Diagrammatic iconicity explains asymmetries in Paamese possessive constructions

Abstract: Grammatical asymmetries in possessive constructions are overtly coded in about 18% of the world’s languages according to the World Atlas of Language Structures. What primarily motivates these grammatical asymmetries is controversial and has been at the crux of the “iconicity vs. frequency” debate. This paper contributes to this debate by focusing on the grammatical asymmetries of Paamese possessive constructions, and looking for the primary motivating factor in their multidimensional experiential context. After a careful account of four experiential dimensions of distance (functional, affective, sociopragmatic, and embodied), the degrees of experiential distance are shown to systematically correspond to the degrees of formal distance of the possessive constructions used to refer to these experiences (e.g., direct or indirect suffixation of kinship and body part terms). Relevant anthropological and linguistic data concerning Paamese is used to explore whether this correspondence between language and experience is primarily motivated by iconicity or economy. I argue that diagrammatic iconicity is the primary motivating factor for the grammatical asymmetries in Paamese possessive constructions, and that economy can account for some, but not all cases. I also show that economy and iconicity can collaborate in motivating some cases, and thus do not necessarily need to be opposed.

Keywords: iconicity, frequency, economy, possession, inalienability, kinship, body parts

1 Introduction

Grammatical asymmetries of possessive constructions are overtly coded in about 18% of the world’s languages according to the World Atlas of Language Structures.
Structures (Dryer and Haspelmath 2013) as shown in the examples from Paamese (1), Nakanai (2), Hua (3), and North Saami (4), or covertly coded in languages like English (5–6), and French (7–8).

(1) Paamese (Crowley 1996: 384; Devylder 2014: 68)
   a. Avo-k
      body-1SG
      ‘my body’
   b. Vakili ona-k
      canoe POSS-1SG
      ‘my canoe’

(2) Nakanai (Johnston 1981: 217)
   a. lima-gu
      hand-1SG
      ‘my hand’
   b. luma taku
      house I
      ‘my house’

(3) Hua (Haiman 1983: 793)
   a. d-za
      1SG-arm
      ‘my arm’
   b. dgai fu
      I pig
      ‘my pig’

(4) North Saami (Janda and Antonsen 2016)
   a. Oaivvi-st-is
      head-LOC.SG-3SG
      ‘in his head’
   b. Ježa-s ruovttus
      REFL.GEN-3SG.POSShouse
      ‘in his house’

(5) English
   a. I cut my arm.
   b. I cut myself on the arm.
   c. I cut myself.
In (1–3) the possessive relation is marked either with a suffix on the possessed noun (1a, 2a, 3a), or attached to a separated possessive qualifier (1b, 2b, 3b), hence the grammatical “asymmetry”. These asymmetries can also be more covert, as, for instance, in the (un)acceptability of argument structure alternation in English and French (5–8) (Devylder 2017). The existence of this phenomenon requires finding a plausible way to explain what motivates it. Are the formal asymmetries illustrated in (1–3) the result of a Zipfian effect of frequency of use leading to shortness and fusion (Haspelmath 2008), or does the morphosyntactic relation between a possessor and a possessed item reflect the semantic relation between the two (Haiman 1980; Haiman 1983; Haiman 1985; Haiman 2000; Haiman 2008; Haiman 2014; Croft 2003; Croft 2008)? As Schmidt (2017: 16) puts it: “whether it is really frequency that is ultimately and solely responsible
for formal reductions (Haspelmath 2014) has yet to be determined”. This paper focuses on two traditional explanations that have fought over this issue, and hereby offers a rematch to the ongoing frequency vs. iconicity of distance debate.

I first propose to present the two explanations to evaluate their strengths and weaknesses (Section 2) before putting them in the ring with data from Paamese (Section 3), an Austronesian language spoken on Paama Island, Vanuatu, which overtly codes the grammatical asymmetries of possessive constructions as illustrated in (1).¹ To take stock of the extents and limits of both ways of explaining grammatical asymmetries in Paamese possessive constructions, I suggest “turning back to [social and embodied] experience” (Zlatev 2016: 561), and more particularly to the experience of distance. I thoroughly examine four dimensions through which Paamese islanders experience distance (functional, affective, sociopragmatic, and embodied), and ask how successfully frequency and iconicity can account for it (Section 3). By considering the systematic mapping from experience to language across the four dimensions, I discuss the plausibility of a multidimensional diagrammatic iconicity as the primary explanatory factor for grammatical asymmetries of possessive constructions in Paamese (Section 4), which does not exclude that frequency can be a secondary factor but it puts it on the back burner. I conclude in Section 5 that this case study broadly calls for a more integrated theory of language that pays attention to the social and embodied dimensions of language, and that can take into account processes of both conventionalization and motivation.

## 2 Frequency vs. iconicity

### 2.1 Frequency: Definition and issues

Explaining the grammatical asymmetries between (1a) and (1b) above with a frequency-based account assumes that the fused form of (1a) is the result of a Zipfian effect of frequency of use leading to shortness and fusion. Simply put, and applied to the two specific Paamese examples in (1a-b), the current term for body (avo-k ‘my body’) must have had a different form (i.e., something like avo onak), and that because it has been frequently repeated over time, the

¹ Unless otherwise stated, the anthropological and linguistic data used in this paper comes from the Paamese Language and Culture collection (Devylder 2014), documented in July and August 2014, which consists of 8 hours and 24 minutes of audio recorded sessions, 5 hours of video footage, and field notes.
possessive qualifier *onak* has become shorter (e.g., *onak* → *-k*) and then fused into the noun it modifies (e.g., *avo-k*) resulting in the present directly suffixed form *avok*. This account thus also implies that the possessive qualifier *onak* did not become shortened and then incorporated into *vakili ‘canoe* because the possessive construction *vakili onak ‘my canoe* has not occurred frequently enough over time. This explanation, essentially in terms of economy, is based on absolute frequency (e.g., Bybee 1985; Croft 2003: 206–207, 2008); that is, the number of times a possessed expression (e.g., *vakili onak ‘my canoe*) occurs compared to the number of occurrences of the corresponding unpossessed expression (e.g., *koan vakili ‘this canoe*).

Haspelmath (2008: 10) proposes a different interpretation of the frequency-based motivation as he grounds his argument on relative frequency: “what I am looking at here is the relation between the frequency of one category and the frequency of another category (within a class of lexemes or a construction)”. However, as Schmidt (2017: 16) points out: “[w]hether these changes are the product of high relative frequency (Haspelmath 2008) or absolute frequency (Croft 2008) [...] has yet to be determined”. The categories for which Haspelmath (2008: 19) compares relative frequencies are labeled as “body parts”, “kinship terms”, and “alienable nouns”. Haspelmath (2008) expands the results of this corpus-based analysis in English and Spanish to a general rule that aims at explaining all grammatical asymmetries of possessive constructions allowing, according to him, correct predictions across the world’s languages: “this paper will continue the practice of Haiman (1983) (and much other work) of making claims about universal asymmetries that are not fully backed up by confirming data, but that nevertheless seem very plausible because of the apparent absence of counterevidence (Haspelmath 2008: 4).

Haspelmath concludes that his interpretation of the economy-based explanation “makes just the right predictions” (2008: 22). Specifically, Haspelmath predicts that:

i. “the percentage of possessed occurrences of inalienable nouns will always be significantly higher than the corresponding percentage of alienable nouns” (2008: 20)

ii. “the coding of inalienable constructions should tend to be shorter” (2008: 21).

The first problem posed by these two predictions has to do with the definition of inalienability that conflates both semantic inalienability (i.e., “alienable nouns” in [i]) and formal inalienability (i.e., “inalienable constructions” in [ii]). Following such a broad definition, an entity would be considered inalienable from its possessor if it has an inalienable (e.g., directly suffixed) form (e.g., *avo-k ‘my body*). This would imply, in the case of Paamese, that a possessor is
semantically inseparable from their footprints (9) and body odor (10), while at the same time semantically separable from their heart (11) and kidneys (12).

(9) \textit{Ve-k}  
footprint-1SG  
‘my footprints’

(10) \textit{Vive-k}  
smell-1SG  
‘my body odor’

(11) \textit{Heihu ona-k}  
heart POSS-1SG  
‘my heart’

(12) \textit{Heia ona-k}  
kidney POSS-1SG  
‘my kidney’

Defining (in)alienability as a notion that conflates both formal and semantic separability is therefore problematic. This is a considerable difficulty for the economy-based argument presented by Haspelmath (2008), as it builds upon a precise comparison of the frequency of occurrence of constructions across semantic categories (body parts, kinship relations, and alienable objects). Yet, if there are no solid and cross-culturally valid criteria for including items in these categories, then the comparative frequency percentages cannot be cross-culturally valid. For the category of body parts, for instance, what might be conceptualized as “body parts” varies tremendously across cultures (e.g., Enfield et al. 2006; Gaby 2006; Majid 2010; Majid et al. 2006; Majid and van Staden 2015; Devylder 2016). Relying on one’s own intuition to define categories such as body parts, kinship relations, and alienable objects (so that the frequency of the possessive constructions of their respective items can be compared relatively to each other) might be valid for drawing conclusions on one’s own native language, but extending it to typologically unrelated languages, spoken by people with sometimes very different worldviews, is quite problematic.

Putting aside the issue of extending a Eurocentric frequency-based approach to explain grammatical asymmetries, Haspelmath’s prediction (i) would also be problematic because a cross-categorial comparison of frequency does not account for intra-categorial variations. In Paamese, for the category “body part terms”, some possessive constructions are formally cohesive (13),
whereas others are formally distant (14). The same goes for the category “kinship terms” (15–16).

(13)  *Vatu-k*
    head-1SG
    ‘my head’

(14)  *Heihuuh ona-k*
    bladder POSS-1SG
    ‘my bladder’

(15)  *Natu-k-ahin*
    child-1SG-female
    ‘my daughter’

(16)  *Ahineli ona-k*
    female POSS-1SG
    ‘my daughter-in-law’

To account for the intra-categorial variation of body part terms as primarily motivated by economy, the relative frequency argument would need to show that people talk more about their vaginas (17), or armpits (19), than about their lungs (18), and machetes (20), which, according to the anthropological data available on Paamese culture (Devylder 2014), is highly unlikely.

(17)  *Vilo-k*
    vagina-1SG
    ‘my vagina’

(18)  *Maleles ona-k*
    lungs POSS-1SG
    ‘my lungs’

(19)  *Hingo-k*
    armpit-1SG
    ‘my armpit’

(20)  *Naiv ona-k*
    machete POSS-1SG
    ‘my machete’
For languages like English, which allows verifying frequencies of occurrence in large corpora, Table 1 shows that according to the BNCweb, English people do not talk more about their female sexual organs, than about their lungs.

Table 1: Frequency of occurrence of vagina and lungs in BNCweb.

<table>
<thead>
<tr>
<th></th>
<th>Vagina (272=100% hits)</th>
<th>Lungs (1750=100% hits)</th>
<th>Relative frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Possessed</td>
<td>44 hits (e.g., my vagina)</td>
<td>399 hits (e.g., my lungs)</td>
<td>( f = 1.41 )</td>
</tr>
<tr>
<td></td>
<td>16.18%</td>
<td>22.8%</td>
<td></td>
</tr>
<tr>
<td>Not possessed</td>
<td>228 hits (e.g., the vagina)</td>
<td>1351 hits (e.g., a lung)</td>
<td>( f = 1.08 )</td>
</tr>
<tr>
<td></td>
<td>83.82%</td>
<td>77.2%</td>
<td></td>
</tr>
<tr>
<td>Absolute frequency</td>
<td>( f = 5.18 )</td>
<td>( f = 3.38 )</td>
<td></td>
</tr>
</tbody>
</table>

If we transposed the results of Table 1 to Paamese, or consider the anthropological data that shows that talking about one’s sexual organs is taboo in Paamese culture, (Devylder 2014), then prediction (i) is clearly not verified. The certainty of Haspelmath (2008: 19, referring to Nichols 1988: 579) that “with inalienably possessed nouns, possessive constructions are of course much more frequent than with alienably possessed nouns” can thus rightfully be questioned.

Finally, perhaps the most challenging example to the economy-based explanation of grammatical asymmetries in Paamese is found in the diachronic variation of the term for ‘spirit’ (21–22). Crowley (1982), who documented Paamese in the eighties, finds only one form for the term ‘spirit’, or ‘soul’, the directly suffixed term ninuk ‘my soul/my spirit’ (21). During the six weeks of documenting Paamese, I was unable to elicit this form (see Devylder 2014), and was rather systematically given the indirectly suffixed form ninin onak ‘my soul/my spirit’ (22) instead.

(21) *Ninu-k*
    spirit-1SG
    ‘my soul’

(22) *Ninin ona-k*
    spirit POSS-1SG
    ‘my soul’

This diachronic formal “expansion” goes against any economic principle, and thus at least suggests that there are other forces at work.
2.2 Iconicity: Definition and issues

Haiman (1983: 782) argues that the iconicity of distance whereby “the linguistic distance between expressions corresponds to the conceptual distance between them” is the primary force, which motivates the grammatical asymmetries of possessive constructions illustrated in (1–4) and (9–22). In other words, this notion implies that “meanings that belong together more closely semantically are expressed by more cohesive forms” (Haspelmath 2008: 2). In cognitive linguistics, the notion of iconicity is a broad one, and more or less synonymous with non-arbitrariness: “the notion of iconicity embraces the idea that there is a non-arbitrary relationship between meaning and the form or structure used to encode that meaning”, says Smith (2002: 68), referring to Givón (1990: 966–976).

Many cognitive linguistic contributions refer to Haiman (1980; 1983; 1985) as the seminal work on iconicity, with little reference to Peirce (1974 [1931]) or Jakobson (1965), who introduced the concept in semiotics, and applied it to linguistics respectively. This lack of reference to two of the foundational works on iconicity has the undesired effect of leaving too much space for ambiguity and misinterpretations, which rightfully foster the doubts of iconicity-skeptics like Haspelmath (2008). Indeed, when Haiman says that linguistic distance “reflects” (2008: 37) or “corresponds” (1983: 782) to conceptual distance, too little is said about the exact nature of this correspondence. When iconicity is too broadly defined, the three different kinds defined by Peirce (1974 [1931]) – imagistic, diagrammatic, and metaphoric – become conflated.

Definitions of the iconicity of distance often seem to conflate the three Peircean kinds of iconicity when they state that “greater formal distance between the main verb and the complement verb matches a greater conceptual distance between the events described by these verbs” (Vesterinen 2010: 574). This definition arguably assumes an imagistic kind of iconicity: that is, a one-to-one pairing where linguistic distance “corresponds to” (Haiman 1983: 782), “reflects” (Haiman 2008: 37), “represents”, (Smith 2002: 95), or “matches” (Vesterinen 2010: 574) conceptual distance. Smith (2002: 95) at least suggests this when he explains that “[the iconicity of distance] holds that the grammar of a language might formally represent the conceptual distance between entities by physically separating the linguistic elements which encode those entities” [emphasis mine]. This imagistic interpretation of the iconicity of distance is problematic because it leads to assume linguistic distance as an image (Peirce 1974 [1931]: 2.276) of conceptual distance, in

2 See Sonesson (2010), Van Langendonck (2007), and Meir et al. (2013) for finer-grained, non-monolithic definitions of iconicity.
the same way that a picture of an elephant is imagistically iconic of an elephant. An imagistic iconicity of distance would therefore imply, for instance, that the distance (measurable by the metric or imperial system) that a Paamese speaker conceptualizes as separating oneself from his canoe would be materialized and scaled down to the blank space separating the noun *vakili* ‘canoe’ from its possessor *onak* ‘my’ in the expression *vakili onak* ‘my canoe’ (1b). This simplistic interpretation is probably not what the Haiman school actually means but unless the notion is defined more carefully, it can be interpreted in such a way, and subsequently attacked by critics.

The kind of iconicity that arguably plays a role in the grammatical asymmetries of possessive constructions is of a *diagrammatic* – as opposed to imagistic – nature. Peirce (1974: 2.277) defines diagrammatic icons as “those, which represent the relations [...] of the parts of one thing by analogous relations in their own parts”. For example, the two crosses in Figure 1a, the line in Figure 1b, and the circle in Figure 1c are only imagistic icons of crosses, lines, and circles. However, when these distinct signs are arranged in a particular manner, as in Figure 2, their mutual relation forms a Gestalt, which constitutes the diagrammatic icon of a human face. Figure 2 is diagrammatically iconic of a human face because diagrams are “a systematic arrangement of signs that do not necessarily resemble their referents but whose mutual relations reflect the relations between their referents” (Van Langendonck 2007: 398). If the circle in Figure 2 can be identified as referring to a face, the two crosses to eyes, and the line to a mouth, it is because these discrete elements are spatially organized in relation to each other in a pattern that reflects the pattern at work in the referent human face. If the relational pattern is changed, as in Figure 3, the diagrammatic iconicity between the sign and the referent is lost.

![Figure 1: Three imagistic iconic signs.](image-url)
Possessive constructions are inherently relational structures (i.e., between the possessor and the possessum), and therefore, explaining the grammatical asymmetries of relational structures with iconicity entails the adoption of a clear diagrammatic definition of the iconicity of distance: if the distinct degrees of morphosyntactic distance constitute a systematic arrangement of signs, whose mutual relations reflect the relations between their referents, the grammatical asymmetries of possessive constructions are motivated by diagrammatic iconicity. However, it must be added that, for diagrammatic iconicity to be coined a primary explanatory factor, and not just an epiphenomenon, as Haspelmath (2008) argues, these mutual sign/referent relations would need to be systematically mapped across dimensions.

Another issue concerning the iconicity of distance, as traditionally assumed in the literature, has to do with the vagueness of the term “conceptual” in the
definition of the notion as a mapping between conceptual distance and linguistic
distance when it comes to formulating an argument that applies to more than one
culture. How could we decide how speakers of typologically unrelated languages
and different culture conceptualize distance, independently of the linguistic expres-
sions so as to avoid circularity? When Haiman (1983: 793) explains that Hua
speakers have greater conceptual distance with their pigs than with their hands,
this sounds of course reasonable, but the assumption is based on his own
(Eurocentric) intuition. This culturally specific intuition-based methodology is pro-
blematic for culturally diverse languages and cultures, as pointed out earlier.³ How
can we be certain that the distance between a Paamese speaker and their footprints,
and body odor (in [9] and [10] respectively) is conceptualized as closer to their Self
than to their machete (20)? As mentioned above, this cannot be confirmed by the
sole fact that the Paamese possessive constructions for footprints and body odor are
formally cohesive, in contrast to the distant grammatical possessive structure of
someone’s machete. The guiding assumption of the present paper is that for the
iconicity of distance to be considered a strong primary factor motivating gramma-
tical asymmetries of possessive constructions, the diagrammatic mappings of dis-
tance have to be observed as occurring across different experiential dimensions. As
I show in the following section, turning back to the actual experience of distance in
a given culture provides more palpable ways to assess its plausible conceptualiza-
tion by speakers of a given language than by extending one’s own limited native
speaker intuition to the diversity of the world’s cultures.

3 Turning back to experience

This section focuses on how interpersonal and intrapersonal possessions are
experienced, and on the way they are related to the linguistic forms that are
used to refer to them. Distance can be broadly defined as the length of space
between two points, but the experience of distance is multi-dimensional in the
sense that it involves a number of different kinds of experiences. In the four
following sub-sections, four dimensions through which Paamese islanders argu-
ably experience distance are explored. These are: functional distance (3.1),
affective distance (3.2), sociopragmatic distance (3.3), and embodied distance
(3.4). For each of these four dimensions, the frequency and iconicity arguments

³ This issue is directly related to the issue Haspelmath (2008) misses to address when he
assumes that the Eurocentric categories “body parts”, “kinship relations” and “alienable
objects” are universally and similarly distributed across the world’s cultural diversity.
are confronted with the Paamese data to evaluate their relative success in accounting for the relation between language and experience.

3.1 Functional experience of distance

*Functional distance* is a social psychology notion that is defined as “the aspects of architectural design that determine which people you cross paths with most often” (Aronson et al. 2013: 269). The Paamese’s experience of functional distance is first and foremost structured by their prominent agnatic clan organization. The ‘architectural design’ of Paamese living space is structured in a way that tightly binds members of the same clan together, and keeps members of different clans apart. Clan members are all blood related with the exception of married women, who come from another clan, and move to their husband’s clan when they marry, which is common practice in Vanuatu (e.g., Speiser 1990: 265). The logical consequence of this topological structure is that there is high functional proximity among clan members, and high functional distance among individuals belonging to different clans. Individuals related by affinal relations therefore rarely cross path with each other, since they live on different precisely delimited territories. Table 2 summarizes the way Paamese refer to each other and shows that Paamese kinship structure is of the Iroquois type (e.g., Haviland et al. 2011: 256).

Table 2 shows that there is a clear-cut formal distinction between blood kin terms and affinal kin terms. The former have a directly suffixed form, while the latter are indirectly suffixed. On the one hand, clan members who experience high functional proximity are blood related, and refer to each other with kin terms that are formally cohesive. On the other hand, formally distant affinal kin terms are used to refer to the affinal relations connecting two individuals that are separated by high functional distance. Thus, there is a strong correlation between the experience of functional distance and linguistic distance as illustrated in Figure 4.

The horizontal solid double arrows represent the degree of functional distance between the possessor (e.g., ego) and the possessum (ego’s father or ego’s brother-in-law), as well as the degree of morphosyntactic distance between the linguistic marker for the possessor (e.g., the direct 1SG suffixed -k ‘my’, or the possessive qualifier POSS-1SG ona-k, ‘my’) and the possessum (e.g., tevu-1SG-uli ‘father’ or uan ‘brother-in-law’). The horizontal discontinuous double arrows represent the mutual relations between the various degrees of functional distance (i.e., functional proximity vs. functional distance) and linguistic distance (i.e., morphosyntactic cohesion vs. morphosyntactic distance). The discontinuous
vertical lines represent the systematic correlation between the mutual relations of functional distance and linguistic distance.

This systematic mapping of experience onto language makes a rather strong case for diagrammatic iconicity as a motivating factor for the grammatical asymmetries of kinship term possessive constructions. This means that if we know the degree of functional distance traditionally separating two individuals in experience, the form of the Paamese kin term of reference can be predicted. In other words, a relation of high functional distance is indirectly suffixed in a possessive construction, whereas a relation of high functional proximity is directly suffixed.

As for the relative frequency argument, Haspelmath (2008: 10) explains that it only concerns “the relation between the frequency of one category and the frequency of another category”. Since he assumes “kinship relations” to be

### Table 2: Paamese kinship terms (Crowley 1982; Devylder 2014).

<table>
<thead>
<tr>
<th>Clan</th>
<th>Directly suffixed</th>
<th>Indirectly suffixed</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood</td>
<td>tu-k-ahin</td>
<td>x</td>
<td>‘my sister’ (fem. ego)</td>
</tr>
<tr>
<td></td>
<td>ahino-k-uli</td>
<td>x</td>
<td>‘my sister’ (masc. ego)</td>
</tr>
<tr>
<td></td>
<td>manu-k-uli</td>
<td>x</td>
<td>‘my brother’ (fem. ego)</td>
</tr>
<tr>
<td></td>
<td>tua-k</td>
<td>x</td>
<td>‘my brother’ (masc. ego)</td>
</tr>
<tr>
<td></td>
<td>natu-k</td>
<td>x</td>
<td>‘my child’</td>
</tr>
<tr>
<td></td>
<td>natu-k-ahin</td>
<td>x</td>
<td>‘my daughter’</td>
</tr>
<tr>
<td></td>
<td>natu-k-uli</td>
<td>x</td>
<td>‘my son’</td>
</tr>
<tr>
<td></td>
<td>avu-k-ahil</td>
<td>x</td>
<td>‘my grandchild’</td>
</tr>
<tr>
<td></td>
<td>avu-k-ahin</td>
<td>x</td>
<td>‘my granddaughter’</td>
</tr>
<tr>
<td></td>
<td>avu-k-uli</td>
<td>x</td>
<td>‘my grandson’</td>
</tr>
<tr>
<td></td>
<td>latu-k</td>
<td>latu ona-k</td>
<td>‘my mother’</td>
</tr>
<tr>
<td></td>
<td>tevu-k-uli</td>
<td>tevu ona-k</td>
<td>‘my father’</td>
</tr>
<tr>
<td></td>
<td>tevu-k-ahin</td>
<td>tevu tomahin ona-k</td>
<td>‘my grandmother’</td>
</tr>
<tr>
<td></td>
<td>tevu-k-uli</td>
<td>tevu toman ona-k</td>
<td>‘my grandfather’</td>
</tr>
<tr>
<td>Affinal</td>
<td>ašo-k</td>
<td>ašo/meatin ona-k</td>
<td>‘my wife/husband’</td>
</tr>
<tr>
<td></td>
<td>matuo-k</td>
<td>matuo ona-k</td>
<td>‘my maternal uncle’</td>
</tr>
<tr>
<td></td>
<td>x</td>
<td>uan ona-k</td>
<td>‘my brother-in-law’</td>
</tr>
<tr>
<td></td>
<td>x</td>
<td>mae ona-k</td>
<td>‘my sister-in-law’</td>
</tr>
<tr>
<td></td>
<td>x</td>
<td>avu tissa (ona-k)</td>
<td>‘my mother-in-law’ (masc. ego)</td>
</tr>
<tr>
<td></td>
<td>x</td>
<td>avu tissa (ona-k)</td>
<td>‘my father-in-law’ (fem. ego)</td>
</tr>
<tr>
<td></td>
<td>x</td>
<td>avu tomahin (ona-k)</td>
<td>‘my mother-in-law’ (fem. ego)</td>
</tr>
<tr>
<td></td>
<td>x</td>
<td>avu toman (ona-k)</td>
<td>‘my father-in-law’ (masc. ego)</td>
</tr>
<tr>
<td></td>
<td>x</td>
<td>ahineli ona-k</td>
<td>‘my daughter-in-law’ (masc. ego)</td>
</tr>
<tr>
<td></td>
<td>x</td>
<td>avukuli ona-k</td>
<td>‘my son-in-law’ (fem. ego)</td>
</tr>
<tr>
<td></td>
<td>x</td>
<td>meatin onen natukuli</td>
<td>‘my son-in-law’ (masc. ego)</td>
</tr>
<tr>
<td></td>
<td>x</td>
<td>ahin onen natukahin</td>
<td>‘my daughter-in-law’ (fem. ego)</td>
</tr>
</tbody>
</table>
one undifferentiated category of “inalienable nouns” (2008: 19) which, according to him, necessarily have “inalienable constructions”, the relative frequency argument will fail to account for this intra-categorial variation, where possessive constructions of kinship relations have different forms. A possible reply is that people, who cross path more regularly, refer to each other more frequently. But that would still make frequency a derivative rather than a primary explanation.

Another kind of support for iconic motivation as an explanatory factor is to be found in the reference terms for spouses before and after they are married. When two individuals become engaged on Paama, they still live on two distinct territories (i.e., the functional distance separating them is high), and refer to each other with the indirectly suffixed form ahoi ona-k ‘my fiancé’ (24). When they marry, the wife leaves her clan for her husband’s, and the spouses then refer to each other with the directly suffixed form aaso-k ‘my wife/husband’ (23) (Crowley 1996: 415).

**Figure 4:** Functional distance between two individuals systematically correlates with the linguistic distance of the term that refers to the individual’s relation.
Once they are married, Paamese women never leave their adoptive clan, not even after death; they are buried in the clan’s rahitan⁴ “burial site”, the sacred piece of land reserved for burying members of the clan, which has a high significance for Paamese people. Here again, the degree of linguistic distance (ahoi ona-k ‘my fiancé(e)’ vs. aaso-k ‘my wife’) is diagrammatically iconic with experiential distance (two people obviously have a much higher degree of functional proximity once they marry).

If we were to use Hasplemath’s method and extend the results of a BNCweb corpus analysis to a language other than English then economy could not account for this correlation. Indeed, nothing suggests the plausibility of a higher relative frequency of the term ‘wife’ in a possessive construction compared to the number of occurrences of the term ‘fiancé’. This is illustrated in Table 3, which shows that it is rather the opposite: the latter term appears 1.23 times more frequently in a possessive construction (e.g., my fiancé) than the former in a possessive construction (e.g., my wife).⁵

Table 3: Frequency of occurrence of wife and fiancé in BNCweb.

<table>
<thead>
<tr>
<th></th>
<th>Wife (16 484=100% hits)</th>
<th>Fiancé (109=100% hits)</th>
<th>Relative frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Possessed</td>
<td>10 046 hits (e.g., my wife)</td>
<td>82 hits (e.g., my fiancé)</td>
<td>f = 1.23</td>
</tr>
<tr>
<td></td>
<td>60.9%</td>
<td>75.22%</td>
<td></td>
</tr>
<tr>
<td>Not possessed</td>
<td>6438 hits (e.g., a wife) 39.1%</td>
<td>27 hits (e.g., a fiancé) 24.88%</td>
<td>f = 1.57</td>
</tr>
<tr>
<td>Absolute frequency</td>
<td>(3) f = 1.55</td>
<td>(4) f = 3.02</td>
<td></td>
</tr>
</tbody>
</table>

⁴ From rahini ‘bury’ and atan ‘territory, land’
⁵ In view of the limits of extending the results of a BNCweb corpus analysis to a language other than English (cf. Section 2.1), this frequency table cannot rule out economy in a definitive way. Instead, it is here suggested that language cannot be reduced to frequency tables, and that paying attention to the cultural environment of the people that speak it can inform the iconicity vs. frequency debate in a crucial way.
3.2 Affective experience of distance

The kind of distance that Paamese couples experience obviously goes beyond the functional dimension. Distance is also experienced through its affective dimension. The effect that close functional proximity has on close affective proximity has long been attested in social psychology and is described as the propinquity effect: people who cross paths with each other more often are more likely to experience affective proximity towards each other than with those they more rarely encounter (Festinger et al. 1950; Barnlund and Harland 1963; Lawton et al. 1975; Aronson et al. 2013: 268–269). The propinquity effect is also the result of the mere exposure effect, which itself results from functional proximity: the more exposure we have to a stimulus the more apt we are to like it (Moreland and Topolinski 2010; Zajonc 1968). The following set of expressions illustrate that expressions referring to good affective relationships in terms of functional proximity are widely distributed across a diverse variety of languages like Japanese (25), French (26), or Paamese (27).  

(25) kare to watashi wa chikai kankei ni (Japanese)  
3MSG with 1SG TOP ADJ close relationship in  
aru  
COP/AUX  
‘I am on good terms with my brother.’  

(26) Il est proche de s-a mère. (French)  
3SG.M be.PRS.3SG close from POSS.3SG-F mother  
‘He and his mother are close.’  

(27) Kowa keilu ru first sesal. (Paamese)  
DEM.LOC 3DL stay together close  
‘These two get along well.’

The experience of affective distance in Paamese also correlates with the morphosyntax of the terms that refer to the relation between two individuals. This

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6 In terms of Conceptual Metaphor Theory (Lakoff and Johnson 1980; Lakoff and Johnson 1999), these three examples would be described as the linguistic expressions of an underlying conceptual mapping between the source domain FUNCTIONAL DISTANCE and the target domain of AFFECTIVE RELATIONS. What motivates such a cross-domain mapping is the functional-affective experience of distance that social psychologists call the propinquity effect.

7 I am grateful to Misuzu Shimotori and Yoshikata Shibuya for this example.
can be illustrated by the comparison between (28) and (29), and between (30) and (31).

(28) *Aaso-k*
    spouse-1SG
    ‘my dear spouse’

(29) *Ahin ona-k*
    female POSS-1SG
    ‘my wife’

(30) *Tua-k*
    brother-1SG
    ‘my brother/my friend’

(31) *Uan ona-k*
    brother-in-law POSS-1SG
    ‘my brother-in-law’

There are two ways to refer to one’s wife in Paamese: one could either use the directly suffixed construction *aasok* (already quoted in [23] and reproduced here in [28]), or the indirectly suffixed structure *ahin ona-k* (29). Consultants explain that the two expressions are not synonymous: (28) has a strong affective charge, in contrast to the affective neutrality of (29) (Devylder 2014: 17–27). The strong affective charge of (28) has some sociopragmatic correlates that I detail in the following subsection. Similarly, the directly suffixed possessive construction *tua-k* in (30) refers both to the kinship relation ‘brother’ and also to friendship relations. This is also the case in the American English relation ‘brother’, or in the Australian English *mate*, both having had their original kinship meaning extended to relations of affective proximity. In contrast, the linguistically distant form *uan ona-k* ‘brother-in-law’ correlates with the high degree of affective distance, experienced between siblings-in-law on Paama. Two siblings-in-law are expected to avoid the display of any kind of emotion in the presence of each other. They are expected to constantly remain in control of their emotions as a sign of respect towards one another and cannot express sadness, joy, or even laugh in each other’s presence.

These two sets of examples, (28–29) and (30–31), illustrate a correlation between the experience of affective distance and linguistic distance that is systematic in all kinship terms involving possessive constructions. The affective distance experienced between two individuals would of course need to be further elicited, compared, and quantified in further research; however, the strict
sociopragmatic rules that control the degree of affective distance on Paama, which I detail in Section 3.3, already indicate a solid correlation between the experiences of affective and linguistic distance. The mutual relations between the distinct degrees of affective proximity systematically correlate with the mutual relations of the distinct degrees of linguistic distance, hence supporting the role of diagrammatic iconicity as a constitutive factor, as illustrated in Figure 5.

![Diagram](image.png)

**Figure 5:** Affective distance between two individuals systematically correlates with the linguistic distance of the term that refers to the individual’s relation.

### 3.3 Sociopragmatic experience of distance

The fact that functional proximity leads to affective proximity can potentially be challenging for the peace and order of a Paamese clan. Indeed, propinquity can lead to sexual attractiveness between individuals that are not supposed to be attracted to each other. As explained above, Paamese women marry men from other clans and once married, they permanently move to the territory of their
husband’s clan. This topological setting engenders high functional proximity between married women and male members of the husband’s clan, which can potentially lead to affective proximity that needs to be controlled to avoid extra-marital relations. Extra-marital relations, in turn, can be the source of undesirable social tensions. Similar to many Aboriginal Australian (e.g., Dixon 1980), and other Austronesian (e.g., Simons 1982) cultures, Paamese culture has developed a set of strict sociopragmatic rules of physical avoidance, address and reference, in order to restrict high degrees of functional proximity between affinal relations. It is plausible that these restrictive rules were then extended to the affinal relations between the husband and his in-laws, although they do not live on the same territory. The most distant interpersonal relation is between ego and the parent-in-law of the opposite sex. For instance, once wed, Paamese people are not allowed to address their parent-in-law of the opposite sex, nor refer to them when the parent-in-law is within seeing distance. The son-in-law or daughter-in-law must never find himself or herself in the same room, market place, or beach, and they must leave the area if the parent-in-law of the opposite sex arrives. If one of these rules is broken, the most expensive good on Paama (i.e., a curl tusk pig) is to be paid for reparation. The kin term avu tissa ‘parent-in-law’ itself is telling of the special status of the relation since avu is a term used to express a particular kind of respect towards another kin (e.g., grandchildren address their grandparents as avu) and tissa means ‘something forbidden, bad, negatively connoted’, indicated by other uses of the word in (32–34). The term thus seems to conflate a high level of respect and taboo.

(32) longi tissa.
  feel sadness/not good
  ‘I feel sad.’

(33) tin tissa
  intestines bad
  ‘to be angry’

(34) tissa komba lingi!
  not good here to put
  ‘Don’t put it here!’

8 When asked why so much distance was to be observed between ego and the parent-in-law of the opposite sex, my closest consultant finally confided: “when I took my wife, I took her mother’s beauty, so I cannot come close to avu tissa [‘my mother-in-law’]” (Devylder 2014).
The sociopragmatic distance between other affinal relations is also quite high and enforced by strict rules of avoidance, address, and reference, albeit not as restrictive as the distance between ego and parent-in-law of the opposite sex. For example, one can never address or refer to their siblings-in-law by their first name, which is considered rude and disrespectful, and should instead use *uan onak* ‘my brother-in-law’ or *maase onak* ‘my sister-in-law’. They are allowed to be in the presence of one another but should never show they lack control over their emotions (e.g., overt expression of joy, anger or sadness) in order to stay affectively distant.

As shown earlier in Table 2, all relations to which such sociopragmatic rules apply (i.e., affinal relations) are indirectly suffixed. In contrast, all relations that have no sociopragmatic restrictions in terms of address and reference have a directly suffixed form. For example, the father-daughter relation is sociopragmatically experienced as unrestricted and is directly suffixed (35). This is in contrast to the father-daughter-in-law relations, the highest sociopragmatically restricted relation, which is indirectly suffixed (36).

(35)  
*Natu-k-ahin*

child-1SG-female

‘my daughter’

(36)  
*Ahineli ona-k*

daughter-in-law POSS-1SG

‘my daughter-in-law’

Table 2 also shows that some consanguine kin terms have both forms, for instance one’s father can be referred to both by a directly suffixed possessive construction (*tevu-k-uli*) and by an indirectly suffixed possessive construction (*itet ona-k*). This distribution can be explained by a phenomenon that François (2001: 453–459) calls “the expansion of address terms to referential uses”, and which he observed from his work on Mwotlap, another language of Vanuatu. In brief, this phenomenon describes the tendency for address terms to replace terms of reference, for instance Paamese and English children alike do not address their father by their first name but by *itet* and *dad* respectively. In contrast, Paamese and English parents address their children by their first names, and thus do not extend address kin terms to referential uses. This explains why the directly and indirectly suffixed forms are only available to refer to parents and grandparents, but not to children or grandchildren.

The only case of Paamese kinship relation that has both forms, but cannot be explained as the result of an expansion of address terms to referential use, is the term for spouses: *aasok* (28) ‘my dear spouse’ and *ahin/meatin onak* (29) ‘my
wife/husband’. The directly suffixed form differs from the indirectly suffixed one in terms of its dyadic nature. This means that both husbands and wives can interchangeably use the term *aasok* to refer to each other, while the indirectly suffixed form *ahin/meatin onak* is gender-specific. This important pragmatic characteristic of the term would support the role of frequency in the formal distinction between the two terms: since *aasok* can potentially be repeated twice as much as *ahin onak*, its frequency of occurrence would be significantly higher and thus possibly have resulted in the shortness and fusion of the possessive marker into the noun. However, while it may be tempting to conclude that economy is here the primary factor in explaining the grammatical asymmetry, it would be turning a blind eye to another equally important sociopragmatic factor. The morphosyntactically cohesive term *aasok* is charged with affective cohesion, or proximity between the spouses, which Paamese people are not allowed to display in the public sphere: “when you talk about your wife to a group of people you use *ahin onak*” Chief Kunde Toka explains (Devylder 2014: 17–27). *Ahin onak* (29) is thus used in most contexts while the use of *aasok* (28) is restricted to a close intimate circle. It is quite reasonable to assume that an expression that is taboo to use in the public sphere is significantly less frequently repeated than the affectively neutral common public term (i.e, *ahin onak* [29]). The dyadic nature of (28) thus competes with its restricted sociopragmatic use, which pulls the rug the other way in terms of frequency of occurrence. This specific case illustrates how crucial it is to consider the cultural and sociopragmatic dimension of language use that is often left aside in corpora analyses.

In sum, the sociopragmatic dimension of distance in Paamese society is experienced through a set of restrictive rules of avoidance, address, and reference that rigorously structure Paamese interpersonal relations. The degrees of restrictions imposed by these rules enforce distinct degrees of experiential distance between individuals, and that experiential distinction systematically correlates with the possessive forms of the expression that refers to the kinship relation, as illustrated in Figure 6.

Now, is this systematic correlation motivated by frequency or iconicity? In other words, do the degrees of formal distance reflect the degrees of sociopragmatic distance experience or is this grammatical asymmetry simply the result of economy where relatively more repeated possessive constructions become shortened and fused over time? The sociopragmatic dimension of distance experience seems to be a case where economy and iconicity are collaborating forces. It is indeed reasonable to assume that the sociopragmatic restriction of addressing and referring to affinal kinship relations significantly reduces the frequency of occurrence of affinal kin terms. However, this plausible economic process does not exclude the role of iconicity as a motivating factor since once the sociopragmatic
distance separating two Paamese people is known, the form of the possessive expression that refers to their relation can be systematically predicted. Iconicity could perhaps be ignored if economy explained all grammatical asymmetry of possessive constructions in Paamese, in virtue of Occam’s Razor. However, the evidence presented so far shows rather the opposite: the diagrammatic iconicity between experiential distance and linguistic distance is the simplest explanation because formal degrees of distance systematically reflect experiential degrees of distance while economy fails to account for a number of cases. If the Paamese sociopragmatic experience of distance can lead to frequency effects of fusion and shortness, as it indeed appears to have done for a number kinship terms (e.g., [35] vs. [36]), this does not necessarily have to be the case (e.g., *aasok*). Moreover, the above described “expansion of address terms to referential use” phenomenon (François 2001) complements rather than contradicts the iconic argument in the sense that it provides an additional linguistic resource resulting from language use. Moreover, consider the corpus analysis reported in Table 4.

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**Figure 6:** Sociopragmatic distance between two individuals systematically correlates with the linguistic distance of the term that refers to the individual’s relation.
Table 4: Frequency of occurrence of daughter and daughter-in-law in BNCweb.

<table>
<thead>
<tr>
<th></th>
<th>Daughter (11 203=100% hits)</th>
<th>Daughter-in-law (162=100% hits)</th>
<th>Relative frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Possessed</td>
<td>4086 hits</td>
<td>99 hits</td>
<td>f = 1.67</td>
</tr>
<tr>
<td>(e.g., my daughter)</td>
<td>36.47%</td>
<td>(e.g., my daughter-in-law)</td>
<td>61.11%</td>
</tr>
<tr>
<td>Not possessed</td>
<td>7117 hits</td>
<td>63 hits</td>
<td>f = 1.63</td>
</tr>
<tr>
<td>(e.g., the daughter)</td>
<td>63.53%</td>
<td>(e.g., a daughter-in-law)</td>
<td>38.89%</td>
</tr>
<tr>
<td>Absolute frequency</td>
<td>(3) f = 1.74</td>
<td>(4) f = 1.57</td>
<td></td>
</tr>
</tbody>
</table>

Table 4 shows that contrary to what Haspelmath (2008) asserts, English speakers use considerably more frequently possessive constructions of an interpersonal relation (i.e., my daughter-in-law), which could presumably be considered as ‘less inalienable’ than the possessive constructions of father-daughter blood kinship relation. Once again, it is difficult to grant economy the primacy of a universal explanatory factor for the grammatical asymmetries of possessive constructions.

3.4 Embodied experience of distance

Prior to making claims about the motivating forces that may have led to the grammatical asymmetries in possessive constructions of body part terms, it seems reasonable to start with a brief definition of what it means to “possess body parts”. In de Vignemont’s (2011; 2017) definition of body ownership, a distinction between feelings and judgment of ownership can be made. There is a crucial experiential distinction between having a ‘head’, a ‘nose’, or ‘armpits’, and having a ‘heart’, ‘kidneys’, or a ‘bladder’. We have a direct, pre-reflective and somatosensory experience of the first set of entities, while only knowledge of the second. In other words, we indirectly know that our heart, kidney and bladder is ours, but aside from being sick, or being an advanced yogi, we seldom feel it. In contrast, we not only have direct knowledge that our head and hands are ours, but we also constantly feel that they are ours because of the continued flow of information that our somatosensory system both sends and captures. Beyond the obvious anatomical distinction that internal organs are contained in our body, in contrast to our external body parts, the experiential
distinction is deeply anchored in sensorimotor experience. We experience external body parts through the somatosensory receptors of our skin and through the muscle spindles, tendon organs and joint receptors of our proprioceptive system, which constitutes a very different system from the way internal organs are given to us.

According to De Vignemont (2017), the most significant distinction of body ownership between these two kinds of body parts is concerned with agency. We can control and direct our hands, legs, and tongue, but we cannot control and direct our gall-bladder, liver, or heart. This pivotal experiential distinction towards our body induces different degrees of cohesiveness that we distinctively experience towards different parts of our bodies.

(37) Vatu-k
    head-1SG
    ‘my head’

(38) Heihuš ona-k
    heart POSS-1SG
    ‘my heart’

(39) Vulingaso-k
    nose-1SG
    ‘my nose’

(40) Heias ona-k
    kidney POSS-1SG
    ‘my kidney’

(41) Hingo-k
    armpit-1SG
    ‘my armpit’

(42) Heihuš ona-k
    bladder POSS-1SG
    ‘my bladder’

The mapping between degrees of embodied cohesiveness onto degrees of embodied distance has been supported experimentally by De Vignemont et al. (2009). The study shows that a high degree of experiential cohesiveness (e.g., the cohesiveness of the forearm) leads us to perceive physical distance as
significantly reduced. In contrast, a low degree of experiential cohesiveness (e.g., the [forearm + hand] segment) leads us to experience the same physical distance as significantly greater. In brief, our somatosensory experience of distance and cohesion operates a mapping where MORE COHESION IS LESS DISTANCE and LESS COHESION IS MORE DISTANCE. It can be argued that this pervasive embodied experience of distance, which induces a crucial phenomenological distinction concerning body ownership, is the experiential grounding not only for the overt formal distinctions of body part possessive constructions in Paamese (37–42), but also for the covert grammatical asymmetries found in other languages like English (43–44) (Devylder 2016; Devylder 2017), as discussed further on below.

These six examples show that Paamese makes a clear formal distinction between two categories of body part possessive constructions. Considering Crowley’s (1996: 392–394) exhaustive list of Paamese body part terms, the distinction between the two formal categories (directly suffixed and indirectly suffixed) systematically correlates with the distinct degrees of embodied experience of distance of the possessed body part. Considering the iconicity between bodily experience and language as a plausible motivating factor for the grammatical asymmetries of body part possessive constructions thus allows us to systematically predict the form of the possessive construction. According to the experiential distinction between degrees of perceived distance towards one’s body that was introduced above, we can for instance predict that a less cohesive ownership experience of a given body part (e.g., the experience of having a gall-bladder that both lacks agency and “feeling” of ownership) is linguistically encoded with a less cohesive form (i.e., indirect suffixation as in [38], [40], and [42]). The mutual relations of this systematic arrangement of signs (i.e., the distinction of body part formal categories) systematically reflects the relations between the referent in their distinct embodied experience of distance and thus support the role of iconicity as an explanatory factor for the grammatical asymmetries, as illustrated in Figure 7.

This section has focused on the distinction of embodied experiential distance between different kinds of body part ownership that permit the accounting of intracategorial formal variation. As mentioned in Section 2.1, Haspelmath (2008) cannot explain this intracategorial variation since his interpretation of economic motivation is based on the comparison of frequency across so-called ‘inalienable’ monolithic categories of “kinship relations” and “body parts”, and the so-called ‘alienable’ monolithic category of “alienable objects”. Even if we went beyond this interpretation and considered that frequency could nonetheless be a primary motivating factor in the
grammatical asymmetries of body part possessive constructions in Paamese, economy would also fail to account for all asymmetries. This is because some possessive constructions of body parts like ‘my vagina’ (17) or ‘my armpit’ (41) are significantly less frequent in language use than ‘my lungs’ (18) or ‘my canoe’ (1b), and yet (17) and (41) have directly suffixed forms, while (18) and (1b) are indirectly suffixed.

Finally, assuming that all human beings have more or less the same kinds of bodies and hence similar somatosensory-motor experiences of body ownership, it would be very surprising if only Paamese linguistically encoded that experiential distinction with such systematicity, should bodily experience indeed play a role as a motivating factor in these grammatical asymmetries. Although a typology based on the distinct linguistic strategies used to encode the embodied experiential distinction of distance towards one’s body is still lacking, we can refer again to the case of English (5–6) and French

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**Diagrammatic iconicity**

**Figure 7:** Degrees of embodied experience of distance correlate with the degrees of linguistic distance of the term that refers to the experiencer-entity relation.
These languages do not overtly code the degrees of cohesiveness between a possessor and their body parts as Paamese does in its morphosyntax. However, they covertly encode the experiential distinction in the acceptability of argument structure alternations as illustrated in the comparison of (5–6) and (7–8). It has been argued in (Devylder 2016; 2017) that (5b–c) and (7b–c) are possible argument structure alternatives to (5a) and (7a) respectively, but that (6b–c) and (8b–c) are not alternatives to (6a) and (8a) respectively. This is because English and French native speakers experience higher cohesive embodied ownership of their arms than with their clothes. Moreover, this grammatical distinction strategy also encodes a finer-grained intracategorial distinction between different kinds of body parts as illustrated in the English examples in (43–44).

(43) a. I cut my finger.
   b. I cut myself.
   c. I cut myself on the finger.

(44) a. I cut my fingernail.
   b. *I cut myself.
   c. *I cut myself on the fingernail.

In other words, the reflexive construction in (43b-44b) and the possessor raising construction (43c-44c) entail that the whole body (“myself”) can be linguistically profiled as affected by the event only if the active-zone (Langacker 2009) is perceived as a “cohesive enough” body part, which is not the case for fingernails (44). If the possessor experiences a more distant ownership towards an entity, the linguistic structures that encode mereological transitivity (i.e., what affects a part, affects the whole, and vice-versa) are not available, because they are not experienced as fully cohesive. Understanding embodiment and body ownership in terms of degrees of cohesiveness, rather than in terms of alienability vs. inalienability, seems to be more relevant for explaining such a complex phenomenon.

To summarize, in this section I have explored four dimensions through which Paamese islanders experience distance. For each of these four dimensions, the frequency and iconicity arguments have been confronted with the Paamese data to evaluate their relative success in accounting for the relation between language and experience. In the next section, the four experiential dimensions are brought back together to take stock of the motivating factors at work in the grammatical asymmetries of Paamese possessive constructions.
4 Discussion

The previous section showed that structures of Paamese possessive constructions (e.g., NN-1SG vs. NN POSS-1SG) systematically correlate with the experiential distance (e.g., cohesion vs. distance) of the corresponding experiential dimension. If iconicity is defined as “structural similarity between linguistic and non-linguistic entities” (Itkonen 2005: 101), then the Paamese data supports iconicity as a primary explanatory factor for the grammatical asymmetries of possessive constructions, whereas economy is at best a secondary, derivative factor. However, the following question remains to be addressed: if linguistic structures are iconic of experiential structures, what could ‘having a daughter’ (natu-k-ahin ‘my daughter’) and ‘having armpits’ (hingo-k ‘my armpit’) possibly have in common that would explain their analogical possessive form? The answer is that they are analogous in terms of diagrammatic iconicity, with respect to different experiential dimensions.

In fact, this proposal is not fully distinct from that of Haspelmath (2014), when he laudably reconsiders his initial rather mechanistic position and proposes that “[the] economic motivation by itself cannot explain the tendency for entire lexeme classes or subclasses to behave alike” (2014: 198). By conceding that “systematicity” is a competing force, he indirectly acknowledges the role of diagrammatic iconicity in the asymmetry of possessive constructions. Haspelmath (2014: 197) defines systematicity as “a tendency of human language users to organize linguistic forms into systems where classes of forms behave similarly”. For example, he explains that although eye is three times less frequent than eyes, “eye/eye-s conforms to the majority pattern book/book-s, that is system pressure wins over economy” (2014: 196). Haspelmath (2014) thus considers systematicity as a language-internal phenomenon of mapping form and function in contrast to iconicity, which he understands, in line with Itkonen (2005), as a mapping between form and meaning see also Dingemanse et al. 2015.

However, from a cognitive linguistic perspective, it is hard to tease apart language-internal phenomena from language-external experience. We may concede that there is a language-internal analogy that ensures that the same function (e.g., plurality) is expressed by the same form (e.g., N-s in English), but one cannot turn a blind eye to the fact that the singular vs. plural formal distinction (e.g., book vs. books) corresponds to an ontological9 distinction of quantity, which exists outside of language (e.g., in perception).

9 By ontology I here mean “the way that the language-external reality is conceptualized by ordinary human thinking” (Itkonen 2005: 101).
From this perspective, there is no reason to construe Haspelmath’s notion of systematicity as a language-internal phenomenon, and all the reasons to define it instead as a broader tendency of human cognition to organize entities into systems on the basis of analogy, i.e., structural similarity (Itkonen 2005). For instance, the ontological quantitative distinction singular/plural will pressure members of the two ontological classes to behave similarly not only in language (NN vs. NN-s), but also outside of language (e.g. the perception of one continuous entity vs. of two discrete entities of the same kind).

A key ontological dimension that is relevant for the present analysis is the dimension of cohesion, and “the basic ontological distinction related to cohesion is ‘perceptually (or causally) close vs. distant’” (Itkonen 2005: 102). I have shown how this ontological distinction is constituted by multiple experiential dimensions on Paama, and that there is a systematic structural similarity between formal possessive structures (e.g., NN-1SG vs. NN POSS-1SG) and their corresponding experiential, extra-linguistic, and ontological structures (e.g., ‘having a head’ vs. ‘having a canoe’). This is nothing else than diagrammatic iconicity. It is diagrammatic iconicity that organizes experiential structures of cohesion/distance across dimensions. It is thus the phenomenon that makes the experience of having blood relatives and the experience of having body parts analogous, as each one of these experiences maps onto the linguistic expressions, as shown in Figure 8.

Further, although the functional, affective and sociopragmatic dimensions of experiencing distance are distinct, they interact very clearly: on Paama, sociopragmatic rules of avoidance are used to control the affective proximity between two individuals that would potentially result from an unrestricted close functional proximity. Diagrammatic iconicity is thus responsible for making analogies across the dimensions of experience and language; it motivates linguistic structures to reflect the structures of the multidimensional experience of distance.

Going back to the initial question that remained to be answered: what ‘having a daughter’ (natu-k-ahin ‘my daughter’) and ‘having armpits’ (hingo-k ‘my armpit’) have in common are the mutual relations that they share with other experiential items within each of their respective dimension of distance experience. The functional, affective and sociopragmatic experience of distance situate the multidimensional experience of ‘having a daughter’ in relation with other analogous relations of close proximity (e.g., having a son, a mother or a brother) and in contrast to disanalogous relations of high experiential distance (e.g., having a mother-in-law, a brother-in-law or a sister-in-law). Likewise, the embodied experience of distance situates the experience of ‘having armpits’ in relation with other

9 By *ontology* I here mean “the way that the language-external reality is conceptualized by ordinary human thinking” (Itkonen 2005: 101).
somatosensory analogous relations of cohesive body ownership (e.g., having a head, legs and fingers) and in contrast to disanalogous relations of distant body ownership, resulting from the experience of body parts that we know are ours, but lack the direct feeling of ownership and agency (e.g., having internal organs). Through analogy, then, but more specifically through diagrammatic iconicity, what ‘having a mother, a brother and a daughter’ have in common with ‘having a head, hands, and armpits’ is the systematic arrangement of mutual relations between the experiential analogs and the linguistic signs that reflect the constitutive pattern of the system. In other words, the experientially analogous relations of distance motivate the clear-cut boundaries between experientially analogous categories of items, while also pressuring items of the same experiential category to be formally analogous within and across categories (via a direct vs. indirect suffixation strategy in Paamese). The phenomenon that makes this system

![Diagram](image)

**Figure 8:** The multidimensional diagrammatic iconicity of distance.
structurally coherent within dimensions may be referred to as systematicity, but
the phenomenon that makes it structurally coherent across dimensions is dia-
grammatic iconicity, as illustrated in Figure 8.

5 Conclusions

Looking for what primarily motivates the grammatical asymmetries of Paamese
possessive constructions has prompted us to explore a number of important
aspects of meaning-making that extend well beyond the scope of the phenom-
enon at work in the Paamese language and experience of distance. Thus, I hope
to have contributed to the ongoing iconicity vs. frequency debate, as well as to
more general issues currently discussed in cognitive linguistics.

To the question posed by Schmidt (2017: 16), whether it is really frequency
that is ultimately and solely responsible for formal reductions, we can give a
clear answer: no. This paper does not, however, claim to give the final word to
the iconicity vs. frequency debate, but rather has focused on a number of
conceptual and methodological issues that were made relevant by the analysis
of the Paamese data.

By turning back to the non-linguistic experience of distance based on
anthropological and phenomenological data, the argument defended in this
paper aimed at clarifying the notions of iconicity and frequency/economy, as a
necessary first step in deciding on the relevant merits as explanations of
linguistic asymmetries. When confronted with the Paamese data, diagrammatic
iconicity was ultimately argued to be the primary factor that motivates the
grammatical asymmetries of possessive constructions.

Methodologically, this paper has shown that we need finer-grained semantic
categories to inform the validity of the arguments in defense of iconicity or
frequency as explanatory factors of grammatical asymmetries (e.g., affinal vs.
consanguine kinship relations instead of just “kinship relations”, or external
body parts vs. internal organs instead of just “body parts”, etc.). A logical next
step would be to identify stable criteria to established finer-grained semantic
categories of kinship, body parts, or external possessions that are valid cross-
culturally. The iconicity vs. frequency debate will not be over until both models
are compared using the same categories.10 The second logical step that would be
necessary to actually falsify the Haspelmathian iconoclast model, or on the
contrary, rehabilitate it, would be to run frequency tests with these finer-grained

10 As an anonymous reviewer insightfully notes.
semantic categories in representative, comparable and balanced corpora of the languages about which claims are made.

Theoretically, a number of important aspects in the study of meaning have also been brought to attention. Concerns that have recently been raised in cognitive linguistics (Divjak et al. 2016) find a particular resonance with what has been proposed here. The following points are particularly relevant:

- Taking seriously human experience, in both its individual and intersubjective dimensions (Zlatev 2016).
- Emphasizing the importance of the pragmatic and social dimensions of language (Schmidt 2016).
- Paying close attention to the social and cultural aspects of language (Geeraerts 2016).
- Approaching language as both a cognitive/mental phenomenon and as a social/interactive one (Langacker 2016).
- Steering towards a more integrated theory of language so as to avoid treating its functional, sociolinguistic and typological aspects as independent modules, which would paradoxically make cognitive linguistics a close relative of Chomskyan linguistics (Croft 2016).

The present paper has provided a specific case that supports the relevance of these issues and challenges; we would not have been able to account for most grammatical asymmetries of Paamese possessive constructions if we had not paid close attention to these distinct, yet interacting, dimensions of language. Finding a way to integrate all these distinct aspects in a coherent model is both necessary and challenging. Further research would therefore require developing such an integrated model. My theoretical contribution lies in emphasizing the central role to be played in such a model by diagrammatic iconicity.

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10 As an anonymous reviewer insightfully notes.
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