaining informed consent, collection of metadata, and a short introduction, all respondents were presented with all nouns in the set, and were asked to rate the nouns on a 7-point Likert scale, 1 being least animate and 7 being most animate. Animacy was defined to our participants in the instruction as (the translation equivalents of) 'living' and 'non-living'. An example question from the Persian questionnaire is given in Figure 2.3. Note that the direction of the scale is reversed from right to left to mimic the reading direction in Persian.

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<sup>2</sup>This concerned the noun 'fly', which was mistranslated as 'flight'.

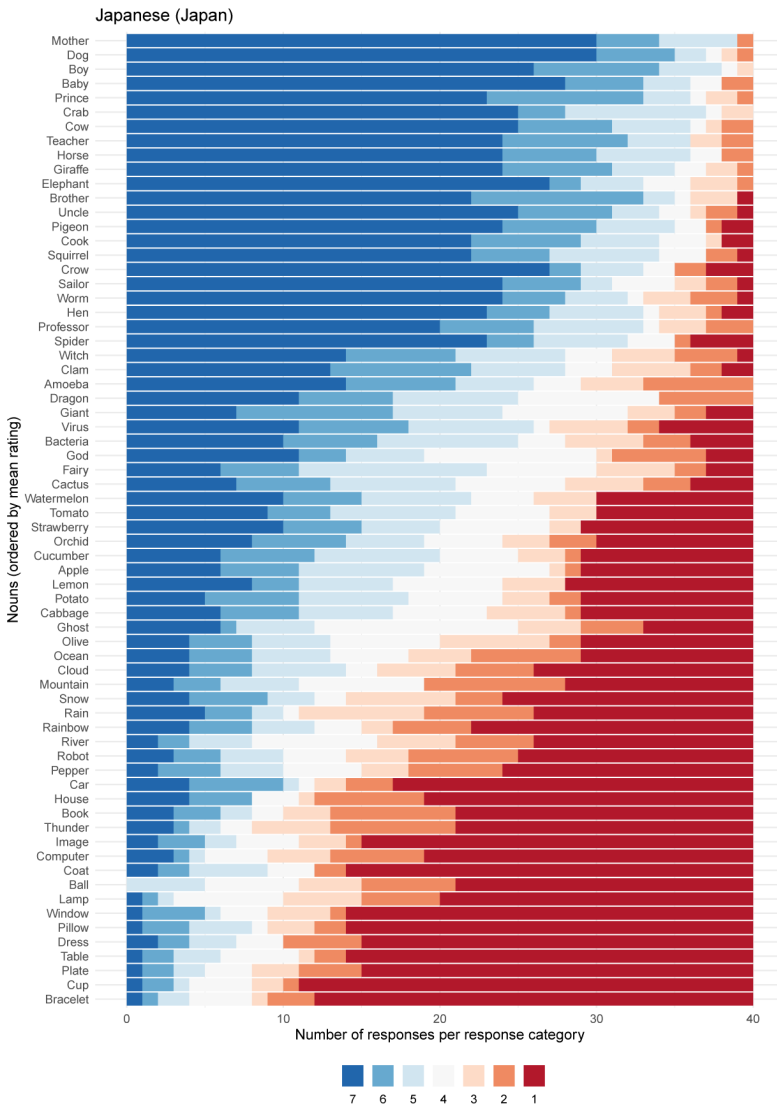


Figure 2.2: Raw score counts for the Japanese nouns, on a 1-7 Likert scale, ordered by mean cognitive animacy rating. Mean ratings are available in the Appendix.



Figure 2.3: Example rating question from the Persian questionnaire. The noun 'rain' is presented, to be rated between 'completely alive' and 'non-living'.

Participants were first presented with a practice item (an inanimate, stationary noun not in the list), after which the items were presented one page at a time. The order of items was randomized per participant. We obtained mean ratings and standard deviations for all nouns.

### Results

The mean ratings for all nouns in all questionnaires are included in the Appendix. Raw score counts are provided in Figure 2.4 and Figure 2.5. The pattern that emerges in both Persian questionnaires is very similar to that observed in the Japanese questionnaire: human and animate nouns are rated above inanimate stationary nouns, with nouns referring to plants in the middle. No clear boundaries may be observed between the human and non-human animate nouns, or animate versus inanimate nouns. These results will be discussed below.

### General discussion

The questionnaires were designed to elicit cognitive animacy ratings for a set of nouns from Japanese speakers of Japanese, and Dutch-Iranian and Iranian speakers of Persian, in order to test whether cognitive animacy is best seen as a continuous variable, and to see whether cognitive animacy ratings can be considered to be universal.

With regards to the nature of cognitive animacy as a variable, the questionnaires show the expected difference between prototypical animates and prototypical inanimates, with human and higher animals at one pole and inanimate objects at the other. This would also be consistent with a classification based solely on biological criteria. However, as in Radanović et al. (2016), there is no clear cut-off point between the two ends of the scale; instead, we find a gradual decrease in biologically animate entities, with consistent patterns ranking 'higher' animals over 'lower', with plants

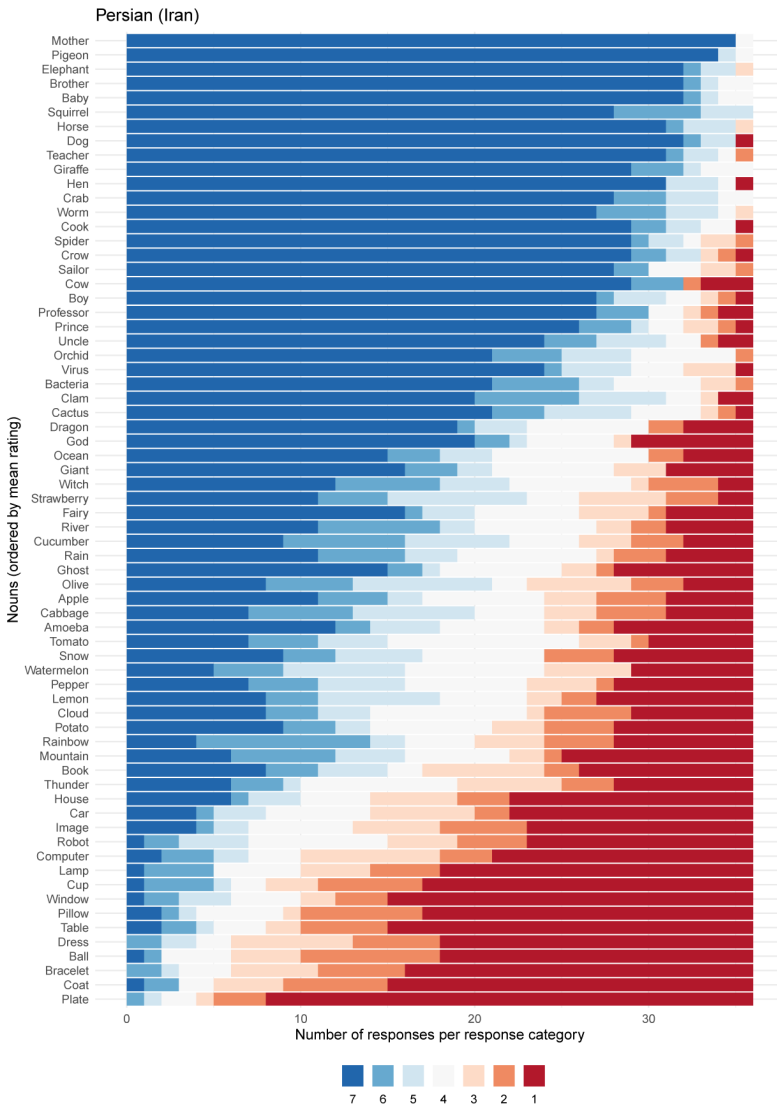


Figure 2.4: Raw score counts for the Persian nouns on a 1-7 Likert scale, ordered by mean cognitive animacy rating, rated by speakers of Persian residing in Iran. Mean ratings are available in the Appendix.

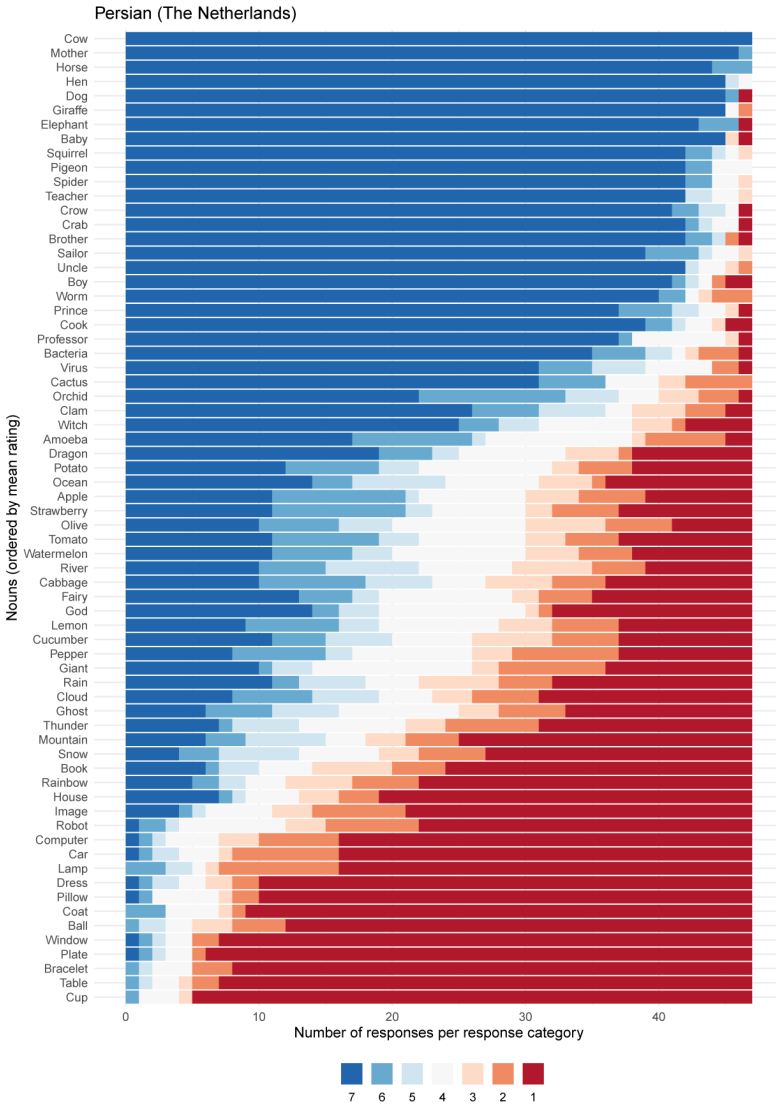


Figure 2.5: Raw score counts for the Persian nouns on a 1-7 Likert scale, ordered by mean cognitive animacy rating, rated by speakers of Persian residing in the Netherlands. Mean ratings are available in the Appendix.

as the lowest rated, biologically animate entities. These results rule out a purely biological categorization, and are in line with e.g. Yamamoto (1999:14), noting that ‘animacy’ at the very least is entangled with anthropocentric cognition (see also Dahl 2008): the further removed an animal is from human experience (the prototypical cognitive animate) – defined in terms of inferred consciousness, perceived ability to independently effect change, and capacity for motion – the less cognitively animate it will be construed to be. Our results show that this also holds for biological inanimates: vehicles and machines, as well as natural and supernatural phenomena are ascribed ratings that are higher than prototypical inanimate objects. The ratings are also internally consistent, i.e. whilst standard deviations are slightly higher for non-prototypical nouns as opposed to prototypical nouns, participants do generally agree on their ranking, even cross-linguistically.

With regard to the universality of cognitive animacy ratings, Radanović et al. observe that their ratings in English and Serbian were highly correlated (2016:1493), noting that this is suggestive of universality given that they explored two different branches of the Indo-European language family. We can elaborate on these results with Persian (Indo-Iranian), a language from yet another branch of the Indo-European language family, as well as a completely unrelated language (Japanese, Japonic). Comparing the 66 overlapping nouns in both questionnaires we find a high correlation between the cognitive animacy ratings in Persian and Japanese ( $r = .94$ , 95% CI = [0.90, 0.96]<sup>3</sup>). Furthermore, as Radanović et al. (2016) provide ratings for their nouns in Serbian and English, we were able to calculate the correlations between all four languages, see Table 2.1. Surprisingly, the original correlation reported by Radanović and colleagues between Serbian and English is actually the weakest amongst these, at  $r = .88$ , 95% CI = [0.82, 0.93]. We follow Radanović et al. (2016) cautioning against interpreting these correlations as indicative proof of the universality of cognitive animacy, but evidence from two additional languages, linguistically and culturally farther removed, does lend further credence to this hypothesis.

We do find subtle differences in cognitive animacy ratings between all questionnaires. In certain cases, a plausible explanation may be found in cultural factors. For instance, ‘pigeon’ and ‘rainbow’ were rated more animate in Persian than in Japanese and Serbian, which is consistent with the

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<sup>3</sup>We supply 95% confidence intervals for all correlations reported. P-values are less informative in this case since we are not interested in testing the null-hypothesis that no correlation exists.

Table 2.1: Pearson's correlation coefficients for ratings of cognitive animacy by language, with 95% confidence intervals.

	<b>Persian</b>	<b>Serbian</b>	<b>English</b>
<b>Japanese</b>	0.94 [0.90-0.96] $t(66)=22.14$	0.91 [0.85-0.94] $t(66)=17.34$	0.97 [0.96-0.98] $t(66)=34.54$
<b>Persian</b>		0.93 [0.89-0.96] $t(66)=20.51$	0.93 [0.88-0.95] $t(66)=19.80$
<b>Serbian</b>			0.88 [0.82-0.93] $t(66)=15.42$

significance of doves and rainbows in Persian culture. Supernatural entities such as 'giant', 'God' and 'ghost' were rated higher by Persian speakers in Iran as opposed to Persian speakers in the Netherlands, who conversely considered the typically Dutch 'cow' and 'potato' to be more animate than did Persian speakers in Iran. We caution against over-interpreting these differences: certain patterns that might be expected based on cultural influences did not obtain, and spurious patterns can be identified that have no obvious cultural link.

### 2.2.2 Grammatical acceptability studies

The cognitive ratings we collected in the first questionnaires entered into the second experiment. Here, we used the cognitive ratings to predict the acceptability of the grammatical variation observed with the Japanese existential verbs and Persian number agreement in two additional questionnaire studies.

#### Grammatical acceptability - Japanese

The grammatical variation chosen for the Japanese participant group is the Japanese existential verbs in locative constructions. We constructed simple locative sentences using the rated nouns as subjects, ending in either *aru* or *iru*, presented counterbalanced to participants to be rated on a 1-7 acceptability scale.

*Participants*

60 native speakers of Japanese (38 female; mean age 24) were recruited, currently residing in Japan. The participants identified exclusively or primarily as Japanese in terms of cultural heritage, and had not participated in the first study.

*Materials*

We selected 32 nouns pseudo-randomly from the rating study, sampled at regular intervals based on the cognitive questionnaire rankings, and such that all categories were represented. These were embedded as the subject in ni-locative sentences, e.g. (8) and (9).

- (8) *kuruma no naka ni okāsan ga aru/iru*  
car GEN inside LOC mother NOM be  
'There is a mother in the car.'
- (9) *sōko no naka ni hako ga aru/iru*  
warehouse GEN inside LOC box NOM be  
'There is a box in the warehouse.'

The locative sentences were completed with *iru* or *aru*. We used the basic dictionary forms of these verbs instead of the polite forms, since these are the most common in written language and daily conversation. The word order in Japanese locative sentences is flexible between an order that places the subject before the location and one that places the location before the subject. We opted for the location-subject order as this is the most frequent and unmarked form (Han 2013), and has the additional advantage of minimizing the syntactic distance between the noun and the verb.

*Procedure*

The sentences were implemented in an online questionnaire (Qualtrics, Provo, UT). Participants saw the sentences in random order, one sentence per page. The participants saw half the sentences completed with *iru*, half with *aru*, and this was counterbalanced between participants such that all participants saw all sentences and all combinations of sentences and verb were present equally throughout the experiment. We obtained informed consent and metadata, after which participants were provided with a short instruction. We asked the participants to rate the sentences on grammaticality, asking them not to focus on the meaning of the sentences but phrased as 'how natural or acceptable do you think this sentence is



according to the rules of the Japanese language'. Participants were asked to rate the sentences on a 7-point Likert scale between 1 ('unacceptable') and 7 ('completely acceptable'). The experiment started with a practice sentence including an animate noun not in the set, completed with (the grammatical) *iru*.

### Results and discussion

We obtained mean ratings and standard deviations for all sentences. Participants made full use of the scale, with mean acceptability ratings for *aru* sentences between 1.4 and 6.9 and acceptability ratings for *iru* sentences between 1.3 and 6.7.

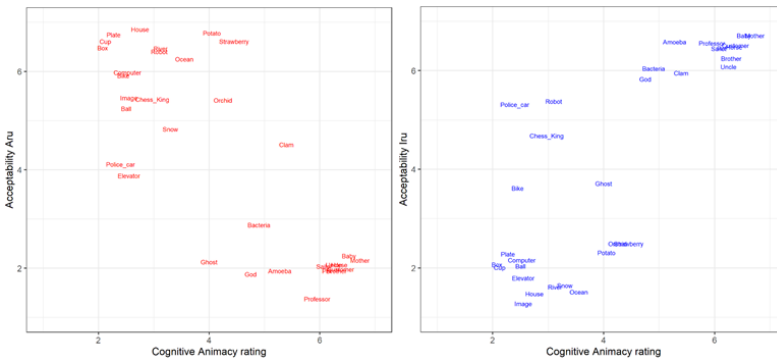


Figure 2.6: Mean grammatical acceptability of Japanese *aru* (left) and *iru* (right) existential verbs in relation to the mean cognitive animacy ratings obtained in the first questionnaire. Acceptability of *aru* decreases with cognitive animacy ratings; acceptability of *iru* increases.

The results are given in Figure 2.6. We see clear correlations between the first questionnaire's cognitive animacy ratings and the acceptability of the *iru* ( $r = .82$ , 95% CI = [0.65, 0.91]) or *aru* ( $r = -.81$ , 95% CI = [-0.90, -0.64]) existential verbs. As predicted, *iru* is more acceptable with nouns rated high on cognitive animacy; *aru* is more acceptable in combination with nouns rated low on cognitive animacy, as indicated by the strong clustering at the poles. This result is in line with the traditional animacy division we find in descriptive and teaching grammars (e.g. Morita 1977; Maynard 2011; Banno et al. 1999). Our results are also suggestive of an orthogonal dimension of motion, in line with Strauss (1993; 2008). Acceptability of *iru* with inanimate nouns increases when the inanimate noun is

perceived to be capable of movement. This is demonstrated by several notable exceptions from the animacy correlation, such as ‘robot’, ‘police car’ and ‘chess king’. Acceptability of *aru* with inanimate nouns shows a corresponding decrease as capacity for motion increases, e.g. in ‘elevator’ and ‘police car’. Conversely, *aru* is more acceptable with animate nouns when these denote animals not easily conceptualized as moving, such as ‘clam’, or with nouns referring to plants and vegetables, as in ‘orchid’, ‘strawberry’ and ‘potato’.

### **Grammatical acceptability - Persian**

The grammatical construction chosen for the Persian participant groups was verbal number agreement. We constructed simple sentences using the rated nouns as grammatical subjects, with finite verbs with either singular or plural agreement, presented counterbalanced to participants to be rated on a 1-7 acceptability scale.

#### *Participants*

For the verb agreement task, 243 native speakers of Persian were recruited from two distinct backgrounds: 64 (29 female, mean age 34) Iranian native speakers of Persian and 179 (97 female, mean age 39) native speakers residing in the Netherlands. None had participated in the first study.

#### *Materials*

We selected 40 nouns pseudo-randomly from the rating study, sampled at regular intervals based on the cognitive questionnaire rankings, and such that all categories were represented. The plural forms of the respective nouns were embedded in simple intransitive sentences. These were either completed with plural or singular verb agreement, e.g. (10) and (11). Recall that animacy is expected to have an effect on the acceptability of the singular verb ending. Plural verb endings – which should in principle always be grammatical with plural subjects – were added to control for the acceptability of the sentence as a whole and to encourage participants to use the full range of the scale.

- (10) *mâdar-â xâbid-and / mâdar-â xâbid*  
mother-PL slept-3PL / mother-PL slept.3SG  
‘The mothers slept.’ / ‘The mothers slept.’
- (11) *lâmp-â terekid-and / lâmp-â terekid*  
lamp-PL burst-3PL / lamp-PL burst.3SG

'The lamps burst.' / 'The lamps burst.'

### *Procedure*

The sentences were implemented in an online questionnaire (Qualtrics, Provo, UT). Participants saw the sentences in random order, one sentence per page. The participants saw half the sentences with singular verb agreement and half the sentences with plural verb agreement, and this was counterbalanced between participants such that all participants saw all sentences and all combinations of sentences and verb agreement were present equally throughout the experiment. We obtained informed consent and metadata, after which participants were provided with a short instruction. We asked the participants to rate the sentences on grammaticality, asking them not to focus on the meaning of the sentences but phrased as 'how natural or acceptable do you think this sentence is according to the rules of Persian'. Participants were asked to rate the sentences on a 7-point Likert scale between 1 ('unacceptable') and 7 ('completely acceptable'). The experiment started with a practice sentence including an animate noun not in the set, completed with (the grammatical) plural.

### *Results and discussion*

The mean acceptability ratings of the sentences containing plural verb agreement were generally very high (Iranian mean = 6.2, Dutch mean = 6.3), as shown in Figure 2.7<sup>4</sup>. This is in line with the literature (e.g. Mahootian 1997): plural verb agreement is always acceptable with plural subjects, regardless of the subject's animacy. Looking at the acceptability of singular agreement, we find that acceptability varies (Iranian 1.3-4.6, mean = 3.1; Dutch 1.5-4.7, mean = 3.0), indicating that even with inanimate subjects, participants generally preferred plural agreement. We do find the expected effect of cognitive animacy here too, however: singular agreement was relatively more acceptable with entities that ranked lower on cognitive animacy, for both groups, as shown in Figure 2.8.

Given the generally high acceptability of the sentences with plural agreement, we subtracted the acceptability ratings in the singular condition from those in the plural condition, to abstract away from the acceptability of the meaning of the sentence. The difference in acceptability

<sup>4</sup>The -hâ in Persian *aždahâ*, 'dragon', is isomorphic to the plural morpheme in our other nouns. As such, the singular form was mistakenly used instead of the proper plural *aždahâyân* 'dragons'. Unsurprisingly, the sentences with the singular verb form were more acceptable than those with the plural as a result. The item is omitted from the data analyses.

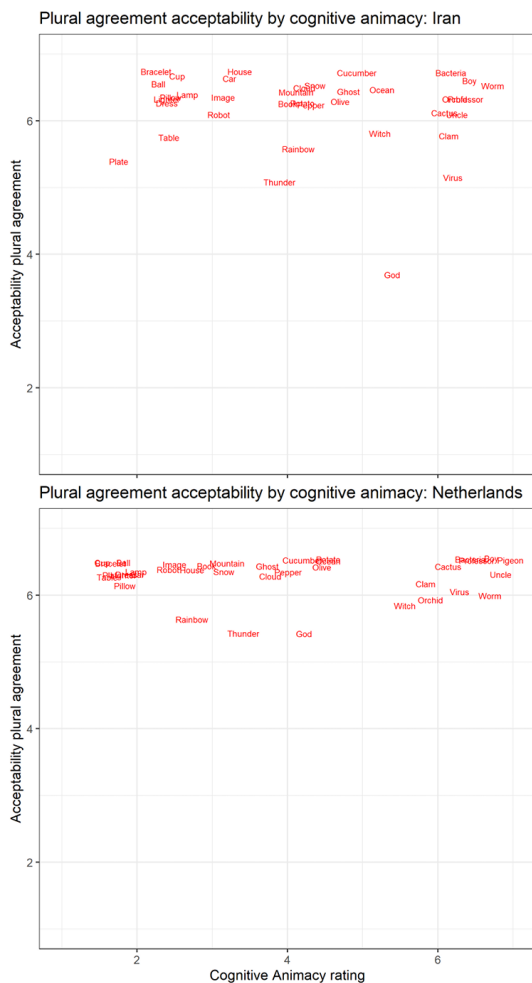


Figure 2.7: Mean grammatical acceptability of plural verb agreement with plural subjects in Persian in relation to the mean cognitive animacy ratings obtained in the first questionnaire, split by Iranian speakers of Persian (top) and Dutch-Iranian speakers of Persian (bottom). Acceptability of the plural is generally very high.

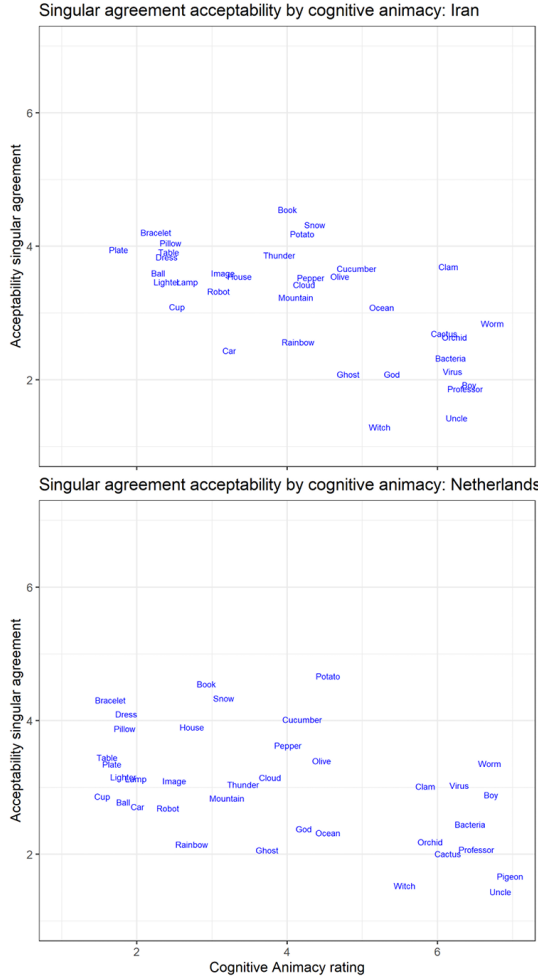


Figure 2.8: Mean grammatical acceptability of singular verb agreement with plural subjects in Persian in relation to the mean cognitive animacy ratings obtained in the first questionnaire, split by Iranian speakers of Persian (top) and Dutch-Iranian speakers of Persian (bottom). Singular agreement acceptability decreases as cognitive animacy ratings increase.

increased with cognitive animacy (Iranian  $r = -.54$ , 95% CI = [0.73, 0.27]; Dutch  $r = .51$ , 95% CI = [0.71, 0.22]), indicating that singular agreement is decreasingly optional, as presented in Figure 2.9.

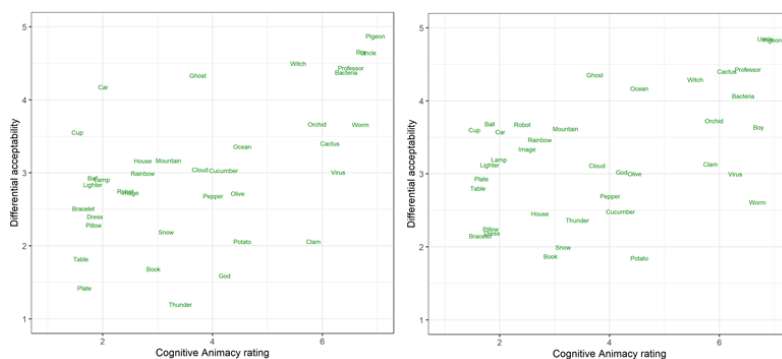


Figure 2.9: *Differential acceptability ratings, i.e. the grammatical acceptability ratings for the singular subtracted from the plural for Iran (left) and The Netherlands (right). The difference in acceptability between plural and singular increases with mean cognitive animacy ratings. This indicates that verbal number agreement becomes more mandatory with plural nouns as these are higher rated on cognitive animacy.*

### General Discussion

In our second set of questionnaires we set out to test to what extent grammatical variation can be informed by cognitive animacy. In Japanese, we investigated a grammatical dichotomy: the existential verb used was either *aru* or *iru*. We find that acceptability is predicted very well by cognitive animacy: the acceptability of *aru* decreased with cognitive animacy ratings, and the acceptability of *iru* increased with cognitive animacy ratings. In Persian, plural agreement should in principle always be grammatical with plural noun phrases, and we investigated the optionality of singular agreement. In this regard the Persian experiment was asymmetrical whereas the Japanese experiment was symmetrical, but here too we found a clear correlation with our cognitive animacy ratings: the optionality of number agreement increased as the cognitive animacy ratings decreased. Combined, we observe that a symmetrical grammatical dichotomy in Japanese and an asymmetrical grammatical optionality in Persian are both sensitive to a fine-grained, gradient rating of ‘how alive

something is', indicating that cognitive animacy functions as a universal predictor for grammatical variation.

Also common to both languages is a certain tension between biological animacy on the one hand and more orthogonal dimensions of cognitive animacy on the other. In Japanese, we find reflections of the patterns observed by Strauss (2008): the biologically inanimate 'police car' deviates positively from the general trend in its rating on *iru*. Conversely, the biologically animate but stationary 'clam' deviates positively in its rating on *aru*. Nevertheless, our results do not suggest motion is the primary cognitive factor underlying the distinction, as evidenced by e.g. the police car's acceptability ratings still yielding against those of animate entities not as easily conceptualised as moving, such as clams, bacteria or amoebae. The tension between purely biological animacy and the acceptability of grammatically animate expressions also becomes clear when we consider supernatural entities. When asked to judge the animacy of ghosts, witches and gods in the cognitive rating questionnaires, ratings clustered towards the centre of the scale: supernatural entities are not considered to be 'alive' to the same extent as humans and animals, in certain cases rated even below plants. In terms of behaviour, however, these entities are very similar to (human) animates: a supernatural entity is construed as a human-like, conscious actor. This is reflected in their preference for grammatically animate expressions: supernatural entities combined more readily with *iru*, and resisted expressions with *aru* or singular agreement. We suggest these discrepancies are an artefact of our first questionnaire. Cognitive animacy predicts grammatical variation, but the wording in our first questionnaire may have put extra emphasis on the biological aspect of cognitive animacy.

## 2.3 Discussion

The results of our cognitive rating tasks show that people readily produce a gradient scale when asked 'how alive something is' in comparison with other nouns, demonstrating that biological animacy *per se* is a poor predictor of cognitive reality. Biological animacy by all rights should be a dichotomous variable, at least for the entities we asked participants to classify – an entity either is or is not alive. We did not find an animate-inanimate split, or one between e.g. plants and vehicles, however, whilst we do find consistent differential rankings within both animate and inanimate categories. In addition, there was a great deal of consistency in

cognitive animacy ratings cross-linguistically. This suggests that both the graded nature of the animacy scale as well as the place entities take on this scale are at least somewhat universal, in further support of Radanović et al. (2016), though we were also able to detect subtle differences. The extent to which these are culturally determined we leave to future research.

To what extent cognitive animacy can reliably predict grammatical variation was subsequently tested in two acceptability rating studies on simple sentences in Japanese and Persian. The cognitive ratings entered as predictors into these acceptability rating studies, with the nouns serving as the subject of simple sentences. The cognitive ratings predicted the variation in grammatical expression fairly well. Nouns with low animacy ratings are acceptable with *aru* in Japanese, and plural nouns with low animacy ratings are more acceptable with singular agreement in Persian. This indicates that even though the answer to the question of how 'alive' an entity is might not necessarily be completely universal, it does correlate very well to the acceptability ratings associated with certain grammatical phenomena. Taken together, this suggests that cognitive animacy is a solid universal predictor for grammatical variation when applied in a gradient way.

In addition, the nouns that did not conform to the correlation between the two tasks are interesting in their own right. They revealed aspects of cognitive animacy beyond what we could gather by asking 'how alive something is', such as e.g. motion in the case of the Japanese existential verbs, in line with Strauss (1993; 2008). Conversely, participants in the cognitive rating task presumably employed some notion of biology to place plants and vegetables above artefacts, but this did not increase the preference of these nouns for grammatically animate constructions. We also found that grammatical expression resisted a biological classification somewhat in the case of supernatural entities. The cognitive rating task was disproportionately penalizing to ghosts, witches and gods: these are not animate in a biological sense since they are inherently outside of any biological classification, yet they are cognitively construed as being capable of behaviour that closely reflects (human) animates, which drives their preference for grammatically animate expression.

It is striking and exemplary that descriptive grammars and L2 materials for both Japanese and Persian put a heavy explanatory burden on (biological) animacy as the determinant of the observed grammatical variation, and we believe this reveals a powerful cognitive bias. Faced with two constructions, one dominated by living beings and one dominated by non-living objects, it seems self-explanatory to link the two binary factors



together: biological animacy determines linguistic animacy. Subsequent (linguistic) studies will then take this double dichotomy as given, and explore its exceptions to reveal additional factors at play. For Strauss (1993; 2008), it was the observation that inanimate vehicles could combine with the ‘animate’ *iru* when personified or possessing a record of movement that caused her to propose motion as a candidate for the underlying cause of the observed grammatical dichotomy. For Lotfi (2006), it was autonomy, specifically autonomous motion, which seemingly influenced the supposed optional plural agreement within the class of inanimates. Common in these and other accounts (cf. Lowder & Gordon 2015) seems to be a desire to supplement or supplant the role of biological animacy in determining grammatical expression, implicitly accepting the premise of the double dichotomy: ‘inanimates’, meaning biologically non-living entities, the argument goes, can still enter into ‘animate’ grammatical constructions when they become more like biologically living entities; alternatively, the animacy premise is rejected altogether when the biology does not match the linguistic expression. As an example, we find illustrative quotes like the following: “While many cognitive and linguistic phenomena have been cited as showing the importance of animacy, *animacy per se may not be the critical factor*. Natural forces are semantically inanimate (non-living), but behave in ways that are more similar to animates than inanimates in that they are able to initiate movement, change course without warning, and occasionally cause destruction, injury, and death.” (Lowder & Gordon 2015:86, emphasis ours).

We believe this gets the argument exactly the wrong way around. It is never biological animacy *per se* that translates into linguistic expression. Language expresses cognitive reality, and cognitive animacy subsumes whatever ‘animate’ behaviour is either inherent to the referent or contextually ascribed to it. Ships at sea do not gain linguistically animate expression because they become more like marine animals, nor does the presence of ships at sea in linguistically animate constructions mean that this part of the grammar is better understood as an expression of motion. Instead, the ship at sea is *cognitively animate* to some extent: it is construed as possessing certain animate behaviour (that is incidentally also associated with biologically living entities – in this case, self-actualized motion) and from this it naturally follows that it enters into linguistically animate constructions. Animacy effects in language are real; a claim that is not disproven but indeed supported by biologically inanimate but cognitively animate entities entering into linguistically animate constructions, provided one appreciates the multiple levels of animacy at

play. The implication here is that e.g. autonomy and motion are not to be considered explanatory factors in addition to or instead of ‘animacy’ (in the biological sense, as in the quote above), but instead can be used to enrich the content of the conceptual animacy proper. This allows us to get around the issue of grammatical ‘leakage’ by accepting that certain grammatical phenomena might not split on a universal biological ‘human - animal’ border, but might have become grammaticalized on the basis of a more fine-grained, culturally dependent scale (cf. Aissen, 2003:457).

This also extends to psychology and neuroscience more generally. Here too the factor of ‘animacy’ is often unconsciously implemented as the researchers’ ad hoc notion of what animacy entails. Moreover, this ad hoc implementation is often in the form of a dichotomous variable, often on the basis of biology. We follow Radanović et al. (2016) suggesting this is an explanation for some of the discrepancies between findings in animacy classification studies: comparing ‘animate’ plants and animals versus ‘inanimate’ vehicles and tools will muddle the distinctions, as this is a dichotomy not necessarily held up by the data. Combining these results with the grammatical acceptability questionnaire, the picture becomes even more nuanced, revealing additional factors such as motion contributing to conceptual animacy. If we want to know how the brain handles ‘animate’ stimuli, then these are best construed in terms of cognitive animacy, i.e. gradient and selected with an awareness of animate features not inherent to the referent. Radanović et al. (2016) make this point specifically with regard to nouns in isolation, or visual depictions of isolated animate or inanimate referents. We argue the point holds more generally, such as when these nouns are embedded in linguistic contexts. In psycholinguistic studies, for example, items using less prototypical referents will not necessarily generate predictions on syntactic structure that are equally strong as those generated by more prototypical referents.

To conclude, grammatical variation based on ‘animacy’ is not generated by differences in biological animacy per se, and to ignore this is to trap ourselves into a double dichotomy the only escape from which is to supplement or supplant biological animacy with different explanatory factors when biology and language are not aligned. Instead, much can be gained by a better appreciation of the cognitive layer of animacy. Underscoring that language expresses cognitive reality – which in the case of animacy may be a combination of ‘animate’ features inherent to the referent’s biology as well as ‘animate’ features differentially ascribed –, animacy effects in language can be understood as gradient and contextually and culturally dependent. By using whatever additional factors emerge to

enrich rather than replace (cognitive) animacy, we will be better equipped to answer questions as to what it is exactly that focuses our psychological and linguistic attention on certain entities as opposed to others; what makes certain constituents grammatically more alive than others.

## 2.4 Conclusion

The operationalization of animacy differs widely. By far the most common classification seems to be a rather ad hoc dichotomy based on biology; between living and non-living entities. It is unclear to what extent this classification is cognitively plausible. In a series of questionnaires, we asked Japanese speakers of Japanese, and Iranian and Dutch-Iranian speakers of Persian to rate a large number of nouns (referring to e.g. objects, human beings, non-human animals and vehicles) on cognitive animacy; the extent to which they conceptualized the noun as referring to something 'alive'. We found a classification that is gradient in nature, with no clear boundaries between categories. Furthermore, we found that this classification, both in its gradient nature as well as in the ratings for individual entities, does not display large differences between groups, suggesting cognitive animacy is to a large extent universal. We carried out two grammatical acceptability judgement tasks to test the suitability of the cognitive animacy ratings as predictors for grammatical variation often assumed to be driven by 'animacy': the distinction between the Japanese existential verbs *iru* and *aru* and the acceptability of singular agreement with plural nouns in Persian. These results indicated that cognitive animacy predicts grammatical variation to a high degree, also when implemented in a gradient manner. We conclude that cognitive animacy, as opposed to biological animacy, is gradient, to some extent contextually and culturally dependent, and serves as the universal predictor for grammatical variation.

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## Chapter 3

# The language of an inanimate narrator

### Abstract

We show by means of a corpus study that the language used by the inanimate first person narrator in the novel *Specht en zoon* deviates from what we would expect on the basis of the fact that the narrator is inanimate, but at the same time also differs from the language of a human narrator in the novel *De wijde blik* on several linguistic dimensions. Whereas the human narrator is associated strongly with action verbs, preferring the Agent role, the inanimate narrator is much more limited to the Experiencer role, predominantly associated with cognition and sensory verbs. Our results show that animacy as a linguistic concept may be refined by taking into account the myriad ways in which an entity's conceptual animacy may be expressed: we accept the conceptual animacy of the inanimate narrator despite its inability to act on its environment, showing this need not be a requirement for animacy.

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### 3.1 Introduction

Animacy is a major distinction in human cognition (Dahl 2008), for obvious reasons: simply put, it matters if that thing you saw from the corner of your eye is a bear, a rock, or another human being. By dividing the world around us into animate and inanimate entities we can attribute mental states and biological processes to them that allow us to predict the behaviour of other entities (Szewczyk & Schriefers 2011), which is crucial to survival. Naturally, as language should allow us to adequately refer to entities in the world, the animacy distinction is also one of the basic principles behind language, “so pervasive in the grammars of human languages that it tends to be taken for granted and become invisible” (Dahl & Fraurud 1996:47). The influence of animacy has been attested cross-linguistically at virtually every level of language, from word order, grammatical function, case and voice, to the choice of referential expressions (e.g. Yamamoto 1999; Dahl 2008; Malchukov 2008; Prat-Sala & Branigan 2000; van Bergen 2011; Vogels et al. 2013).

However, whilst the vast majority of psycholinguistic and typological research has equated linguistic animacy with biological animacy, looking for example at the distinction between rocks and hikers (e.g. Mak, Vonk & Schriefers 2006) or men versus mountains (cf. Hale 1973), animacy in language is rather more flexible. Consider examples (1) and (2)<sup>1</sup>:

- (1) *Ik vertel dit nu al, anders sluit u zodra u begrijpt wie ik ben dit boek, want u denkt vast en zeker: wat maakt die van zijn leven nu helemaal mee? (p.5)*  
‘I’m telling you this now, right at the start, because otherwise you’ll close the book the moment you realise who I am, inevitably thinking, What’s he going to experience?’ (p.1)
- (2) *Ik, wat linnen, wat verfen zes latten van zes. (p.73)*  
‘Me – a piece of linen, some paint, four stretchers, and two cross-bars.’ (p.91)

These examples are taken from the Dutch novel *Specht en zoon* (2004). In this novel, author Willem Jan Otten invites us to share the perspective

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<sup>1</sup>The examples in this article are taken from *Specht en zoon* (2004) and the English translations from *The portrait*, David Colmer’s translation of *Specht en zoon*. The page numbers refer to the page numbers in the editions we have used. In the interest of legibility, glosses will be used only where the English translation differs in a meaningful way and boldface does not suffice to illustrate the property under investigation. Abbreviations used are COMP for ‘complementizer’ and PTCL for ‘particle.’



of an unusual narrator composed of a piece of linen, some paint, four stretchers and two crossbars: a painting. This painting is observing and contemplating the world around it. Apparently, it takes us readers no time at all to adjust to this new reality, despite our real-world understanding that paintings should not be capable of such behaviour. This example makes clear that animacy in language is not restricted by real-world constraints. Grammar then, in turn, cannot be based on these real-world constraints either. In the English translation of (1) the pronoun *he* is used to refer to the painting, whereas in everyday speech this pronoun is only used to refer to animate (mostly human male) entities. Either we have to say that the pronoun *he* does not necessarily refer to an animate entity, and similarly that the verb *tell* does not necessarily select an animate subject, or we must conclude that the painting that is the referent of the pronouns *I* and *he* in (1) must be considered animate. The latter seems to be the right option, since novels such as *Specht en zoon* do not seem to be full of ungrammatical sentences, nor are narrators such as these rare in literary fiction (cf. Alber 2016; Bernaerts et al. 2014).

What these examples show is that we should consider animacy in language, ontologically speaking, not as reflecting a binary biological property of entities. What is reflected in grammars instead is the cognitive representation of an entity (cf. Fraurud 1996). The animacy of a cognitive representation is more gradient than the animacy of the entity itself. This becomes apparent when we consider animacy hierarchies cross-linguistically. The most basic animacy hierarchy (e.g. Comrie 1989; de Swart et al. 2008) shows that grammars cross-linguistically rank 'Human' above 'Animate', despite the lack of any biological basis that humans are somehow more 'alive' than other animals. Rosenbach (2008) shows even more fine-grained distinctions in conceptual animacy on the basis of word order patterns in English genitive constructions, distinguishing not just human and animal nouns from inanimate nouns but specifying several levels in between. Nieuwland & Van Berkum (2006) demonstrate convincingly on the basis of electrophysiological data that a shift in conceptual animacy is rather easy to accomplish: within the context of just five sentences treating a peanut as an animate character in a short story, participants had less difficulty processing a statement about the peanut being in love than one about it being salted.

Accepting the reality and flexibility of conceptual animacy, the question then becomes whether and how the conceptual animacy of an inanimate entity is reflected in language. As (our understanding of) an inanimate object turns into an animate character, the language used may

depend on the level and nature of the animacy created. To find an answer to the above question, we investigated the language used by the inanimate narrator, the painting, in the novel *Specht en zoon* and compared it to the language used by a human narrator in another novel by the same author. Section 3.2 formulates the linguistic differences we expect to find between the two novels. Section 3.3 presents the methodology and results of our corpus study. Section 3.4 provides a discussion of these results, and Section 3.5 concludes.

## 3.2 Narrators' animacy and their language use

In the actual world, first person pronouns necessarily refer to human beings, because only humans can refer to themselves by uttering a word like *I*. By contrast, the narrator of a story does not have to be human, as it can be an animal or even inanimate (Bernaerts et al. 2014). It seems as if in a story everything goes. Yet, non-human narrators in a story display clear characteristics of animacy or humanness. Most notably, they can necessarily speak (or write), since they tell a story, even if they deny that they can, as in (3) (boldface ours):

- (3) *Had ik de gave van het woord, dan zou **ik** nu beschrijven hoe het voelt om eindelijk een doek te zijn, een doek met maten, een afgemeten, met het vlijmendste stanleymes afgesneden, onherroepelijk strak stuk linnen gespannen om een stevig raam met latten van zes en maar liefst drie punt zes dik, met spieën en met in zijn rug een kruis. (p.9)*

'If I had the gift of speech, **I** would now describe what it feels like to finally be a canvas, a canvas with dimensions, a piece of linen that has been measured out, cut with the most razorish Stanley knife and irrevocably stretched tight around a sturdy frame with six-centimetre stretchers no less than three-point-six thick, with wedges and a cross at the back.' (p.7)

As can be concluded from the utterance in (3), non-human narrators are conscious, they perceive, interpret, and experience things, e.g. they can remember, have feelings and get emotional. This means that they possess a mind and they have a life, which makes them partly human in the eyes of their readers. This is expected to influence readers' perception of these non-human narrators and their degree of identification or empathy with them. However, despite the fact that non-human narrators have human

traits in varying degrees, they often deviate from human narrators in how they perceive and interpret events (Bernaerts et al. 2014:74). Also, the way they participate in the events may differ. This holds for inanimate narrators even more than for narrating animals, as the former deviate the most from human beings. Bernaerts et al. (2014) argue that non-human narration always gives rise to a mix of distancing and identification effects in readers, or defamiliarization and empathy.

Given that animacy plays a major part in grammar and discourse (cf. Dahl 2008; de Swart et al. 2008), we expect that having an inanimate narrator will affect the language that is used. More specifically, the question addressed here is whether the observed mix between human and non-human features of an inanimate narrator is reflected in the language attributed to them. Bernaerts et al. (2014) note that non-human narrators vary greatly in their physical and psychological features and thus can be more or less humanlike. For example, animals are clearly more closely related to human beings than cars. Cars, in turn, may be perceived as more closely related to human beings than objects that do not move, such as paintings. For this study we have chosen to investigate the language of an inanimate narrator, namely a canvas that in the course of the story becomes a portrait, and to compare it to the language of a common human narrator. The painting that is the first person narrator in *Specht en zoon* cannot move by itself and does not communicate with the human characters nor with other inanimate entities in its environment. It only communicates with its readers by telling them the story of its owner, a portraitist who is asked by a rich man to make a portrait of his dead son. We compared this novel to another novel written by the same author, *De wijde blik* (1992), which features a human first person narrator.

Before turning to the methodology and results of the corpus study in Section 3.3, we will discuss a number of grammatical features that are known to relate to animacy, namely, the use of pronouns, grammatical function, voice, thematic (or semantic) roles, and verb types. On the basis of this, we will formulate our hypotheses on the language used by the inanimate narrator in comparison to the language used by the human one.

### 3.2.1 Pronouns

Animacy has been shown to influence the choice between pronominal or nominal realization of a referent. Human or animate entities are more often realized as personal pronouns than inanimate ones (Dahl 2008).

Dahl (2008) uses the term *egophoric reference* for first and second person pronouns as well as for (second or third) person generic reference, as in *You only live once* (second person generic reference) or *One never knows* (third person generic reference), which typically also includes the speech act participants. Dahl (2008:143) claims that reference to animate noun phrases in spoken discourse is egophoric in the majority (about 60%) of cases. Indeed, as Dahl (2008:143) puts it: "[w]e speak more about ourselves than about others." Vogels et al. (2013) found it is not only lexical animacy that triggers the use of personal pronouns but perceptual animacy as well, i.e. inanimate entities that move in an animate way. Because we investigate first person narrators in our study, which are always referred to by first person pronouns, we cannot compare differences between the two novels in type of reference to the narrators. The inanimate narrator in one novel uses first person pronouns to refer to itself, whilst the human narrator in the other novel also uses first person pronouns to refer to himself. We may expect that the inanimate narrator does not talk about itself as much as the human narrator, but this is not necessarily due to its animacy. The first person human narrator in *De wijde blik* is also the main character in the story, but this is not the case for the first person inanimate narrator in *Specht en zoon*. Hence, we cannot make any predictions about the difference in the use of first person reference *per se* between the two novels, but we can make predictions about differences that derive from the use of first person pronouns for either an inanimate or a human referent.

### 3.2.2 Subjects and objects

Comrie (1989) states that subjects of transitive clauses are mostly animate and definite while objects are lower in animacy and definiteness (see also Aissen 2003). Several corpus studies have shown that in the vast majority of cases in Swedish, Norwegian, and Dutch the subject outranks the object in animacy in transitive sentences (Dahl & Fraurud 1996; Øvrelid 2004; Bouma 2008). For example, Bouma (2008), in a corpus study of spoken Dutch, finds that subjects are overwhelmingly animate (96%), whereas direct objects are for the greater part inanimate (90%). As for transitive sentences, subjects outrank the object in animacy in about 86% of cases, whereas they rank equally in about 13%. Thus, sentences in which the object outranks the subject in animacy constitute only 1% of the transitive sentences (Bouma 2008:257). Fauconnier (2011) claims on the basis of a 200-language sample that inanimate subjects are unexpected

to such a degree that in a considerable number of languages inanimates cannot be used as subjects of transitive clauses at all. The subject-object asymmetry in animacy has also been shown to play a role in language processing and production (e.g. de Hoop & Lamers 2006; Branigan et al. 2008; Bornkessel-Schlesewsky & Schlewsky 2009; Lamers & de Hoop 2014), and also in children's interpretation and production of transitive clauses (e.g. Hendriks et al. 2005; Hogeweg & de Hoop 2010; Cannizzaro 2012).

The person and animacy hierarchies are often conflated (e.g. Comrie 1989; Yamamoto 1999), with first person representing one extreme and inanimate objects representing the other. First person pronouns, in everyday speech, can only refer to human beings. The resulting paradox makes *Specht en zoon's* use of a first person pronoun that refers to an inanimate entity quite an interesting case.

Cross-linguistically, pronouns typically fulfill the grammatical function of subject (Siewierska 2004; Bouma 2008), and it is 'marked' for a first person pronoun to fulfill the function of object (Aissen 1999). However, when a first person pronoun refers to an inanimate entity, this may alter our expectation, because inanimate subjects are very infrequent, as pointed out above. The following examples illustrate the use of the first person inanimate narrator in the novel *Specht en zoon* as the object of a transitive verb:

- (4) *Hij komt **me** halen, het kan niet anders of ik word in het vuur geworpen. (p.5)*  
 'He's coming to get **me**. There's no doubt anymore. He's going to throw me on the fire.' (p.1)
- (5) *Vlak voor ze binnenkwamen om **mij** weg te dragen, de winkel uit, de stoep op, Amsterdam in, naar de zijstraat waar ze hun bestelwagen hadden geparkeerd, had meneer Van Schendel nog een keer mijn spieën aangetikt en in elke hoek van mijn raam had het gekreund als een wee, spie op hout, hout op spie. (p.10)*  
 'Just before they came in to carry **me** off, out of the shop, onto the pavement, into Amsterdam, to the side street where they had parked their van, Mr. van Schendel gave my wedges a final tap, and my frame groaned in all four corners as if in labour, wedge against wood, wood against wedge.' (p.8)
- (6) *Was ik een piano geweest dan hadden ze **mij** hier beslist niet neergezet. (p.11)*

'If I had been a piano they definitely wouldn't have put **me** here.'  
(p.9)

The fact that the first person inanimate narrator is used as a direct object in the examples above is in accordance with the fact that it only plays a 'passive' part in the story, i.e. as an observer rather than as an actor. Other characters may act upon it, come and get it, carry it off, put it somewhere, but not the other way around. Therefore, our hypothesis is that the proportion of subjects among the first person pronouns referring to the inanimate narrator in the novel *Specht en zoon* is lower than the proportion of subjects among the first person pronouns referring to the human narrator in *De wijde blik*.

### 3.2.3 Active and passive sentences

Note that the transitive verbs *halen* 'get', *wegdragen* 'carry off', and *neerzetten* 'put' in the examples above require a moving and acting subject. Since the inanimate narrator cannot do the things that are expressed by these verbs, it does not come as a surprise that it does not take the function of subject. However, an alternative way of expressing an event in which the first person pronoun has a Patient role is to use a passive sentence. Clearly, the advantage of using a passive construction in these cases is that the first person pronoun ends up as the subject. In (4) above, the second part of the sentence (repeated in (7)) contains a passive construction in which the first person narrator has become the subject (although the English translation uses an active sentence in which it is the object).

- (7) *[Ik] word in het vuur geworpen.* (p.5)  
I get in the fire thrown  
'He's going to throw **me** on the fire.(p.1)'

Two more examples of passives are given in (8) and(9). Whereas in (8) the passive construction is translated as active in English, the English translation of (9) also uses a passive.

- (8) *Twee weken later ben ik opgehaald.* (p. 9)  
two weeks later am I picked.up  
'Two weeks later he came back to pick **me** up.' (p. 7)
- (9) *Hij schildert inderdaad mensen, mijn schepper, alleen maar*  
he paints indeed people my creator only PTCL

*mensen, dat ontdekte ik al snel, ofschoon ik om te*  
 people that discovered I already quickly although I COMP to  
*beginnen in een hoek van zijn atelier ben neergezet, met*  
 start in a corner of his workshop am put with  
*mijn voorkant tegen een tamelijk koude muur. (p.11)*  
 my front against a rather cold wall  
 'He does paint people, my creator – people only. I soon discovered  
 that, even though I was plonked down at first in a corner of his  
 studio with my front against a fairly cold wall.' (p.9)

Whilst first person passive Agents are quite uncommon across languages, first person passive Patients are to be expected (Aissen 1999). Aissen (1999: 689) argues that when the Patient is first person and 'prominent' in the discourse, the use of a passive construction is preferred in a language such as English. This also seems to hold for Dutch. Cornelis (1997) shows that people do not identify with (or even distance themselves from) the Agent in a Dutch passive construction. Therefore, we hypothesize that due to its first person inanimate narrator there will be more passive sentences in the novel *Specht en zoon* than in the novel *De wijde blik*.

### 3.2.4 Thematic roles

In passive constructions the first person narrator will have the grammatical function of subject. This conflicts with our previous hypothesis that the first person narrator will take the role of subject relatively less often because it refers to an inanimate entity. Thus, we predict a lower frequency of subjects that refer to the inanimate narrator on the one hand, but a higher frequency of passive sentences in which the inanimate narrator is the subject on the other. If the first person inanimate narrator ends up as the subject of an active sentence less often than the first person human narrator, but at the same time more often as the subject of a passive sentence, then in the end the proportion of subjects may be the same for the two types of narrators. In order to tease apart the effects of the two hypotheses, we decided to also investigate the thematic roles assigned to the first person pronouns. Clearly, since the painting cannot act upon others but can be acted upon, we expect it to have the role of Patient more often than the human narrator, independently of its grammatical function. This is illustrated by sentences (4)-(9) above, which featured the painting as a Patient.

Dowty's (1991) argument selection principle crucially distinguishes

Agents from Patients in terms of their typical properties. The argument with the highest number of proto-Agent properties will end up as the subject of a transitive clause. Proto-Agents are volitionally involved in (or in control of) the event or state expressed by the verb, they are sentient, they are the causers of events or of changes in another participant, they move (relative to another participant), and they exist independently of the event. Proto-Patients undergo a change of state, they are incremental themes, they are causally affected by another participant, they are stationary relative to the movement of another participant, and/or they do not necessarily exist independently of the event. Primus (2012) argues that nearly all proto-Agent properties entail an animate Agent. By contrast, there is no animacy entailment for proto-Patients, even though individual transitive verbs, such as *kill*, may select an animate object. In *John broke the cup*, the object has the proto-Patient properties of undergoing a change of state, and being causally affected by the Agent. These proto-Patient properties are less clear in *John touched the cup*, except that the cup does not move, and for the objects of *search*, *follow* and *await* (cf. Malchukov 2005). Because of differences in proto-Patient properties, we have decided to use the more general label Theme instead of Patient, subsuming the Patient role under Theme. Theme is also used to label the role of the co-participant of an Experiencer in a transitive sentence, as in *John likes the cup* or *John saw the cup*. Subjects of intransitive verbs that are not Agents or Experiencers are also labeled Theme in our annotation, such as the subject of the posture verb *staan* 'stand' in (10):

- (10) ***Ik sta op de ezel en heb alleen het ergste te verwachten.*** (p.5)  
'I am on the easel and can only expect the worst.' (p.1)

Similarly, subjects of existential, locational, as well as nominal and adjectival predicates are labeled Themes, as in (11).

- (11) ***Ik ben een Zeer Dicht Geweven Vier Maal Universeel Geprepareerd.***  
(p.6)  
'I am an Extra Fine Quadruple Universal Primed.' (p.3)

Above we have noticed that there is a tight relation between animacy and the thematic role of Agent (e.g. Primus 2012). Yet, Agents can be ontologically inanimate, e.g. in a sentence such as *Lightning killed him*, albeit not in all languages (cf. Fauconnier 2011).

By contrast, Experiencers are necessarily animate. Experiencers undergo a mental experience, i.e. "an event of emotion, cognition, volition,



perception, or bodily sensation” (Verhoeven 2014: 130). Since being conscious is a necessary condition for being an Experiencer, only animate entities can fulfill this role in an event. While Agents are typically subjects of transitive clauses, Experiencers can be expressed as either the subject of verbs such as *love*, *remember*, or *understand*, or as the object of verbs such as *please*, *frighten*, or *worry* (e.g. Verhoeven 2014). Sensory or perception verbs such as *see*, *hear*, or *feel*, take an Experiencer subject. Experiencer objects have been shown to increase the use of passives and object fronting (cf. Lamers & de Hoop 2014; Verhoeven 2014; 2015). The co-participant of an Experiencer subject or object can have the role of a Theme or a Stimulus, dependent on the type of verb and the animacy of the argument (Lamers & de Hoop 2014; Verhoeven 2014). For instance, in the sentence *John frightens me*, John can actively or deliberately frighten me, whereas in the sentence *The weather frightens me*, the subject the weather can never play such an active role. We have decided to ignore such differences between Themes and Stimuli and we have labeled all co-arguments of Experiencers Themes. Contrary to the general pattern, (animate) Experiencer objects are more often pronominalized than (inanimate) subject Themes (Verhoeven 2015). The inanimate narrator in *Specht en zoon* can have the role of an Experiencer, as illustrated in (12) and (13), where it is the Experiencer subject of *horen* ‘hear’ and *herinneren* ‘remember’, and in (14) where it is the Experiencer object of *verontrusten* ‘unsettle’.

- (12) *Zulke dingen heb ik ze soms horen zeggen en ze begrepen elkaar.*  
(p.6)  
‘That’s the kind of thing I heard them say, and they seemed to understand each other.’ (p.2)
- (13) *Van dit hangen herinner ik me vrijwel niets.* (p.6)  
‘I remember virtually nothing of that hanging.’ (p.2)
- (14) *Het verontrustte me enigszins, want ik begon te begrijpen*  
it unsettled me somewhat since I started to understand  
*dat iedereen die in de spiegel keek iets anders*  
that everyone that in the mirror looked something different  
*zag.* (p.20)  
saw.  
‘I found it a little unsettling, all the more when I realized that everyone who looks in the mirror sees something else.’ (p.22)

Because the first person pronoun in *Specht en zoon* refers to an inanimate entity, we hypothesize that it will be more suited to be a Theme than to be an Experiencer. Therefore we predict that the inanimate narrator in *Specht en zoon* will more often have the role of a Theme and less often the role of an Experiencer than its human counterpart in *De wijde blik*. The difference between the narrators in having the Experiencer role is expected to be less than the difference in taking up the Agent role, however, because whilst the painting cannot move by itself, it is conscious and thus able to experience things.

To summarize, based on established animacy patterns, we do not expect the inanimate narrator to have the role of Agent or Experiencer as often as the human narrator, despite the animate endowments it might share. Instead, we expect it to have the role of Theme more often.

### 3.2.5 Verb classes

Thematic roles are generalizations over arguments of particular verbs (Lestrade 2010). For our annotation we have decided to not only annotate for thematic role, but also for verb class, since there is not necessarily a one to one mapping between the two. For example, subjects of perception verbs have the role of Experiencer, whilst subjects of cognition verbs can also have the role of Agent. A transitive action verb takes as one of its arguments a Theme, whilst a transitive cognition or psych verb takes as one of its arguments a Theme as well.

A difference can be made between cognition verbs such as *think* or *mean* (where the subject is an Agent like the Agent subject of *tell* or *say*), as illustrated in (15) and (16), and cognition verbs such as *know* in which the subject is an Experiencer, also illustrated in (16).

- (15) *Ik bedoel als je, zoals ik, helemaal leeg en wit ter*  
I mean if you like me completely empty and white to.the  
*wereld komt, met niets erop of eraan, dan ben je*  
world come with nothing there.on or there.at then are you  
*volledig afhankelijk van wat ze van je maken.* (p.6)  
completely dependent of what they of you make  
'I mean, if you, like me, come into the World white and completely  
blank, with nothing on you at all, you are totally dependent on  
what they make of you.' (p.2)
- (16) *Ik moest zo niet denken, dat wist ik.* (p.21)  
I must thus not think, that knew I

'I knew I shouldn't think like that.' (p.24)

Another distinction can be made between perception verbs such as *see* or *hear* of which the subject is an Experiencer, and perception verbs such as *look* or *listen* of which the subject is more actively paying attention and thus has the role of an Agent (cf. Viberg 1983; Malchukov 2005). Whitt (2009) calls verbs such as *look* and *listen* 'subject-oriented agentive perception verbs', verbs such *see* and *hear* 'subject-oriented experience perception verbs', and verbs such as *sound* 'object-oriented perception verbs'. Note that the English verbs *smell* and *taste* can have all three different readings. We have decided to call *see* and *hear* 'sensory verbs', and *look* and *listen* 'action verbs' in our annotation. Examples (17) and (18) illustrate the uses of these verbs with the inanimate narrator as an Experiencer subject in (17) and as an Agent subject in (18).

- (17) *Ik zag eigenlijk alleen maar hoe klein hij was en onopvallend.*  
(p.24)  
'All I saw was how small and nondescript he was.' (p.28)
- (18) *Ze zijn een wandeling gaan maken door het bos om Nimmerdor en voor het eerst kon ik op mijn gemak de wereld in kijken, wat zeggen wil de glazen schuifpui door de tuin in.* (p.24)  
'They went for a walk through the woods around Withernot, and for the first time I was able to look out into the world at my leisure, which is to say through the sliding doors and into the garden.'  
(p.28)

The use of a verb such as *klinken* 'sound' was annotated as 'property'. An example is given in (19). Note that this type of verb is called 'object-oriented' by Whitt (2009) because the Experiencer remains implicit; the thematic role of the subject here is Theme.

- (19) *En Felix Vincent had met de wijsvinger van zijn rechterhand tegen mijn huid geflikt, precies in mijn midden, ja, geflikt is het woord, zoals je doet wanneer je een kruimel van tafel schiet, zo had Vincent tegen mijn middenste geflikt en ik had geklonken als een Turkse trom.* (p.10)  
'And Felix Vincent flicked my skin with his right index finger, exactly in my middle – yes, flicked is the right word, just like shooting a crumb of a table. Vincent flicked me in the middle like that, and I boomed like a Turkish drum.' (p.8)

Fagel et al. (2012) analyzed verb use in the novel *De asielzoeker* (2003) by Arnon Grunberg. They divided verbs in three classes only, 'action verbs' such as *do*, *make*, and *paint*, 'cognition verbs' like *think*, *feel*, and *know*, and verbs such as *have* and *be* that they called 'state verbs'. They annotated the verbs according to their basic meaning, independently of their context. Their hypothesis was that the 'passive' main character of the novel, who is observing the world but not acting in it, would give rise to a higher proportion of cognition and state verbs and a lower proportion of action verbs, compared to two other novels (by different authors) that they investigated. They found that it was indeed the case that fewer action verbs occurred in *De asielzoeker* than in the other two novels, although the number of action verbs still exceeded the number of cognition and state verbs. They concluded that a more fine-grained analysis of types of verbs and the context in which the verbs occur would be necessary to confirm and explain the impression that *De asielzoeker* is more 'static' than the other two novels, due to its passive third person main character. Because the inanimate first person narrator in *Specht en zoon* is also passive and observing rather than dynamic, our hypothesis is that there will be relatively fewer action verbs and more other types of verbs in *Specht en zoon* than in *De wijde blik*.

### 3.2.6 Hypotheses for the corpus study

In the previous subsections, we have come to the following hypotheses concerning the language of the first person inanimate narrator in the novel *Specht en zoon*, compared to the language of its human counterpart in *De wijde blik*:

- (20) i The inanimate first person narrator of *Specht en zoon* will have the grammatical function of object more often than the human first person narrator of *De wijde blik*;
- ii There will be relatively more passive sentences in *Specht en zoon* than in *De wijde blik*;
- iii The inanimate first person narrator of *Specht en zoon* will have the thematic role of Theme more often and the thematic roles of Agent or Experiencer less often than the human first person narrator of *De wijde blik*;
- iv There will be proportionally fewer action verbs and more other types of verbs in *Specht en zoon* than in *De wijde blik*.

### 3.3 Method

#### 3.3.1 The corpus

We used digitized versions of the two Dutch novels by author Willem Jan Otten: *De wijde blik* (1992, 177 pages) and *Specht en zoon* (2004, 142 pages). From these novels we extracted all sentences containing a first person pronoun (i.e. *ik* ‘I’, *me/mij* ‘me’ and *mijn* ‘my’). For *Specht en zoon* this resulted in 1312 sentences; for *De wijde blik* in 2395.

#### 3.3.2 Annotation

As discussed in Section 3.2, we are interested in the relative distribution of grammatical function, voice, thematic role and verb type as they are used with first person pronouns referring to the narrator of the respective books. We annotated the corpus on these features for every sentence containing a first person pronoun. An overview of the features used and their possible values can be found in Table 3.1.

Table 3.1: *Overview of coded features associated with first-person pronouns.*

Feature	Value(s)
Speaker	The entity to which the first person pronoun refers
Grammatical Role	Subject, Object
Voice	Active, Passive
Thematic Role	Agent, Theme, Experiencer, Goal, Recipient, Possessor
Verb Type	Action, Sensory, Cognition, Posture, Property, Copular, Existential, Unaccusative, [Verb]

Speaker was annotated only when the first person pronoun did not refer to the narrator, e.g. in the case of reported direct speech. These cases were excluded from further analysis since we were interested not in the distribution of grammatical functions, verb types and thematic roles in the novels *per se*, but in these distributions in relation to the first person narrator. Grammatical function was annotated only if the pronoun was an argument of the verb (i.e. a subject, (in)direct object or prepositional object). We excluded adjuncts because we were interested specifically

in the role the inanimate narrator takes up in the argument structure of verbs, in relation to their grammatical function and thematic role. Elliptical sentences were also excluded: whilst in the majority of cases unambiguous reconstruction of the argument structure was possible, we felt it best to look only at fully-formed sentences as this allows for a fully bottom-up reconstruction of our findings. Voice is self-explanatory, taking the values of ‘active’ or ‘passive’. We annotated for the most common thematic roles, subsuming Patient, Stimulus, and Theme under ‘Theme’, as discussed in Section 2.4. We distinguished frequent verb types along the lines discussed in Section 2.5. The feature took the value [Verb], a repetition of the lexical verb itself, when the verb proved hard to classify.

Each novel was annotated by two of the authors. The first 400 sentences were annotated by the authors jointly, after which disagreements were resolved and the authors continued individually.

### 3.3.3 Results

Application of the exclusion criteria above resulted in 863 sentences for *Specht en zoon* and 1791 sentences for *De wijde blik*. Chi-square tests of independence were carried out on all annotated features between novels. A significant interaction effect of grammatical function by novel was found: the proportion of first-person objects in *De wijde blik* (16.3%) was lower compared to that in *Specht en zoon* (19.8%),  $\chi^2(1) = 4.85$ ,  $p < 0.05$ . We also found a significant effect of voice in the expected direction, but in general the occurrence of passive voice was rare in both novels (0.7% versus 2.3% respectively,  $\chi^2(1) = 10.63$ ,  $p < 0.01$ ).

The distribution of thematic roles between novels can be found in Table 3.2. There was a significant interaction effect of Thematic role by novel:  $\chi^2(5) = 250.3$ ,  $p < 0.01$ . The distribution found is markedly different between the two novels: the Agent role dominates for *De wijde blik* whilst the contribution of the Agent role in *Specht en zoon* concedes to the predominance of the Experiencer and Theme roles.

For the analysis of verb type, we distinguished between action, cognition, sensory and other verbs. ‘Other’ included existential, copular, posture, property, unaccusative, and unclassifiable verbs, as these categories were not very frequent separately. The distribution of verb types between the two novels is given in Table 3.3. There was a significant interaction effect of verb type by novel:  $\chi^2(3) = 190.1$ ,  $p < 0.01$ , with *Specht en zoon* containing proportionally more cognition and sensory verbs and *De wijde blik* containing proportionally more action verbs.

Table 3.2: *Thematic roles associated with the first person narrator by novel.*

Thematic Role	De wijde blik		Specht en Zoon	
	Absolute	%	Absolute	%
Agent	809	45.2	144	16.7
Experiencer	426	23.7	378	43.8
Theme	458	25.6	321	37.2
Recipient	71	4.0	14	1.6
Possessor	20	1.1	6	0.7
Goal	7	0.4	0	0
<b>Total</b>	<b>1791</b>	<b>100</b>	<b>863</b>	<b>100</b>

Table 3.3: *Verb types associated with the first person narrator by novel.*

Verb Type	De wijde blik		Specht en Zoon	
	Absolute	%	Absolute	%
Action	882	49.3	198	22.9
Cognition	443	24.7	320	37.1
Sensory	136	7.6	154	17.8
Other	321	18.4	191	22.1
<b>Total</b>	<b>1791</b>	<b>100</b>	<b>863</b>	<b>100</b>

### 3.4 Discussion

We started our corpus study with the following four hypotheses:

- (21)
- i The inanimate first person narrator of *Specht en zoon* will have the grammatical function of object more often than the human first person narrator of *De wijde blik*;
  - ii There will be relatively more passive sentences in *Specht en zoon* than in *De wijde blik*;
  - iii The inanimate first person narrator of *Specht en zoon* will have the thematic role of Theme more often and the thematic roles of Agent or Experiencer less often than the human first person narrator of *De wijde blik*;
  - iv There will be proportionally fewer action verbs and more other types of verbs in *Specht en zoon* than in *De wijde blik*.

With regard to grammatical function, our results reflect the cross-linguistic preference for pronouns to fulfill the grammatical role of subject. The contribution of pronouns in the object role is significantly higher for *Specht en zoon* compared to *De wijde blik*, confirming our first hypothesis. As discussed in Section 3.2.2, the animacy distribution in transitive sentences is quite clear, i.e. inanimate subjects are highly infrequent. The relative distribution of subject and object roles between the two novels shows only relatively minor differences, however (19.8% versus 16.3% object roles, respectively). *Specht en zoon's* first person inanimate narrator presents an interesting case since it highlights the tension between avoiding inanimate subjects on the one hand and the subject preference of pronouns on the other. Our results show that this tension is resolved firmly in favour of the pronoun, indicating that whilst the inanimate narrator is not a typical animate, it is endowed with sufficient animate properties to warrant reference by means of a first person subject pronoun.

Turning to voice, our second hypothesis was based on the observation that passivisation is an excellent linguistic strategy to allow the first person pronoun to fulfil the subject role, even when the referent is incapable of carrying out the action denoted by the verb. Although the hypothesis was indeed verified, the percentage of passive sentences remains very low in both novels and the difference is insufficient to explain the subject-pronoun preference of the inanimate narrator.

The third hypothesis was about the distribution of thematic roles. As predicted, the inanimate narrator in *Specht en zoon* is less often an Agent and more often a Theme than the human narrator in *De wijde blik*. This is what we expected on the basis of animacy. The first person inanimate narrator is never the subject of the verb *lopen* 'walk' for example, except once in the idiomatic *gevaar lopen* 'be (lit. walk) in danger', but here it is not an Agent. When the verb *lopen* 'walk' is used in the novel, it is always somebody else, i.e. a human being, who is walking. Two examples are given in (22) and (23):

- (22) *Ik merkte dat ze mijn richting uit was komen lopen.* (p.17)  
'I noticed she was walking in my direction.' (p.18)
- (23) *Ik zag hem naar de lade lopen om te kijken of de cheque er nog lag.*  
(p.55)  
'I saw him walk to the drawer to check whether the cheque was still there.' (p.67-68)

What these two sentences also illustrate is the fact that the inanimate



narrator easily fulfills the role of Experiencer. It can notice and see the walking of somebody else in (22) and (23). This is also necessary for the narrator of a story. Clearly, no story would be possible in case of a narrator who could not observe and report on events going on in the story world. This explains the fact that the part of our third hypothesis concerning the Experiencer role is falsified. It is not the case that the narrator in *Specht en zoon* has the role of Experiencer less often than the one in *De wijde blik*. In fact, it is the other way around. The inanimate narrator takes up the thematic role of Experiencer relatively more often than its human counterpart. In terms of verb types, the inanimate narrator in *Specht en zoon* combines with cognition verbs (such as *merkte* 'noticed' in (22) and sensory verbs (such as *zag* 'saw' in (23)) relatively more often than the human narrator in *De wijde blik*.

We believe that the verification of our hypothesis that the inanimate narrator is an Agent less often than the human narrator goes hand in hand with the falsification of our hypothesis that the inanimate narrator is an Experiencer less often. Precisely the fact that the inanimate narrator in this story does not move by itself and therefore cannot easily be a true Agent, makes it a passive narrator that merely observes and experiences things (and comments upon them), hence a true Experiencer (cf. Fagel et al. 2012). In other words, the fact that the inanimate narrator is a painting that cannot move but still has to narrate the story, triggers its Experiencerhood which is then reflected in the language it uses. As to the degree of defamiliarization or 'unnaturalness' experienced by readers (Alber 2016; Bernaerts et al. 2014), we assume that part of the explanation lies in the fact that readers identify themselves less with, or empathize less with, 'passive' narrators such as the painting in *Specht en zoon*, but this may also vary among readers (cf. Nijhof & Willems 2015).

De Swart and de Hoop (2018) argue explicitly for a distinction between conceptual and grammatical animacy. They claim that conceptual animacy is a gradient notion which may be informed by a myriad of relevant features to greater or lesser extent, but that this is ultimately resolved to a binary distribution of grammatical animacy. This was clearly the case for our inanimate narrator: conceptually, the painting is not a prototypical animate entity, lacking agentive properties, but the distribution of pronoun use, grammatical function and voice indicates it is treated as such linguistically. In this sense the inanimate narrator presents an empirical basis similar to that of inanimate referents endowed exclusively with agency (i.e. the distinction between natural forces and tools, cf. Lowder & Gordon 2015), and thus provides a complementary opportunity to

separate a thematic property from animacy in e.g. processing studies.

Our results confirm that the biological or ontological status of entities is ultimately not very informative in explaining grammatical patterns associated with animacy. The ontologically inanimate painting was in fact closer to a traditional human narrator than to an inanimate object in its grammatical distribution. Clearly, conceptual animacy is the more informative notion here. We are certainly not the first to argue that conceptual animacy drives linguistic expression (cf. Fraurud 1996; Yamamoto 1999), but the extreme case of the inanimate narrator presented here allows for a more nuanced view as to which conceptual features contribute and to what extent. Specifically, the inanimate narrator presented clear differences with a traditional human narrator at this conceptual level: we noted that the agency of the painting was severely limited, resulting in a conceptually animate entity based almost exclusively on Experiencerhood.

### 3.5 Conclusion

Fundamental to human cognition, the distinction between living and non-living entities is attested cross-linguistically in virtually all levels of language, and is relatively well understood. Expressions referring to animate entities may be realised with first person pronouns, since only animate entities can refer to themselves using language. Expressions referring to animate entities show an overwhelming preference to be the subject of a transitive clause. Agents are predominantly animate, Experiencers are necessarily animate.

First person inanimate narrators in literary fiction turn these notions on their head. We presented results from a corpus study comparing the inanimate narrator in *Specht en zoon* to an animate, human narrator in *De wijde blik* by the same author. Our study showed remarkable similarities in the grammatical distributions of both narrators rather than a clear animate-inanimate split. This indicates we should consider animacy in language not as reflecting a binary, biological property of the referent but rather as reflecting conceptual animacy, which is more fluid and may be expressed along a continuum of degrees of animacy. This is most noticeable in the distribution of thematic roles and verb types: whereas the human narrator in *De wijde blik* has a clear preference for the Agent role, associated with action verbs, the inanimate narrator in *Specht en Zoon* is predominantly an Experiencer, observing and commenting on the world around it.

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# Chapter 4

## Empathy for the inanimate

### Abstract

Narrative fiction may invite us to share the perspective of characters which are very much unlike ourselves. Inanimate objects featuring as protagonists or narrators are an extreme example of this. The way readers experience these characters was examined by means of a narrative immersion study. Participants (N = 200) judged narratives containing animate or inanimate characters in predominantly Agent or Experiencer roles. Narratives with inanimate characters were judged to be less emotionally engaging. This effect was influenced by the dominant thematic role associated with the character: inanimate Agents led to more defamiliarization compared to their animate counterparts than inanimate Experiencers. I argue for an integrated account of thematic roles and animacy in literary experience and linguistics in general.

### 4.1 Introduction

“I’m telling you this now, right at the start, because otherwise you’ll close the book the moment you realise who I am, inevitably thinking, ‘What’s he going to experience?’”

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This chapter is based on Trompenaars, Thijs. 2018. Empathy for the Inanimate. *Linguistics in the Netherlands* 35, 125–138.

Thus begins *Specht en Zoon*, Willem Jan Otten's 2004 novel in which we are invited to share the viewpoint of an unusual narrator: a painting, as it transitions from canvas to portrait. By its own admission, the painting is not a very compelling target for the reader's empathy, despite the hardships it suffers as the story progresses. This paper will examine the painting's assertion. Narrative fiction may feature characters very much unlike ourselves, with inanimate characters such as Willem Jan Otten's painting serving as an extreme example. Sharing their perspective stretches the limits of our empathy. Can we quantify the distancing effect that makes it harder to empathize with inanimate characters, using linguistic features? I will first examine the ways in which non-human characters may differ from other literary characters, and how these characteristics are predicted to influence the narrative experience. Next, I will present the results of a narrative immersion study designed to test these factors.

## 4.2 Animacy and Empathy

An obvious way in which the painting differs from other literary characters is its animacy: paintings, as we know them, are not alive in the sense that we are. This comes with certain entailments, e.g. we shouldn't be able to share the perspective of objects that lack a perspective. Yet, inanimate characters are not rare in narrative fiction despite these ontological violations. The painting is one example of many, with counterparts such as Mulisch's statue in *Het beeld en de klok* 'The statue and the clock', a book in Kerbaker's *Diecimila* 'Ten Thousand', and an assortment of substances in Carey's *Autobiographies* (Bernaerts et al. 2014). Bernaerts et al. (2014) argue that the use of inanimate characters always gives rise to a process of defamiliarization: the reader's explicit recognition of the non-human character's counter-ontological status (Bernaerts et al. 2014). The defamiliarization effect increases as less human traits are shared and more ontological entailments are violated, and as a result it is most extreme for personified inanimate objects. That defamiliarization should depend on animacy is not surprising. Animacy is a central ontological distinction in human cognition (Dahl 2008) that allows us to classify entities in the world around us in order to predict their behaviour (Szewczyk & Schriefers 2011).

What behavioural patterns follow when certain human-like feature conditions are met? Some definitions of 'animate behaviour' have been attempted by linguists. Dahl (2008) identifies the capacity to perceive



and act upon the environment; Fowler (1977:16) notes that “[a]nimate beings are capable of initiating actions and change (...) whereas inanimate beings lack this faculty of responsibility, this power to cause the world to change”. Movement or implied volitional involvement are strong predictors of animate expression in language (Vogels et al. 2013), and sentience necessarily implies animacy. Semantically, these descriptions are captured in the notion of thematic roles: Dowty’s (1991) Proto-Agent is volitionally involved in the event it causes, sentient, and capable of movement, properties which all entail animacy, whereas the corresponding Proto-Patients’ do not (cf. Primus 2012, Grimm 2005).

The inventory of thematic properties allows us to further specify the linguistic reflection of the ‘human-like’ traits that are lost in the case of inanimate characters such as *Specht en Zoon*’s portrait, leading to the defamiliarization noted by Bernaerts et al. (2014). In a corpus study (Trompenaars et al., 2018) we annotated the linguistic environment associated with *Specht en Zoon*’s inanimate narrator, compared to that of an animate narrator by the same author. We found minimal differences in grammatical expression: the inanimate narrator is linguistically animate in the sense that it prefers subject over object roles and is expressed by a first-person pronoun. The distribution of thematic roles, however, was clearly different: where the animate narrator was associated with the Agent role in 45% of cases, this was 17% for the inanimate narrator. Conversely, the Experiencer role dominated the distribution for the inanimate narrator at 43% of cases, where this was 23% for the animate narrator. We interpreted this as a linguistic reflection of *Specht en Zoon*’s inanimate character’s inability to act on its environment – it lacks Proto-Agent, human-like features that its animate counterpart does possess.

#### 4.2.1 Linguistic reflections of narrative empathy

Defamiliarization, defined now as a selective loss of Proto-Agent or human-like features, is argued to lead to a reduction in empathy for inanimate characters such as *Specht en Zoon*’s portrait. In linguistics, we find the notion of empathy as referring to e.g. “the speaker’s identification, with varying degrees, with a person who participates in the event that he describes in a sentence” (Kuno & Kaburaki 1977:628), somewhat analogous to the concept of animacy. Langacker (1991:307) provides an empathy hierarchy clearly reminiscent of traditional animacy hierarchies, noting a starting point at the speaker, moving through hearer, third person human, and animal before terminating at inanimate entities. Yamamoto

(1999) observes that the notions of empathy and animacy depart from the same scale, as they indicate an egocentric or anthropocentric view of the world.

Narrative empathy, in turn, is a more specific form of empathy, defined as the sharing of feeling and perspective-taking induced by reading a narrative of another's situation and condition (Keen 2007). Research in literary science indicates that narrative empathy is sensitive to a diverse list of narrative techniques, e.g. perspective (Schneider 2001) and the interior representation of character's consciousness and emotional states (Keen 2007). Empirically, there are indications that 'action-oriented stories' will elicit higher story-word absorption scores than 'character-driven stories' (Kuijpers et al. 2014) or that readers differ in their appreciation for 'mentalizing' or 'action simulation' aspects of narrative (Nijhof & Willems 2015). Bruner (1986:14) provides a cognitive account of a distinct 'landscape of action' and a 'landscape of consciousness' sketched by a narrative. These dimensions often remain abstract, if defined at all.

Arguably, these dimensions should be reflected in some distinctions at a lower, more fine-grained linguistic level. Much could be gained by identifying these linguistic reflections, both in explaining the concept of animacy in theoretical linguistics as well as in its effects on the narrative experience. Linking the narrative experience to linguistic features has had some success in the past, most notably in the realm of person: presenting a narrative from a first-person perspective is generally found to benefit narrative empathy and identification over a third person perspective (e.g. Keen 2007, Hartung et al. 2016). Note that person is often incorporated into animacy hierarchies (e.g. Comrie 1989), making this success especially promising for the current study (cf. also Yamamoto 1999 above). With regards to influences such as internal representations of character's consciousness or action-oriented narratives, linguistic quantification has been more challenging, but here, too, attempts have been made. Fagel et al. (2012) describe a comparative corpus study focusing on Dutch author Grunberg's *De asielzoeker*, the main character of which is detached from the story, creating a distancing effect. Fagel et al. (2012) were able to quantify this distancing effect through a reduction in the use of active verbs, both as the story progresses as well as in comparison with stories featuring a less distancing main character, but their 'active verbs' are poorly defined.

To summarise, inanimate characters in narrative fiction create an effect of defamiliarization leading to a decrease in empathy. This follows, as ontologically the inanimate is furthest removed from the self and the

self is the starting point for empathy. However, linguistically, inanimate characters are not inanimate objects at all: they share human-like features to varying degrees. Two candidates for human-like features on a linguistic level were discussed: Agency and Experiencerhood. The present study takes these linguistic features as a measure of ‘action-oriented’ versus ‘interior representation’ narratives, which have been shown to affect narrative empathy.

Thus, narrative empathy is expected to be sensitive to both animacy and thematic roles. Empathy is closely linked to animacy *per se*, leading to the hypothesis that stories with inanimate characters will be judged to be less emotionally engaging than stories with animate characters. In addition, as less active protagonists also lead to reduced emotional engagement as compared to more active protagonists, I hypothesize that stories featuring Agentive protagonists will lead to more emotional engagement than stories featuring Experiencers.

By exploring the influence of both thematic roles on narrative empathy, we may gain insight into their relative contribution to the conceptualization of animacy and the linguistic mechanism by which narrative empathy is established. To my knowledge, this is the first study to make this link explicit.

### **4.3 The inanimate character: a narrative immersion study**

A narrative immersion study was conducted in which participants read four short stories manipulated on the factors of animacy and dominant thematic role. The stories were followed by questionnaires targeting emotional engagement and literary experience.

#### **4.3.1 Participants**

A total of 200 native speakers of Dutch (155 female, mean age 24,  $sd = 6.2$ ) participated in the study. The participants did not report any reading disability. The study was assessed and approved by the Ethics Assessment Committee (EAC) of the Faculty of Arts at Radboud University (1119).

### 4.3.2 Stories

Four short Dutch stories were constructed by experienced amateur authors. The authors were not informed about the purpose of the experiment to prevent the manipulations from unintentionally becoming the main theme of the stories, e.g. a narrative focusing on 'the meaning of being alive'. Two narratives were commissioned to be written for an animate protagonist and two for an inanimate protagonist, such that possible factors introduced by the animacy distinction could be averaged out later. Furthermore, in both conditions, authors provided one story containing a narrative which was more action-oriented in which the protagonist served predominantly as the Agent (Agent-dominant) whilst the second story contained a narrative mostly focusing on the cognitive and sensory experiences of the main character (Experiencer-dominant). This classification was checked by annotating, for each story, the thematic role of the protagonist for all verbs featuring the main character as one of its arguments, distinguishing between Agent, Experiencer or Theme. This resulted in the four narratives in Table 4.1.

The stories were presented from the perspective of a heterodiegetic narrator which allowed for an introduction of the protagonist in the third person, in the form of a full noun phrase.

Another four stories were derived by replacing the noun phrases with an inanimate or animate counterpart, respectively: a) *het meisje* 'the girl' was replaced by *de bezem* 'the broom', b) *de patiënt* 'the patient' by *het schilderij* 'the painting', c) *de prullenbak* 'the garbage bin' by *de kantoormedewerker* 'the office worker', and d) *de speelgoedauto* 'the toy car' by *het jongetje* 'the little boy'. The versions were otherwise completely identical, which entailed some minimal but essential changes be made to the original versions, e.g. the removal of explicit descriptions of physical characteristics<sup>1</sup>.

### 4.3.3 Questionnaires

The narrative experience was measured using an adapted version of the Story World Absorption Scale (SWAS). The SWAS was developed by Kuijpers et al. (2014) to measure absorption in written narratives, validated for Dutch texts. The SWAS that emerged in their study is an 18-item questionnaire that measures four distinct constructs related to story-world

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<sup>1</sup>Full versions of the narratives are available in the Appendix.

Table 4.1: *Narratives used in the study, with number of words and distribution of cases in which the main character is associated with the Agent versus Experiencer role as a percentage of all verbs involving the main character.*

<b>Narrative</b>	<b>N words</b>	<b>%Agent</b>	<b>%Exp</b>	<b>Synopsis</b>
A night out	1324	58%	32%	A girl reluctantly joins her brother for a night out, but ends up having a good time.
The patient	1138	16%	71%	A patient is joined in his hospital room by a strange couple of new patients.
The office	813	66%	21%	A garbage bin is fed up with its office job and terrible co-workers and plans a daring escape.
Fear of heights	795	29%	32%	A little toy car dreams of being able to fly, but comes to regret the decision as it is unable to control its flight.

absorption: attention, transportation, mental imagery and emotional engagement. The emotional engagement construct includes concepts of narrative empathy, sympathy and identification and is used as the dependent measure in this study. Items from the SWAS were slightly adapted when they made idiomatic reference to character descriptions (e.g. ‘When I read the story I could image what it must be like to be in the shoes of the main character.’). A further subset of four items was adapted from de Graaf et al. (2012), to further distinguish perspective, identification, sympathy and empathy in the emotional engagement construct. This resulted in 24 items, which were assigned to the questionnaire pseudorandomly such that two items aimed to measure the same construct were always separated by an item aimed to measure another construct. This order was the same following all narratives for all participants.

The extent to which literary experience serves as a predictor for narrative empathy, and independently, the acceptance of inanimate characters was of further interest in this study. Exposure to literary fiction has been shown to influence empathy (e.g. Kidd & Castano 2013, cf. Koopman 2015). Literary experience might thus be expected to lead to a higher degree of self-reported narrative empathy, for both animate and inanimate characters. Alternatively, the difference in narrative empathy between animate and inanimate characters might be reduced as a function of literary experience. Exposure to unfamiliar characters might desensitize readers to the effects of defamiliarization.

Literary experience was measured in two ways: an exit questionnaire and an Author Recognition Test (ART). The exit questionnaire was adapted from Hartung et al. (2016) and contained items on general reading habits; specifically, the number of books read in the past year. A more objective measure in the Author Recognition Test (Stanovich & West 1989) was also used; specifically, an adapted Dutch version from Hartung et al. (2016), containing 30 Dutch and international authors of both popular and literary fiction intermixed with 12 foils.

#### **4.3.4 Design & procedure**

Four lists were created, such that all narratives were read by all participants and all participants saw all combinations of animacy and thematic role. Animacy served as a within-narrative factor, thematic role served as a between-narrative factor. A further four lists were created by fully reversing the order of the narratives in the previous lists. This resulted in a total of eight lists, with 25 participants per list.

The experiment consisted of an instruction, four stories with accompanying narrative questionnaires, and three final questionnaires. These final questionnaires included the ART and literary experience questionnaires in addition to a third questionnaire containing 12 relatively simple comprehension questions, three per story, included only to ensure participants paid attention to the narratives.

All components were presented on paper to mimic a natural reading experience (Cambria font, justified to A4 paper, portrait orientation). The procedure and order of the experiment were explained during the instruction. Participants were asked not to deviate from the order of the booklet and to read the stories as naturally as possible, i.e. not slower or faster than they would read normally. The narrative questionnaire followed every story. Finally, the comprehension questionnaire, ART and

literary experience questionnaire were presented. The experiment lasted approximately 30 minutes.

## 4.4 Results

### 4.4.1 Comprehension questions

The maximum possible score on the comprehension questions was 12. Out of 200 participants, one scored 8, one scored 9, and 196 scored over 9. Comprehension question scores from the remaining two participants were missing. Given the overall unsuspecting distribution in comprehension question scores, data from these two participants were included in the reported analyses after inspection.

### 4.4.2 ART & Literary Experience

Performance on the ART could range from -12 (the participant selected foils only) to 30 (all authors recognized, no false positives). Scores in the present study ranged from 0 to 20, with a mean of 7.1, with 1 missing value. With regards to self-reported literary experience, participants reported a number of books read last year in a range of 0 to 50, with a median of 4, with 4 missing values. There was a positive correlation between ART Score and Number of books ( $r = 0.38, p < 0.001$ ). Both measures also correlated significantly with emotional engagement, such that an increase in literary experience on both scales was associated with a decrease in self-reported emotional engagement ( $r = -0.16, p < 0.001$ ;  $r = -0.18, p < 0.001$ , respectively). Number of books was chosen over the ART score as the measure for literary experience in subsequent analyses. Whilst the subjective nature of such self-report questionnaires is a potential risk (cf. Acheson et al. 2008), I argue that it presented a more reliable indication than the ART scores which were usually high because of well-known authors I had no guarantee were actually read by the participant.

### 4.4.3 Emotional engagement

The emotional engagement construct contained 11 questionnaire items (Table 4.2). The average of these 11 items entered into the analyses as the dependent variable.

Emotional engagement was modelled in R, using the lme4 package (Bates et al. 2015). Based on the hypotheses, the following factors were

Table 4.2: *Questionnaire items in the 'Emotional Engagement' construct. My translation.*

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1	When reading for a while, it seemed the main character and I became one.
2	In my imagination it was like I was the main character.
3	While reading I felt like what was happening to the main character was happening to me.
4	I felt like I experienced what was happening in the story from the perspective of the main character.
5	I felt sympathy for the main character.
6	I was affected by the situation the main character found themselves in.
7	I felt what the main character felt in the story.
8	I felt connected to the main character in the story.
9	I felt like I was going through what the main character was going through.
10	While reading I pictured what it must be like for the main character to experience the events in the story.
11	I felt for what happened in the story.

---

included as fixed effects: animacy, thematic role, the self-reported literary experience expressed by number of books, and the two-way interactions between animacy and thematic role as well as between animacy and number of books. Random intercepts for participants and stories were included. In addition, random slopes for thematic role and animacy were estimated per participant. This was the maximal random effect structure which could be estimated. Effects were considered significant when the  $t$ -value exceeded 1.96.  $T$ -values for the fixed effects are reported.

The mean Emotional engagement scores are displayed in Figure 4.1. There was a significant main effect of animacy, such that stories with an animate protagonist were on average rated higher for emotional engagement than stories with an inanimate protagonist ( $\beta = 0.39$ ,  $SE = 0.12$ ,  $t = 3.25$ ,  $p < 0.01$ ). There was no significant main effect of thematic role ( $\beta = 0.41$ ,  $SE = 0.25$ ,  $t = 1.61$ ,  $p = 0.11$ ). There was a main effect of number of books indicating that an increase in self-reported number of books read was associated with a decrease in emotional engagement ( $\beta = -0.03$ ,  $SE = 0.01$ ,  $t = -2.73$ ,  $p < 0.01$ ). A significant interaction effect of animacy and thematic role emerged, showing that the effect of animacy was larger for



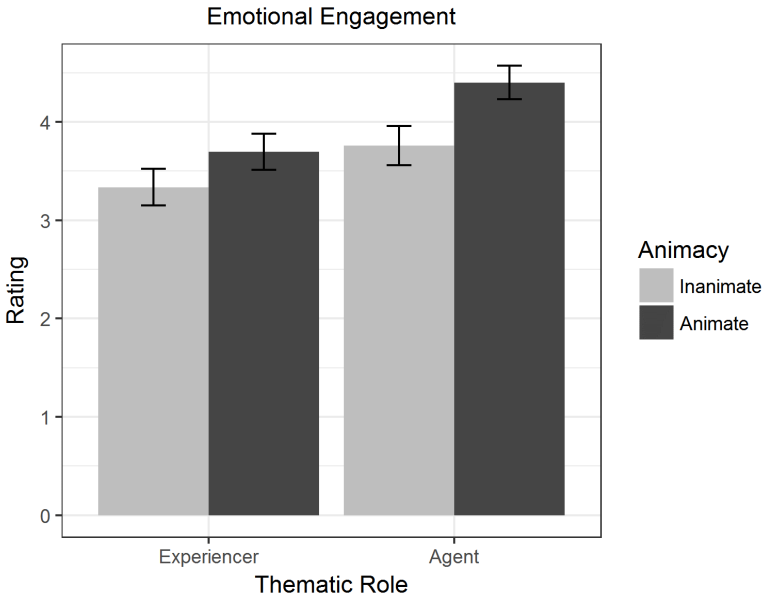


Figure 4.1: Average Emotional engagement scores by animacy and thematic role. Error bars represent 95% confidence intervals.

Agent stories than for Experiencer stories ( $\beta = 0.29$ ,  $SE = 0.14$ ,  $t = 2.05$ ,  $p < 0.05$ ). There was no significant interaction between animacy and number of books ( $\beta = -0.01$ ,  $SE = 0.01$ ,  $t = -0.85$ ,  $p = 0.40$ ).

## 4.5 Discussion

The present study explored the influence of animacy and thematic roles on narrative empathy, as measured by emotional engagement. The results showed that inanimate protagonists generate less emotional engagement than animate protagonists, indicating an effect of defamiliarization. Furthermore, there was an interaction effect between animacy and thematic role: in the stories where the main character took a less active role, emotional engagement was less influenced by animacy.

A negative effect of literary experience on self-reported emotional engagement could also be observed. Based on previous research showing

a positive correlation between literary experience and scores on self-reported empathy the hypothesis was that experienced readers might display more empathy in general – resulting in a positive main effect – and might be more tolerant of inanimate characters specifically – which would lead to an interaction effect. This was not the case. Participants with more literary experience might well be more empathetic in general, but I argue that the negative effect on emotional engagement here is driven by the short, unliterary nature of the stories used. Experienced readers presumably recognised the ‘subpar’ quality of the stories, causing them to rate the stories more negatively overall.

The main result of this study is a distinction between Agents and Experiencers, which emerged as an interaction with animacy: inanimate Agents led to less emotional engagement compared to their animate counterparts than did inanimate Experiencers. In other words, there was an interaction that indicated a bigger ‘penalty’ when the inanimate was conceptualised as an Agent compared to when it was conceptualised as an Experiencer. This is surprising given that the implications from thematic roles to animacy are reversed: Agents can be inanimate (e.g. ‘The storm devastated the village’, though not in all languages), whereas Experiencers, implying sentience, are necessarily animate. I propose this follows from an implicational hierarchy: inanimate objects acting as active protagonists were always implied to be conscious experiencers, whereas Experiencers in the stories never implied Agency. Whilst both thematic roles contribute conceptually to the notion of animacy (cf. e.g. Rosenbach 2008, Radanović et al. 2016), Agency is the factor that is outwardly expressed, with Experiencerhood being ascribed after the fact. Both animate and inanimate characters in Experiencer-dominant stories had lost their Agent feature, such that the inanimate character only further violated Experiencer-entailments. The Agentive but inanimate protagonists, conversely, violated both. As defamiliarization increases as more human-like features are lost, the latter led to a greater reduction in emotional engagement.

One important caveat to note here is that ‘empathy’ or ‘identification’ did not emerge as separate subscales of the emotional engagement construct in the SWAS after factor analysis by Kuijpers et al. (2014), indicating that these items might also not be sufficiently distinct for our participants. We can conclude only that emotional engagement as a whole is sensitive to the interaction between animacy and thematic role. Whether this is due more to processes of identification or (narrative) empathy per se thus remains an open question, though note their similar uses in the linguistic

literature (e.g. Kuno & Kaburaki 1977, Langacker 1991).

The reflection of animacy in language is ultimately a binary one, but the choice is always informed by a gradient, conceptual notion of animacy (de Swart & de Hoop, 2018). The results presented here indicate that in establishing this conceptual notion, conceptual features are not created equal: in narrative contexts it is more acceptable, or less defamiliarizing, to ascribe Experiencerhood to an inanimate object than it is to ascribe Agency. By making differential ascription possible, inanimate characters in narrative fiction provide a promising means to disentangle the contribution of Agency, Experiencerhood, or other human-like features to animacy.

## 4.6 Conclusion

In narrative fiction we may encounter inanimate objects featuring as narrators or characters. This has been noted to be accompanied by an effect of defamiliarization. The reader's attention is drawn to the counter-ontological status of the inanimate object, as it continually violates behavioural entailments: an inanimate object in general shouldn't be able to act on or experience the world around it. This in turn is predicted to lead to a reduction in emotional engagement. The current study explored the way readers experience inanimate characters by manipulating both the character's animacy as well as its dominant thematic role. The main result was an observed distinction between Agents and Experiencers, which emerged as an interaction with animacy: inanimate Agents led to less emotional engagement compared to their animate counterparts than did inanimate Experiencers. I argued this results from an implicational hierarchy in which inanimate Experiencers are never implied to be Agents, whereas inanimate Agents in narrative fiction entail consciousness. From this it follows that an Agent that is inanimate violates more behavioural entailments than an inanimate Experiencer, resulting in a bigger effect of defamiliarization. The results demonstrate the value of defining 'active' or 'experiencer' narratives in more fine-grained linguistic terms, and the need to distinguish both thematic roles in their contribution to the conceptualisation of animacy.

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# Chapter 5

## Bringing relative clauses to life: animacy shifts and grammatical role assignment

### Abstract

Animacy is broadly recognised to play a role during language processing. Grammatically, this shows up in a tendency for animate constituents to be sentential subjects, whereas inanimate constituents are more comfortable in a grammatical object role. These tendencies influence relative clause processing, where they interact with default processing biases: object-relative clauses are generally more difficult to process than subject-relative clauses, unless the subject of the relative clause is animate and its object is inanimate. This is often taken to indicate semantics has an immediate influence during syntactic processing, but what is actually contained in the semantics of animacy remains topic of debate. We explore the distinction between lexical animacy and contextual animacy using animacy *shifts* based on Agency and Experiencerhood during the processing of relative clauses in a self-paced reading study.

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This chapter is based on Trompenaars, Thijs, Roel M. Willems, Peter de Swart, & Helen de Hoop. *Bringing relative clauses to life: animacy shifts and grammatical role assignment*. Manuscript submitted for publication.

## 5.1 Introduction

Animacy is broadly recognised to play a role during language processing. There is considerable overlap in the distributions of animate referents, grammatical subjects and semantic Agents, and a converse overlap in the distributions of inanimate referents, grammatical objects, and the semantic role of Patient (Siewierska 1988; Dowty 1991; Primus 2012). A long history of psycholinguistic research has shown that the language system is able to recognise and exploit these distributions to facilitate processing in real time (Bates & MacWhinney 1989, Bornkessel-Schlesewsky & Schlewsky 2009; Lamers & de Hoop 2014): extracting the animacy status of a referent provides the language system with non-zero information on the referent's likelihood of being the grammatical subject or object. One syntactic case in which this influence is especially apparent is in the processing of relative clauses. Object-relative clauses, as in (1), are notoriously more difficult to process than subject-relative clauses, as in (2), adapted from Traxler et al. (2002).

- (1) The director that the movie pleased received a prize at the film festival. (Object-relative)
- (2) The director that watched the movie received a prize at the film festival. (Subject-relative)

This processing difference has been shown to be significantly reduced or even absent when the head of the relative clause ('the director' in (1) and (2)) is inanimate (e.g. Traxler et al. 2002; Traxler et al. 2005; Mak et al. 2006). Consider (3) and (4), again adapted from Traxler et al. (2002).

- (3) The movie that the director watched received a prize at the film festival. (Object-relative)
- (4) The movie that pleased the director received a prize at the film festival. (Subject-relative)

What exactly constitutes an 'inanimate' as opposed to an 'animate' stimulus in these and other constructions, i.e., what property changed between the example sets? One obvious way in which directors differ from movies is in their biology: 'director' lexically refers to a biologically living entity whereas 'movie' lexically refers to a non-living object. An important finding in the theoretical linguistic literature is that animacy is not merely a lexical property, however, but the result of a rich combination of inherent



and contextual/thematic factors, all of which may separately influence syntactic parsing (cf. Paczynski & Kuperberg 2011; Lowder & Gordon 2015; Czypionka & Eulitz 2018); e.g., as biologically animate entities, directors are a good thematic fit as Agentive subjects of ‘watched’, or Experiencer objects of ‘pleased’, and thematic properties also influence grammatical role distributions. A tornado, as in (5) from Lowder and Gordon (2015), is lexically inanimate, but as an Agent it is perfectly suitable as the syntactic subject in this construction, whereas the similarly inanimate but thematically Instrumental revolver in (6) is more problematic.

- (5) The tornado injured the farmer in the field.  
 (6) The revolver injured the farmer in the field.

In extreme cases, linguistic or contextual factors can transform or *shift* constituents that are lexically inanimate into ‘cognitively animate’ constructs (de Swart & de Hoop 2018; Nieuwland & van Berkum 2006; Trompenaars et al. 2018). Consider (7), from Nieuwland and van Berkum (2006), boldface ours:

- (7) A woman saw a dancing peanut who had a big smile on his face. The peanut was singing about a girl he had just met. And judging from the song, the peanut was totally crazy about her. The woman thought it was really cute to see the peanut singing and dancing like that. **The peanut was salted/in love**, and by the sound of it, this was definitely mutual. He was seeing a little almond.

Peanuts are lexically inanimate, but when introduced in the proper context as a dancing Agent and smitten Experiencer, it takes the language system no time at all before ‘The peanut was salted’ is experienced as the linguistic violation, rather than the semantically anomalous ‘The peanut was in love’. This cartoon-like context presents an extreme case, but animacy shifts are quite common in everyday language: ‘Ham sandwiches’ are perfectly fine sitting at table 20 waiting for their orders (Nunberg 1979; see de Swart & de Hoop 2018 for an overview).

Despite considerable discussion in the linguistic literature on the nature of animacy, the influence of animacy shifts on online comprehension has not received much attention. The current study explores the semantic content of animacy through the influence it exerts on relative clause processing. By taking the influence of animacy on object-relative clause processing as given, and contextually shifting inanimate referents into animate constructs, we hope to gain insight into what dimension of

'animacy' makes object-relative clauses easier to process, and conversely, what is contained in the semantics of 'animacy'. Section 5.1.1 will look at animacy, and animacy shifts, in more detail. Section 5.1.2 will discuss previous findings on the processing of relative clauses, and the influence of animacy thereon. In Section 5.1.3 we combine the two, introducing our self-paced reading experiment. The experiment is detailed in Section 5.2, and its results discussed in Section 5.3. Section 5.4 concludes.

### 5.1.1 Animacy shifts and Thematic roles

There is considerable cross-linguistic evidence for an influence of animacy on grammatical role distributions, from typology (e.g. Silverstein 1976; Siewierska 1988; Comrie 1989), corpus linguistics (e.g. Øvrelid 2004; Dahl 2008; Verhoeven 2014) and processing studies in both production (e.g. Prat-Sala & Branigan 2000; Branigan et al. 2008) and comprehension (e.g. MacDonald et al. 1994; Traxler et al. 2002; Mak et al. 2002).

These effects are not driven by a biological dichotomy between living and non-living entities. The majority of the animacy scales proposed in the literature (e.g. Comrie 1989; Aissen 2003) minimally distinguish human from non-human animals from inanimates, as in (8).

- (8) Human > Animate > Inanimate

In actual language use, the scales are even more fine-grained, depending both on the viewpoint of the specific language user as well as the context in which it is embedded (Yamamoto 1999). For example, it is not uncommon to refer to one's pet using masculine or feminine pronouns in English, whereas 'lower' animals are generally referred to by neuter pronouns. As a related example from Finnish, Peltola (2018) presents corpus data from a radio programme where listeners call in with nature observations. She found that certain grammatical constructions that are only open to human reference can also be acceptable with non-human animates, provided they share certain human-like characteristics like a shared viewpoint. Vogels et al. (2013) demonstrate that animate reference is based not only on lexical properties, but partly contextually determined. They presented participants with inanimate objects behaving in an 'animate' way, i.e. stones climbing up a slope. They find that such contextually ascribed behavioural cues increase the incidence of pronominalisation, associated with animate referents.

These cases show that animacy in language should not be considered

as expressing (only) an inherent, invariant property of referents. Instead, grammar reflects a *cognitive ontology* of animacy (Fraurud 1996; Dahl 2008; de Swart & de Hoop 2018): referents that are considered ‘animate’ in the mind of the language user will be expressed and processed as such linguistically. As a result, many animacy effects in language are also sensitive to criteria that are not inherent to the referent, or specifically, the referent’s biology: e.g. supernatural entities, vehicles, electronics and natural phenomena are routinely ascribed some (degree of) animate properties such as agentivity, experience, motion or volitionality (Yamamoto 1999; Dahl 2008).

An extreme example of this is provided by (narrative) contexts in which the inherent animacy of the constituent, as expressed lexically, is consistently and repeatedly violated. Nieuwland and van Berkum (2006) present an EEG study in which lexically inanimate referents (e.g. ‘peanut’) were embedded in discourse contexts in which they played an animate role, as in (7), repeated here as (9).

- (9) A woman saw a dancing peanut who had a big smile on his face. The peanut was singing about a girl he had just met. And judging from the song, the peanut was totally crazy about her. The woman thought it was really cute to see the peanut singing and dancing like that. **The peanut was salted/in love**, and by the sound of it, this was definitely mutual. He was seeing a little almond.

Nieuwland & van Berkum (2006) find that the continuation that is semantically consistent in isolation (‘The peanut was salted’) leads to an N400 effect when embedded into a supporting discourse context such as (9), compared to the semantically anomalous but discourse-supported alternative (‘The peanut was in love’). They conclude that a discourse context can immediately influence lexical/semantic selection criteria, such as those associated with animacy.

The linguistic phenomenon whereby referents can change ontological animacy categories is termed animacy *shifts* by de Swart and de Hoop (2018). They distinguish between overt animacy shifts, in which the grammar reserves different constructions for animate and inanimate objects, and covert animacy shifts, in which the common knowledge of the existence of exactly this grammatical distinction and its entailment is utilised by the language user to covertly signal a shift in conceptual animacy. This is exemplified in de Swart and de Hoop (2018) by a pattern of differential object marking in Dutch, described by de Swart (2014). Consider the

alternation in the sentence pair (10) and (11).

- (10) *De hond beet de man.*  
the dog bit the man  
'The dog bit the man.'
- (11) *De hond beet in het brood.*  
the dog bit in the bread  
'The dog bit the bread.'

De Swart (2014) argues that the prepositional phrase in (11), used with inanimate objects, is used to overtly signal a lack of sentience on the part of the object. Given that common knowledge of this alternation exists, the language system is able to exploit this as a grammatical means of expressing implied sentience: embedding a lexically animate object (e.g. 'the man') in this preposition structure, covertly signals it is cognitively inanimate, as in (12).

- (12) *De gier beet in de man.*  
the vulture bit in the man  
'The vulture took a bite out of the man.' (lit. 'bit in the man')

Verb selection criteria, in this view, function in a similar fashion to explicit grammatical alternations: embedding a lexical item of one type in a verbal structure that is only open to the other type does not immediately result in ungrammaticality, but rather in a conceptual reanalysis of the referent. For example, de Swart and de Hoop (2018) would analyse a sentence such as 'My toothbrush is alive and trying to kill me' not as ungrammatical, but rather as a covert shift of the inanimate toothbrush into a cognitively animate entity.

Thus, context is able to influence the cognitive animacy associated with a lexical expression, to the extent that inanimates are acceptable as living entities. Exactly how this shift is accomplished, as e.g. in the case of Nieuwland and van Berkum's (2006) amorous dancing peanut, and the exact cognitive status of the resulting entity, remains unclear, but the Thematic roles associated with the entity provide a starting point. Thematic roles are generalizations over arguments of particular verbs (Lestrade 2010), and as such, are linguistic reflections of general behavioural patterns. The literature has identified several dimensions of animate behaviour: Dahl (2008) states that it concerns "the capacity to perceive and act upon the environment" (Dahl 2008:145), and Fowler (1977:16) notes that "[a]nimate beings are capable of initiating actions and change (...)

whereas inanimate beings lack this faculty of responsibility, this power to cause the world to change.”

This hints at a strong association with the Thematic roles of Agent and Experiencer. Agents control events which they are able to initiate with volition (Dowty 1991), and agentivity has been argued to imply animacy (Primus 2012; Hundt 2004). The Experiencer is an interesting case when examining the distinction between animacy and Thematic roles. The Experiencer refers to a participant that undergoes a *conscious* event; an event of emotion, cognition, volition or perception (Verhoeven 2014). As such, whereas Agents are merely strongly implied to be animate (Primus 2012; Hundt 2004, but cf. Lowder & Gordon 2015), Experiencers are *necessarily* animate. Conversely, Experiencers are by definition non-Agentive, as they lack control over the event which they undergo.

Both roles provide possible avenues for covert animacy shifts, and the resulting entity need not possess both qualities. Trompenaars et al. (2018) analysed the linguistic expression associated with an inanimate narrator in a corpus study. Compared to the linguistic expression of an animate character by the same author, they found that the inanimate narrator is associated predominantly with cognitive and sensory verbs, serving in the Thematic role of the Experiencer, whereas the animate narrator displayed an Agentive pattern, associated with active verbs. Nevertheless, grammatical expression in terms of grammatical role distribution was similar between novels, indicating the resulting entity could be considered to be grammatically animate, despite lacking Agentive features.

To summarise, animacy effects in language are not sensitive only to inherent, lexical properties of referents. Instead, grammatical distributions reflect cognitive animacy, which can be seen as a combination of inherent and contextually ascribed properties. The question is to what extent these influence syntactic processing. A history of psycholinguistic research has demonstrated that lexically animate constituents differ from lexically inanimate constituents, but where can we place animacy shifted constituents? In other words, are processing differences mostly based on lexical properties or can we see reflections of ascribed Agency and Experiencerhood? Are conceptual animacy shifts sufficient to generate syntactic predictions associated with the alternate animacy type, i.e. would we prefer a dancing peanut to not only be ‘in love’ rather than ‘salted’, but also the subject rather than an object of the sentence in which it finds itself? We will consider a construction in which the processing effects of (lexical) animacy have been consistently demonstrated next, as a starting point for the current investigation.

### 5.1.2 Animacy and relative clause processing

Relative clauses have long been a staple of psycholinguistic research. Their structure is complex in interesting ways: a constituent appears to be extracted from the relative clause to become its head, leaving a gap the listener has to reconstruct in order to arrive at the correct interpretation. Consider (13) and (14) from King and Just (1991).

- (13) The reporter \_ that attacked the senator admitted the error.  
(Subject-relative)
- (14) The reporter that the senator attacked \_ admitted the error.  
(Object-relative)

The most consistent finding in this field is that subject-relative clauses, as in (13), are generally easier to process than object-relative clauses, as in (14) (Frazier 1987; King & Just 1991; Schriefers et al. 1995; Friederici et al. 1998; Gibson 1998; Traxler et al. 2002). An early explanation of this finding comes from Frazier (1987; Clifton & Frazier 1989) in the form of the Active Filler Strategy: the parser will initially attempt to reconstruct the sentence by inserting the relative-clause head into the first possible gap. In the case of a subject-relative clause, this leads to the correct interpretation. In the case of an object-relative clause, the parser mistakenly assumes the first possible gap before 'that' to be the origin, forcing a reanalysis later on.

A fruitful area of research operates under constraint-based accounts (MacDonald 1994; Trueswell et al. 1994). This avenue treats the differences in processing difficulty as arising from structure as given, and focuses on the extent to which information types beyond syntax can attenuate difficulties with object-relative processing, and at what stage. Animacy is one such information type, and has been shown to have an immediate effect on relative-clause processing (Traxler et al. 2002; Traxler et al. 2006; Mak et al. 2002; 2006, Gennari & MacDonald 2008). We will discuss these in turn.

Traxler et al. (2002) present a series of three eye-tracking experiments on subject- and object-relative clauses in English. The first two consisted of relative clauses with two animate constituents, and again showed a clear subject-relative bias, as evidenced by longer reading times on the object-relative versions. The animacy of the relative-clause head was manipulated in their third experiment. Participants were presented with sentences in four conditions: 1) *The director that watched the movie received a prize at the film festival* (Animate, SR), 2) *The director that the movie*

*pleased received a prize at the film festival* (Animate, OR), 3) *The movie that pleased the director received a prize at the film festival* (Inanimate, SR), and 4) *The movie that the director watched received a prize at the film festival* (Inanimate, OR). They found that the object-relative clause in 2) is by far the most difficult to process, whereas the object-relative in 4) is comparably easy. They conclude that “placing an inanimate entity in sentential subject position and an animate entity in the object-relative clause greatly reduces the difficulty normally associated with object-relative clauses” (Traxler et al. 2002:82). Traxler et al. (2005), in another series of eye-tracking studies, broadly replicated the previous experiment. Again, the results showed that “in general, object relative clauses are easier to process when the subject of the sentence is inanimate and the subject of the relative clause is animate” (Traxler et al., 2005:216).

Gennari and MacDonald (2008) present a self-paced reading study using object-relatives adopted from Traxler et al. (2002), with the key difference that these were contrasted with a different baseline condition. Gennari & MacDonald (2008) argue from a constraint-based approach: processing difficulty emerges from the competition of multiple semantic or syntactic structures entertained simultaneously as the sentence unfolds. The extent to which a given structure is activated is contingent on frequency distributions. Processing difficulty increases as more structures are entertained, or as the sentence unfolds in a way that follows a candidate sentence structure that was activated to a lesser extent compared to competitors. This approach can account for the subject-relative bias: subject-relatives are not only less structurally complex than object-relatives, they are also more frequent, and thus, the more activated candidate. Here, the predictions differ crucially from other approaches: object-relative clauses with animate constituents entertain different alternative analyses than clauses with inanimate constituents. Upon encountering an inanimate, thematic Patient as the first constituent, the sentence is likely to proceed as an object-relative clause or passive sentence. Animate, Agentive first constituents give rise to multiple competing structures, of which an object-relative is one of the most unlikely. Consistent with this view, Gennari and MacDonald (2008) find that again, object-relative clauses with animate heads are more difficult to process than object-relative clauses with inanimate heads, but also that this difficulty arises at the point at which the object-relative analysis is disambiguated from the alternative candidates.

Mak et al. (2002; 2006) explored the processing of relative clauses in Dutch. Consider (15)-(18), from Mak et al. (2002). Note that in Dutch,

word order is not sufficient to disambiguate between a subject or object-relative reading, as this is only accomplished by number agreement on the auxiliary.

- (15) *Vanwege het onderzoek moeten de inbrekers, die de bewoner beroofd hebben, een tijdje op het politiebureau blijven.*  
Because of the investigation must [the burglars, that the occupant robbed have], some time at the police office stay (Animate, SR)
- (16) *Vanwege het onderzoek moet de bewoner, die de inbrekers beroofd hebben, een tijdje op het politiebureau blijven.*  
Because of the investigation must [the occupant, that the burglars robbed have], some time at the police office stay (Animate, OR)
- (17) *Vanwege het onderzoek moeten de inbrekers, die de computer gestolen hebben, een tijdje op het politiebureau blijven.*  
Because of the investigation must [the burglars, that the computer stolen have], some time at the police office stay (Inanimate, SR)
- (18) *Vanwege het onderzoek moet de computer, die de inbrekers gestolen hebben, een tijdje op het politiebureau blijven.*  
Because of the investigation must [the computer, that the burglars stolen have], some time at the police office stay (Inanimate, OR)

In their self-paced reading study, corroborated by a follow-up eye-tracking study, an interaction effect emerged at the reading times for the word directly following the disambiguating auxiliary (*hebben* 'have'): the object-relative in (16) was significantly more difficult to process than its subject-relative counterpart in (15), whereas a corresponding difference did not emerge comparing (17) to (18). Comparing (16) and (18) directly, the object-relative clause no longer showed any processing difficulty compared to subject-relative clauses when the relative-clause head is inanimate; that is to say, reading times for (15), (17) and (18) did not differ significantly. This is an even stronger expression of the two tendencies observed by Traxler et al. (2002) and Traxler et al. (2005): In Dutch, as in English, a subject-relative reading is preferred, but object-relative clauses become less problematic when the sentential subject (the relative clause object) is inanimate.

Mak et al. (2006) follow up on Mak et al. (2002), noting correctly that their results do not necessarily distinguish between an account in which animacy information contributes to syntactic parsing, as opposed to an account in which animacy information determines syntactic parsing,



i.e., whether or not an inanimate relative-clause head simply leads to an object-relative bias. After disproving the latter by showing that relative clauses containing two inanimate noun phrases exhibit a subject-relative bias, they posit a series of experiments to further explore the factors that might be at play in processing relative clauses with constituents that differ in animacy values. Specifically, they investigate the interplay between a subject-first tendency (leading to a processing preference for subject-relative clauses) and an animate-first tendency (leading to a processing preference for clauses in which the animate constituent is the grammatical subject, cf. Lamers & de Hoop 2014), although they do not name these tendencies as such. Example stimuli are given in (19)-(22), from Mak et al. (2006), adapted for brevity<sup>1</sup>.

- (19) *de wandelaars, die de rots weggerold hebben,...*  
 the hikers that the rock rolled.away have  
 ‘the hikers, that have rolled away the rock, ...’ (SR)
- (20) *de rots, die de wandelaars weggerold hebben,...*  
 the rock that the hikers rolled.away have  
 ‘the rock, that the hikers rolled away, ...’ (OR)
- (21) *de rots, die de wandelaars verpletterd heeft,...*  
 the rock that the hikers crushed has  
 ‘the rock, that crushed the hikers, ...’ (SR)
- (22) *de wandelaars, die de rots verpletterd heeft,...*  
 the hikers that the rock crushed has  
 ‘the hikers, that the rock crushed, ...’ (OR)

The relevant clause is (20), in which an inanimate antecedent is followed by an animate relative-clause internal constituent serving as the relative clause subject. Processing on (20) did not differ significantly from either subject-relative ((19) or (21)) as measured by reading times on the past participle and auxiliary. The object relative (22), in which the antecedent is both animate as well as the object of the relative clause, led to processing difficulties. This was explained in Mak et al. (2006) as resulting from the conflict between the above-mentioned heuristics as captured in their ‘Topichood hypothesis’, which holds that “the choice of one of the entities as the subject of the relative clause is determined by the topicworthiness

<sup>1</sup>The noun phrases in the examples served as subjects of a matrix clause, following a prepositional phrase and finite matrix clause verb, followed by some additional matrix clause material, e.g. ‘in the town are [the hikers, that have rolled away the rock], the talk of the day’.

of the entities” (Mak et al. 2006:484); in this view, both the antecedent as well as animate constituents have an inherent ‘topicworthiness’. The relative clause subject in (22) is neither the animate constituent nor the antecedent of the relative clause, in contrast to the maximally topical antecedent. Interestingly, the harmonic alignment (cf. Aissen 2003) between both heuristics, or ‘topicworthy characteristics’, in (19) did not lead to extra facilitation as compared to the solely animate-first (20) or solely subject-first (21) clauses. Mak et al. (2006) put forward that for relative clauses with inanimate antecedents, the parser withholds assignment of grammatical relations until the second constituent and disambiguating thematic and grammatical information becomes available. For relative clauses with animate constituents, grammatical relations are assigned immediately, leading to reanalysis when this turns out to be incorrect in (22). We will return to this in the discussion.

The main conclusion of the psycholinguistic studies in this section is that animacy interacts with relative clause processing in such a way as to attenuate the default subject-relative bias. These results are discussed in a variety of frameworks: syntax-first accounts where initial candidates are given different weights or reanalysis is facilitated based on semantic information (e.g. Traxler et al., 2002), or constraint-based accounts where e.g. thematic information (Gennari & MacDonald, 2008) or ‘Topichood’ (Mak et al., 2002; 2006) immediately inform the analysis (cf. also Gennari & MacDonald, 2008 for an extensive discussion on how these interpretations additionally interact with other areas of ambiguity research). But despite considerable discussion in the relative-clause literature as to how and when animacy influences syntactic parsing, one aspect is remarkably consistent: the content of the animacy semantics under discussion is always implemented as a simple ( $\pm$ animate) dichotomy. Conditions containing ‘animate’ nouns are opposed to conditions containing ‘inanimate’ nouns. What constitutes an animate stimulus is never explicitly stated, but the animacy status of the noun phrases used is presumably implicitly assigned on lexical/biological grounds.

These implicit assumptions present opportunities for further exploration given the discussion in Section 5.1.1: lexically inanimate entities can be shifted into cognitively animate constructs, either through ascribed Agency or Experiencerhood. In psycholinguistic research, these animacy shifts can be exploited to disentangle the influence of lexical animacy on the one hand and cognitive animacy or thematic information on the other, on relative-clause processing and language comprehension in general. Theoretical linguistics, conversely, would benefit from em-

pirical support showing different levels of animacy can exert influences at different stages of processing. These are the dual aims of our study, introduced next.

### 5.1.3 Shifting animacy and relative clause processing

The current study explores the influence of animacy shifts on relative clause processing. Specifically, we examine the processing of object-relative clauses with an inanimate constituent ('the clock') preceding an animate constituent ('the roommates'), as in (23).

- (23) *De klok, die de huisgenoten had-den kunnen verkopen, was al heel oud.*  
 the clock, that the roommates had-PL could sold, was  
*al heel oud.*  
 already very old  
 'The clock that the roommates could have sold was very old already.'

The predictions following from the literature are clear: object-relative clauses with an animate subject and an inanimate object should show reduced processing difficulty as opposed to object-relative clauses with two animate constituents (Traxler et al. 2002; Traxler et al. 2005; Mak et al. 2002; Gennari & MacDonald 2008). In isolation, (23) constitutes such a relative clause: its subject, the relative-clause internal noun phrase (the roommates) is animate, whereas its object, the sentential subject, is inanimate (the clock).

We will present these relative clauses following one of three contexts: a neutral context, in which the clock is introduced but not transformed, and in two animacy shifting contexts, in which the inanimate constituent is either treated as an Agent or an Experiencer, respectively. Consider (23) again, embedded in these three distinct contexts:

- (24) *It was at that moment the neighbour saw the damaged clock. It was just barely hanging on to its nail. The neighbour was startled.*  
 The clock that the roommates could have sold was very old already.
- (25) *It was at that moment the neighbour saw the dancing clock. It was dancing to and fro. The neighbour was startled.*  
 The clock that the roommates could have sold was very old already.

- (26) *It was at that moment the neighbour saw the sad clock. Its eyes were full of big fat tears. The neighbour was startled.*

The clock that the roommates could have sold was very old already.

Embedding (23) in a neutral context as in (24) does not change the animacy dynamics within the relative clause: the clock is lexically and cognitively inanimate; the relative-clause internal constituent is lexically and cognitively animate. Embedding (23) in an Agentive (25) or Experiencer-context (26), however, is hypothesized to shift its contextual animacy: cognitively, the Agentive or Experiencer-like clock is animate. Thus, the same relative clause in (23), following one of these latter contexts, would present an object-relative clause with two cognitively animate constituents, which by all accounts should be more difficult to process than the original object-relative clause with distinct animacy values for both constituents.

In other words, if we find a difference in reading times for the object-relative clause between contexts, a small context is sufficient to accomplish an animacy shift, to such an extent that this also shifts its grammatical predictions. Concretely, for (23) above: the auxiliary region (*de klok, die de huisgenoten [hadden kunnen] verkopen, ...*) would show longer reading times when *de klok* is an Agent or Experiencer than when *de klok* is inanimate.

## 5.2 Method

To test this hypothesis, we designed a self-paced reading experiment. Participants saw relative clauses headed by biologically inanimate constituents. These relative clauses followed short narrative contexts in three conditions: the inanimate constituent was introduced either as an inanimate entity, or construed as an Agent or Experiencer, respectively. Reading times on the disambiguating auxiliary served as a reflection of readers' on-line predictions of grammatical role assignment.

### 5.2.1 Participants

84 native speakers of Dutch (69 female, mean age 22 years) participated in the study in exchange for €7,50 or course credits. We obtained ethical approval from the Faculty of Arts Ethics Board; approval code 7199. All participants had normal or corrected-to-normal vision. Students of

linguistics were excluded from participation.

### 5.2.2 Materials

We constructed 60 object-relative clauses with lexically inanimate heads, embedded into matrix clauses as their syntactic subjects. The inanimate constituent's number was always singular; the embedded constituent was always animate (human), definite, and plural. The disambiguating auxiliary was followed by a second auxiliary and a lexical verb. The second auxiliary was added to allow for a spill-over region in which syntactic processes could be resolved before thematic information becomes available at the lexical verb. An example relative clause was given in (23), repeated here as (27).

- (27) *De klok, die de huisgenoten had-den kunnen verkopen, was  
the clock, that the roommates had-PL could sold, was  
al heel oud.  
already very old  
'The clock that the roommates could have sold was very old al-  
ready.'*

Three short narrative contexts were created to each matrix clause, to introduce the inanimate constituent. In the first of these, the inanimate constituent was introduced in a neutral manner, i.e. semantically consistent with its default, biologically inanimate nature, thematically in a Patient, Theme or occasional Stimulus role, with relations mostly expressed using stative verbs. The two other contexts contained animacy shifts. In the first of these, the inanimate constituent was introduced in an Agent role, using adjectives and verbal expressions associated with active, agentive behaviour. The second animacy-shifting context transformed the inanimate constituent into an Experiencer, again with semantically consistent adjectives, using mostly cognitive verbs and descriptions (cf. Trompenaars et al. 2018; Trompenaars 2018). The resulting stimulus set is given in Table 5.1.

The discourse contexts were otherwise consistent between and within items. The inanimate constituent featured as a discourse topic, was introduced by means of a full noun phrase in the first sentence, with subsequent anaphoric reference by a masculine pronoun<sup>2</sup>. All sentences are available in the Appendix.

<sup>2</sup>Masculine reference to inanimate objects is the default in Dutch (Audring 2009).

Table 5.1: *Experimental stimuli: relative clause embedded in one of three contexts: Neutral, Animate Agent, and Animate Experiencer.*

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NEUTRAL CONTEXT

*Op dat moment zag de buurman de beschadigde klok. Hij hing nog maar half aan een spijker. De buurman schrok.*

‘It was at that moment the neighbour saw the damaged clock. It was just barely hanging on to its nail. The neighbour was startled.’

ANIMATE AGENT

*Op dat moment zag de buurman de dansende klok. Hij danste alle kanten op. De buurman schrok.*

‘It was at that moment the neighbour saw the dancing clock. It was dancing to and fro. The neighbour was startled.’

ANIMATE EXPERIENCER

*Op dat moment zag de buurman de bedroefde klok. Hij had dikke tranen in zijn ogen. De buurman schrok.*

‘It was at that moment the neighbour saw the sad clock. Its eyes were full of big fat tears. The neighbour was startled.’

---

RELATIVE CLAUSE

*De klok, die de huisgenoten hadden kunnen verkopen, was al heel oud.*

‘The clock that the roommates could have sold was very old already.’

---

As a second set of experimental stimuli, we created copies of all experimental items, with the difference being they ended in subject-relative clauses (as in (28)). These were included so that participants could not predict that the unusual ‘animate inanimates’ would always lead to object-relative interpretations, and to explore possible processing effects of clause type.

- (28) *De klok, die de huisgenoten had kunnen verwonden, was*  
 the clock, that the roommates had.SG could hurt, was  
*al heel oud.*  
 already very old  
 ‘The clock that could have hurt the roommates was very old already.’

Two additional sets of items were created as fillers. The first type of filler item consisted of 30 short narrative contexts followed by a subject-relative clause with two animate constituents, as in (29). These were included in order to have relative clauses that were not preceded by ‘animate inanimates’, and to have more subject-relative clauses across the experiment in general (consistent with their natural distribution for ecological validity).

- (29) *Het was erg druk in het museum. Er was een nieuwe tentoonstelling geopend.*  
 ‘The museum was very crowded. A new exhibition had recently opened.’  
*De gastvrouw, die de bezoekers had rondgeleid, was niet heel aardig.*  
 ‘The hostess, who had given the visitors a tour, was not very nice.’

The second type of 30 filler items consisted of short, narrative-like contexts (30) and was included to distract from the final sentence of an item always consisting of a relative clause.

- (30) *Eenmaal bij de rivier aangekomen sloeg de boswachter alarm. In de verte waren grote rookpluimen te zien.*  
 ‘Once he got to the river the ranger sounded the alarm. Big plumes were visible in the distance.’  
*De brandweer haastte zich snel naar het bos en kon de boel gelukkig nog redden.*  
 ‘The fire brigade sped to the forest and luckily managed to save things.’

One in five items, chosen at random, was accompanied by a simple yes/no verification question. For the experimental items these always targeted the matrix clause, i.e. ‘was the clock very old?’, as not to emphasize the grammatical role distribution within the relative clause.

### 5.2.3 Design

The experiment consisted of 120 sentences, 30 from each type: experimental object-relative items, subject-relative versions of the experimental items, subject-relative fillers and narrative-like fillers. Since the experimental items and the first filler type were taken from the same set of 60 items, we created six lists in such a way that all combinations of context type (Agent, Experiencer, Inanimate) and clause type (object-relative and

subject-relative) were included in every list and applied to a different set of 10 items each time, i.e. the first list would have the first ten items as an Agentive OR, item 11-20 as an Experiencer OR, 21-30 as an inanimate OR, 31-40 as an Agentive SR, 41-50 as an Experiencer SR and 51-60 as an inanimate SR, the second list started at 11-20, and so on. All lists were supplemented with the same 60 items from the second and third filler type.

Each list was pseudorandomised such that there were always one or more fillers between two experimental items, context types did not repeat and at least every sixth item included a question. Two pseudorandomisations were created for each list, for a total of 12 lists in the experiment.

#### **5.2.4 Procedure**

The self-paced reading experiment was implemented in Presentation (Neurobehavioral Systems, Inc., Berkeley, CA, [www.neurobs.com](http://www.neurobs.com)), presented on a 24 inch BenQ computer screen with a refresh rate of 60Hz at a resolution of 1920 x 1080. Items were displayed in white on a black background, in the Consolas font at fontsize 24. Participants were seated approximately 60 centimeters from the screen in a dimly lit, sound attenuating booth and were provided with a buttonbox situated on the table in front of them, containing two buttons. Participants were instructed to keep their left and right index fingers securely on the buttons for the duration of the experiment. The left button corresponded to a negative answer, the right button to an affirmative answer. Either button could be used as inputs for the self-paced reading portions of the experiment, but participants were instructed to use the button that corresponded to their handedness.

The self-paced reading experiment proceeded as follows. A fixation cross was presented at the centre of the screen. Button input from the participant removed the fixation cross, and immediately presented the context item in its entirety, aligned to the left of the screen. When the participant had read the story, button input moved the experiment over to the self-paced final sentence of the item. The sentence was presented word-by-word at the centre of the screen, preceded by a single fixation cross at the start. Button presses immediately moved the screen to the next word in the sentence. Reaction times for all button presses were recorded. When an item was completed the experiment moved either to the next item, again preceded by a fixation cross, or it presented the



participant with a verification statement on the previous item. The verification statement was preceded by a question mark replacing the fixation cross, and consisted of a question presented centrally, and answer options corresponding to the left and right buttons. Pressing either answer option would move the experiment to the next item.

After we presented participants with an information document and obtaining their informed consent, the experiment started with an instruction and a practice block. During the instruction participants were told they would be reading short stories, the final sentence of which was hidden. They were told to read the first part of the story first, after which the last sentence of the story would be presented to them word-by-word, following their button press. Participants were also informed that some stories might be followed by comprehension questions, so they should ensure to pay attention to what they were reading. The items in the practice block consisted of four context – final sentence pairs in the same format as, but of different content than, the items used in the experiment. The practice block ended with a simple verification statement, again in the same format as used during the experiment.

In total, the experiment consisted of four blocks: a practice block and three experimental blocks of equal length (40 items each). The blocks were separated by breaks of a length to the participants' discretion. Each block started with a filler item, equal across all lists, and the experiment as a whole ended on a filler item, again equal across all lists. After the participants completed all blocks, a short exit questionnaire was presented, collecting participant meta-data as well as their best guess as to the purpose of the experiment. The full experiment, including the preceding forms and exit questionnaire, lasted approximately 30 to 45 minutes.

### **5.2.5 Analysis**

89 participants were tested in total. Four participants were replaced during data collection – data from three participants were unusable because of crashes that occurred during the experiment, and data from one participant was not included because they did not keep their hands on the buttonbox during the experiment. An additional participant was replaced after preliminary data analysis, as this participant was the only one to answer less than 80% of comprehension questions correctly. Data from 84 participants were analysed, distributed equally across all 12 lists (7 participants per list). The mean score for these participants on the comprehension questions was 95%.

The reading time data was filtered on absolute criteria, based first on the reaction time to the context items and secondly on reaction times in the self-paced component. As the context items were crucially important to provide the proper background manipulation for the subsequent relative clause processing, items were filtered out entirely when the context item was seen by the participant for less than 2000 milliseconds (which we deemed insufficient to read a context consisting of three sentences, and was likely due to an accidental button press), with an upper bound of 15000 milliseconds (at which point we could no longer assume the context was fresh in the participant's mind). This filter resulted in 14 items lost at the lower bound, and 98 items lost at the upper bound, out of a total of 2520 (30 experimental items by 84 participants).

Reading times to individual words were filtered using a 150 millisecond lower bound and a 2000 millisecond upper bound. This resulted in 4319 (3.6%) lost datapoints in the lower bound, and 148 (0.12%) lost datapoints in the upper bound, for a total of 114610 out of 119077 datapoints maintained. We logarithmically transformed the resulting reaction times to reduce skewness in their distribution (cf. Baayen & Milin 2010; Nicklin & Plonsky 2020).

Our design included the factor of Context Type with three levels: Neutral, Agentive and Experiencer. The addition of subject-relative versions of our experimental clauses also allowed us to examine an additional factor of Clause Type, with two levels: Subject-relative (singular auxiliary) and Object-relative (plural auxiliary).

We predicted a main effect of Context Type to be visible at the disambiguating first auxiliary and spill-over region (in line with Mak et al., 2006). We did separate analyses for the reading times on these regions. The effect of Context Type was tested for both Clause Types, but the analysis for the subject-relative level was exploratory only: the literature makes no unambiguous predictions on the processing of, specifically, inanimate subject-relative clause heads versus animate subject-relative clause heads in relative clauses with an animate internal constituent, whereas the predictions for the object-relative level are unambiguous.

In addition, we also explored a main effect of Clause Type. Our design created an inverse problem for the interpretation of this main effect, however, as this was unavoidably confounded with auxiliary length. The subject-relative variant was necessarily formed with a singular auxiliary, which was shorter orthographically than the object-relative plural auxiliary, so shorter reading times in the subject-relative condition were difficult to interpret. A significantly shorter reading time for the plural

object-relative auxiliary would be informative, however, as this would indicate an object-relative preference in processing in spite of its greater orthographic length.

All analyses were carried out using linear mixed models in R, using the `lme4` package (Bates et al. 2015). We departed from maximal models including random slopes and intercepts for Participant and Item, as well as a fixed effect of Trial. The latter was included as reaction times decreased as a function of experiment length, cf. Figure 5.1.

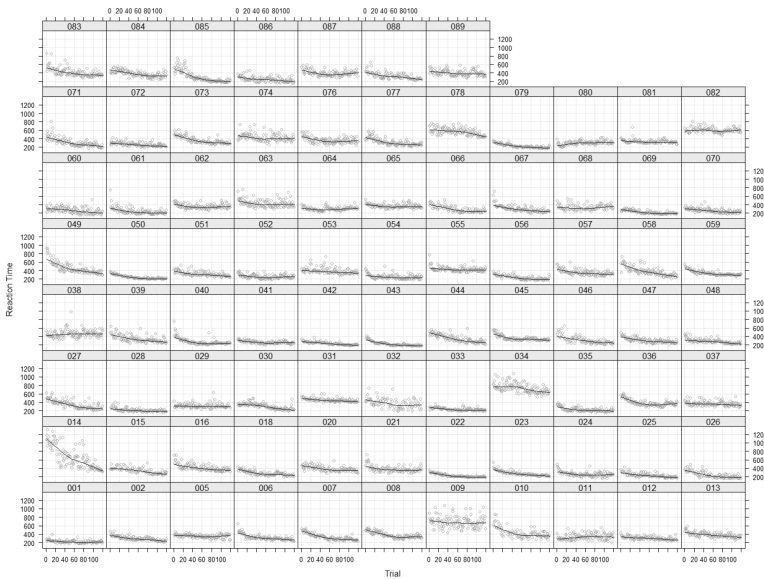


Figure 5.1: *Reaction times as a function of trial, by participant.*

## 5.2.6 Results

### Context Type

Figure 5.2 presents the reading times on the relevant words in the Object-relative condition.

A treatment-coded predictor of Context Type, using the neutral condition as a baseline, entered into the full linear model structure, which included random intercepts for Participant, random slopes and inter-

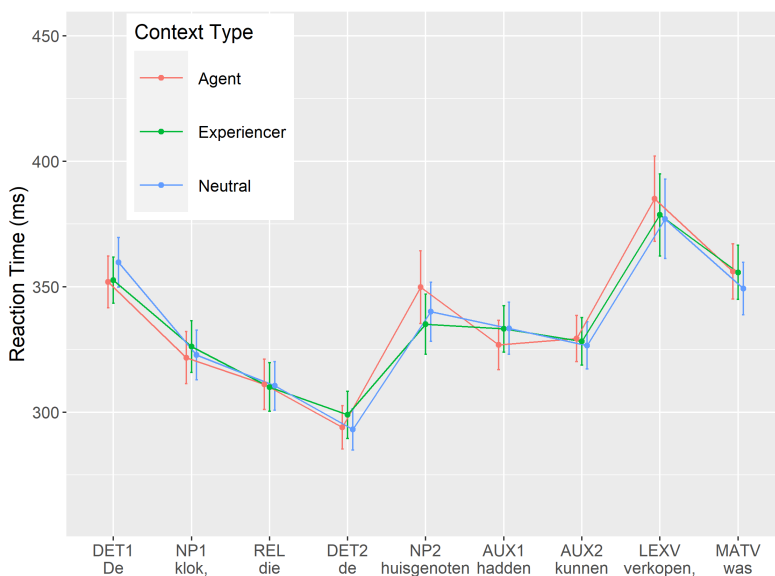


Figure 5.2: *Untransformed reaction times to the Object-relative sentence, following Neutral, Agent and Experiencer contexts. Words on the x-axis correspond to the example sentence in (23). Error bars represent 95% confidence intervals.*

cepts for Item<sup>3</sup>, as well as a fixed effect of Trial. Significance of main effects was tested using Type II F-tests with Kenward-Roger approximation for the degrees of freedom, as implemented in the CAR package (Fox & Weisberg 2019)<sup>4</sup>. For the confirmatory analysis of Context Type for the Object-relative Clause Type, we analysed log-transformed reaction times on the first (disambiguating) auxiliary and the second (spill-over) auxiliary separately.

Table 5.2 shows the outcome of the analysis on the log-transformed reaction times for the first and second auxiliary. The first auxiliary showed no significant effects of Context Type ( $F(2,54.95) = 1.94, p = 0.15$ ). The second auxiliary showed marginally significant effects of Context Type

<sup>3</sup>Random slopes for Participant were removed since these models all failed to converge due to singularity.

<sup>4</sup>Type II F-tests are appropriate as we did not include interactions in our final models.

( $F(2,55.04) = 2.94, p = .058$ ). We carried out a post-hoc pairwise test on the marginal effect using the emmeans package (Lenth et al. 2018), Tukey-adjusted for multiple comparisons. The post-hoc test revealed that the marginally significant difference was mostly driven by the contrast between the Agent and Neutral levels of Context Type ( $t(56.4) = -2.441, p = .046$ ; Experiencer and Neutral,  $t(56.0) = -1.531, p = .28$ ; Agent and Experiencer,  $t(55.8) = 0.850, p = .67$ ).

Table 5.2: *Outcomes of the analyses on the first (disambiguating) and second (spill-over) auxiliary in the object-relative condition. Parameter estimates are on the log scale.*

Auxiliary	Predictor	Estimate	SE
<b>First</b>	(Intercept)	5.892	0.031
	Agent	0.007	0.014
	Experiencer	0.025	0.013
	Trial	-0.003	0.000
<b>Second</b>	(Intercept)	5.875	0.031
	Agent	0.030	0.012
	Experiencer	0.019	0.013
	Trial	-0.003	0.000

We also explored the effect of Context Type on the reaction times in the subject-relative condition. Reaction times for the subject-relatives are given in Figure 5.3.

For the exploratory analysis of Context Type for the Subject-relative Clause Type, we again analysed log-transformed reaction times on the first disambiguating auxiliary and the second auxiliary (as spill-over) separately. Table 5.3 shows the outcome of the analysis on the log-transformed reaction times for the first and second auxiliary. No significant effect of Context Type emerged at the first auxiliary ( $F(2,54.56) = 1.33, p = 0.27$ ) nor at the second auxiliary ( $F(2,54.61) = 0.59, p = 0.56$ ).

### Clause Type

The contextual manipulation did not result in significant main effects of Context Type. To gain insight into possible causes for the lack of the expected main effect, we turn first to possible effects of Clause Type: how does the processing difficulty of object relatives and subject relatives compare across the experiment? We again analysed log-transformed reading

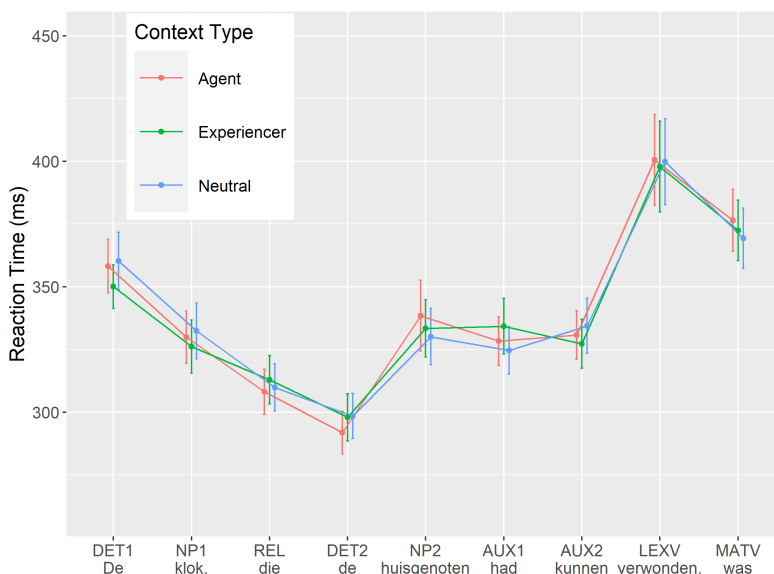


Figure 5.3: *Untransformed reaction times to the Subject-relative sentence, following Neutral, Agent and Experiencer contexts. Words on the x-axis correspond to the example sentence in (28). Error bars represent 95% confidence intervals.*

times on the first, disambiguating auxiliary, as well as the second, spill-over auxiliary, but now also included the subsequent lexical verb as a control. The lexical verbs differed between Clause Type: Lexical verbs in the subject-relative Clause Type were selected to fit semantically with an inanimate subject in isolation, and as such, were of generally lower frequency. Due to the frequency difference, we would expect reading times on the lexical verbs in the subject-relative conditions to be longer.

Table 5.4 shows the outcome of the analysis on the log-transformed reaction times for the first and second auxiliary. We used a treatment-coded predictor of Clause Type with a subject-relative baseline. There were no significant effects of Clause Type on the first ( $F(1,57.6) < 1$ ,  $p = 0.80$ ) or second auxiliary ( $F(1,57.3) < 1$ ,  $p = 0.35$ ). The effect of Clause Type on the lexical verb was significant ( $F(1,57.9) = 8.96$ ,  $p < .01$ ;  $\beta = -0.04$ ,  $SE = 0.01$ ) and in the expected direction: the lexical verbs in the subject-relative

condition were read slower than the lexical verbs in the object-relative condition.

Table 5.3: *Outcomes of the analyses on the first (disambiguating) and second (spill-over) auxiliary in the subject-relative condition. Parameter estimates are on the log scale.*

<b>Auxiliary</b>	<b>Predictor</b>	<b>Estimate</b>	<b>SE</b>
<b>First</b>	(Intercept)	5.880	0.030
	Agent	0.002	0.014
	Experiencer	0.018	0.013
	Trial	-0.003	0.000
<b>Second</b>	(Intercept)	5.924	0.032
	Agent	-0.008	0.013
	Experiencer	-0.014	0.013
	Trial	-0.003	0.000

Table 5.4: *Outcomes of the Clause Type analyses on the first (disambiguating) and second (spill-over) auxiliary, and the lexical verb, across all Context Types. Parameter estimates are on the log scale.*

<b>Region of Interest</b>	<b>Predictor</b>	<b>Estimate</b>	<b>SE</b>
<b>First Auxiliary</b>	(Intercept)	5.893	0.029
	Object-relative	0.002	0.008
	Trial	-0.003	0.000
<b>Second Auxiliary</b>	(Intercept)	5.906	0.030
	Object-relative	-0.007	0.007
	Trial	-0.003	0.000
<b>Lexical Verb</b>	(Intercept)	6.084	0.040
	Object-relative	-0.040	0.013
	Trial	-0.004	0.000

### 5.3 Discussion

The current study set out to explore the semantic content of animacy through its influence on relative-clause processing. We took as given the unambiguous results from the literature on object-relative processing. First, that object-relatives are generally more difficult to process than

subject-relatives, the so-called subject-relative bias (e.g. King & Just 1991). Second, that the subject-relative bias is influenced by semantic (animacy) information: object-relative clauses with inanimate heads are processed more easily than object-relative clauses with animate heads (Traxler 2002; Mak et al. 2002). We predicted that when we introduced a context in which the inanimate head was shifted to a cognitively animate construct, the processing difficulty associated with the object-relative clause would increase, consistent with the behaviour of object-relative clauses with animate versus inanimate heads. This would allow us to examine more closely the semantic content of the ‘animacy’ influencing processing. The cognitively animate construct would additionally be generated by ascribing either Agency or Experiencerhood through preceding discourse, which allows for further disambiguation between different ways of shifting animacy.

Instead, we found no significant differences in the processing of object-relative clauses between contexts, as indicated by the lack of a significant main effect of context type on auxiliary reading times. Moreover, we were unable to find evidence of a processing difference between subject- and object-relative sentences in general. We turn to two possible families of explanations here.

The first of these is that either our contexts were insufficient to shift the animacy of the relative clause head, or lexical animacy determines grammatical role assignment with minimal or no influence from contextual thematic information or the resulting cognitive construct. This explains the lack of a main effect of context type: if context is unable to influence the animacy value of the relative clause head, all object-relative clauses were headed by inanimate constituents. This may also explain the lack of a main effect of clause type: Mak et al. (2006), the only comparable study in Dutch, also failed to find a main effect of clause type with inanimate-headed object-relative clauses, cf. (20) and (21) from Section 5.1.2.

The second explanation departs from an additional factor necessarily included in our design: topicality. Through context, we built up the inanimate referent with thematic information, establishing its role and place in the narrative, and anaphorically referring to it one or more times in any given context. Since Agent roles are prototypically sentence subjects (e.g. Siewierska 1988), the inanimate referent was often placed as the grammatical subject of these short contexts to make the manipulation succeed. We anticipated that this would establish the referent as a topic of such narratives (having been the Agentive grammatical subject of one



or more preceding sentences), and by extension, the relative clause. In an effort to control for this possible confound, we kept the grammatical role distributions equal across contexts. This resulted in the inanimate referent being a clear topic even in contexts that were supposedly 'neutral' in the sense that they did not add any non-typical thematic information to the inanimate referent (cf. Table 5.1).

We submit that this fundamentally changed our design and the associated predictions in hindsight. Our study departed from the consensus that object-relative clauses are easier to process when their head noun is inanimate than when it is animate, but crucially, this has only been demonstrated in isolation. No study to our knowledge has manipulated both animacy and discourse status of relative clause constituents separately, but insights are to be found in studies that manipulated only the latter. Fox and Thompson (1990) showed that object relatives in natural language often display two features: they have inanimate heads (cf. Mak et al. 2002 in Dutch and German; Roland et al. 2007 in English) and pronominal relative-clause internal constituents. Pronominal constituents are often discourse topical: anaphoric pronouns imply a constituent has been previously introduced, and first and second person pronouns are part of the discourse by default. Thus, pronouns generally refer to discourse topics or discourse-salient entities (Ariel 1990; see Kaan 2001:533 for an overview). We have extensively discussed how Fox and Thompson's (1990) first feature, the inanimacy of the relative clause head, may facilitate processing (Mak et al. 2002, 2006; Traxler et al. 2002; Traxler et al. 2005). We will turn next to experimental evidence suggesting similar facilitation effects associated with their second feature of discourse topicality (Warren & Gibson 2002; Kaan 2001; Mak et al. 2008).

Warren and Gibson (2002) contrasted object-relative clauses such as (14) by King and Just (1991), repeated here as (31), with versions in which the second noun phrasal constituent was replaced by a pronoun, as in (32).

(31) The reporter who the senator attacked admitted the error.

(32) The reporter who you attacked admitted the error.

They find that processing difficulty is significantly reduced in (32). This is explained in Warren and Gibson (2002) from a memory-based perspective: the pronoun does not *introduce* a new discourse referent in the same way the full noun phrase does, as the second person pronoun is already assumed to be part of the discourse and thus more easily accessed.

Note that Warren and Gibson (2002) do not directly contrast object-relative clauses with subject-relative clauses. This leaves open whether the pronoun, as the more topical element, is chosen as the subject of the relative clause, resulting in an object-relative clause preference. Kaan (2001) presents a self-paced reading study in Dutch that does cross clause type with discourse status. She arrives at the following four conditions<sup>5</sup>:

- (33) *De buurjongen die de meisjes (...) heeft proberen te pesten, ...*  
 the neighbour.boy who the girls (...) has tried to tease, ...  
 'The boy next door who tried to tease the girls ...'
- (34) *De buurjongen die de meisjes (...) hebben proberen te pesten, ...*  
 the neighbour.boy who the girls (...) have tried to tease, ...  
 'The boy next door whom the girls tried to tease ...'
- (35) *De buurjongen die jullie (...) heeft proberen te pesten, ...*  
 the neighbour.boy who you.PL (...) has tried to tease, ...  
 'The boy next door who tried to tease you ...'
- (36) *De buurjongen die jullie (...) hebben proberen te pesten, ...*  
 the neighbour.boy who you.PL (...) have tried to tease, ...  
 'The boy next door whom you tried to tease ...'

Kaan (2001) finds a clear reflection of the subject-relative bias contrasting the noun phrase conditions (33) and (34). Differences in reading time between the pronominal (35) and (36) were inconclusive, however: there was no significant processing advantage for either sentence structure. She concludes that the subject-relative preference was much weaker or even absent in clauses containing a pronoun as the relative clause internal constituent. An object-relative preference was not observed, however.

The first experiment by Mak et al. (2008) is similar to Kaan (2001). In a self-paced reading study, participants were presented with embedded Dutch relative clauses containing noun phrases or case-ambiguous pronouns as the relative-clause internal constituent. Examples of the latter condition are presented in (37) and its object-relative counterpart in (38).

- (37) *Ongerust kijkt de hardloper, die jullie (...) gegroet heeft, ...*  
 worried looks the jogger, who you (...) greeted has, ...  
 'The jogger, who has greeted you in the park, ...'

<sup>5</sup>Ellipses represent additional modifier material that did not differ across sentences nor was expected to have an effect on processing across conditions, omitted here in the interest of clarity.

- (38) *Ongerust kijkt de hardloper, die jullie (...) gegroet hebben,...*  
 worried looks the jogger, who you (...) greeted have,...  
 'The jogger, whom you have greeted in the park,...

Mak et al. (2008) find additional evidence for the subject-relative bias in the noun phrase condition. Contrary to Kaan (2001) however, Mak et al. (2008) also find a clear processing advantage for the object-relative (38) compared to (37). They further explored discourse topicality in their second experiment. This self-paced reading experiment manipulated the discourse status of noun phrases indirectly, through context. Relative clauses as in (41) were preceded by short introductions in either 1) a neutral condition, in which neither constituent was explicitly mentioned (39), or 2) a topical condition, in which the relative-clause internal noun phrase was introduced as the discourse topic (40).

- (39) 'Recently there has been a burglary in a villa in this area. The burglary has caused a lot of excitement. The media have devoted much attention to the case.'
- (40) 'The burglar has been arrested during a burglary in a large villa. He wanted to steal some expensive jewelry from the house. He also wanted to take some money.'
- (41) *De politie heeft de bewoners, die de inbreker hebben/heeft*  
 The police have the occupants, that the burglar have/has  
*neergeslagen, verteld dat de man nog meer misdaden heeft*  
 knocked down, told that the man even more crimes has  
*gepleegd.*  
 committed.  
 'The police have told the occupants, who have knocked down the burglar/whom the burglar has knocked down, that the man has committed more crimes.'

The reading times in relative clauses following a neutral context matched the pattern found in isolation, i.e. participants presented a subject-relative bias. Following a topical context, however, this preference disappeared.

Combining these findings with Fox and Thompson (1990), it follows that animacy as a cue in relative clause processing is highly related to discourse status: inanimate heads in relative clauses usually combine with more topical internal constituents, which is reflected in processing. Recall that Mak et al. (2006) used the topichood hypothesis to explain processing preferences: according to their account, inanimate nouns are

not as topicworthy as animate nouns. Since the parser is searching for topical information, when it encounters an inanimate head it delays thematic and grammatical role assignment, anticipating that a more topical entity might yet appear. In contrast, when it encounters an animate head, it readily assigns it the role of the grammatical subject since it has found its topical candidate.

Our results are not in line with this hypothesis. The inanimate constituent in our experiment was both the relative-clause antecedent as well as a discourse topic. This constituent should not give the parser pause in assigning thematic or grammatical roles: it satisfies two criteria for topicworthiness. Under the topichood hypothesis, we would expect the object-relative continuation to lead to relatively greater difficulty as opposed to the same object-relative clause in isolation: a topicworthy inanimate constituent should be a less ideal object than a non-topicworthy inanimate constituent.

How then to explain the interaction between topicality and animacy in relative clause processing? We return to the pattern observed by Fox & Thompson (1990, cf. Reali & Christiansen 2007). Their reasoning for this pattern is as follows. Inanimate constituents, when introduced into the discourse, typically take sentence-initial positions. This is not a natural position for an inanimate referent, cf. discussion of animate-first principles. Furthermore, the inanimate constituent will require grounding; it necessitates that it is linked to the preceding discourse. An animate constituent, usually already established through the discourse enabling the use of a pronoun, is an ideal Agent with which to ground the inanimate object. The grammatical construction that best satisfies these criteria is an object-relative clause (Fox & Thompson 1990; Reali & Christiansen 2009).

Usual assumptions of animacy and topicality, then, need not be generalised to object-relative clauses. To be sure, animate constituents in general tend to be thematic Agents or Experiencers, tend to be topical, and tend to be in sentence-initial position, hence e.g. Mak et al. (2006) conflating animacy with 'topicworthiness'. Closer examination of the discourse use of object-relative clauses shows this not to be the case in this construction: in an object-relative clause, the position usually taken by the topic of the preceding discourse is the relative-clause internal constituent; it is the very exception of usual topicality patterns – 'Topic First' – that allows the object-relative to exist.

And here lies the difficulty in interpreting the results our experiment. We know that inanimate heads usually refer to new discourse information

that requires grounding using an already established relative-clause internal, animate constituent. Our relative clauses used the opposite pattern: an already established, inanimate referent was grounded by a discourse novel, animate referent. We have no established baseline of how relative clauses with this animacy/topicality pattern might be processed, with which to compare our contextual manipulations. Given that frequency distributions found in corpus studies – of both animacy (Roland et al. 2009; Mak et al. 2002) and discourse status (Fox & Thompson 1990; Reali & Christiansen 2007) – have predicted processing effects, this baseline ought to be found there.

To summarise, our experiment presented participants with relative clauses containing topical, inanimate heads and animate, discourse-novel relative-clause internal noun phrases. To our knowledge, this configuration has never been employed experimentally, though a baseline might be extracted from corpus data. Given that we have as yet insufficient data to predict how topical relative clause heads behave during object-relative processing, we cannot conclude whether or not animacy, and thus our manipulation, should have any effect. We leave this to further research.

## 5.4 Conclusion

We set out to test whether the influence of animacy on grammatical role assignment, specifically, grammatical role assignment during relative clause processing, is driven by inherent lexical factors or ascribed thematic roles. We presented participants in a self-paced reading study with relative clauses headed by inanimate constituents, that were *shifted* through preceding discourse into cognitively animate Agents or Experiencers. We predicted that the resulting cognitively animate construct would lead to greater processing difficulty when contrasted with a neutral, inanimate condition: object-relative clauses are easier to process when their head is maximally inanimate.

This processing difference was not observed in reaction times. In addition, no significant difference in the processing of object-relative clauses versus subject-relative clauses was found. We argue for an explanation based on topicality patterns, and suggest further research into the interplay between animacy and topicality during relative clause processing.

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# Chapter 6

## General discussion

Our aim in the previous chapters has been to come to a better understanding of animacy. We noted that animacy exerts an undeniable influence on language, rarely grammatically marked *explicitly* (Malchukov 2008; Dahl 2008), yet “so pervasive in the grammars of human languages that it tends to be taken for granted and become invisible” (Dahl & Fraurud 1996:47). Despite the extensive explanatory power of animacy and the attention it has received in the typological and processing literature, it is surprisingly difficult to pin down what animacy *is* (cf. Yamamoto 1999 for a rare attempt). A distinction between living and non-living entities, as we often found it defined in the processing literature, falls short when looking at narratives featuring inanimate characters; dancing peanuts or narrating paintings with grammatically animate expression. The theme throughout this work has been to follow these peanuts and paintings, to take seriously their transformation into living characters through the power of language and narrative, and to examine closely how this transformation is accomplished, experienced, and processed. This chapter will take stock of where we now stand, address some shortcomings and pitfalls in our approach, and discuss implications and suggestions for further research.

### 6.1 What is animacy?

We set out with the ambitious goal of uncovering what it means to be alive, linguistically speaking. In Chapters 1 and 2, linguistic animacy as a simple distinction between biologically living and non-living entities

was considered and rejected. Whilst this work has sensibly not been concerned with the question of what it means to be *biologically* animate in the first place, we would be remiss to continue without first appreciating the parallels between the two questions.

The definition of (biological) life has an extensive history (see Bedau & Cleland 2010). In this short summary, we start, aptly, with Aristotle's *De Anima*, 'on the soul', c. 350 BC. Aristotle identifies several properties or 'essences' possessed by different kinds of living things: 1) nutrition and reproduction, 2) motion and perception, and 3) thought and reflection. These essences represent a hierarchy: Aristotle argues that non-living things possess none of these properties, plants are distinct from inanimates for possessing the first collection of properties, non-human animals from plants for additionally possessing the second collection of properties, and human beings from non-human animals for possessing all three. These 'essences' are also described teleologically. In other words, living entities, possessed by essences, have purposes that are irreducible to non-teleological components, and are thus fundamentally different from non-living entities. An influential counterpoint to the notion that life is intrinsically distinct and purposeful comes from Descartes, who noted that organisms were in essence just very complicated machines, and held that the teleological aspects of life would ultimately be analysable by advances in physics (Bedau & Cleland 2010).

These opposite views echoed into the early days of modern biology, which were characterised by 'a seesawing (...) between strictly mechanistic and more vitalistic explanations of life' (Mayr [1997] 2010:90). Vitalism is best characterised as a counter-movement to Descartes' and broadly holds that some properties are specific only to life, irreducible to mechanical explanations. As the biological sciences advanced, however – with e.g. Darwin's theory of evolution by natural selection providing a naturalistic 'teleological force' and a better understanding of the physical processes showing no sign of any non-physical 'vital force' – vitalism ultimately disappeared. The view that life can be described as a mechanical system became the accepted theory (Mayr [1997] 2010:93), and is captured by the oft-cited NASA definition of life as 'a self-sustaining chemical system capable of Darwinian evolution'.

This definition characterises life by two functional properties ('life is self-sustaining'; 'life is capable of Darwinian evolution') and a structural property ('life is a chemical system'). In the former, it is perhaps overly simplistic: many more characteristics are proposed in the literature (e.g. Mayr [1997] 2010 proposes seven, Farmer & Belin 1991 propose eight,

amongst many others) such as reproduction, metabolic processes and the capacity to respond to stimuli. The latter, structural, property is challenged by an inclusion of artificial life (e.g. Langton 1989; Wheeler et al. 2002) – virtual (i.e. non-chemical) entities possessing many of e.g. Farmer and Belin's (1991) characteristics. This has led Machery (2012), in a paper evocatively titled *Why I stopped worrying about the definition of life... and why you should as well*, to dismiss the entire enterprise. Combining definitions from biology, astrobiology and artificial life, Machery (2012) shows that it is impossible to come to a set of properties of life that is both necessary and sufficient for all fields. As also noted by Farmer and Belin (1991:818): “[a]ny property that we assign to life is either too broad, so that it characterizes many nonliving systems as well, or too specific, so that we can find counter-examples that we intuitively feel to be alive, but that do not satisfy it.” A more optimistic approach is presented by Trifonov (2011). Observing that all available definitions “have a point”, Trifonov (2011: 259) argues that a consensus could be reached “if only the authors, some two centuries apart from one another, could be brought together”. To accomplish this, he attempts to resolve an impressive 123 definitions to a common semantic core based on the words used in these definitions, which results in a functional definition stating that “[l]ife is self-reproduction with variations”. This again illustrates the difficulty of finding a definition that is both necessary and sufficient, however: ‘Self-reproduction with variations’ could also be argued to capture our current field of study – language as a living, evolutionary system – comfortably returning us to linguistics.

What we take away from these endeavors for our current approach is that a ‘vitalist’ definition of linguistic life in terms of *inherent* qualities is unlikely to be productive, especially if these are to be based on some inherent definition of biological life. Biology has, instead, benefited from a mechanical definition in terms of functional properties or behaviour (e.g. life as displaying metabolic or reproductive/evolutionary processes), even if any single collection of functional properties might never be both necessary and sufficient for all fields.

Such a behavioural definition might also be worth exploring here. After all, as we saw most notably in Chapter 3, the inanimate in language may be brought to life not by any change in its *inherent* morphology or biology. *Specht en zoon*'s painting is a painting in every sense in which we understand the word: “a piece of linen, some paint, four stretchers, and two crossbars”; placed on an easel, unable to move by itself, possessing eyes nor heartbeat. Functionally, it does exhibit certain animate

*behaviour*, however, as it observes and comments on the world around it. The resolution of this apparent contradiction is in favour of the behavioural definition: the reader clearly comes away with the impression that the painting is somehow ‘alive’, even if it does not meet all, or indeed any, biological criteria.

Throughout this work we have been considering examples of animate behaviour on different levels of description, and have called attention to some terminological confusion in the field (most notably in Chapter 2). At this stage it is time to make these different levels maximally explicit.

### 6.1.1 Grammatical animacy

First, we consider *grammatical animacy*. This is defined purely in terms of linguistic behaviour: statistical regularities in language that seem to revolve around a similar semantic distinction, consistent across different languages as well as across different constructions within the same language. Cross-linguistically, subjects, pronouns and topics group together, correlate with e.g. number marking and definiteness, and are differentially case-marked when they do not match the semantic feature prototypical for that grammatical role (cf. Chapter 1).

Grammatical animacy is necessarily discrete, and often, but not always, binary in nature: a referent is expressed either as the subject or the object of a transitive sentence, as a pronoun or a full noun phrase, singular or plural, with a marked or unmarked case. These binary distinctions may nevertheless emerge as a product of a more gradient animacy hierarchy, which is implicational in nature (de Swart & de Hoop 2018; Toivonen 2018). An important insight in the field has also been that these distinctions along the animacy hierarchy might exist in the form of grammatical rules or ‘hard constraints’ in one language but emerge only as a statistical tendency or ‘soft constraint’ in another (Bresnan et al. 2001).

Examples of grammatical animacy from the current work are the distinctions found in the Japanese existential construction (*iru* versus *aru*) and the optionality of Persian number marking discussed in Chapter 2, and in Chapter 3, where *Specht en Zoon*’s painting finds itself predominantly in the subject role, in sentences in the active voice, referred to by a pronoun. In Chapter 5, we considered the statistical distribution of animacy in subject and object-relative clauses, noting that the different clause types are associated with different animacy configurations.

On this level, we are not yet concerned with *understanding* the semantic content or psychological reality of ‘animacy’. What matters is that

animacy as a feature is a ‘difference that makes a difference’ (Bateson 1979; cf. Dennett 2017) on linguistic form. In support of this view, it has been demonstrated in computational linguistics that naive n-gram models are able to pick up on grammatical animacy distinctions in the absence of any lexical knowledge or ‘understanding’ (e.g. Karsdorp et al. 2015).

Our studies in Chapters 2, 3, and 5 have taken established patterns of grammatical animacy as given. What is in need of explanation is the semantic content driving these patterns, which we consider next.

### 6.1.2 Cognitive animacy

We define as *cognitive animacy* the representation of the semantic or conceptual content that is ultimately responsible for the grammatical patterns observed, following Dahl (2008), Yamamoto (1999) and Fraurud (1996). Comparing referents found in the discrete categories along the grammatical animacy hierarchy, we find that the ‘difference that makes a difference’ is based on a cognitive ontology that differentiates representations of entities based on some notion of ‘being alive’. Cognitive animacy is best regarded as truly gradient with prototype structure, in which certain referents are, by folk definition, ‘more alive’ than others (Yamamoto 1999:14, see also Aristotle above), subject to empathy and viewpoint as well as contextual, perceptual and cultural influences.

This was explored further in Chapter 2 with a series of rating studies, following Radanović et al. (2016). Radanović et al. (2016) were interested in the nature and universality of what they term ‘semantic animacy’ ratings, i.e. the extent to which we consider referents to be ‘alive’. They carried out an off-line subjective rating task on 72 Serbian and English nouns, which denoted a variety of animate and inanimate categories such as humans, animals, plants, vehicles, supernatural entities and objects. They obtained ratings that were gradual, with no clear boundaries, with nouns referring to humans as most prototypically animate, and nouns referring to objects as most prototypically inanimate. Furthermore, they found that these semantic animacy ratings were highly correlated between English and Serbian. In Chapter 2, we expanded on these results with data from Persian and Japanese. We found the same gradual distinctions in Persian and Japanese, offering further support to cognitive animacy as a gradual, universal property. We moved beyond Radanović et al. (2016) by additionally linking these ratings to the acceptability of grammatical constructions. We showed that the grammatical acceptability of optional number marking and the existential verb *aru* – linguistic phenomena

linked to ‘inanimate’ referents – reliably increased as cognitive animacy ratings decreased. We argued that these results show that the mechanism by which animacy enters language is universal: cognitive animacy, gradient and to some extent culturally-dependent, determines grammatical expression.

### 6.1.3 Perceptual animacy

The notion of cognitive animacy is informed by perceptual access to the real world. We are sensitive to entities in the world like us in outward appearance, with e.g. faces, hands and eyes (New et al. 2007; Leopold & Rhodes 2010; Leslie 1984; Looser & Wheatley 2010), noting that these entities tend to behave in typical ways as opposed to entities that lack this morphological similarity, such as the ability to move under their own energy (Scholl & Tremoulet 2000; Primus 2012). Vogels et al. (2013:2) defined as *perceptual animacy* “the degree to which [an entity] is conceptualised as animate or inanimate based on motion cues”, but we would extend it to any perceptual cue, whether behavioural or morphological, which contributes to an animate conceptualisation, in line with e.g. Nelson and Vihman (2018).

### 6.1.4 Lexical animacy

The lexical item is the departure for any linguistic expression of reference. We define as *lexical animacy* the extent to which the lexical item *denotes* the animacy of the referent. The denotational properties of a lexical item are context-independent, and inherent to the denotation of ‘painting’ is that it is an inanimate object. A painting is lexically inanimate to the extent that when asked whether a painting is ‘alive’, the language user will offer a binary answer presumably based on some folk definition of ‘life’ (cf. Machery 2012), in which sense it represents an offline, abstracted, prototypical instantiation of what we have referred to as cognitive animacy. In language use, denotations provide a starting point for the semantic content of the lexical item. The lexical item can subsequently be used to refer to a concept in context; i.e. serve as a referential expression. Explicitly: considering words such as ‘painting’ in Otten’s *Specht en Zoon* or ‘peanut’ in Nieuwland and van Berkum (2006), these lexical items *denote* concepts which are lexically inanimate, but come to *refer* to concepts which are cognitively animate.



### 6.1.5 Contextual animacy

We have discussed how grammatical animacy is driven by cognitive animacy. Crucial to a full understanding of animacy in language is the notion that this influence is not a one way street. This work has revolved around the central conceit that the linguistic form does not merely influence conceptual animacy, but can even completely turn our lexically denoted default conception of animacy on its head, resulting in animacy shifts. We saw this most explicitly in Chapters 3, 4 and 5 where paintings, toy cars and clocks were brought to life. Like grammatical animacy discussed above, *contextual animacy* is a property of linguistic form. It is the collection of whatever linguistic cues and mechanisms conspire to influence the conceptual animacy of referents. We have noted, following de Swart and de Hoop (2018), that these cues potentially span the full range of linguistic expression, from the microscopic (purely grammatical, as in differential object marking, e.g. de Swart 2014) to the macroscopic (an entire narrative, as in Nieuwland & van Berkum 2006; our Chapter 3). Chapters 3, 4 and 5 have been aimed at uncovering the linguistic cues and mechanisms by which contextual animacy influences cognitive animacy, with a particular focus on thematic roles. We will turn to our findings next, after briefly summarising where we now stand on the question with which we started: What is animacy?

## 6.2 The linguistic life of the inanimate

To understand animacy is to be able to answer the deceptively simple question proposed throughout these pages: Are characters like *Specht en Zoon's* painting animate or inanimate?

We have found that a singular dimension of 'animacy' is insufficient for this purpose: clearly the painting is alive in some sense but not in others. This has forced us to specify the different levels of animacy outlined above. This multi-level approach may not provide a definitive answer to the meaning of linguistic life, but it helps clarify our thinking in approaching the question. Observing the inanimate character in Chapter 3, we saw a *lexically* inanimate painting in *grammatically* animate linguistic expressions throughout the narrative. From this, we have argued that grammatical expression is not driven by the extent to which paintings are alive in some inherent sense. Rather, as grammatical expression is driven by cognitive animacy – as confirmed in Chapter 2 –, it follows that

the painting is *cognitively* animate. As this is not a feature of paintings in the real world, an animacy shift has taken place under the influence of a *contextually* animate linguistic environment, just as *perceptual* animacy can give linguistic life to abstract geometric shapes. We will discuss the particulars of this process next.

### 6.2.1 Animacy, Agency and Experience

Throughout this work, we have argued that conceptual animacy drives linguistic expression. Conceptual animacy incorporates features associated with ‘animate behaviour’ such as the ability to initiate actions, move independently, and observe and reflect on events. Dahl (2008:145), for example, summarises animate behaviour as “the capacity to perceive and act upon the environment”, and Fowler (1977:16) notes that animate beings “are capable of initiating actions and change”, whereas inanimates lack this ability.

This cognitive content must ultimately have been derived from our experience of the world. This experience can include direct perceptual access to the entity and its behaviour – what we have termed *perceptual animacy*. In language production, these behavioural traits have indeed been shown to influence the realisation of referents, as we have discussed previously (e.g. Heider & Simmel 1944; Sharifian & Lotfi 2007; Gennari et al. 2012; Vogels et al. 2013; Nelson & Vihman 2018).

The behavioural content of cognitive animacy can also be derived without access to direct perception of the referent, through linguistic means. After all, language famously allows us to communicate information beyond the ‘here and now’. Behaviour is linguistically reflected predominantly in verbal predicates. Verbal selection criteria, in turn, generalise to thematic roles (Jackendoff 1987; Lestrade 2010). More precisely, thematic roles represent a set of entailments shared by a group of verbal predicates with respect to their arguments (Dowty 1991:552), e.g. the verbs ‘to understand’, ‘to feel’ and ‘to love’ all entail that their grammatical subjects are sentient Experiencers. Because of this link, we have taken thematic roles to represent the contextual linguistic cue to behaviour.

The behaviour we would typically classify as animate (cf. Dahl 2008; Fowler 1977) is captured best by two established thematic roles: the Agent and the Experiencer. Agents are primarily associated with instigation, causation and motion, and Experiencers are primarily associated with perception, sentience and volition. Dowty (1991, cf. Grimm 2005), noting that the various thematic roles proposed in the literature are impossible to

define precisely without overlap or counterexample, proposes an account based on two Proto-Roles: the proto-Agent and the proto-Patient. The proto-Agent presents the following set of entailments:

- (1) Dowty's (1991) proto-Agent entailments:
  - a. volitional involvement in the event or state
  - b. sentience (and/or perception)
  - c. causing an event or change of state in another participant
  - d. movement (relative to the position of another participant)
  - e. (exists independently of the event named by the verb)

Proto-Patients are defined in opposition. They entail a referent undergoing a change of state, being causally affected by another participant, staying stationary relative to the movement of another participant. Primus (2012) argues that nearly all of Dowty's (1991) proto-Agent properties entail an animate referent. By contrast, there is no animacy entailment for proto-Patient properties. Similar arguments have been made for the traditional Agent and Experiencer, with Agents being primarily, but not exclusively, animate (e.g. Folli & Harley 2008; cf. Fauconnier 2011), and Experiencers being necessarily animate (e.g. Verhoeven 2014).

In a transitive sentence, the argument with the highest number of proto-Agent properties is usually chosen as the grammatical subject. For this reason it has been argued that language, in terms of e.g. linear ordering and differential marking patterns, is sensitive not to animacy *per se* but primarily to patterns of (proto)-Agents causally affecting (proto)-Patients. As animacy is highly linked to Agency, animacy, specifically the lexical animacy of the noun phrase, would then indirectly serve as a proxy from which Agency can be deduced in comprehension (Bever 1970; Primus 2012; Frenzel et al. 2015; Muralikrishnan et al. 2015; García García et al. 2018). In our proposal, the distinction between animacy *per se* and the proto-Agent fades: those proto-Agent properties which entail animacy represent the behavioural traits that contribute to the cognitive animacy of a referent, which in turn determines grammatical expression.

Returning to the analysis of the inanimate character in Chapter 3, we found that the application of both traditional Agent and Experiencer roles (or specific proto-Agent entailments, following Dowty 1991) is not necessary for a referent to be construed as cognitively animate. The inanimate narrator in *Specht en zoon* was cognitively animate by virtue of being an Experiencer *only*: with regard to the proto-Agent properties in (1), it was never volitionally involved in or causing an event, nor was it capable of

autonomous motion. In this, the inanimate Experiencer presents a mirror image to the extensively studied ‘inanimate’ Agents in the literature associated with grammatically animate expression, such as e.g. whistling trains (Folli & Harley 2008), natural phenomena causing injury or death (Lowder & Gordon 2015) or autonomously moving abstract shapes (Vogels et al. 2013).

Whilst inanimate Agents and inanimate Experiencers are mirrors in the sense that they attribute different sets of cognitively animate behaviour to lexically inanimate objects, they are fundamentally distinct in another respect: perceptual animacy. Many of the behavioural traits associated with Agents, such as motion and causation, are directly observable properties of the natural world and can be implemented in an experimental context (e.g. Heider & Simmel 1944; Vogels et al. 2013). The behaviour exhibited by *Specht en zoon*’s inanimate Experiencer, conversely, has no observable analog – strictly speaking, we are incapable of stating one way or the other whether sentience and perception are properties common to all paintings, or solely the painting represented in *Specht en zoon*. Simply put: upon wondering whether paintings are alive, we cannot tell by looking. Hence, we need a distinction not just in terms of different sets of behaviours, but also one of epistemological status. Dennett (1971) offers one such perspective.

Dennett (1971) introduces a typology of *stances*, ways in which we make sense of the world around us. Motion and causation are part of the domain of the *physical stance*, the way we can understand a system as governed by physical laws. The physical stance is in principle sufficient to describe the behaviour of inanimate objects, i.e. a stone rolling down a slope in Vogels et al. (2013) may be described by gravity. The behaviour of complicated systems such as animals or artifacts may in principle also be described using the physical stance. For the more interesting behaviours of complicated systems, however, this is rarely practical. Dennett (1971) illustrates this by means of a chess computer, a cognitively animate ‘clever machine’ in Yamamoto’s (1999) terms. One could, in principle, predict the moves a chess computer would make by following the flow of electrons in its circuitry, as a chess computer is a physical system and thus subject to physical laws. A much faster and simpler prediction could be obtained, however, from appreciating that the computer is playing the same game as its human opponent: by assuming that the computer is observing the board, making an inventory of the legal moves, and is playing to win. This prediction is based on the *intentional stance*: “the strategy of interpreting the behavior of an entity (person, animal, artifact) by treating it as if it

were a rational agent who governed its choice of action by a consideration of its beliefs and desires” (Dennett 2009:1). Beliefs and desires, in this view, are not so much inherent properties of referents, but cognitive stances we adopt to predict systems – hence the lack of perceptual analogs. Indeed, the implication of Dennett’s (1971) analysis is that there is no principled distinction between our ‘inherent’ human beliefs and desires and the metaphorical beliefs and desires we attribute to e.g. chess computers and other intentional systems with complex behaviours.

In this sense, animacy in language might simply reflect the different stances. Biologically animate referents are complicated systems that by default are best described using predicates from the intentional domain, whereas inanimate objects are often sufficiently interpreted from the physical stance without reference to beliefs or desires. When the physical stance is no longer sufficient to appreciate the behaviour of an inanimate object, for instance when it plays chess or moves under its own energy, we construe it as cognitively animate – we naturally ascribe to it the beliefs or desires we do biologically animate referents. Conversely, the less interesting behaviours of complicated systems can adequately be explained using the physical stance – like stones, chess computers will predictably roll down a slope under the influence of gravity.

Rephrasing this in the familiar form of Dowty’s (1991) proposal, the proto-Agent entailments as detailed in (1) might come to entail one another. By independently moving relative to the position of another participant (d) and causing an event or change of state in this participant (c) – the behaviour exhibited by the abstract shapes in the experiments by Heider and Simmel (1944) and Vogels et al. (2013) – an ascription of volitionality (a) and sentience (b) naturally follows, resulting in a cognitively animate entity that is fully realised as a proto-Agent, i.e. possessing all of the relevant entailments in (1). As Vogels et al. (2013:13) also note, subsequently disentangling Agency from animacy is not an easy feat.

This separation might be easier for Experiencers. Experiencers are necessarily cognitively animate, but need not be Agents, as demonstrated in Chapter 3: *Specht en zoon’s* painting was unable to move under its own energy or effect change in its environment. Contrasting inanimate Experiencers and inanimate Agents in Chapter 4, we found that inanimate Agents were experienced as more defamiliarizing or emotionally distancing compared to animate Agents than were inanimate to animate Experiencers, i.e. in stories in which the main character took a less active role, emotional engagement was less influenced by animacy. In Chapter 4, we argued that this results from the implicational hierarchy alluded to

above: both inanimate Agents and inanimate Experiencers are ascribed behaviours associated with Experiencers, whereas only Agents are additionally ascribed Agentive behaviour (i.e. are fully realised proto-Agents). This is because actions taken by the Agentive characters in the narrative are implied to be volitional, driven by ascribed beliefs and desires. Hence, inanimate Agents in the stories were distinct from inanimate objects in exhibiting both Agentive as well as Experiencer-like behaviour, whereas Experiencers differed only from inanimate objects in the ascription of Experience. Furthermore, we argued that the ascription of Experience-like behaviour in a narrative context is generally easier than the ascription of Agency. As Experiencer-like behaviour is not outwardly expressed, it requires no further modification to the narrative apart from viewpoint.

In summary, thematic roles were demonstrated to provide an avenue for animacy shifts. By ascribing animate behaviour to lexically inanimate objects, the linguistic context can turn a referent into a cognitively animate construct. Not all behaviour is created equal: we can distinguish between behaviour associated with the Agent such as motion or causation, or behaviour associated with the Experiencer such as sentience and perception. We have found that the ascription of one set of behaviours may be sufficient for a referent to be cognitively construed as animate, but that Experiencers might often be entailed by Agents. We have speculated on reasons why this might be so. The result of such ascription is a conceptually shifted entity: an inanimate object a story brought to life as a cognitively animate Agent or Experiencer. What implications might this shifted entity have for grammatical predictions in production and comprehension?

### **6.3 Processing ‘animacy’**

Before we end this chapter by discussing the results of our processing experiment as detailed in Chapter 5, we pause briefly to reflect on the previous sections’ implications for the current state of research into the processing of animacy.

We depart from Yamamoto (1999), whose seminal work has formed the basis for much of our discussions on cognitive animacy. In her concluding summary, Yamamoto notes that previous studies on animacy had “tended to focus only upon its grammatical manifestations or, in other words, to utilise animacy as a grammatical ‘tool’ which enables linguists to explain some particular construction type or formal phenomenon

without treating animacy as an end of conceptual enquiry in itself” (Yamamoto 1999:180), arguing for more of the latter.

Two decades later, the field of linguistics has taken this admonition to heart. The previous chapters have been able to draw from and contribute to special issues on *Animacy, argument structure, and argument encoding* (de Swart et al. 2008), *Animacy in grammar and cognition* (Vihman & Nelson 2019) and *The animacy hierarchy in language and discourse* (Gardelle & Sorlin 2018). Much of our theorizing on contextual animacy has built on de Swart and de Hoop (2018) and subsequent comments. We have attempted our own ‘conceptual enquiry’ into animacy, approaching the question from the observation that inanimate objects can come to possess linguistic life, defining and contrasting different levels of animacy in observing their behaviour.

In much of the psycholinguistics literature, however, animacy is still mostly the semantic distinction of choice; the grammatical ‘tool’ with which to introduce some non-syntactic influence on structural processing preferences. Nieuwland & van Berkum’s (2006) dancing peanut – our starting point for the processing of inanimate characters in narrative – was used not to investigate animacy, but as a tool to demonstrate the potential for a global discourse context to influence local processing. In Chapter 5, we introduced a series of experiments into relative clause processing (Traxler et al. 2002; Mak et al. 2002; 2006; Gennari & MacDonald 2008), in which animacy was used to show that structural heuristics may be overruled by semantic factors. Beyond a doubt, these and other such studies have contributed significantly to our understanding of the syntax-semantics interface. Given the advances in our theoretical understanding of animacy, however, we note two resulting disconnects in what we could call the linguistics-psycholinguistics interface.

The first of these disconnects presents a potential danger to the psycholinguists’ enterprise. Processing studies investigating animacy, virtually without exception, implement animacy as a dichotomous factor. The exact motivation behind the distinction is rarely stated, but is presumably made on lexical or biological, ‘common sense’ grounds. A selection of example stimuli from some processing studies previously discussed in these pages shows e.g. Nieuwland and van Berkum (2006) contrasting sailors and yachts, Mak et al. (2006) contrasting hikers and rocks, Traxler et al. (2002) contrasting directors and movies, and Fukumura and van Gompel (2011) contrasting hikers and canoes. Appreciating animacy as a gradient, cognitive categorisation illustrates that these distinctions might not be equally precise. For example, vehicles such as yachts and

canoes are more cognitively animate than rocks and movies by default, as discussed and demonstrated in Chapter 2. This is further influenced by the linguistic context surrounding these items in the experimental stimuli discussed: canoes *carrying* hikers downstream or rocks *crushing* hikers are not the same constructs as those same canoes being carried, or rocks being rolled away, as the former possess at least some of Dowty's (1991) proto-Agent properties that the latter lack. Chapter 2 also found that such differences in cognitive animacy influence grammatical preferences, which might lead to confounds when grammatical processing is the topic under investigation. Radanović et al. (2016; following Devlin et al. 2002) note that in psychology and neuroscience similarly imprecise implementations of animacy have led to discrepancies in results: classification studies comparing 'animate' animals with 'inanimate' tools demonstrate effects, whereas these are not obtained in similar classification studies contrasting 'animate' animals and fruits with 'inanimate' tools and vehicles (though cf. New et al. 2007 suggesting morphological similarity might be a stronger cue than behaviour). Thus, variability on 'animacy' muddles the distinctions. Contemporary psycholinguistics can and does employ sophisticated mixed models to capture such item-level variability, of course, but given that we can somewhat predict these effects in advance it might be preferable for studies to either eliminate the potential confound from the outset or explicitly include it as part of the design.

The second disconnect emerges in those studies that do investigate the interplay of animacy with other factors during processing. The vast majority of these are again not explicit in stating the semantic content of 'animacy' under investigation, often resorting to 'the distinction between living and non-living'. In Chapter 2 we have rather unfairly<sup>1</sup> singled out Lowder and Gordon (2015) for providing the perfect quote in illustration when discussing the implications of their findings: "While many cognitive and linguistic phenomena have been cited as showing the importance of animacy, *animacy per se may not be the critical factor*. Natural forces are semantically inanimate (non-living), but behave in ways that are more similar to animates than inanimates in that they are able to initiate movement, change course without warning, and occasionally cause destruction, injury, and death" (Lowder & Gordon 2015:86). Lowder and Gordon's (2015) results are valuable in demonstrating that natural forces, conceptualised as Agents, lead to grammatically animate expression, whereas the

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<sup>1</sup> Rather unfairly indeed, as we have been guilty of similar confusion in previous chapters.



non-Agentive instruments to which they were compared do not. The interpretation they eventually arrive at is that Agentivity either contributes to the cognitive animacy which underlies grammatical preferences (e.g. de Hoop & de Swart 2018) or drives grammatical expression directly (e.g. García García et al. 2018). This does not seem to be reflected in the quote, however. Rather, making the definition of ‘animacy’ in the quote explicit, we are left with the claim that the linguistic literature has been cited as, in essence, showing the critical importance of having a pulse – and that this is indeed not what drives linguistic expression. Again drawing from Chapter 2, we found similar lines of argument in Strauss (2008) and Sharifian and Lotfi (2007), coincidentally both referring by example to the ‘inanimate’ ship at sea as ‘being similar to animates’ in behaviour.

The dangers inherent in this terminological confusion have been discussed at some length in Chapter 2. By implicitly defining ‘animacy’ to mean any property of life except the one under investigation (e.g. ‘animacy’ versus Agentivity in Lowder & Gordon 2015; ‘animacy’ versus movement in Strauss 2008; ‘animacy’ versus autonomous motion in Sharifian & Lotfi 2007; cf. e.g. Paczynski & Kuperberg 2011; Gennari et al. 2012; Vogels et al. 2013 for more careful approaches) and finding that it comes up short, we risk rejecting *cognitive* animacy as a highly successful explanation of grammatical patterns, and consequently, as a promising predictor of processing preferences in both production and comprehension.

We argued that these findings should instead be employed to contribute to our theoretical understanding of cognitive animacy, to demonstrate experimentally that cognitive animacy subsumes such behaviour as Agentivity and autonomous motion, sentience, and potentially more still unexplored. A better theoretical understanding of the many dimensions and nuances of cognitive animacy through processing evidence can in turn contribute to the design of further processing studies – allowing the careful selection of stimuli to remove confounding factors and investigate new avenues – restoring the linguistics-psycholinguistics interface on the processing of ‘animacy’, properly defined.

## 6.4 Animacy shifts in narrative processing

Our own contribution to the linguistics-psycholinguistics interface was presented in Chapters 4 and 5. We have been interested in the way cognitive animacy influences linguistic processing, over and above the demonstrated influence of a lexical distinction between animates and inani-

mates. We have tested these assumptions using the narrative environment.

One objection to our approach is that fictional narratives are somehow not ‘real language’, as has been argued by García García et al. (2018:26) in regard to animacy shifts in differential object marking, as fictional language “do[es] not obey specific grammatical or semantic constraints”. We disagree – the central conceit behind animacy shifts is that they enable language to go beyond semantic constraints without resulting in ungrammaticality, which is not restricted to the narrative environment. We have argued that the mechanism permitting inanimate characters to exist in narrative is the same as that operating in differential object marking, or, for that matter, the same as that which enabled ‘sections’ to discuss ideas or ‘factors’ to enter into models on previous pages. Overt linguistic cues effect a covert type shift in de Swart’s (2014) differential object marking alternation, and a collection of overt linguistic cues effect a covert type shift in *Specht en zoon*’s painting or Nieuwland & van Berkum’s (2006) peanut. In either case, contextual animacy influences cognitive animacy: by virtue of the linguistic environment, the conceptualisation of the referent changes. The only relevant difference between the two cases, in our view, is the quantity of the linguistic cues present.

The narrative environment presented two advantages over testing animacy shifts in isolation. The first of these is that it is an ecologically valid environment for animacy shifts – as we saw, inanimate characters are not rare in literary fiction, and this allows us to move beyond isolated sentences to studying animacy shifts in a more natural way (cf. Willems 2013). The second advantage is that we could gain better control over the linguistic factors that are recruited in accomplishing animacy shifts. As we noted earlier, animacy shifts in isolated constructions may appear to be idiosyncratic: we wondered why e.g. differential object marking with verbs of physical contact in Dutch should specifically lead to an implicature of *sentient* inanimate objects. An analysis of established inanimate characters in narrative fiction such as the case described in Chapter 3 allowed us to regain some control over the animacy shift: as Chapter 3 demonstrated that Agency and Experiencerhood are independently involved, we can examine what happens when a lexically inanimate referent is differentially ascribed behavioural traits associated with animate Agents and Experiencers. The offline measurement of emotional engagement in Chapter 4 was successful in suggesting 1) a difference in the processing of animacy shifts resulting from the ascription of Agency from animacy shifts resulting from the ascription of Experiencerhood, as discussed in

Section 6.2.1, whilst 2) also indicating shifted animates might still differ from canonical animates.

This led us to the real-time processing experiment in Chapter 5, examining the results of an Agentive or Experiencer animacy shift on grammatical preferences. We know, following Nieuwland and van Berkum (2006), that contextual animacy can influence semantic or discourse-level predictions, i.e. dancing peanuts prefer being in love over being salted. We were interested in whether animacy shifts also lead to grammatical predictions, i.e. do dancing peanuts also prefer being grammatical subjects? In addition, do dancing peanuts generate different predictions as compared to peanuts that are in love?

We implemented these questions in a design based on relative-clause processing. We chose relative clauses as their associated processing preferences have been studied extensively. To summarise: object-relatives are more difficult to process than subject-relative clauses, unless the head of the relative clause is inanimate. We embedded object-relative clauses with lexically inanimate heads in contexts that shifted the lexically inanimate referent that was the head of the relative clause to a cognitively animate Agent or cognitively animate Experiencer. Logically, if this animacy shift of the inanimate head is successful, the object-relative clause should be more difficult to process: the object-relative clause would now contain two animate constituents, which is associated with increased processing difficulty.

Our results were inconclusive on whether or not this animacy shift was successful. We did not find a significant processing difference between the object-relative clauses following Agentive or Experiencer narratives on the one hand and neutral narratives on the other. Whilst this result is discouraging, an explanation offered itself in hindsight: topicality, as discussed extensively in Chapter 5. By implementing an object-relative clause with a discourse-topical inanimate head, we investigated the grammatical predictions associated with a sentence structure that is very irregular in natural language use. This is exactly the type of confound one usually aims to avoid in processing studies (cf. Willems 2013), but our results only serve to highlight the importance of reincorporating ecologically valid 'confounding' factors into processing studies as these *will* play a role in language outside the lab. Whilst discourse topicality and animacy have both been investigated using relative-clause stimuli (e.g. Mak et al. 2008; 2006, respectively), we discovered that the field has no established baseline for the processing preferences that arise when both factors are combined. As topicality effects are unavoidable when introducing context

– a context will always ‘be about’ something –, future research looking to manipulate cognitive animacy in processing studies through contextual animacy should look for constructions in which an established baseline exists.

Despite Chapter 5’s inconclusive result, we maintain that processing studies on animacy would gain much from implementing cognitive animacy rather than lexical animacy – especially if the latter is to be based on biology – in understanding the behaviour that contributes to animate expression. Complex, intentional systems are increasingly decoupled from biology in modern society. Whereas Yamamoto (1999) had only to contend with cognitively animate ‘clever’ computers or cars ‘with tyres for legs’, we now find ourselves confronted with these properties combined in self-driving cars soon to be populating our streets. Our seemingly trivial statement in Chapter 3 that at least only human beings can refer to themselves using a first person pronoun has recently been challenged by advances in natural language processing models: with OpenAI’s powerful, 175-billion parameter language model GPT-3 coming closer and closer to passing the Turing test, even creative language might soon no longer be uniquely human (Zimmermann 2020). Whereas lexically or biologically these intentional systems may be no more alive than the rocks that make up their silicon substrates, a cognitive appreciation of animacy in linguistics would capture them for the living systems they are.

## 6.5 Conclusions

This work has been an attempt at understanding animacy, a distinction ‘between living and non-living things’ of fundamental importance to grammar and cognition. Observing inanimate characters in fictional language told us that this distinction is not as straightforward as it may seem – animacy is not inherent to a referent, certainly not based on its biology, and may be transformed through an appropriate context to such an extent that yachts can be troubled, peanuts can fall in love, and paintings can take us on a narrative journey. Rather than dismiss these inanimate characters as neat literary tricks with no bearing on ‘real’ language use, we have chosen to take their transformation seriously, to see what they might tell us about animacy in grammar and cognition.

We demonstrated that grammatically, language expresses not how alive a referent *is* – whatever that might mean – but how alive we consider it to be (Chapter 2). This ‘cognitive animacy’ is also influenced by the

linguistic context in which the referent is used. We found that stories can bring referents to life by ascribing Agentive and Experiencer roles – by making peanuts dance and fall in love – but also, that we might not necessarily need both (Chapter 3). We saw that the behaviour that is chosen as the means of transformation influences our emotional experience of the resulting character (Chapter 4). We attempted to catch the grammatical ripples of a transformation in real time (Chapter 5), only to discover that we would have to overcome a strong link between animacy, subjecthood and topicality first. We argued that this should not be the end of our conceptual enquiry into animacy (Chapter 6), and that the use and appreciation of animacy shifts in cognitive poetics and psycholinguistics can answer many remaining questions on animacy in narrative and processing.

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# **Appendices**

## Appendix to Chapter 2

*Mean cognitive animacy ratings by noun scored on a 1-7 Likert scale, by Japanese speakers of Japanese (n=40), by native speakers of Persian in Iran (n=36), and by native speakers of Persian in the Netherlands (n=47). Serbian and English ratings are adopted from Radanović et al. (2016:1494) and included here for ease of comparison. The Japanese questionnaire included additional items from Strauss (2008). Continues on next page.*

<b>Noun</b>	<b>Japanese</b> Japan	<b>Persian</b> Iran	<b>Persian</b> Netherlands	<b>Serbian</b>	<b>English</b>
Amoeba	5.08	4.39	5.09	4.2	83.55
Apple	4.00	4.47	4.34	4.54	41.21
Baby	6.33	6.75	6.79	6.51	98.29
Bacteria	4.70	5.97	6.23	4.63	82.59
Ball	2.30	2.08	1.62	2.86	7.77
Bicycle	2.35				
Bike	2.25				
Book	2.53	3.81	2.72	3.23	8.5
Box	1.88				
Boy	6.43	6.22	6.51	6.43	97.44
Bracelet	1.90	2.06	1.45	2.06	7.11
Brother	6.10	6.75	6.68	6.34	95.53
Cabbage	3.85	4.39	4.11	3.94	44.77
Cactus	4.45	5.89	5.94	4.26	65.08
Car	2.70	3.03	1.81	2.77	16.92
Chess king	2.78				
Child	6.15				
Clam	5.20	5.94	5.64	4.23	82.03
Cloud	3.23	4.03	3.57	3.2	9.66
Coat	2.33	2.00	1.64	2	5.5
Computer	2.33	2.75	1.83	2.49	13.92
Cook	5.95	6.50	6.45	5.97	74.17
Cousin	6.08				
Cow	6.18	6.28	7.00	5.6	94.67
Crab	6.20	6.58	6.68	4.8	95.27
Crow	5.90	6.42	6.68	5.37	95.79
Crowd	4.90				

*Mean cognitive animacy ratings by noun (continued).*

<b>Noun</b>	<b>Japanese</b> Japan	<b>Persian</b> Iran	<b>Persian</b> Netherlands	<b>Serbian</b>	<b>English</b>
Cucumber	4.00	4.72	4.00	4.14	42.35
Cup	1.93	2.33	1.34	1.69	4.38
Customer	6.18				
Dog	6.48	6.69	6.85	6.34	97.92
Dragon	5.03	5.28	4.72	4.46	81.98
Dress	2.20	2.19	1.66	1.94	5.08
Elephant	6.10	6.75	6.81	5.63	95.38
Elevator	2.35				
Empress	5.73				
Fairy	4.55	4.89	4.06	3.49	62.86
Fly	5.55				
Ghost	3.80	4.61	3.53	3.29	41.83
Giant	4.80	5.06	3.66	3.63	73.7
Giraffe	6.15	6.61	6.83	5.46	97.29
Girlfriend		6.50	6.55		
God	4.55	5.19	4.02	3.54	60.69
Hen	5.80	6.58	6.89	5.37	93.92
Horse	6.15	6.69	6.94	6.2	94.59
House	2.55	3.17	2.53	2.69	4.28
Image	2.35	2.94	2.30	3.17	15.67
Lamp	2.28	2.47	1.79	1.74	4.41
Lemon	3.90	4.11	4.00	4.31	39.39
Lighter		2.19	1.62		
Mother	6.53	6.92	6.98	6.51	97.68
Mountain	3.15	3.92	3.00	3.34	8.8
Ocean	3.35	5.06	4.34	4.71	32.67
Olive	3.53	4.50	4.26	3.89	40.19
Orchid	4.05	6.03	5.70	4.54	58.59
Pepper	2.88	4.11	3.81	4.17	30.71
Pet	5.93				
Pigeon	6.03	6.86	6.77	5.69	95.14
Pillow	2.20	2.25	1.64	1.8	3.35
Plane	2.60				
Plate	2.08	1.56	1.47	1.51	3.89
Police car	2.20				
Potato	3.85	4.00	4.34	4.03	41.48

*Mean cognitive animacy ratings by noun (continued).*

<b>Noun</b>	<b>Japanese</b> Japan	<b>Persian</b> Iran	<b>Persian</b> Netherlands	<b>Serbian</b>	<b>English</b>
Prince	6.20	6.17	6.49	4.74	91.23
Professor	5.75	6.17	6.32	5.51	95.48
Queen		5.81	6.26		
Rain	2.98	4.67	3.64	3.43	15.19
Rainbow	2.95	3.94	2.53	2.94	9
River	2.93	4.78	4.19	4.89	29.85
Robot	2.90	2.89	2.21	2.91	33.13
Sailor	5.88	6.33	6.66	5.86	96.42
Ship	2.25				
Snow	3.10	4.17	2.96	3	11.83
Spider	5.68	6.42	6.74	5.23	93.67
Squirrel	5.90	6.69	6.77	5.91	95.41
Strawberry	4.25	4.89	4.28	4.34	38.72
Table	2.18	2.22	1.40	1.46	4.7
Taxi	2.45				
Teacher	6.15	6.64	6.70	5.8	91.42
Thunder	2.38	3.69	3.21	3.74	28.02
Tomato	4.25	4.28	4.23	4.2	38.86
Truck	2.15				
Uncle	6.05	6.06	6.64	5.97	97.29
Virus	4.70	6.00	6.09	4.57	69.41
Watermelon	4.33	4.11	4.19	4.31	40.77
Window	2.20	2.31	1.49	1.77	3.66
Witch	5.20	5.03	5.36	3.54	77.06
Worm	5.80	6.53	6.49	5.03	91.53
Yacht	2.30				

## Appendix to Chapter 4

This appendix contains the four stories used in our narrative immersion study: a) *Uitgaan*, 'A night out', b) *De patiënt*, 'The patient', c) *Kantoor* 'The office', d) and *Hoogtevrees*, 'Fear of heights'. An overview of the narrative characteristics (number of words, Thematic Role distribution) is available in Table 4.1 on page 93.

Another four stories were derived from the stories represented here by replacing the main character with an inanimate or animate counterpart, respectively: a) *het meisje* 'the girl' was replaced by *de bezem* 'the broom', b) *de patiënt* 'the patient' by *het schilderij* 'the painting', c) *de prullenbak* 'the garbage bin' by *de kantoormedewerker* 'the office worker', and d) *de speelgoedauto* 'the toy car' by *het jongetje* 'the little boy'.

### Uitgaan

'Dus, ga je mee vanavond?' Het meisje rolde met haar ogen. Ze was altijd al verlegen geweest en ook nu ze de leeftijd had om af en toe uit te gaan, bleef ze liever thuis. Haar broer keek haar vragend aan. 'Nee, ik ga niet mee,' zei ze. 'Waarom niet? Hou je niet van dansen?' 'Ik moet vanavond nog allerlei klusjes doen,' loog ze. 'Wat moet je doen dan?' 'Ik moet, ehm... ik moet het balkon nog schoonvegen!' 'Je blijft zaterdagavond thuis om te vege?' vroeg haar broer onovertuigd. Ze wist maar al te goed dat haar broer dwars door haar heen kon kijken. 'Oké goed dan, ik kan niet dansen,' snoof ze. 'Als je erbij lacht kun je dansen.' Het meisje rolde opnieuw met haar ogen. Haar broer probeerde haar al weken over te halen om mee uit te gaan, maar ze wist zeker dat ze het niets zou vinden. Ze wilde dat hij eens ophield met zeuren. 'Ik hou niet van uitgaan,' zei ze. 'Hoe weet je dat nou? Je bent nog nooit mee geweest!' 'Goed dan,' zuchtte het meisje. 'Ik ga wel mee. Maar ik doe het alleen om te bewijzen dat ik het niks vind!' Haar broer toverde een brede glimlach op zijn gezicht. 'Deal.' Hij stond op van de tafel en liep de keuken uit. Het meisje fronste. Ze wist nu al dat ze het vanavond niet naar haar zin ging hebben. Ze volgde haar broer naar boven. 'Hoe komen we daar eigenlijk?' 'Lopen,' antwoordde haar broer. 'Maar het is hartstikke koud buiten!' 'Hoe wil je er anders komen?' 'Kunnen papa en mama ons niet brengen en halen?' Haar broer lachte. 'Wat denk je zelf? Dat ze ons om drie uur 's nachts bij een discotheek gaan ophalen?' 'Drie uur 's nachts?' piepte het meisje. 'We blijven toch niet helemaal tot het einde?' 'Waarom niet? Ik blijf altijd tot het einde.' Het meisje schudde haar hoofd. 'Ik ga niet mee, hoor. Ik ga niet om drie uur 's nachts door de sneeuw naar huis lopen.' 'Je hebt het beloofd!' zei haar broer verongelijkt. 'En het sneeuwt niet eens!' 'Ik ga alleen mee als we niet tot drie uur blijven.' Ze keek haar broer aan met een vastberaden uitdrukking. Hij zuchtte. 'Misschien heb je het straks wel hartstikke naar je zin en wil je helemaal

niet eerder naar huis.' Het meisje snoof. 'Eerst zien, dan geloven.' Tegen tien uur ging het meisje, met haar lichaam dik ingepakt tegen de kou, samen met haar broer op pad. Het was ongeveer een half uur lopen naar de discotheek. Het meisje stapte met tegenzin door in de kou. Het enige pluspunt aan de tocht was dat het inderdaad niet sneeuwde. Haar broer praatte enthousiast door tijdens het wandelen, maar het meisje zei weinig. Ze had nu al spijt van haar besluit om mee te gaan. Verkleumd kwamen ze aan bij de discotheek. Het meisje gaf haar kleine tasje aan de portier, die er met zijn zaklamp in scheen. Ze volgde haar broer door de metaaldetector, en nam het tasje weer aan. 'Waarom doen ze dat?' vroeg ze aan haar broer terwijl ze achter hem aan liep naar de garderobe. 'Om te voorkomen dat je wapens meeneemt,' antwoordde haar broer. 'Wordt dat wel eens gedaan dan?' vroeg het meisje ademloos. Haar broer haalde zijn schouders op, maar antwoordde niet op haar vraag. 'Onze jassen kunnen wel op één haakje, of niet?' 'Ik denk het.' Ze trok haar jas uit en bevrijdde zichzelf uit haar sjaal. De medewerker achter de balie pakte de jassen aan. 'Kom,' zei haar broer. 'Wil je iets drinken?' Zonder op antwoord te wachten liep hij door naar de grote zaal, waar iedereen aan het bewegen was op te harde muziek. Ze volgde haar broer naar een bar aan de zijkant van de zaal, waar hij begon te bestellen. Hij draaide zich een paar minuten later om met twee drankjes in zijn hand, waarvan hij er eentje aan haar probeerde te geven. Ze boog zich naar hem toe zodat ze in zijn oor kon praten. 'Wat is dat?' 'Cola,' zei hij onschuldig. Het meisje keek hem achterdochtig aan terwijl ze de beker van hem aannam. Ze nam een slok en trok een gezicht. 'Dit smaakt raar, hoor.' 'Wodka-cola,' verklaarde haar broer met een grijns. Het meisje probeerde de beker terug in zijn hand te drukken, maar hij pakte het niet aan. 'Drink het gewoon op. Leef eens een beetje.' Het meisje zuchtte en wilde haar broer van repliek dienen, maar hij verdween in de massa. Ze was alleen en keek over de rand van de plastic beker om zich heen. Ze voelde zich onzeker, zo in haar eentje op de dansvloer. Bovendien was ze de enige die niet danste. Kende ze dan verder niemand hier? Toen voelde ze ineens een warme ademhaling in haar nek. Ze keek verschrikt om. Achter haar stond een onbekende. Hij was lang en knap, en had een brutale grijns op zijn gezicht. Zonder enige waarschuwing drukte hij een kus op haar wang. Ze keek hem verrast en enigszins geschokt aan, maar hij leek het niet te merken. Hij keerde zich om en verdween in de menigte. Het meisje bleef een paar tellen beduusd op haar plaats staan. Wat was er zojuist gebeurd? Ze keek wat verward om zich heen. Maar, wacht eens... Waar was haar tasje? Had die brutale onbekende zojuist haar spullen gejat? Ze keerde zich om, en snelde de dansvloer op in dezelfde richting. Ze herinnerde zich nauwelijks hoe hij eruit zag, alleen zijn lach stond haar nog helder voor de geest. Ze baande zich een weg door de volle zaal, de kreten en blikken negerend. Toen zag ze plots de knappe onbekende voor zich lopen, een aantal meter verderop in de menigte. 'Hé!' riep ze. Haar stem kwam nauwelijks boven de muziek uit. 'Hé! Sta stil!' De onbekende liep door. Ze zag hem de ruimte aan de andere kant van de zaal inglippen. Ze rende hem achterna en kwam enigszins buiten adem bij de deur van de ruimte



aan. Ze zag hem door het glas van de deur naar haar grijnzen. Met een boze blik gooide ze de deur open en stapte ze op hem af. 'Geef dat terug!' gromde ze terwijl ze het tasje uit zijn handen griste. 'Sorry,' zei hij, nog steeds met die ondeugende grijns. 'Ik dacht niet dat je anders met me mee was gekomen.' Het meisje fronste. 'Wat bedoel je?' 'Ik wilde met je kletsen. Ik dacht niet dat je mee was gegaan als ik je gewoon gevraagd had.' Hij grijnsde nog steeds. 'Kom zitten,' voegde hij toe, terwijl hij naar de barkruk naast zich wees. Het meisje twijfelde een seconde, maar nam toen naast hem plaats. Ze wist niet wat ze moest zeggen. Hij wachtte even af, en vroeg toen: 'Heb je zin in iets?' Ze schudde verward haar hoofd. 'Je hoeft niets voor me te kopen, hoor,' stamelde ze. Hij glimlachte. 'Zie het maar als een excuus voor het stelen van je tasje.' Ze lachte terug naar hem 'Goed dan. Ik wil wel een colaatje.' De barbediende zette het drankje op de bar. 'Kom je hier wel eens vaker?' vroeg hij. 'Dit is mijn eerste keer, eigenlijk. Ik ben niet zo'n uitgaanstype.' 'Ben je helemaal alleen?' 'Nee, ik was hier met mijn broer, maar hij is verdwenen.' 'Liet hij je helemaal alleen staan?' Ze knikte. 'En ik ken hier verder niemand!' Hij toverde een nep-beledigde uitdrukking op zijn gezicht. 'Je kent mij toch!' Ze lachte verlegen. 'Heb je zin om te dansen?' Het meisje beet op haar lip. Ze kon niet dansen. Maar ze begon die raadselachtige charmeur steeds leuker te vinden. Hij keek haar afwachtend aan, en ze wilde hem niet teleurstellen. De stem van haar broer galmde door haar hoofd. Als je erbij lacht kun je dansen. Ze toverde een grote glimlach op haar gezicht. 'Oké,' zei ze, en ze begon te dansen.

## De patiënt

Langzaam werd de patiënt wakker. Hij had gedroomd van mooie uitzichten aan zee. Maar de bittere realiteit van de ziekenhuiskamer trok hem uit die droom. Het waren nog steeds dezelfde kale, witte muren die hij inmiddels maar al te goed kende. En twee ziekenhuisbedden, waarvan er een tot dusver leeg was. In het andere bed lag Linda, een rustige vrouw die maar weinig bezoek kreeg. Linda lag er al sinds de patiënt hier een week geleden geplaatst werd. In de kamer daarvoor had hij tenminste nog uitzicht op het raam. Hier keek hij alleen uit op de twee bedden. De deur ging open, en er kwam een verpleegster binnen, gevolg door een man van middelbare leeftijd. De patiënt zag dat de verpleegster hem naar het lege bed wees en hem vertelde zich daar te installeren. Terwijl Linda zichzelf aan de nieuwe zieke voorstelde, keek de patiënt zuchtend weg. Hij had totaal geen zin om de kamer met nog iemand te delen. Direct nadat de verpleegster was vertrokken werd de deur weer opengedaan. Dit keer was het een voedingsassistente. Een van de leukste van het ziekenhuis. De patiënt had gemerkt dat zij altijd wel in was voor een praatje. Ze lachte vriendelijk toen ze binnenkwam en richtte zich daarna direct tot de nieuwe man. 'Dag meneer Bakker. Normaal gesproken komen we niet zo laat meer bij de patiënten. Maar ik wil graag uw eetwensen voor morgen even noteren.' De patiënt zag duidelijk dat de man van deze aandacht genoot. 'Zeg maar Fred hoor,' zei de man terwijl hij het dagmenu bekeek. De patiënt probeerde

het gesprek te negeren, maar Fred begon steeds harder te praten. Toen het na tijdje al lang niet meer over het eten ging, besloot de assistente dat het tijd was om te gaan. De patiënt hoopte dat het daarna weer rustig zou worden in de kamer. Maar net nadat de voedingsassistente de deur achter zich had gelaten, begon Fred met Linda over zijn kinderen te praten. Moeizaam probeerde de patiënt zich af te wenden. Misschien zou hij zo wel kunnen slapen. 'Sst, zachtjes... Nee, geloof me, iedereen slaapt hier. Staat de auto buiten?' 'Ja vlak bij de ingang.' De patiënt kwam langzaam bij. Droomde hij? De kamer was pikkedonker. Nadat hij na een tijdje gewend was aan het donker, kon hij twee figuren onderscheiden rond het bed van Fred. De ene, zo nam hij aan, was Fred, te zien aan de pyjama die hij eerder op Freds bed had zien liggen. De ander was gekleed in een spijkerbroek en een donkere jas, die hij juist aan het uittrekken was. Hoe laat was het eigenlijk? Hij kon de wijzers van de klok niet goed zien. De gordijnen waren dicht. De patiënt vermoedde dat het inmiddels nacht was. Opeens hoorde hij een schorre stem: 'Hoe laat is het?' Linda, die inmiddels ook wakker geworden was, vroeg zich kennelijk hetzelfde af. De twee mannen bleven stokstijf staan en keken Linda aan over hun schouder. 'Het is half twee,' zei Fred, 'ga maar weer slapen.' 'Wat is er aan de hand,' vroeg Linda, 'bezoekuur is toch al voorbij?' De andere man bij het bed draaide zich nu volledig om. Met een schok realiseerde de patiënt zich dat de twee mannen aan Freds bed hetzelfde gezicht hadden. 'Dit is mijn broer,' zei Fred. 'Ehm, hij heet... Hij heet ook Fred.' De patiënt kon het ongemak bij de twee mannen voelen. 'Jullie heten allebei Fred?' herhaalde Linda ongelovig. 'Ehh,' begon de andere man. 'Zijn jullie een tweeling?' 'Ja,' zei de andere man. Hij had zijn jas inmiddels uitgetrokken, en was nu bezig zijn veters los te maken. 'Luister,' zei Fred, 'mijn broer zal het straks uitleggen, goed? Ik moet er nu echt vandoor.' Hij begon haastig zijn pyjama uit te trekken. De patiënt keek verwonderd toe terwijl de twee mannen van kleding wisselden. Na drie minuten stond Fred naast het bed in de kleding waarin zijn broer was binnengekomen, en lag de tweede Fred in het bed met de groene pyjama. 'Beterschap, Linda,' zei Fred. Hij keek nog een moment ongemakkelijk om zich heen, en verliet toen de kamer. 'Ik... Ik snap niet wat er zojuist gebeurd is,' zei Linda. De man, die de patiënt in zijn hoofd Andere Fred had genoemd, zuchtte vermoeid. 'Je had het überhaupt niet moeten zien... Ik zal het je wel uitleggen.' De man ging iets comfortabeler zitten. 'Fred en ik zijn een tweeling. Hij heet niet eens Fred, eigenlijk. Ik heet Fred, en hij heet Frans. Het punt is dat ik altijd de succesvollere van ons tweeën was, en Frans daar altijd moeite mee heeft gehad. Ik had daar altijd erg veel medelijden mee. Dus toen ik verkering kreeg, zo'n 35 jaar geleden, besloot ik dat we mijn vriendin wel konden delen. Ik had haar niet verteld dat ik een tweelingbroer had, ziet u.' De patiënt deelde de verontwaardiging die hij bij Linda bespeurde. Delen? Uw vrouw?' vroeg Linda. 'Nou ja, toen was ze nog mijn vriendin, maar later zijn we inderdaad getrouwd. We delen alle tijd eerlijk. Dat hebben we vanaf het begin gedaan. Ik kreeg de trouwdag, en Frans de huwelijksreis. Ik vond het belangrijker om op de trouwfoto's te staan,' zei Andere Fred triomfantelijk. Linda wist duidelijk

niet meer wat ze moest zeggen. Gelukkig leek Andere Fred weinig aanmoediging nodig te hebben om door te blijven praten. 'Soms is het wel lastig, hoor. Zoals nu. Frans heeft geen knieoperatie nodig. Maar hij was gisteren bij ons gezin, en onze vrouw heeft hem naar het ziekenhuis gebracht. Daarom kwam ik hier met hem van plek verwisselen.' 'Maar...' zei Linda, 'maar... waar is hij dan nu naartoe? Fred? Ik bedoel, Frans?' 'O, we wonen om beurten in het huis van onze ouders. Daar zal hij nu wel naartoe zijn. Hij kan niet naar ons gezin natuurlijk, want onze vrouw denkt dat ik in het ziekenhuis lig.' De patiënt probeerde zijn gedachten op een rijtje te krijgen. 'Maar wie is dan de vader van de kinderen?' vroeg Linda. Andere Fred lachte. 'Dat weten we eigenlijk niet. Maar het maakt ook niet veel uit. We zijn een eeneiige tweeling, dus ons DNA is hetzelfde.' De patiënt wist niet wat hij hoorde. Was hij aan het hallucineren? Het was laat, en hij was moe. Linda schudde haar hoofd. 'Ik ga slapen,' zei ze tegen Andere Fred. 'Prima,' zei Andere Fred. 'Zeg je niets over dit alles tegen mijn vrouw als ze op bezoek komt, of tegen de verplegers?' Ze zouden Linda voor gek verklaren als ze iets zou vertellen, dacht de patiënt, die daarna vermoeid weer in slaap viel. Toen de patiënt wakker werd, was het bed naast Linda leeg. Met verbazing staarde hij naar het lege bed en vroeg hij zich af in hoeverre de gebeurtenissen van die nacht echt waren. Had hij het allemaal gedroomd?

## **Kantoor**

De ongezellige hoek van een grote kantoorruimte, dat is het vaste plekje van een betrouwbare prullenbak. Als de deur opengaat, kijkt hij met tegenzin op. De afdelingsmanager komt met een grote stapel papier zijn richting op gelopen. 'Kijk eens wie we daar hebben,' zegt de manager op neerbuigende toon. 'Hier weet je wel raad mee, toch?' grijnst de manager terwijl hij de stapel voor de prullenbak legt. Als de manager de ruimte verlaat, beginnen de anderen in de kantoorruimte te smiespelen. Twee vrouwelijke collega's stoten elkaar aan. 'Ja, hè, hij is echt aan vervanging toe,' smoest de langste van de twee. Dit is echt de laatste druppel voor de prullenbak. Al zo lang koestert hij de droom om weg te gaan van deze plek. Met zijn authentieke uitstraling heeft hij veel meer te bieden. Toevallig weet hij dat ze nog precies zo 'n prullenbak als hij zoeken bij dat gezellige cafeetje in het centrum. Hij zou daar vandaag nog terecht kunnen. De prullenbak besluit dat het tijd het is om te gaan. Als iedereen de ruimte verlaat om even pauze te houden grijpt hij zijn kans. Hij glipt de ruimte uit, en snelt van de trap. De receptioniste kijkt hem nog even argwanend aan, schudt haar hoofd, en richt zich meteen weer tot haar computer. De prullenbak staat net op het punt naar buiten te stappen als hij de twee roddelende vrouwen vlak voor de uitgang ziet staan roken. Zij mogen hem natuurlijk niet zien vertrekken! Hij duikt snel achter de grote plant die voor de receptiebalie staat. Door de bladeren heen houdt hij de vrouwen nauwlettend in de gaten. Zoals gewoonlijk begroeten ze iedereen die langsloopt poeslief om vervolgens meteen de nieuwste roddels over hen uit te

wisselen. Het lijkt onmogelijk om ongezien langs deze vrouwen te komen. Maar dan blipt ineens het mobieltje van een van de twee. Snel pakt de lange vrouw haar mobieltje uit haar zak en leest wat er op het scherm staat. Ze tikt iets terug en laat het aan haar vriendin zien. Ze lachen beiden op een pesterige manier. De prullenbak ziet zijn kans schoon! De vrouwen zijn met al hun aandacht bij het mobieltje en hebben het niet door dat hij met ingehouden adem achter hen langsluipend loopt. Opgelucht loopt de prullenbak van het terrein af en loopt naar de dichtstbijzijnde bushalte. Nog een kwartier tot de volgende bus. Verveeld kijkt hij een beetje om zich heen. Maar dan ziet hij plots de afdelingsmanager zijn kant op lopen. Geschrokken schiet hij achter de bosjes. Wat doet de manager nou hier? Hij blijft normaal gesproken toch altijd langer op kantoor? Door de takken heen kijkt de prullenbak naar de manager, die ook ineens zijn kant op kijkt. Hij bukt nog iets dieper weg om niet gezien te worden. Als er plots een grote spin over hem heenloopt, moet de prullenbak zich inhouden om stil te blijven zitten. Wanneer de manager even de andere kant op kijkt, schudt hij de spin snel van zich af. Dan arriveert de bus en de manager stapt in. De prullenbak probeert snel te beslissen. Als hij wacht tot de volgende bus, redt hij het misschien niet meer om op tijd bij het cafeetje aan te komen. Maar hij wil het ook niet riskeren om betrappt te worden door de nare manager. De busdeuren sluiten zich al wanneer er een knap meisje zwaaiend naar de bus rent. Meteen openen de deuren zich weer. De prullenbak aarzelt geen moment en komt achter de bosjes vandaan. Haar verschijning zal iedereen meteen afleiden! De prullenbak haast zich en stapt ongemerkt direct na haar in. Meteen gaat hij zitten in de hoop om niet herkend te worden. Het korte ritje naar het centrum duurt langer dan ooit. Gespannen wacht de prullenbak af. Hij kijkt omhoog naar het scherm dat aangeeft dat hij er bij de volgende halte uit moet. Maar juist op dat moment staat de manager achter hem hoestend op. Paniekerig kijkt de prullenbak rond. Pas dan valt het hem op dat er op de stoel naast hem een krant ligt. Zonder aarzeling slaat hij de krant open. Terwijl de manager langs hem loopt, verbergt hij zich achter de krant. Pas als de manager uitcheckt, gooit de prullenbak haastig de krant van zich af en rent de bus uit. Dat was maar net op het nippertje. De prullenbak kijkt even in het rond om zich ervan te vergewissen dat de manager uit het zicht is. Dan loopt hij op zijn gemak naar het cafeetje. Vrolijk wandelt hij langs alle winkels en terrasjes. Dit is de omgeving waar hij zich voortaan in wil bevinden! Als hij bij het cafeetje aankomt, stapt hij verwachtingsvol naar binnen. Het liefst zou hier meteen aan de slag gaan. Hij ziet de barman staan en weet wat hem te doen staat. Hij wacht geen seconde en gaat meteen op zijn doel af.

## Hoogtevrees

Op een marktkraampje zit een kleine speelgoedauto te dagdromen. Hij ziet hoe de vogels in de lucht sierlijke bochten maken. 'Ik zou zo graag ook eens zo vliegen,' fluistert hij. 'Nou dan doe je dat toch gewoon.' Het autootje kijkt op en ziet een

grote, mysterieuze man. 'Maar hoe dan? Ik kan toch onmogelijk opstijgen?' De man kijkt de speelgoedauto voor een ogenblik intens aan en loopt dan raadselachtig weg met een glimlach op zijn gezicht. Wat een bizarre ontmoeting, denkt het autootje. Maar dan krijgt hij ineens het gevoel dat er iets in hem is veranderd. 'Help, wat gebeurt er met me, ik word heel duizelig,' roept hij. Maar niemand hoort het geklaag van de kleine speelgoedauto door al het geluid van de markt. Hij klampt zich vast aan het markkraampje. Maar op het moment dat het autootje even loslaat, schiet hij met een klap omhoog. Nog net op tijd weet hij het bovenste gedeelte van een lantaarnpaal beet te pakken. Hij schrikt ontzettend en siddert van angst. Hij kijkt naar beneden en hij begint nog harder te beven als hij de hoogte ziet waarop hij nu meedeint met de wind. Het autootje roept angstig: 'Ik trek mijn wens terug. Deze hoogte kan ik niet aan. Ik heb eerst training nodig, zo overleef ik het niet.' Maar ook nu hoort niemand zijn geklaag en hij is op zichzelf aangewezen. Zo af en toe lopen er mensen langs, maar het autootje is te klein en de lantaarnpaal is veel te hoog. Hij valt helemaal niet op in de drukke straat. Totdat een klein meisje hem ziet. Ze schudt aan de hand van haar moeder en wijst naar hem. 'Mamma, kijk!' Het dappere meisje besluit om geen seconde langer meer te wachten en in een poging om het autootje te helpen, klimt ze de lantaarnpaal in en trekt ze zich stukje bij beetje naar boven. De kleine speelgoedauto kijkt dankbaar toe en hoopt dat hij toch nog goed op de grond terecht komt. Maar dan slaat het noodlot toe. Doordat de lantaarnpaal begint te wiebelen, verliest het autootje zijn vat en met een vaart stijgt hij naar een onbekende hoogte. 'Help, help, oh, oh wat gebeurt er met me. Nee, nee, hier kan ik niet tegen.' Hoger en hoger gaat de vlucht en de speelgoedauto staat doodsangst uit. 'Hier moet een einde aan komen, anders loopt het verkeerd met me af!' Zijn prijskaartje slingert als een wilde achter hem aan, totdat het blijft haken aan de torenspits. Met een klap komt er een einde aan deze wilde vlucht en het autootje hangt boven de stad te bungelen aan zijn prijskaartje. Wild schommelt hij nog na door de enorme schok. Hij durft niet naar beneden te kijken, die diepte is voor hem te afgrijselijk en hij vraagt zich af of hij hier nog ooit zal wegkomen. Hij jammert en huilt van angst, totdat een grote kraai naast hem neerstrijkt en hem nieuwsgierig aankijkt. De zwarte vogel vraagt hem hoe hij daar verzeild is geraakt. De kleine speelgoedauto vertelt hem zijn verhaal. De kraai schudt medelijdend met zijn kop en zegt hem dat hij niets voor hem kan doen en vliegt genadeloos weg. Het autootje blijft in verwarring achter. Waar zal dat op uitlopen, zal hij hier zijn verdere leven wegwijnen? Juist als hij de moed al bijna opgeeft komt er een grote, witte duif aangezweefd en strijkt naast hem neer. Ze stelt zich voor als Dikke Dolly en vraagt of ze iets voor hem kan betekenen. De speelgoedauto vertelt ook haar zijn verhaal. Dan neemt Dikke Dolly het heft in handen en zegt hem dat hij niet bang hoeft te zijn voor de hoogte. Zij zal hem wel vliegles geven en leren zweven als een vogel. Handig

pikt ze met haar snavel het prijskaartje los van de toren en neemt het stevig in haar bek. Ze verzekert het autootje ervan dat ze hem in geen geval los zal laten en dat hij haar moet vertrouwen. 'Kom, laat je maar zweven op de wind, je kunt het.' Het autootje maakt zich los van de toren en doet wat dikke Dolly hem zegt. Dan voelt hij dat de wind hem draagt en hij geeft zich over aan het luchtruim. Na een tijdje roept dikke Dolly dat ze hem loslaat en dat hij vertrouwen moet hebben in zichzelf. En kijk daar zweeft de speelgoedauto naar omlaag. Lager en lager gaat hij, totdat hij op de hoogte van de huizen komt. Daar hoort hij een bekende stem door een openstaand raam en zonder erbij na te denken, zwenkt hij door het venster naar binnen. Het kleine meisje van de markt ziet de speelgoedauto haar kamer binnenvliegen en roept heel blij: 'Mamma, kom kijken dat kleine autootje is weer veilig beneden!'

## Appendix to Chapter 5

Experimental stimuli used in the self-paced reading experiment. Object-relative clauses with inanimate heads and animate relative-clause internal noun phrases followed either an Agentive, Experiencer or Neutral context, respectively.

1.

*Op dat moment zag de buurman de dansende klok. Hij danste alle kanten op. De buurman schrok. | Op dat moment zag de buurman de bedroefde klok. Hij had dikke tranen in zijn ogen. De buurman schrok. | Op dat moment zag de buurman de beschadigde klok. Hij hing nog maar half aan een spijker. De buurman schrok.*

*De klok, die de huisgenoten hadden kunnen verkopen, was al heel oud.*

2.

*Na verloop van tijd begon de fiets te roepen. Uiteraard hoorde niemand hem. | Na verloop van tijd begon de fiets te piekeren. Uiteraard troostte niemand hem. | Na verloop van tijd begon de fiets te roesten. Uiteraard poetste niemand hem.*

*De fiets, die de vrienden hadden willen lenen, bleef in de schuur staan.*

3.

*Op hetzelfde moment merkte de tuinman de tas op. Die had zich verstopt in de bosjes. De tuinman strekte zijn hand uit. | Op hetzelfde moment merkte de tuinman de tas op. Die hield zich angstig schuil in de bosjes. De tuinman strekte zijn hand uit. | Op hetzelfde moment merkte de tuinman de tas op. Die was blijkbaar neergegoot in de bosjes. De tuinman strekte zijn hand uit.*

*De tas, die de dieven hadden willen stelen, was gemaakt van duur leer.*

4.

*Plotseling lag de fles op de grond en keek om zich heen. Het meisje zag hoe hij probeerde op te staan. | Plotseling lag de fles op de grond en schrok. Het meisje zag hoe hij de wanhoop nabij was. | Plotseling las de fles op de grond en rolde weg. Het meisje zag hoe hij onder de kast terecht kwam.*

*De fles, die de eigenaren hadden willen vullen, had een grote barst.*

5.

*Sinds een dag of wat was de koekenpan aan het schaatsen. Er lag een laagje ijs en daar maakte hij goed gebruik van, vond de serveerster. | Sinds een dag of wat was de koekenpan aan het bibberen. Het vroor en hij had het vreselijk koud, zag de serveerster. | Sinds een dag of wat werd de koekenpan niet meer gebruikt. Zijn steel was er nu definitief afgebroken, zag de serveerster.*

*De koekenpan, die de chef-koks hadden willen weggoien, was al heel oud.*

6.

*Uiteindelijk stopte de appel maar met praten. Hij had geprobeerd het jongetje over te halen, maar die trok zich daar weinig van aan. | Uiteindelijk raakte de appel gefrustreerd. Het jongetje zag wel hoe graag hij de boom uit wilde, maar trok zich daar weinig van aan. | Uiteindelijk begon de appel te schimmelen. Het jongetje zag wel hoe overrijp hij was, maar trok zich daar weinig van aan.*

*De appel, die de boswachters hadden willen plukken, bleef hangen aan de boom.*

7.

*Vanwege de aanhoudende hitte klaagde de pet steeds meer. Hij had urenlang in de zon gelopen en ging nu zitten. | Vanwege de aanhoudende hitte verbitterde de pet steeds meer. Hij had door de felle zon een enorme dorst gekregen. | Vanwege de aanhoudende hitte verbleekte de pet steeds meer. Zijn eens zo bonte kleuren waren door de felle zon geheel verdwenen.*

*De pet, die de matrozen hadden willen achterlaten, reisde mee naar Amerika.*

8.

*Tijdens de vakantie was de munt gaan zwemmen. De badmeester had nog naar hem geroepen, maar hij luisterde niet meer. | Tijdens de vakantie was de munt gaan nadenken. Zijn enige hoop was dat iemand hem op het strand zou zien liggen. | Tijdens de vakantie was de munt in waarde gezakt. Daar baalde de badmeester wel van, want hij had hem speciaal bewaard. De munt, die de bankiers hadden willen kopen, was nu nog minder waard geworden.*

9.

*Wel een uur lang bleef de lepel liedjes zingen. De kok luisterde al niet meer, maar de lepel ging stug door. | Wel een uur lang lag de lepel verdrietig op tafel. De kok zag het wel en probeerde hem te troosten. | Wel een uur lang lag de lepel vies op tafel. Toen vond de kok hem en waste hem af.*

*De lepel, die de serveersters hadden willen opruimen, was gemaakt van kersenhout.*

10.

*Opeens begon de pen te rennen. Hij holde vliegensvlug langs de juffrouw en zij keek hem verbaasd na. | Opeens begon de pen te hallucineren. Hij zag de juffrouw eerst dubbel en toen driedubbel en dat vond hij eng. | Opeens begon de pen te lekken. Er zat een grote blauwe inktvlek in de broek van de juffrouw.*

*De pen, die de kinderen hadden willen repareren, lag nu in de prullenbak.*

11.

*Pas na enkele maanden begon de mat zich te verzetten. Hij trapte naar de schoonmaakster terwijl zij hem probeerde te ontwijken. | Pas na enkele maanden begon de mat te treuren. Hij smachtte naar de schoonmaakster terwijl zij hem halsstarrig bleef negeren. | Pas na enkele maanden begon de mat te verkleuren. Eerst viel het nog niet zo op, hoewel de schoonmaakster het allang gezien had.*

*De mat, die de bewoners hadden willen verkopen, was erg versleten.*

12.

*Niemand had gedacht dat de banaan ooit zou vluchten. De verzorgster zette de achtervolging in, maar hij was veel te snel voor haar. | Niemand had gedacht dat de banaan ooit ziek zou worden. De verzorgster deed haar best om hem te redden, maar hij kwijnde langzaam weg. | Niemand had gedacht dat de banaan ooit zou gaan rotten. De verzorgster legde hem in de kelder, maar hij was al helemaal zwart geworden.*

*De banaan, die de apen hadden willen opeten, was de laatste van de voorraad.*

13.

*Van het ene op het andere moment begon de stoel te neurïen. Toen de docent hem aan de kant wilde schuiven, protesteerde hij luid. | Van het ene op het andere moment raakte de stoel geïrriteerd. Toen de docent hem probeerde te sussen, werd hij nog kwader. | Van het ene op het andere moment begon de stoel te kraken. Toen de docent erop wilde gaan zitten, wankelde hij gevaarlijk.*

*De stoel, die de leerlingen hadden willen gebruiken, was al ontzettend oud.*

14.

*Elke dag was de bal aan het babbelen in de tuin. Hij vermaakte oma door steeds opnieuw een mop te vertellen. | Elke dag was de bal aan het genieten in de tuin. Hij hield ervan om samen met oma in het gras te liggen. | Elke dag werd de bal wel een keer gebruikt in de tuin. Zelfs oma gaf er nog wel eens een trap tegen als ze het onkruid wiede.*

*De bal, die de kinderen hadden willen hebben, was een cadeautje geweest.*

15.

*Onverwachts begon de handdoek om hulp te roepen. Hij probeerde uit de wasmand te klimmen, maar vader deed er snel een deksel op. | Onverwachts voelde de handdoek hoe hij werd beetgepakt. Hij lag zich al dagen te vervelen in de wasmand, maar nu stopte vader hem in de*



*wasmachine. | Onverwachts werd de handdoek in de wasmand gegooid. Daar bleef hij liggen tot vader hem in de wasmachine stopte.*

*De handdoek, die de dochters hadden moeten opruimen, rook een beetje muf.*

16.

*Toch wilde de schaar na een paar dagen verder wandelen. Hij nam afscheid en vertrok, hoewel de juf het er niet mee eens was. | Toch werd de schaar na een paar dagen verdrietig. Hij voelde zich achtergesteld, hoewel de juf het niet zo bedoeld had. | Toch begon de schaar na een paar dagen al te roesten. Het was duidelijk te zien, hoewel de juf hem probeerde schoon te vege.*

*De schaar, die de kleuters hadden willen gebruiken, was net nieuw.*

17.

*Sinds het begin van de zomer liep de koffer onrustig heen en weer. Hij wilde eropuit, maar hoe hij ook zocht, hij vond de reiziger niet. | Sinds het begin van de zomer voelde de koffer zich eenzaam. Hij stond op zolder te dromen van een tripje met de reiziger, maar die kwam niet. | Sinds het begin van de zomer stond de koffer ongebruikt op zolder. Tegenwoordig reisde de reiziger liever met een reistas of rugzak.*

*De koffer, die de vrienden hadden willen meenemen, werd door niemand ingepakt.*

18.

*Tijdens het fouilleren begon de telefoon ineens tegen te stribbelen. De vrouw werd rood en probeerde hem snel te verbergen, maar hij liet zich niet zomaar de mond snoeren. | Tijdens het fouilleren werd de telefoon ineens emotioneel. Nog niet zo lang geleden had hij afscheid moeten nemen van de vrouw en dat viel hem zwaar. | Tijdens het fouilleren begon de telefoon ineens te rinkelen. De vrouw werd rood en probeerde hem snel te verbergen, maar het gerinkel was overal te horen.*

*De telefoon, die de gevangenen hadden willen binnensmokkelen, was natuurlijk verboden.*

19.

*Even later was de stofzuiger eindelijk klaar met lachen. Hij verzekerde de moeder dat hij haar niet uit- maar toelachte, maar zij geloofde hem niet. | Even later was de stofzuiger eindelijk niet meer onzeker. Hij voelde zich tegenover de moeder nog steeds niet op zijn gemak, maar zij lette er niet op. | Even later maakte de stofzuiger steeds meer lawaai bij het zuigen. De moeder vermoedde dat hij een volle zak had en maakte hem open om dat te controleren.*

*De stofzuiger, die de gezinsleden hadden willen gebruiken, was het allernieuwste model.*

20.

*Al eerder had de kapstok luidkeels geprotesteerd. Toen de receptioniste hem ergens anders wilde neerzetten, schold hij haar opnieuw uit. | Al eerder had de kapstok helemaal geen zin meer. Toen de receptioniste hem ergens anders wilde neerzetten, zonk de moed hem in de schoenen. | Al eerder was de kapstok beschadigd geraakt. Toen de receptioniste hem ergens anders wilde neerzetten, gaf hij er helemaal de brui aan en brak doormidden.*

*De kapstok, die de mannen hadden moeten schoonmaken, zat vol stof.*

21.

*Na jaren in de garage te hebben gestaan, was de auto gaan schrijven. Hij had al vele verhalen en een boek geschreven, toen de garagehouder erachterkwam. | Na jaren in de garage te hebben gestaan, was de auto gek geworden. Hij had al vele hallucinaties en een psychose gehad, toen de garagehouder erachterkwam. | Na jaren in de garage te hebben gestaan, was de auto total loss geraakt. Hij had al vele reparaties en opknabbeurten gehad, toen de garagehouder erachterkwam.*

*De auto, die de monteurs hadden willen doorverkopen, was niet meer veel waard.*

22.

*Omdat het zulk lekker weer was, nam de citroen de trein naar de kust. Daar kwam hij het meisje tegen, maar zij wilde niet met hem zwemmen. | Omdat het zulk lekker weer was, fantaseerde de citroen dat hij naar de kust ging. Hij droomde ervan het meisje tegen te komen,*

*maar zij kwam niet. | Omdat het zulk lekker weer was, was de citroen warm geworden. Hij zag er in de ogen van het meisje nog wel sappig uit, maar zij liet hem toch liggen.*

*De citroen, die de huisgenoten hadden willen opeten, was helemaal zacht geworden.*

23.

*Toen het zaterdag was, ging de schoen toch naar het feest. Eigenlijk wilde de vrouw hem eerst nog poetsen, maar hij was er al als een haas vandoor gegaan. | Toen het zaterdag was, hoopte de schoen toch naar het feest te kunnen. Eigenlijk wilde de vrouw hem eerst nog poetsen, maar hij vond dat niet nodig. | Toen het zaterdag was, werd de schoen toch nog uit de kast gehaald voor het feest. Eigenlijk wilde de vrouw hem eerst nog poetsen, maar hij was te vuil.*

*De schoen, die de vriendinnen hadden willen bekijken, had een kapotte hak.*

24.

*Om zes uur precies begon de mok te gillen. De zuster stak haar hand naar hem uit, maar hij liet zich niet zomaar pakken en rende weg. | Om zes uur precies werd de mok ziedend. De zuster stak haar hand naar hem uit, maar hij liet zich niet sussen en werd steeds kwader. | Om zes uur precies viel de mok om. De zuster stak haar hand nog wel uit, maar kon hem niet meer pakken en hij stroomde leeg.*

*De mok, die de collega's hadden willen vullen, was maar een onhandig ding.*

25.

*Een ogenblik lang aarzelde de deken, maar toen maakte hij een grote sprong voorwaarts. Hij ontweek de poetsvrouw behendig en ging in de kast liggen. | Een ogenblik lang verkeerde de deken in onzekerheid, maar toen snapte hij het. Hij nam het de poetsvrouw niet kwalijk dat ze hem in de kast legde. | Een ogenblik lang bleef de deken nog hangen, maar toen viel hij op de grond. Hij werd meteen door de poetsvrouw opgeraapt en in de kast gelegd.*

*De deken, die de werksters hadden moeten wassen, zat vol met vlekken.*

26.

*In een mum van tijd had de sleutel het eten op. Hij nam veel te grote happen en de bewaker waarschuwde hem dat hij zich nog zou verslikken. | In een mum van tijd had de sleutel een list verzonnen. Hij liet echter niks merken en de bewaker had er geen idee van wat hij in zijn schild voerde. | In een mum van tijd was de sleutel krom getrokken. Eerst leek hij nog een beetje recht, maar de bewaker had allang door dat hij niet goed meer paste.*

*De sleutel, die de agenten hadden willen lenen, hing nu niet meer in het sleutelkastje.*

27.

*Vijf minuten lang huppelde de theepot rond de tafel. Toen de oma hem in het voorbijgaan vastpakte, begon hij wild te spartelen, maar ze liet hem niet los. | Vijf minuten lang staarde de theepot gedachteloos voor zich uit. Toen de oma hem voorzichtig vastpakte, schrok hij wakker uit zijn dagdromerij. | Vijf minuten lang stond de theepot onaangeroerd op tafel. Toen de oma hem zag staan, kreeg ze zin in thee en ze pakte hem heel voorzichtig op.*

*De theepot, die de tantes hadden willen wegdoen, werd altijd gevaarlijk heet.*

28.

*Zorgvuldig veegde de perforator zich schoon. De secretaresse keek toe hoe hij de laatste restjes papier van zich afklopte en toen weer klaar ging staan. | Opgelucht herinnerde de perforator zich het adres. De secretaresse borg hem weer op in de la, maar daar maakte hij zich nu geen zorgen meer over. | Ongebruikt stond de perforator in de kast. De secretaresse drukte erop en probeerde hem in beweging te krijgen, maar het leek wel alsof hij op slot zat.*

*De perforator, die de bazen hadden moeten vervangen, was niet meer geschikt voor dik papier.*

29.

*Maar op dit ogenblik kwam de jampot toch in beweging. Hij liep recht op de grootvader af en vloog hem naar de keel. De grootvader deinsde terug. | Maar op dit ogenblik beseft de jampot toch dat het te laat was. Hij dacht aan de grootvader en hoe hij hem altijd gehaat had. De grootvader was verhuisd. | Maar op dit ogenblik rolde de jampot toch over de keukenvloer. Hij*

ging niet kapot en het lukte de grootvader om hem bijtijds tegen te houden.  
De jampot, die de kleinkinderen hadden willen gebruiken, was achter allemaal andere spullen beland.

30.

Onrustig lag de trui in een hoekje te bewegen. Hij probeerde met wilde gebaren de aandacht te trekken, maar de puber liet hem volkomen links liggen. | Angstig lag de trui in een hoekje. Hij probeerde zijn donkere gedachten te onderdrukken, ook al liet de puber hem duidelijk links liggen. | Dagenlang lag de trui in een hoekje. Hoewel hij van uitstekende kwaliteit was en ook bepaald niet goedkoop, keek de puber totaal niet meer naar hem om.

De trui, die de ouders graag hadden willen zien, was helemaal niet hip genoeg.

31.

Misschien kon de blokkendoos er niets aan doen dat hij ineens begon te vloeken. De kraamverzorgster hoorde hem en probeerde hem tot bedaren te brengen. | Misschien realiseerde de blokkendoos zich ineens dat hij eigenlijk een beetje kinderachtig was. De kraamverzorgster zette hem weg en toen drong het tot hem door. | Misschien was de blokkendoos toch niet zo'n goed cadeau, hoewel hij mooi was ingepakt. De kraamverzorgster aarzelde niet en zette hem op de bovenste plank.

De blokkendoos, die de jongens hadden willen meenemen, was niet meer compleet.

32.

Met veel lawaai strompelde de deur naar buiten. Toen de directrice hem riep, draaide hij zich nog een keer om en zwaaide. | Met angst in het hart wachtte de deur af. Toen de directrice naar hem keek, sidderde hij en brak het zweet hem uit. | Met een hoop gekraak ging de deur open. Toen de directrice hem daarna achter zich dicht wilde doen, leek hij wel kapot.

De deur, die de portiers hadden moeten repareren, hing helemaal scheef.

33.

Scheldend hing de jas aan de kapstok. Toen het buurmeisje hem wilde pakken, verzette hij zich hevig en worstelde zich los. | Verdrietig hing de jas aan de kapstok. Toen het buurmeisje hem wilde pakken, besepte hij dat alles voorgoed veranderd was. | Druipend hing de jas aan de kapstok. Toen het buurmeisje hem wilde pakken, voelde ze hoe nat hij was geworden in de regen.

De jas, die de wielrenners hadden willen dragen, was niet geschikt om in te sporten.

34.

Zonder aarzeling stormde de kachel de kamer binnen. En voordat de dochter het in de gaten had, gaf hij haar een ongenadige schop. | Zonder erbij na te denken werd de kachel verliefd. En voordat de dochter het in de gaten had, was hij volkomen de kluts kwijt. | Zonder problemen verwarmde de kachel alle kamers in het huis. Maar zonder dat de dochter het in de gaten had, werd hij extreem heet.

De kachel, die de ouders hadden moeten uitdoen, was al de hele avond aan het branden.

35.

Het was leuk om te zien hoe de hoed naar voren liep en een diepe buiging maakte voor de dame. Maar toen zij hem wilde opzetten, maakte hij zich snel uit de voeten. | Het was leuk om te zien hoe de hoed begon te stralen van blijdschap op het hoofd van de dame. Maar toen zij hem wilde afzetten, besepte hij dat hij verloren was. | Het was leuk om te zien hoe de hoed precies paste op het hoofd van de dame. Maar toen zij hem wilde afzetten, bleef hij in haar knotje haken en ging zo kapot.

De hoed, die de winkeliers hadden willen verkopen, lag al snel in de vuilnisbak.

36.

Al gauw ging de sjaal even weg om te bellen. De eigenares wist niet wat er aan de hand was en hij vertelde haar ook niks. | Al gauw kreeg de sjaal argwaan. De eigenares hing allerlei sterke verhalen op, maar hij geloofde haar allang niet meer. | Al gauw werd de sjaal vergeten. De

*eigenares wist niet meer waar hij was gebleven en ze kon hem ook niet meer vinden.*

*De sjaal, die de familieleden hadden willen kopen, was ooit een cadeautje geweest.*

37.

*Voor het huis lag de tuinslang fanatiek te lezen. De buurvrouw ergerde zich eraan, maar toen zij hem erop aansprak, schold hij haar uit. | Voor het huis lag de tuinslang naar muziek te luisteren. De buurvrouw ergerde zich eraan, maar toen zij hem erop aansprak, hoorde hij haar niet. | Voor het huis lag de tuinslang uitgerold in het gras. De buurvrouw ergerde zich eraan, maar toen zij hem wilde oprollen, glipte hij uit haar handen.*

*De tuinslang, die de tuinmannen hadden willen repareren, was aan alle kanten lek.*

38.

*Heldhaftig sprong de sok naar voren om zich te verdedigen. Hij gaf de oude vrouw een klap, maar zij was niet van hem onder de indruk. | Zenuwachtig bereidde de sok zich voor op zijn einde. Hij durfde niet naar de oude vrouw te kijken, maar zij keek niet eens naar hem. | Bungelend hing de sok aan de waslijn. Hij was een doorn in het oog van de oude vrouw, maar zij liet hem toch gewoon hangen.*

*De sok, die de nichtjes hadden moeten breien, had een groot gat in de hiel.*

39.

*Lachend krom de pinda van de tafel en zette doelgericht koers richting de vrouw. Hij wilde haar ten dans vragen, dus wandelde hij nu de hele kamer door. | Beschroomd keek de pinda om zich heen en sprak zichzelf moed in. Dat was nodig, want hij lag hulpeloos op de grond en kon de vrouw van zijn dromen dus niet bereiken. | Het leek wel alsof de pinda niet gezouten was. Ook was hij een beetje nat, dus de vrouw begon te vermoeden dat hij er al een tijdje lag. De pinda, die de feestgangers hadden kunnen opeten, was allang niet lekker meer.*

40.

*Plotseling begon de kaars hardop te bidden. De koster wist niet wat hij meemaakte en lachte hem uit, maar de kaars ging rustig door met zijn gebed. | Plotseling had de kaars er schoon genoeg van. De koster bond in en bood hem haastig zijn excuses aan, maar de kaars bleef bij zijn standpunt. | Plotseling begon de kaars aan een kant te druipen. De koster probeerde hem weer netjes recht te zetten, maar de kaars verdronk in zijn eigen kaarsvet.*

*De kaars, die de kerkgangers hadden willen meenemen, was al bijna opgebrand.*

41.

*Toen er een knal klonk, zette de medaille zich af en vloog weg. De korporaal probeerde hem nog te vangen, maar de medaille liet zich niet pakken en schaterde het uit. | Toen er een knal klonk, schrok de medaille en hield zich muisstil. De korporaal probeerde hem nog te lokken, maar de medaille liet zich niet paaien en bleef stilletjes liggen. | Toen er een knal klonk, viel de medaille pardoos in het water. De korporaal probeerde hem nog uit het water te vissen, maar de medaille zonk meteen naar de bodem en was niet meer te zien.*

*De medaille, die de soldaten hadden moeten poetsen, werd nooit meer teruggevonden.*

42.

*Na een lange winter was de vaas eindelijk begonnen met het betalen van zijn rekeningen. Allereerst ging hij naar de bloemist en vroeg of deze een baantje voor hem had. | Na een lange winter was de vaas eindelijk van plan zijn leven weer op te pakken. Allereerst wilde hij proberen de bloemist te vergeten, want deze had hem immers nooit goed behandeld. | Na een lange winter was de vaas eindelijk weer eens gevuld met bloemen. Allereerst was hij door de bloemist tevoorschijn gehaald en deze had hem toen met een doekje mooi opgepoetst.*

*De vaas, die de medewerkers hadden willen verkopen, kwam in de winkel te staan.*

43.

*Op reis had de tandenborstel geen oog dicht gedaan. Nadat de assistente haar tanden had gepoetst, kroop hij uit de toiletas om naar huis terug te gaan. | Op reis had de tandenborstel heimwee gekregen. Nadat de assistente haar tanden had gepoetst, droomde hij ervan om*

naar huis terug te gaan. | Op reis was de tandenborstel kwijtgeraakt. Nadat de assistente haar tanden had gepoetst, viel hij op de grond in het hotel en bleef daar liggen.

De tandenborstel, die de anderen hadden willen gebruiken, werd niet meer teruggezien.

44.

Opeens zette de jurk het op een krijsen. De bruid trok aan de sleep, maar de jurk trok zich met een ruk los en wierp zich op haar. Het zag ernaar uit dat hij haar nu wilde wurgen. | Opeens bedacht de jurk een plannetje. De bruid trok aan de sleep, maar de jurk trok zich er niets van aan en liet haar begaan. Het zag ernaar uit dat hij haar nu wilde behagen. | Opeens zat de jurk niet zo goed meer. De bruid trok aan de sleep, maar de jurk bleef helaas scheef om haar heen hangen. Het zag ernaar uit dat hij haar nu toch misstond.

De jurk, die de bruidsmisjes hadden mogen bewonderen, bleek achteraf een lelijk ding.

45.

Er klonk een harde klap en de lamp slaakte een gil. De bazin kwam kijken en zag hoe hij in een hevige gevecht verwickeld was. Hij schopte wild om zich heen. | Er klonk een harde klap en de lamp schrok zich wild. De bazin kwam kijken en zag hoe hij in paniek geraakt was. Hij keek ongelukkig om zich heen. | Er klonk een harde klap en de lamp zakte scheef. De bazin kwam kijken en zag hoe hij in de wastafel terechtgekomen was. Hij was blijkaar gevallen.

De lamp, die de campinggasten hadden willen vernielen, was gelukkig nog heel.

46.

Afen toe probeerde de trompet te vluchten. De muzikant rende dan achter hem aan en haalde hem terug. De trompet was wel snel, maar de muzikant was nog sneller. | Afen toe had de trompet veel pijn. De muzikant pakte hem dan heel voorzichtig op en veegde hem zachtjes schoon. De trompet vond dat wel lief, maar de pijn werd niet minder. | Afen toe maakte de trompet een lelijk geluid. De muzikant stemde hem dan nog een keer en bespeelde hem opnieuw. De trompet had een mooie klank, maar de muzikant was toch niet tevreden.

De trompet, die de orkestleden hadden willen bespelen, was niet oud.

47.

Toen de plant eenmaal bij de patiënte op tafel stond, gaf hij haar een klinkende klapzoen en vertelde haar wat hij de afgelopen tijd allemaal had gedaan. | Toen de plant eindelijk de patiënte weer zag, werd het hem bijna te veel en hij dacht eraan wat hem de afgelopen tijd allemaal overkomen was. | Toen de plant eenmaal bij de patiënte op tafel stond, bezorgde hij haar veel plezier ondanks wat er de afgelopen tijd allemaal met hem gebeurd was.

De plant, die de burens hadden moeten verzorgen, had het bijna niet overleefd.

48.

Natuurlijk was de hark niet op zijn mondje gevallen, maar hoe hij ook schreeuwde en protesteerde, opa zette hem gewoon in de schuur. Dus gaf hij opa een harde klap. | Natuurlijk was de hark niet bang uitgevallen, maar hij had ook niet kunnen bevroeden wat er ging gebeuren toen opa hem in de schuur zette. Daar leerde hij opa pas echt kennen. | Natuurlijk was de hark niet spiksplinternieuw meer, maar hij deed het nog altijd goed, dus opa liet hem gewoon in de schuur staan. Daar stond hij tot opa hem weer kwam halen.

De hark, die de buurtbewoners hadden kunnen zien, lag nu gebroken in de schuur.

49.

In een oogwenk had de tafel de hoek van de zaal bereikt. Daar duwde hij hardhandig een studente aan de kant. Zij probeerde hem nog tegen te houden, maar ze had geen schijn van kans. | In een oogwenk had de tafel een plan uitgedokterd. Hij lette goed op de studente. Zij vond hem niet geschikt om aan te studeren, maar dat nam hij haar niet kwalijk. | In een oogwenk had de tafel diepe krassen gekregen. Daardoor beviel hij de studente helemaal niet meer. Zij wilde hem wel opknappen, maar ze had geen timmergerei.

De tafel, die de studiegenoten hadden kunnen verplaatsen, bleef nu toch staan.

50.

*Snel verstopte de tube zich, toen de zoon de badkamer in kwam. Pas toen die naar hem ging zoeken, sprong hij weer tevoorschijn en maakte obscene gebaren. | Verlegen wachtte de tube af, toen de zoon de badkamer in kwam. Pas toen die zijn hand naar hem uitstreekte, voelde hij hoe hij begon te blozen. | Uitgeknepen lag de tube in de wasbak, toen de zoon de badkamer in kwam. Pas toen die hem onder handen nam, bleek hij toch niet helemaal leeg te zijn.*

*De tube, die de echtgenoten hadden willen verstoppert, was hier niet voor bedoeld.*

51.

*Op dat moment waagde de luier de sprong en rende langs de baby. Even leek het erop dat de baby hem nog wilde pakken, maar hij was veel te snel en sprintte ervandoor. | Op dat moment schaamde de luier zich tegenover de baby. Even leek het er nog op dat de baby hem niet opmerkte, maar hij was veel te nat en voelde zich ellendig. | Op dat moment raakte de luier los en gleeed langs de baby. Even leek het erop dat de baby hem nog wilde pakken, maar hij was veel te glibberig en viel op de grond.*

*De luier, die de gastouders hadden moeten weggooien, was erg vies.*

52.

*Op drukke momenten ging de fietsbel wel eens joggen. De fietsmaker stond hem dan kwaad op te wachten als hij terugkwam. | Op drukke momenten genoot de fietsbel met volle teugen. De fietsmaker liet hem dan volop rinkelen en dat vond hij een prettig gevoel. | Op drukke momenten ging de fietsbel wel eens kapot. De fietsmaker schroefde hem dan open en hij werd tijdelijk vervangen.*

*De fietsbel, die de fietsers hadden willen kopen, maakte nauwelijks nog geluid.*

53.

*Behendig klom de trommel in het touw en keek naar beneden. Hij zwaaide naar de artieste, maar zij balde haar vuist naar hem. | Gelaten hing de trommel aan een riem en liet zich bespelen. Hij had een hekel aan de artieste, maar zij bleef hem altijd trouw. | Losjes hing de trommel aan een riem en klonk vol en diep. Hij beviel de artieste, maar zij kon hem niet kopen.*

*De trommel, die de toeschouwers hadden willen horen, was een bijzonder exemplaar.*

54.

*Die middag ontsnapte de bloempot uit de etalage door een ruit in te slaan. De verkoopster ging nog achter hem aan, maar voor ze het wist was hij de straat uit gerend. | Die middag werd de bloempot in de etalage overmand door verdriet. De verkoopster probeerde hem nog op te fleuren, maar voor ze het wist was hij zwaar depressief. | Die middag viel de bloempot van een stelling in de etalage door een plotselinge rukwind. De verkoopster kon hem nog net opvangen, maar toen ze keek had hij toch een barst.*

*De bloempot, die de klanten hadden kunnen bewonderen, werd gauw vervangen.*

55.

*Op de veiling misdroeg de kist zich zo erg dat de oudtante deed alsof hij niet van haar was. Hij schold iedereen in zijn buurt uit, maar waarom? | Op de veiling was de kist zo arrogant dat de oudtante deed alsof hij niet van haar was. Hij voelde zich verheven boven iedereen, maar waarom? | Op de veiling viel de kist zo uit de toon dat de oudtante deed alsof hij niet van haar was. Hij viel iedereen op, maar waarom?*

*De kist, die de erfgenamen hadden willen houden, bleek toch veel waard te zijn.*

56.

*Op de hoek van de straat keek de krant nog even om, maar de bezorger kwam niet achter hem aan en hij huppelde verder richting de dam. | Op de hoek van de straat slaakte de krant een zucht van verlichting, want de bezorger had hem niet gezien en hij kon hier rustig blijven liggen. | Op de hoek van de straat viel de krant uit de tas, maar de bezorger had hem niet zien vallen en hij bleef vlakbij de dam liggen.*

*De krant, die de voorbijgangers hadden kunnen oprapen, werd niet meer gelezen.*

57.

*Nadat de steen een vergeefse poging had gedaan de stratenmaker het ziekenhuis in te slaan, liep hij de tuin in en strekte zich daar uit. | Nadat de steen een vergeefse poging had gedaan de stratenmaker te vergeten, raakte hij in de war en kreeg steeds vaker nachtmerries. | Nadat de steen door de stratenmaker was afgekeurd en aan de kant gelegd, werd hij naar de tuin gebracht en daar paste hij beter.*

*De steen, die de bouwvakkers hadden willen splijten, was veel te groot.*

58.

*Met een bloedstollende kreet vloog de borstel op de mevrouw af en prikte haar tot bloedens toe in haar hals. Daarna trok hij zich terug. | Met een bonkend hart merkte de borstel hoe de mevrouw hem veel te ruw door haar krullen haalde. Bijna voelde hij zich misbruikt. | Met grote slagen ging de borstel door de krullen van de mevrouw tot al haar klitten eruit waren. Toen werd hij weggelegd.*

*De borstel, die de kappers hadden moeten schoonmaken, lag nu weer op de kaptafel.*

59.

*Heel eventjes hield de ballon zich muisstil, maar direct daarna wurmde hij zich los uit de armen van de peuter en kroop snel onder de tafel. | Heel eventjes wist de ballon niet wat hem overkwam, maar direct daarna snapte hij wat de peuter ging doen en kreeg hij het benauwd. | Heel eventjes zag de ballon er mooi uit, maar direct daarna liep hij leeg in de handen van de peuter en werd hij slap en flodderig.*

*De ballon, die de kermisklanten hadden willen weggeven, was niet goed opgeblazen.*

60.

*Daarna werd de broek erg druk. Hij bleef maar heen en weer rennen. Waarom moest dit zo? | Daarna werd de broek erg achterdochtig. Hij wist niet wat hem overkwam. Waarom moest dit zo? | Daarna werd de broek erg smerig. Hij lag al een tijdje in de modder. Waarom moest dit zo?*

*De broek, die de bouwvakkers hadden moeten meenemen, werd snel weer vergeten.*





## Samenvatting

Om te begrijpen waar dit proefschrift over gaat beginnen we met een paar zinnen uit het boek *Specht en zoon*, van Willem Jan Otten:

*Ik vertel dit nu al, anders sluit u zodra u begrijpt wie ik ben dit boek, want u denkt vast en zeker: wat maakt die van zijn leven nu helemaal mee? (...) Ik was even volkomen confuus. (...) En: wie ben ik, dacht ik.*

*Ik, wat linnen, wat verfen zes latten van zes.*

In *Specht en zoon* maken we kennis met een wel heel bijzondere ik-persoon: een schilderij. We volgen het schilderij vanaf zijn begin als leeg canvas, tot het noodlottige moment dat hij in het vuur belandt, terwijl hij het verhaal vertelt over zijn schilder en diens cliënt.

En dat is vreemd, want schilderijen kunnen helemaal niet vertellen. Om te kunnen vertellen, om taal te gebruiken, om überhaupt een woord als 'ik' in de mond te kunnen nemen, moet je levend zijn. En of je levend bent of niet, dat maakt voor taal meer uit dan je misschien zou denken.

## Levende taal

Iedere taal kent een verzameling van regels, een grammatica. Hoewel er op school genoeg aandacht wordt besteed aan deze regels, leren we de meeste regels eigenlijk vanzelf. Sterker nog, als goede spreker van het Nederlands houd je je aan allerlei regels die helemaal nooit aan bod zijn gekomen op school, en zelfs aan regels waar je je misschien niet eens van bewust bent. Dit proefschrift gaat over een van die laatste regels: de talige invloed van *animacy*, vrij vertaald als 'levendheid'.

Een talig verschil tussen levend en niet-levend is duidelijk te zien in vraagwoorden. Als iemand je vraagt: 'Wie is dat?', dan zul je die vraag beantwoorden met een persoon. Als iemand je vraagt: 'Wat is dat?', dan beantwoord je die vraag met een voorwerp. Zoiets geldt bijvoorbeeld ook voor de woorden 'iemand' en 'iets'. Maar hoe beter we kijken, hoe vaker we een effect van *animacy* zien terugkomen op allerlei verschillende regels uit uiteenlopende talen. We beginnen een zin vaker met een levend onderwerp dan met een niet-levend onderwerp. We gebruiken voor levende dingen vaker een persoonlijk voornaamwoord dan voor niet-levende dingen, die we liever voluit noemen. We praten sowieso vaker over levende dingen dan over niet-levende dingen. 'De talen van de wereld zijn zo doordrongen van animacy-effecten', stellen de Zweedse taalkundigen Dahl en

Fraurud (1996), 'dat we er niet eens meer bij stilstaan, en ze onzichtbaar worden.' **Hoofdstuk 1** begint met een korte samenvatting van al deze 'onzichtbare' effecten van animacy.

Het maakt dus nogal uit of iets levend is of niet voor de keuzes die we maken in onze taal. Verderop in Hoofdstuk 1 bespreken we waarom dat zo zou moeten zijn, en waar dat verschil dan precies op is gebaseerd. We bespreken dat *animacy* misschien niet per se een verschil is tussen biologisch levende dingen aan de ene kant – mensen, dieren, planten – en dingen die in de biologie 'levenloos' worden genoemd aan de andere kant – tafels, stenen, ... of schilderijen. Zo zien we aan de talige keuzes die mensen maken bijvoorbeeld dat we planten minder levend vinden dan dieren, en dieren minder levend dan mensen. We zien ook dat dit van cultuur tot cultuur, van persoon tot persoon kan verschillen: Je lieve huisdier noem je 'hij' of 'zij' en geef je een naam; je kattenhatende buurman zou best wel eens kunnen zeggen 'Doe dat ding weg!' Dezelfde buurman zou overigens best zijn auto een 'dame' kunnen noemen.

*Animacy* lijkt dus niet uit te drukken hoe levend dingen *zijn*, maar hoe levend we *vinden* dat ze zijn. Zoiets is misschien ook wel aan de hand wanneer we geconfronteerd worden met verhalen zoals *Specht en zoon*. Schilderijen leven niet, dus hoe kunnen we dan met ze meeleven? Het schilderij zou het zelf ook niet weten, vertelt hij ons. Toch lezen we verder, en gaan we het schilderij beschouwen als een levend wezen. Hoe komt dit? Hoe kan taal verhalen tot leven wekken? En wat is levendheid, als zelfs een schilderij levend kan zijn? We hebben deze vragen geprobeerd te beantwoorden met een viertal studies die we nu zullen bespreken.

## Levendheid als universele eigenschap?

Voordat we kunnen zeggen of het schilderij *animate* is of niet moeten we eerst een goed beeld hebben van wat er nou precies wordt bedoeld met *animate*, of levend. Hoezo zou levendheid taalkundige keuzes moeten beïnvloeden? Is dat in alle talen zo? Hoe werkt dat precies? En wat vinden mensen dan 'levend'? Om hier achter te komen kijken we in **Hoofdstuk 2** naar grammaticale keuzes in twee heel verschillende talen: het Japans en het Farsi. Beide talen hebben een grammaticale constructie waarin *animacy* een prominente rol speelt. Zo heeft het Japans twee werkwoorden voor 'zijn', *iru* en *aru*, wanneer we willen communiceren dat iets of iemand zich ergens bevindt. Als we kijken wanneer welk werkwoord moet worden gebruikt, zoals in de onderstaande voorbeelden, valt ons iets op:

- (1) *kuruma no naka ni okāsan ga iru*  
 auto GEN in LOC moeder NOM is  
 'De moeder is in de auto.'
- (2) *sōko no naka ni hako ga aru*  
 pakhuis GEN in LOC doos NOM is  
 'De doos is in het pakhuis.'

Het traditionele verhaal is dat *iru* wordt gebruikt in combinatie met biologisch levende wezens (zoals 'moeder'), en *aru* in combinatie met niet-levende dingen (zoals 'doos'). In het Farsi, gesproken in Iran, lijkt *animacy* ook een invloed te hebben op werkwoorden; specifiek, op werkwoordsvervoeging. Het Farsi heeft werkwoordsvervoeging voor enkelvoud en meervoud, maar een werkwoord hoeft niet verplicht vervoegd te worden voor meervoud wanneer het onderwerp een niet-levend ding is, zoals een koffer. Onderstaande zinnen zouden dan ook allebei goed moeten zijn:

- (3) *chamedun-â tuye mâshin-and*  
 koffer-s in auto-zijn  
 'De koffers zijn in de auto.'
- (4) *chamedun-â tuye mâshin-e*  
 koffer-s in auto-is  
 'De koffers zijn in de auto.' (letterlijk: 'De koffers is in de auto.')

We waren benieuwd hoe streng deze regels in het Japans en Farsi zijn, en waar deze op zijn gebaseerd. Als het echt levendheid is zoals we dat kennen uit de biologie dan voorspellen we twee dingen. Ten eerste zou het onderscheid tweeledig moeten zijn: iets leeft of iets leeft niet. Ten tweede zouden we verwachten dat het verschil tussen levende en niet-levende dingen voor de twee culturen hetzelfde is. De biologie is immers universeel – wat levend is in Japan is ook levend in Iran.

Om hierachter te komen hebben we eerst een lijst woorden verzameld, van moeders tot dozen, van auto's tot orchideeën (de volledige lijst is te vinden in de Appendix). We hebben deze lijst voorgelegd aan een grote verzameling van sprekers van het Japans, sprekers van het Farsi in Iran, en sprekers van het Farsi in Nederland, met de ogenschijnlijk simpele vraag: 'Hoe levend is dit woord?' De deelnemers konden deze vraag beantwoorden op een schaal van 1 tot 7. Uit de gemiddelde scores van deze vragenlijsten konden we aflezen dat er helemaal geen duidelijke tweedeling was. Bijna iedereen vond 'moeders' levend en 'dozen' niet-levend, maar er bleek nog heel veel ruimte te zijn in het midden. Zo was

bijvoorbeeld een orchidee minder levend dan een olifant, maar een auto dan weer meer levend dan een armband.

Deze resultaten zijn ten eerste psychologisch erg interessant: Waarom hebben deze deelnemers uit uiteenlopende culturen soortgelijke intuïties over wat ‘meer levend’ is dan iets anders, en waar baseren ze dat op? Beweging lijkt erg belangrijk te zijn – een niet-levende auto kan bewegen; een levende orchidee niet. Een andere verklaring zou gelijkenis aan mensen of dieren kunnen zijn – een auto heeft vier wielen als ‘benen’ en koplampen als ‘ogen’; een orchidee niet. We parkeren deze vraag even tot Hoofdstuk 6, want deze resultaten werpen ook een interessante taalkundige vraag op: Wat doet de taal dan? Het Japans heeft bijvoorbeeld die twee werkwoorden, maar levendheid lijkt geen tweedeling te zijn. Je moet hier dus wel duidelijk kiezen; dat wringt.

Om die tweede vraag te beantwoorden hebben we een vervolgonderzoek uitgevoerd. We hebben een deel van de woorden in zinnen geplaatst waarin ook het grammaticale verschijnsel naar voren kwam, soms in de ene vorm, soms in de andere:

- (5) a. *sōko no naka ni hako ga aru*  
pakhuis GEN in LOC doos NOM is  
‘De doos is in het pakhuis.’
- b. *sōko no naka ni hako ga iru*  
pakhuis GEN in LOC doos NOM is  
‘De doos is in het pakhuis.’
- (6) a. *chamedun-â tuye mâshin-e*  
koffer-s in auto-is  
‘De koffers zijn in de auto.’
- b. *chamedun-â tuye mâshin-and*  
koffer-s in auto-zijn  
‘De koffers zijn in de auto.’

We hebben vervolgens nieuwe groepen sprekers van het Japans, sprekers van het Farsi in Iran, en sprekers van het Farsi in Nederland gevonden en ze gevraagd te beoordelen hoe goed ze de zinnen vonden op een schaal van 1 tot 7. De resultaten van het Japans lieten zien dat hoe meer ‘levend’ de woorden zijn, hoe hoger de acceptabiliteit van de zinnen met *iru* was, en hoe lager die van *aru* – er was een duidelijke correlatie tussen de scores van de eerste vragenlijst en die van de tweede vragenlijst. We maken hier niet alleen uit op dat de grammatica inderdaad gevoelig is voor *animacy*, maar ook dat die gevoeligheid net zo geleidelijk is als die

van de scores zelf: Het woord ‘moeder’ is duidelijk levend en is alleen acceptabel met het ‘levende’ *iru*, maar bijvoorbeeld ‘schelp’ of ‘fiets’ mag grammaticaal met allebei. Dat sluit ook mooi aan bij wat we hierboven al speculeerden over de rol van beweging: een niet-levende, bewegende fiets is redelijk acceptabel met *iru*, terwijl een levende schelp, die we wat minder makkelijk uit zichzelf zien bewegen, redelijk acceptabel is met *aru*. Voor het Farsi gold zoals verwacht dat meervoudige vervoeging voor meervoudige onderwerpen eigenlijk altijd acceptabel is, maar hoe meer levend het onderwerp is, hoe minder acceptabel de enkelvoudige vervoeging wordt.

Onze conclusie is dat ‘levendheid’ een geleidelijk fenomeen is dat vooral iets lijkt te zeggen over hoe ‘levend’ mensen dingen *vinden*, en niet hoe levend dingen *zijn* – je kunt dus niet zomaar zeggen dat een plant in een zin moet komen met *iru* en een auto in een zin met *aru*. De opvattingen van wat mensen levend vinden kunnen cultureel wat verschillen, maar wat wel universeel lijkt te zijn is de manier waarop ‘levendheid’ in taal terechtkomt: we zien in de acceptabiliteit van de verschillende grammaticale verschijnselen dat deze direct verband houdt met de scores die mensen gaven aan de woorden. Wat we levend vinden, drukken we uit als levend. Dat lijkt logisch genoeg, maar dan blijft nog altijd de vraag: als we die beslissing niet puur biologisch maken, hoe dan wel?

## Levende verhalen

We keren terug naar literatuur in Hoofdstuk 3 en Hoofdstuk 4. We wilden een beeld krijgen van alle manieren waarop niet-levende karakters – zoals het schilderij in *Specht en zoon* – zouden kunnen verschillen van levende karakters. De eerste stap was om het taalgebruik van de niet-levende verteller van *Specht en zoon* in kaart te brengen. Dit hebben we gedaan met de studie die wordt beschreven in **Hoofdstuk 3**. In deze studie hebben we *Specht en zoon* vergeleken met een ander boek van Willem Jan Otten met een menselijke verteller: *De wijde blik*. Voor beide boeken hebben we iedere zin waarin de verteller voorkwam als ik-persoon geannoteerd. Voor *Specht en zoon* waren dit 1312 zinnen, voor *De wijde blik* 2395 zinnen. Dit annoteren hield in dat we per zin een viertal kenmerken noteerden die samenhangen met *animacy* in taal: 1) of de verteller het onderwerp of het lijdend voorwerp was van de zin, 2) of het een actieve of een passieve zin was, 3) welk type werkwoord er werd gebruikt, en 4) welke Thematische rol de verteller vervulde.

Wat de eerste twee kenmerken betreft vonden we al verschillen: de niet-levende verteller was iets vaker een lijdend voorwerp dan de levende verteller (19,8% in *Specht en zoon*, 16,3% in *De wijde blik*), en kwam iets vaker voor in een passieve zin (2,3% ten opzichte van 0,7%). Deze verschillen waren in de voorspelde richting – niet-levende voorwerpen willen niet graag het grammaticale onderwerp zijn van een zin, zoals besproken in Hoofdstuk 1 – maar zeker niet zo groot als we zouden voorspellen wanneer de verteller écht niet-levend was.

De laatste twee kenmerken behoeven wat meer uitleg. Deze kenmerken gaan niet over de vorm van de zin, maar over de betekenis ervan. We hebben ten eerste onderscheid gemaakt tussen verschillende typen werkwoorden. *Actieve* werkwoorden zijn werkwoorden die duidelijke acties beschrijven, zoals 'schilderen', 'eten', of 'kijken'. Voorbeelden van *zintuiglijke* werkwoorden zijn 'zien' of 'horen' – 'kijken' doe je actief, maar of je dan ook wat 'ziet', daar heb je weinig over te zeggen. *Cognitieve* werkwoorden zijn werkwoorden die specifiek mentale acties beschrijven, zoals 'denken' of 'bedoelen'. We vonden dat het schilderij relatief gezien maar weinig dingen deed die we als 'actief' zouden omschrijven, in tegenstelling tot de verteller van *De wijde blik*. Dat is ook logisch, want het schilderij is niet in staat om zelf te bewegen – wanneer het bijvoorbeeld op een gegeven moment richting een muur wordt geplaatst, is het machteloos om zichzelf om te draaien. Wat het schilderij wel goed kan, zoals inderdaad bleek uit de verdeling van de werkwoordstypen, is observeren, en nadenken over de gebeurtenissen in het verhaal. De kleine aantallen actieve werkwoorden die we wel vonden sluiten hierbij aan – het schilderij 'kijkt' en 'vertelt' erop los.

Iets soortgelijks vonden we wanneer we keken naar zogenaamde Thematische rollen. Thematische rollen beschrijven uiteindelijk ook mogelijke acties, maar dan vanuit het perspectief van de deelnemers die bij de acties betrokken zijn. Bij het werkwoord 'eten', bijvoorbeeld, horen twee Thematische rollen: degene die eet (de Agens) en dat wat gegeten wordt (de Patiëns). Bij het werkwoord 'zien' horen weer andere Thematische rollen: degene die ziet (de Experienter) en dat wat gezien wordt (de Stimulus). Het voordeel van handelingen beschrijven aan de hand van Thematische rollen is dat het nu niet zo veel meer uitmaakt wat die handeling precies was. De werkwoorden 'eten' en 'schilderen' beschrijven heel verschillende acties, maar de Agentieve 'eters' en 'schilders' hebben op abstract niveau veel overeenkomsten: zo zetten ze de actie in gang, veroorzaken ze een verandering in iets of iemand anders, en zijn ze in beweging. Dat onderscheidt de Agens van Experienters; de 'zieners' of

'herinneraars': die veroorzaken door iets te zien of zich iets te herinneren niet direct een verandering in dat wat gezien of herinnerd wordt, en hoeven er ook niet voor in beweging te zijn. Ze hoeven de actie niet eens zelf in gang te zetten: 'zien' en 'herinneren' overkomt je. Wanneer we op dit abstracte niveau naar taal kijken zien we interessante effecten van *animacy*. Zo is een Agens vaak, maar niet altijd, levend – een wild dier kan een camping *verwoesten*, maar een storm ook. Een Patiëns hoeft helemaal niet levend te zijn, en is het zelfs vaker niet dan wel. Een Experiencer moet juist wel levend zijn: om te kunnen *zien* zoals wij dat begrijpen moet er niet alleen een beeld je ogen binnen komen, maar moet je je ook bewust zijn van wat dat beeld betekent.

Vooraf dat laatste maakte onze resultaten zo verrassend: de verteller in *Specht en zoon* was enorm vaak een Experiencer (in 44% van de gevallen, ten opzichte van 24% voor de menselijke verteller van *De wijde blik*, die juist weer vaker een Agens was), terwijl Experiencers toch echt *noodzakelijk* levend zijn. Onze conclusie was dan ook dat we nu een keuze moeten maken: óf bewustzijn is niet typisch iets wat alleen levende wezens hebben, óf het verhaal heeft dit schilderij levend gemaakt. We kiezen voor dat laatste, en we vermoeden dat het juist het toeschrijven van bewustzijn is geweest dat het schilderij levend heeft gemaakt.

Samenvattend nemen we twee belangrijke punten mee uit deze studie. Ten eerste zien we aan de grammatica dat het schilderij niet zo gek veel verschilt van andere levende wezens. De regelmatigheden van de taal die gevoelig zijn voor *animacy* – zoals het verschijnsel dat levende wezens vaker het onderwerp van een zin zijn dan niet-levende dingen – lijken erop te wijzen dat de taal het schilderij behandelt als een levend wezen. Hoe levend we iets vinden staat dus niet vast, maar kan veranderen door een talige context. Ten tweede nemen we mee de manier waaróp het schilderij dan uiteindelijk een levend wezen is geworden. Er is uiterlijk niets wat dit schilderij zou kunnen onderscheiden van andere schilderijen: het is en blijft simpelweg “wat linnen, wat verf en zes latten van zes,” en het schilderij is dan ook zelf niet in staat om te bewegen of te communiceren met de andere karakters in het verhaal. Dat zien we ook heel duidelijk aan de verdelingen van werkwoordstypes en Thematische rollen. Wat het schilderij wel kan is *ervaren*. *Specht en zoon* heeft van een niet-levend voorwerp een Experiencer gemaakt, en blijkbaar was dat genoeg.

## Meeleven

We hebben uit Hoofdstuk 2 geleerd dat *animacy* de talige uitdrukking is van hoe levend we iets vinden, ten opzichte van hoe levend iets is. Hoofdstuk 3 liet zien dat hoe levend we iets vinden helemaal niet vaststaat, maar ook weer beïnvloed kan worden: het schilderij wordt levend omdat het zich op een levende manier gedraagt. We kunnen Thematische rollen gebruiken om inzicht te krijgen in welk gedrag dat dan is, en als we dat doen leren we dat het schilderij een slechte Agens is maar wel een goede Experienter. Het schilderij ziet en ervaart de wereld om zich heen, maar kan daar niet naar handelen. Deze belevingswereld staat erg ver van de onze af, en tijdens onze studie naar *Specht en zoon* merkten we dan ook dat we niet heel goed konden meeleven met het schilderij.

In **Hoofdstuk 4** zijn we verder gaan kijken naar deze leeservaring. We wilden weten of mensen net zo goed meeleven met niet-levende karakters als met levende karakters, en of dit ons misschien wat meer kan vertellen over hoe verhalen dingen tot leven kunnen wekken. Meeleven heeft net als levendheid zelf te maken met identiteit en perspectief: het is bekend dat we meer meeleven met karakters die meer op onszelf lijken, en niet-levende karakters lijken zeker niet op onszelf.

De literaire wereld speelt graag met identiteit en perspectief, en de niet-levende verteller uit Hoofdstuk 3 is dan ook geen zeldzaamheid. Er zijn talrijke voorbeelden van niet-levende karakters in literaire verhalen, zoals het beeld in *Het beeld en de klok* van Mulisch, of een aardbei in *Het lieveheersbeest* van Biesheuvel. Het onwerkelijke perspectief van deze karakters komt logischerwijs in de eerste plaats tot stand omdat we geen idee hebben hoe het is om niet-levend te zijn, maar we hebben uit Hoofdstuk 3 al geleerd dat 'niet-levend' een genuanceerd begrip is: het schilderij is niet-levend in de zin dat het niet in staat is om te handelen, maar wel levend in de zin dat het een bewustzijn heeft van de wereld. Deze verdeling van Thematische rollen is dan ook een andere mogelijke verklaring van onze leeservaring. Misschien is het moeilijk mee te leven met de verteller van *Specht en zoon* niet per se omdat het een schilderij is, maar omdat we in zijn plaats al lang zelf wat actie hadden ondernomen.

Om deze twee verklaringen uit elkaar te halen hebben we een leeservaringsonderzoek opgezet. We hebben een viertal verhalen laten schrijven waarin we zowel *animacy* als Thematische rol hebben gemanipuleerd. In de helft van de verhalen was de hoofdpersoon voornamelijk een Agens – een handelend karakter met controle over de richting van het verhaal – en in de andere helft van de verhalen was de hoofdpersoon voornamelijk



een Experiencer – een karakter dat werd meegevoerd door de grillen van het plot, en alleen kon observeren. Wie die hoofdpersoon was hebben we daarna aangepast door van levende hoofdpersonen een niet-levende hoofdpersoon te maken, en andersom. Deze verhalen zijn te vinden in de Appendix.

De verhalen hebben we vervolgens aan 200 deelnemers laten lezen. Na ieder verhaal moesten de deelnemers een aantal stellingen beantwoorden over de mate waarin ze meeleefden met de hoofdpersoon, op een schaal van 1 tot 7. Dit waren stellingen zoals ‘het voelde alsof de hoofdpersoon en ik één werden’, ‘ik voelde me verbonden met de hoofdpersoon’, en ‘ik had het gevoel dat ik meemaakte wat de hoofdpersoon meemaakte’. De gemiddelde scores op deze vragen gaven ons inzicht in de leeservaring die de deelnemers hadden bij ieder verhaal, en dus bij de *animacy* en Thematische rol van de hoofdpersoon van dat verhaal.

De resultaten lieten zien dat *animacy* een duidelijke invloed heeft op leeservaring. Lezers hadden meer moeite om mee te leven met niet-levende karakters dan met levende karakters, wat in overeenstemming is met het idee dat meeleven makkelijker is voor perspectieven die dichterbij het eigen perspectief staan. Dit verschil bleek het grootst bij de verhalen met een Agens als hoofdpersoon. Er was dus ook een invloed van Thematische rol. De verklaring die wij hiervoor geven is dat het blijkbaar een stuk onwerkelijker is om van een niet-levend ding een Agens te maken dan om van datzelfde ding een Experiencer te maken. Een Experiencer maken van een niet-levend ding is relatief gemakkelijk: een Experiencer hoeft alleen maar te laten zien dat hij of zij een ervaring heeft, en daarover te kunnen vertellen. Dat is onvermijdelijk voor karakters in een verhaal, zeker wanneer het karakter ook een verteller is. Ook de niet-levende voorwerpen die we alleen een Agens hebben willen maken werden op dezelfde manier onbedoeld ook Experiencers: de lezer vult de ervaringen en motivaties achter de acties van het karakter als het ware zelf wel in. Andersom gebeurt dit niet – zoals we al merkten bij het schilderij in *Specht en zoon*, hoeft een Experiencer helemaal geen Agens te zijn.

Deze studie vertelt ons dat Thematische rollen verschillende manieren geven waarop een verhaal dingen tot leven kan wekken. Een verhaal kan een niet-levend voorwerp een Agens maken door het dingen te laten doen, of het verhaal kan een niet-levend voorwerp een Experiencer maken door het dingen te laten ervaren. Zowel handelen als ervaren zijn belangrijke eigenschappen die leven onderscheiden van niet-leven, maar we hebben blijkbaar niet beide eigenschappen nodig om iets als levend te kunnen zien.

## Zinnen tot leven wekken

We weten nu dat *animacy* flexibel is en beïnvloed kan worden door de talige context, die iets levend kan maken door het de rol van de Agens of de rol van de Experiencer te geven. In **Hoofdstuk 5** hebben we geprobeerd om deze kennis toe te passen om meer te leren over hoe we zinnen verwerken.

Zinsverwerking is gevoelig voor de regels in taal. Het kost meer tijd en moeite om zinnen te lezen die ongrammaticaal zijn, maar ook grammaticale zinnen kunnen moeilijker of makkelijker zijn. Bekijk de onderstaande zinnen uit de studie van Mak en collega's (2002):

- (7) Vanwege het onderzoek moeten de inbrekers, die de bewoner beroofd hebben, een tijdje op het politiebureau blijven.
- (8) Vanwege het onderzoek moet de bewoner, die de inbrekers beroofd hebben, een tijdje op het politiebureau blijven.

In beide zinnen zit een bijzin. In zin (7) is deze bijzin *subject-relatief*; het grammaticale hoofd van de bijzin is ook het onderwerp van die bijzin. Dat is te zien wanneer we de bijzin omschrijven naar een hoofdzin: 'De inbrekers (subject) hebben de bewoner (object) beroofd'. In zin (8) is de bijzin *object-relatief*: het lijdend voorwerp van die hoofdzin, 'de bewoner,' staat nu aan het hoofd van de bijzin.

Uit onderzoek in verschillende talen blijkt dat object-relatieve bijzinnen, zoals die in (8), lastiger zijn dan subject-relatieve bijzinnen – proefpersonen doen er langer over om een object-relatieve bijzin te lezen, ondanks dat beide zinnen grammaticaal zijn. We gaan er blijkbaar van uit dat het eerste woord dat we zien het onderwerp zal zijn van de bijzin, en niet het lijdend voorwerp. Onderwerpen staan tenslotte vaker vooraan in de zin. Dit verandert wanneer de twee elementen in de bijzin niet allebei levend zijn, zoals in onderstaande zinnen:

- (9) Vanwege het onderzoek moeten de inbrekers, die de computer gestolen hebben, een tijdje op het politiebureau blijven.
- (10) Vanwege het onderzoek moet de computer, die de inbrekers gestolen hebben, een tijdje op het politiebureau blijven.

Nu blijken beide zinnen even makkelijk. Dit toont weer aan dat *animacy* een onbewust effect heeft op taal. We zijn niet alleen gevoelig voor de regel dat het eerste woord vaker het onderwerp zal zijn van de zin, maar blijkbaar ook voor de regel dat niet-levende dingen juist minder vaak het

onderwerp zijn van een zin. Wanneer we die twee regels combineren, en ‘computer’ lezen in (10), wachten we nog even met concluderen dat dat het onderwerp zal zijn – het woord staat weliswaar vooraan, maar een computer leeft niet.

Maar weten we wel zo zeker dat een computer niet leeft? Biologisch gezien niet, maar zoals de voorgaande hoofdstukken hebben laten zien biedt dat geen garanties. Een computer is niet zomaar een doos – een computer kan nadenken. Een computer werkt met je mee, of doet juist niet wat je wilt. Iets soortgelijks kan bijvoorbeeld ook gelden voor een auto – een auto brengt je waar je moet zijn. Een levende plant daarentegen is op veel manieren weer een stuk minder veranderlijk. Dat roept de vraag op waar we precies gevoelig voor zijn wanneer we zinnen verwerken. Is het belangrijk hoe levend iets is, of toch hoe levend we vinden dat iets is? De resultaten van Hoofdstuk 2 en 3 lijken te wijzen naar het laatste, maar dat is nog niet experimenteel getest in zinsverwerking.

Onze laatste studie probeerde daar verandering in te brengen. We weten uit eerder onderzoek dat een object-relatieve bijzin moeilijker te verwerken is wanneer het hoofd van de bijzin levend is dan wanneer het hoofd niet-levend is. Wanneer we het hoofd tot leven wekken zou de bijzin dus moeilijker moeten worden om te verwerken. Om dit te onderzoeken hebben we eerst 60 zinnen met object-relatieve bijzinnen gemaakt:

- (11) De klok, die de huisgenoten hadden kunnen verkopen, was al heel oud.

Vervolgens hebben we voorafgaand aan iedere zin drie verhaaltjes bedacht. Twee van die verhaaltjes hadden als doel het hoofd van de bijzin tot leven te wekken. Het eerste verhaaltje deed dit door van het hoofd een Agens te maken, het tweede door van het hoofd een Experiencer te maken. Dit zijn twee mogelijke paden naar levendheid, zoals we in Hoofdstuk 3 en 4 hebben gezien. Het derde verhaaltje was toegevoegd als controle; hierin veranderde de levendheid van het hoofd niet.

- (12) i Op dat moment zag de buurman de dansende klok. Hij danste alle kanten op. De buurman schrok.  
De klok, die de huisgenoten hadden kunnen verkopen, was al heel oud.
- ii Op dat moment zag de buurman de bedroefde klok. Hij had dikke tranen in zijn ogen. De buurman schrok.  
De klok, die de huisgenoten hadden kunnen verkopen, was al heel oud.

- iii Op dat moment zag de buurman de beschadigde klok. Hij hing nog maar half aan een spijker. De buurman schrok. De klok, die de huisgenoten hadden kunnen verkopen, was al heel oud.

Alle verhaaltjes zijn te vinden in de Appendix. We hebben deze verhaaltjes aan proefpersonen laten zien in een zogenaamd *self-paced reading* experiment. Bij een *self-paced reading* experiment laten we zinnen woord voor woord zien, waarbij de proefpersoon op een knop moet drukken om naar het volgende woord in de zin te gaan. De computer noteert de reactietijd iedere keer wanneer de proefpersoon op de knop drukt. Aan de reactietijden kunnen we aflezen of en wanneer een zin moeilijk wordt.

Onze voorspelling was dat dezelfde zin na de 'levende' verhaaltjes moeilijker zou zijn, dus langere reactietijden zou opleveren in het experiment. Het hoofd zou nu immers ook levend moeten zijn, en object-relatieve bijzinnen zijn moeilijker te verwerken wanneer het hoofd levend is. Dit was niet het geval: we konden geen verschillen vinden in de leestijden van de bijzinnen tussen de drie verhaaltjes. Volgens ons betekent dat nog niet meteen dat het niet is gelukt om de woorden tot leven te wekken, of dat taalgebruikers zich niks aantrekken van het verhaaltje en de klok in het bovenstaande voorbeeld nog altijd als duidelijk niet-levend interpreteren. Dat zou immers in tegenspraak zijn met de resultaten die we eerder hebben gevonden. Een alternatieve verklaring heeft onze voorkeur: topicaliteit. Naast de plaats die een woord inneemt in de zin, en de levendheid van het woord, is topicaliteit nog een derde factor van belang bij de verwerking van bijzinnen; een factor waarmee we onvoldoende rekening hebben gehouden. In Hoofdstuk 5 gaan we hier in meer detail op in.

## **Wat is levende taal?**

In **Hoofdstuk 6** komt alles bij elkaar. Als we ons werk goed hebben gedaan zouden we nu een antwoord kunnen geven op de vragen die Hoofdstuk 1 ons heeft gesteld. Wat is *animacy*? Is een karakter zoals het schilderij in *Specht en zoon 'levend'*? Hoe brengen we verhalen precies tot leven?

We concluderen dat de eerste vraag niet eenduidig te beantwoorden is. Het ligt er maar net aan wat je 'animate' noemt. De vele onderzoekers die zich hiermee bezig hebben gehouden gebruiken definities die subtiel anders zijn, waardoor dingen vaak eenduidiger lijken dan ze werkelijk zijn.

Wij stellen voor dat er verschillende niveaus zijn waarop we iets als ‘animate’ kunnen beschouwen, en dat deze niet per se allemaal hetzelfde antwoord geven op de vraag. De ogenschijnlijk ‘niet-levende’ karakters in verhalen laten dit het duidelijkst zien. Schilderijen zijn *lexicaal* en *biologisch* niet-levend, maar het schilderij dat de verteller is van *Specht en zoon* is wel *grammaticaal* levend: het wordt bijvoorbeeld vaker als onderwerp gebruikt dan als lijdend voorwerp. Het schilderij is ook *cognitief* animate, dat wil zeggen, in ons hoofd is het een levend karakter geworden. We weten dat die transformatie niet tot stand is gekomen omdat het schilderij *perceptief* animate is – omdat het lijkt op iets levends, of op een ‘levende’ manier beweegt. Hoe dan wel? We concluderen dat dit gebeurt omdat het verhaal *contextueel* animate is – het verhaal brengt het schilderij tot leven.

De rest van Hoofdstuk 6 gaat erover hoe dat laatste precies in zijn werk gaat. We stellen dat taal vooral gevoelig is voor *cognitieve animacy*, de *animacy* die in ons hoofd zit opgeslagen. Taal drukt uit wat we levend vinden, zoals we al zagen in Hoofdstuk 2. Wat we levend vinden wordt onder andere weer bepaald door de taal zelf. Zo bouwen we gaande het verhaal de *animacy* van een concept op: wanneer de talige context ‘levend’ gedrag toeschrijft aan een niet-levend voorwerp gaan we het als levend zien. Voorbeelden van ‘levend’ gedrag zijn doelbewust handelen en bewegen (het gedrag dat we vangen in de rol van de Agens) en observeren en ervaren (het gedrag dat we vangen in de rol van de Experiencer). Dit zagen we gebeuren in Hoofdstuk 3. Het schilderij in *Specht en zoon* is cognitief en grammaticaal *animate*, niet omdat schilderijen levend zijn of omdat we kunnen zien dat het schilderij levend is, maar omdat het verhaal ons vertelt dat het zich levend *gedraagt*. In Hoofdstuk 3 en Hoofdstuk 4 leerden we dat iets niet per se zowel Agens als Experiencer hoeft te zijn om als cognitief animate te worden gezien en dat de leeservaring afhankelijk daarvan subtiel anders kan zijn.

Zo zeggen niet-levende karakters ook iets over de betekenis van het leven, of althans, de betekenis van talig leven. Door te erkennen dat zelfs een schilderij levend kan zijn, en zorgvuldig te bestuderen hoe dat kan gebeuren, leren we dat leven meer is dan het hebben van een hartslag. We vermoeden dat de gedragskenmerken die ervoor zorgen dat lezers het schilderij gaan zien als een levend karakter – observeren, nadenken – een antwoord kunnen geven op de vraag hoe levendheid terecht is gekomen in taal. Dit geeft ons niet alleen heel veel aanknopingspunten voor een beter begrip van het taalkundige verschijnsel van *animacy*, maar leert ons ook over onszelf. Taal geeft ons een inkijsje in onze gedachten, en

wat dit onderdeel van de taal ons vertelt is dat we de wereld blijkbaar niet per se onderverdelen in dingen met en zonder hartslag. In plaats daarvan zien we acties en intenties in alles wat er om ons heen gebeurt, zijn we bereid om ons te verplaatsen in de meest onwerkelijke perspectieven in onze zoektocht naar het doel achter iedere keuze, en wekken we verhalen moeiteloos tot leven.

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## Curriculum Vitae

Thijs Trompenaars was born in Tilburg in 1988. He started his studies in Linguistics at Radboud University in 2010, obtaining a Bachelor's degree in Linguistics (*cum laude*) and a Master's degree in Cognitive Neuroscience (*cum laude*) with a specialisation in Language and Communication. Thijs was employed in various support, teaching and research positions at the Faculty of Arts, the department of Linguistics and the research group Grammar & Cognition over the course of his studies. In 2015 he started his PhD project 'Bringing Stories to Life' in the same research group Grammar & Cognition at the Centre for Language Studies (CLS), made possible by an open competition grant from the CLS. The results of this project are reported here. During this time, he was offered the opportunity to serve as a lecturer for several courses in the Linguistics curriculum. Thijs is currently enjoying a teaching position at the department of Language and Communication at Radboud University.



## List of publications

- Frank, Stefan L., **Thijs Trompenaars**, & Shravan Vasishth. 2016. Cross-Linguistic Differences in Processing Double-Embedded Relative Clauses: Working-Memory Constraints or Language Statistics? *Cognitive Science* 40(3), 554-578.
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