

## **In/alienable Possession**

### **The Role of Semantics and Pragmatics in the Processing of Possessive Structures**

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#### **Introduction**

Possession is one of the human domains that can tell us a lot about how people conceptualize their environment and their relationships with it. Possessive structures reflect the relationships within a society through the status of possessor and possessed and, thus, their interactions with each other. It is therefore important to consider the intercultural significance of the possessive domain.

## **1 Background**

### **1.1 What is possession?**

Possession is a complex and deeply studied concept across linguistics, philosophy, and anthropology. While it is a fundamental aspect of human language, there is notable variation in how languages form and use possessive constructions.

Heine (1997) points out that possession can sometimes appear vague, lacking a universal definition. However, languages universally employ linguistic tools to convey various aspects of possession, making it an intriguing area of exploration.

The intricate connection between language, culture, and modes of thought, especially how culture and cognition manifest within grammar, has been observed. Seiler (1983) argues that even for non-experts, linguistic phenomena termed 'possessive' are easily recognizable and classifiable. Nevertheless, possessiveness remains one of the less understood aspects of language.

McGregor (2009) expands the notion of possession, encompassing a wide range of conceptual relationships between entities. This includes relationships between individuals and their body parts, relatives, representations (like names and photographs), material belongings, rights of use and control, cultural elements, and even extends to inanimate objects.

From an intercultural perspective, Enfield (2004) asserts that grammar carries cultural significance. It encapsulates cultural values, ideas, insights into social structures, and historical evidence about speech communities' social organization.

In the context of Italian (or English), the verbs "to have" and "to possess" are sometimes interchangeable. For instance:

(1a) Leo has a house

(1b) Leo possesses a house

(1c) Leo has a dog

(1d) Leo possesses a dog

However, native speakers generally agree that this interchangeability is not always possible:

(2a) Leo has a mother

(2b) \*Leo possesses a mother

(2c) Leo has a headache

(2d) \*Leo possesses a headache

By examining substitutability in context between “to have” and “to possess” we can discern various forms of possession. This suggests the potential presence of implicit rules governing “possessibility”. However, it is important to note that the semantics of possession and what can or cannot be possessed remain subjects of ongoing debate.

## 1.2 What do we know about processing possession structures?

Processing possession structures involves deciphering how linguistic expressions representing relationships between possessors and possessums are understood. Traditionally, semantics and pragmatics serve distinct roles in language comprehension.

Semantics is responsible for determining the truth-conditional content of an utterance, essentially making it either true or false. On the other hand, pragmatics deals with the speaker's intended meaning, which often goes beyond the literal truth conditions.

According to the Minimalist view, pragmatics usually influences truth-conditional content, particularly concerning deictic expressions like “I”, “now” or “here”. These expressions rely on the context of utterance for interpretation, as “I” can mean different things depending on the speaker. Recanati (2004, 2010) introduces the concept of pragmatic modulation, suggesting that pragmatics can also alter the truth-conditional content based on speaker intentions. Pragmatic modulation is a top-down process where the speaker's intentions reshape the utterance's meaning. For example, when someone says, “I have a car” to a car seller, their intention likely conveys that they have no intention of buying another car, modifying the utterance's truth-conditional content.

Recanati's perspective on the semantics/pragmatics distinction recognizes the complexity of language interpretation. It acknowledges that pragmatic factors can influence truth conditions, even without the need to saturate indexical expressions.

Possession structures provide distinct contexts for exploring pragmatic interpretations:

- Ownership: “Mary has a car” can imply ownership when contextual cues don't indicate otherwise. The default assumption is that Mary owns the car.
- Intention or Desire: If the context suggests Mary's desires or intentions, the interpretation might shift towards her aspiration or intention to possess a car. For example, “Mary has a car, but she dreams of buying a new one.”.
- Temporary Possession: Contextual information can lead to an interpretation of temporary possession. For instance, “Mary has the car, but she's returning it to the car rental tomorrow.”

Considering construction-based approaches, a significant question arises: Should semantic and pragmatic meanings be treated equivalently, or is differentiation necessary? As astutely pointed out by Cappelle (2017: 118), when constructions are defined as established connections between form and meaning, does this imply that both the semantic and pragmatic specifications of a construction collectively constitute its functional core without distinction? This inquiry gains particular relevance in the context of possessive noun phrases (NPs) since both dimensions of meaning often play pivotal roles in their comprehension, and one might argue for their equal significance in representing the functional core of a possessive construction. However, the challenges associated with such approach are multifaceted. As Kolkman (2019) observed, it is solely the semantic aspect that remains consistent and fully definable across

possessive instances. In contrast, the pragmatic facet, encompassing the possessive relationship, either remains fixed (as seen in lexicalized compound expressions), varies with context, or is entirely dispensable for comprehension. Consequently, if constructions are perceived as stable pairings of form and meaning, and the majority of constructional instances display context-driven fluctuations within the pragmatic dimension of this pairing, formalizing its representation becomes a formidable task.

## 2 Research Questions

### 2.1 Is there a processing difference in languages that have the grammatical covert distinction about alienable and inalienable possession?

The term "possession" is often used in everyday language to mean "ownership". However, it can also refer to relationships between body parts of humans and animals, parts of plants and inanimate entities, kinship relations, and more broadly, various types of relationships. When something is strongly related to the possessor, such as relatives or body parts (1a) or parts of a whole (1d), it is defined as *inalienable possession*; when it is something about the possessor that could be separated, it is called *alienable possession* (1b; 1c).

(3a) Model's arm

(3b) Model's skirt

(3c) Cactus pot

(3d) Cactus spines

In many European languages, this distinction is not explicitly grammaticalized. It is more pronounced in several Oceanic languages, as documented by Lichtenberk (1985, 1995, 2009). To further investigate the underlying motivation behind this distinction, Lichtenberk et al. (2011) conducted an experiment involving 72 monolingual English-speaking college students. The participants were presented with a list of possessive phrases and were asked to provide the first interpretation that came to mind. Notably, possessive constructions involving inalienable possessums yielded a narrower range of interpretations compared to those with alienable possessums. This finding provided evidence suggesting that inalienable possessums tend to have a single, dominant interpretation, while alienable possessums can exhibit a broader range of potential interpretations. Consequently, they argue that this highlights the privileging of lexical possession in terms of its ease of processing.

**Psycholinguistic Studies.** In a related study, Lin (2007) explored possession distinctions in Mandarin Chinese, particularly focusing on the processing of alienable vs. inalienable possessive phrases among native speakers. Lin's study incorporated sentences with possessor relative clauses, categorized into two conditions. In the inalienable condition, the initial noun in the sentence was an inalienable noun (e.g., "daughter"), while in the alienable condition, the initial noun was an alienable noun (e.g., "student"). Each participant read a total of 24 sentences, evenly split between the inalienable and alienable conditions, and the sentences were presented in a randomized order. Interestingly, the results of Lin's study indicated that participants read sentences containing inalienable possessums (such as body parts and kinship terms) more quickly than those featuring alienable nouns. This outcome provides further insights into the processing differences associated with these possession categories across different languages. Lin argues that these results can be explained by the fact that inalienable nouns contain an internal possessor argument position. This argument position gives inalienable nouns a relational nature, which means that they are inherently associated with a

possessor. This makes it easier for the parser to integrate an inalienable noun with its possessor in a sentence. Lin's findings have implications for our understanding of the syntax and semantics of inalienable nouns. They also suggest that the way we process language is influenced by the semantic properties of the words we are using. However, it is ambiguous whether longer reading times reflect an enhanced processing cost or a simple failure in interpretation.

**Reaction times.** For this reason, Vaid and Chen (2019) used response times for plausibility judgments to avoid this interpretive problem. A plausibility judgment task was administered to 68 college students who were monolingual users of English: they had to decide as quickly as possible whether a prenominal possessive phrase (i.e., phrases taking the form, *the N1's N2*) made sense. Plausible phrases were constructed by pairing inalienable and alienable possessums with animate or inanimate possessors (e.g., *the chef's fame/the chef's recipes vs. the bistro's fame/the bistro's recipes*). They found that response times were faster for expressions involving inalienable possession: this would suggest that the processing of alienable possession takes longer than inalienable possession. This is because, in adults, they argue, the meaning of inalienable possession phrases is more easily accessible from the lexical semantics of the possessum, while the meaning of alienable possession phrases must be computed through pragmatic inferencing.

## 2.2 Is it true that possessive phrases present a tendency to be interpreted as alienable if they are in predicative constructions?

Predicative possession is a type of possession in which the possessor and possessum are expressed as arguments of a predicate. In other words, predicative possession constructions have a clausal syntax, with the possessor and possessum filling the subject and object slots of the predicate. In many languages, there are two main types of predicative possession constructions: *have*-constructions and *belong*-constructions. *Have*-constructions typically emphasize the possessor, while *belong*-constructions typically emphasize the possessum (Heine, anno?). *Have*-constructions are typically characterized by an indefinite possessum and a subject possessor (2a) and *belong*-constructions are typically characterized by a definite possessum and a subject possessor.

(4a) The actress has a house

(4b) The house belongs to the actress

*Have*-constructions can be used to convey a broader range of possessive notions than *belong*-constructions, including permanent possession, temporary possession, and even abstract possession. *Belong*-constructions, on the other hand, tend to underscore a relationship of permanent – but alienable – possession between the possessor and the possessum.

Predicative possession constructions are typically used to convey alienable possession (2c). However, predicative possession constructions can also be used to convey inalienable possession, but this is less common and might sound odd (2d).

(4c) The actress has the house

(4d) ?The actress has a/the nose

This is because predicative possession constructions tend to assert (new) information, while attributive possession constructions tend to state presupposed (old) information. Assuming a normal, unmarked state of affairs, body parts (like the nose, in the example) are inherently

possessed. Asserting the possession of an inherently possessed entity thus sounds odd because it is prototypically presupposed information.

In fact, the notion about alienable and inalienable entities is cultural specific, but theoretically there are some that tried to make a scheme about the scale of “alienability”, like the Possession Clime proposed by Tsunoda (1996:565).

### **2.3 Is there a difference in the processing of different syntax (with the same alienable semantics) of expressing possessions (attributive or predicative)?**

For some authors, predicative and attributive possession are different not only in form, but also in meaning. Bugenhagen (1986:129) claims that the two structures can be distinguished in the following way (his dative-recipient relationship corresponds to our predicative and his genitive relationship to our attributive possession). Here are the key distinctions he suggests:

(a) Predicative possession implies that the possessum (the thing being possessed) has been in proximity to the possessor for a brief period, while attributive possession suggests a more enduring connection between the possessor and the possessum.

(b) In predicative possession, the possessor is seen as the destination or recipient of the possessum, whereas in attributive possession, the possessor is merely a location where the possessum exists.

(c) Predicative possession often implies that the possessor has limited control over the possessum, while attributive possession suggests that the possessor exercises full control.

### **2.4 Children vs. Adults: Differential Assessment and Processing of Possessive Constructions**

Previous investigations into pragmatic abilities, encompassing both adults and children, have unveiled intriguing variations in the application of Gricean maxims across distinct age cohorts (Panzeri & Foppolo 2021, Okanda et al. 2015, Noveck 2001, Surian et al. 1996). Gricean maxims represent tacit conversational conventions adhered to by individuals to varying extents, governing the facets of information quantity, truthfulness, unambiguous expression, and contextual coherence.

While our study does not constitute a direct exploration of Gricean maxims, we acknowledge their relevance as a conceptual underpinning for comprehending conversational implicatures and how individuals employ implicit conversational norms during dialogic interactions. Previous research has scrutinized pragmatic competence in both adults and children, uncovering variations in how these Gricean maxims are applied across diverse age strata.

Our study embarks on an investigation aimed at discerning potential distinctions in responses between adults and children regarding possessive constructions, such as "la mela ha la buccia" (the apple has the peel) or "Sara ha la bocca" (Sara has the mouth). We undertake this inquiry through the lens of distinctive pragmatic competencies inherent to each age group. While Panzeri and Foppolo (2021) identify subtle differences in how children and adults respond to the Gricean maxim of quantity, we posit that these age-related differentiations may not uniformly extend to phrases akin to "the apple has the peel" or "the witch has the nose."

### 3 Predictions

#### 3.1 What do we expect about the processing in languages that have the grammatical overt distinction on alienable and inalienable possession?

According to the terminology used by Barker (2011), lexical possessives, which are phrases that refer to inalienable possession, may appear to be more easily retrieved from the mental lexicon than phrases that refer to alienable possession. This is because the meaning of phrases with inalienable possessums is more fixed and predictable, while the meaning of phrases with alienable possessums can vary depending on the context. Phrases with alienable possessums often require a pragmatic interpretation, which means that the listener must integrate information from both the linguistic and extralinguistic context to determine the meaning of the phrase.

To illustrate this, consider a phrase (sentence?) with inalienable possession, such as:

(5a) The ankle of the dancer.

In this case, we know that dancers typically have ankles, as it is a normal body part taken for granted by the majority of native speakers.

On the other hand, consider a phrase with alienable possession, like:

(5b) The tutu of a dancer.

Here, the meaning depends on the specific context. While dancers may indeed possess tutus, the presence of a tutu is not mandatory for all dancers. The realm of dancer attire encompasses a spectrum of items, including tutus, shoes, tights, and various other garments. Consequently, phrases encoding alienable possessive relations require a more intricate process of harmonizing real-world knowledge with lexical information, which may potentially hinder processing speed.

In summary, our prediction posits that languages distinguished by their treatment of alienable and inalienable possession may exhibit distinct processing dynamics. Lexical possessives, synonymous with inalienable possession, are poised to demonstrate swifter and more direct access due to their inherent predictability.

Conversely, alienable possessives, governed by the nuances of context-dependent interpretation, are anticipated to display slower and more cognitively demanding processing characteristics. This hypothesis establishes a foundational framework for a comprehensive exploration of linguistic processing in the context of possession distinctions across diverse linguistic systems.

#### 3.2 Do we expect that possessive phrases present a tendency to be interpreted as alienable if they are in predicative constructions?

We can suppose that the scale of alienability could be more shifted through the alienable interpretation. Moreover, there are other factors (without a specific context) that can change the vision about the alienability in predicative constructions: the selection of the determiners of the possessor and the possessum will really affect the interpretation and the number too (because it is different if the possessor or the possessum are interpreted like examples of an entire category or about a singular case).

### **3.3 Do we suppose a difference in the processing of different syntax (with the same alienable semantics) of expressing possessions (attributive or predicative)?**

The two syntactic modes of expressing possession, namely, predicative and attributive, primarily encode distinctions in terms of presuppositional content. For instance, a more straightforward way to differentiate between these modes is by considering their respective presuppositional content. For instance, expressions like "my credit card" typically presuppose possession, whereas expressions such as "I have a credit card" assert the possession explicitly. Drawing inspiration from more comprehensive studies on asserted and presupposed content, exemplified by the work of Thoma et al. (2023), which highlighted the persuasive impact of presuppositions induced by lexical triggers in comparison to equivalent assertive statements, our research contributes to shedding new light on the crucial question regarding the status and cognitive as well as behavioural implications of presupposition processing.

Practically, it suggests that incorporating lexically conveyed presuppositions strategically into persuasive communication may enhance its effectiveness, provided that these presuppositions are sufficiently informative to induce accommodation. Therefore, it is not difficult to infer that predicative possessive constructions (thus asserted) are processed more slowly than attributive ones (presupposed) because the presupposed assertion is more readily accepted, as indicated by the persuasive effect observed in our study.

### **3.4 Which is the role of pragmatic competence in children's assessment of possessive constructions?**

When examining the acceptability of linguistic expressions, particularly possessive constructions, in the context of pragmatic competence, it becomes essential to question whether children exhibit a different degree of sensitivity towards Gricean maxims compared to adults. A pertinent example often cited in discussions of pragmatics is the sentence "The actress has a/the nose." In an adult linguistic context, this statement could be perceived as a subtle violation of Gricean maxims. Specifically, it may be seen as somewhat infringing on the maxim of quantity, which dictates that contributions to conversations should be informative enough. Stating that "actresses have a nose" appears to convey an aspect so universally expected that it may be deemed uninformative within adult conversations.

However, the intriguing question arises: Do children perceive and assess such linguistic expressions in the same manner as adults? It is plausible to hypothesize that children might not be as stringent in their judgment of such sentences. While these constructions could be considered as violating, perhaps, the maxim of quantity, they may not necessarily contravene the maxim of quality because they do convey something potentially true. This subtle distinction might lead children to be more accepting of such expressions, even if they diverge from the strict Gricean maxims adults often adhere to.

In essence, this prediction posits that children may exhibit a higher degree of tolerance towards possessive constructions used in non-literal or uninformative ways, even if such constructions deviate from the expectations set by Gricean maxims. This intriguing avenue of inquiry seeks to shed light on the interplay between children's pragmatic competence and their assessment of linguistic expressions, particularly possessive constructions, in varied various? contexts.





Italian, so there is no variation to be considered. However, it would be interesting to see if the results of the study would be the same if the study was conducted in a language that has multiple ways of expressing attributive possessives.

### Participants

A sample of 65 participants (M:23, F:42; mean age: 26.75, SD: 7.72), who had Italian as their L1 with a high educational level (High School Diploma: 30, Degree: 34, PhD: 1). All the participants were volunteers.

### Materials

A list of 80 Italian possessive phrases using the of-genitive was constructed. It included 64 semantically plausible phrases, divided into four categories (alienable animate, inalienable animate, alienable inanimate, alienable animate) with 16 implausible sentences as fillers. Plausibility was determined based on a previous norming study with 419 participants (M:101, F:312, non-binary:5, mean age: 31.59, SD: 11.31) recruited online. Each stimulus was presented in the form “the N1 of the N2”. Each participant judged 32 phrases that were randomly presented: 16 plausible phrases (4 animate alienable possession phrases, 4 animate inalienable possession phrases, 4 inanimate alienable possession phrases, 4 inanimate inalienable possession phrases) and 16 implausible phrases. Inalienable possessum included parts of a whole, natural bodily.

<b>INALIENABILI INANIMATI</b>	<b>ALIENABILI INANIMATI</b>	<b>INALIENABILI ANIMATI</b>	<b>ALIENABILI ANIMATI</b>
La faccia delle monete <i>The face of the coins</i>	Il salvadanaio delle monete <i>The piggy bank of the coins</i>	La faccia degli universitari <i>The face of the university students</i>	Il salvadanaio degli universitari <i>The piggy bank of the university students</i>
Il calcio delle ossa <i>The calcium of the bones</i>	La radiografia delle ossa <i>The X-ray of the bones</i>	Il calcio dei calciatori <i>The kick of the soccer players</i>	La radiografia dei calciatori <i>The X-ray of the soccer players</i>
La memoria del computer <i>The computer's memory</i>	Il caricatore del computer <i>The computer's charger</i>	La memoria del professore <i>The professor's memory</i>	Il caricatore del professore <i>The professor's charger</i>
Il braccio del robot <i>The robot's arm</i>	I ricambi del robot <i>The robot spare parts</i>	Il braccio del meccanico <i>The mechanic's arm</i>	I ricambi del meccanico <i>The mechanic spare parts</i>
Il muso dell'automobile <i>The car's front</i>	Il tappetino dell'auto <i>The car's pad</i>	Il muso del cane <i>The dog's snout</i>	Il tappetino del cane <i>The dog's pad</i>

<b>INALIENABILI INANIMATI</b>	<b>ALIENABILI INANIMATI</b>	<b>INALIENABILI ANIMATI</b>	<b>ALIENABILI ANIMATI</b>
La testa dei fiammiferi <i>The matchsticks head</i>	La scatola dei fiammiferi <i>The box of the matchsticks</i>	La testa dei gatti  <i>The cat's head</i>	La scatola dei gatti  <i>The box of the cats</i>
Il cuore dei carciofi  <i>The heart of the artichokes</i>	Il campo dei carciofi  <i>The artichoke field</i>	Il cuore dei cinghiali  <i>The heart of the boars</i>	Il campo dei cinghiali <i>The boar field</i>
L'odore del cantiere <i>The construction site's smell</i>	La ruspa del cantiere <i>The bulldozer of the construction site</i>	L'odore dell'operaio <i>The worker's smell</i>	La ruspa dell'operaio <i>The worker's bulldozer</i>
Le braccia dello spaventapasseri <i>The scarecrow's arms</i>	Il cappello dello spaventapasseri <i>The scarecrow's hat</i>	Le braccia dell'agricoltore <i>The farmer's arms</i>	Il cappello dell'agricoltore <i>The farmer's hat</i>
Le spine del cactus <i>The cactus spines</i>	I parassiti del cactus <i>The cactus parasites</i>	Le spine del riccio <i>The hedgehog's spines</i>	I parassiti del riccio <i>The hedgehog parasites</i>
Il naso del pupazzo <i>The puppet's nose</i>	Il mantello del pupazzo <i>The puppet's cloak</i>	Il naso della strega  <i>The witch's nose</i>	Il mantello della strega <i>The witch's cloak</i>
La storia del libro <i>The book's story</i>	Il segnalibro del libro <i>The bookmark of the book</i>	La storia dello scrittore <i>The writer's story</i>	Il segnalibro dello scrittore <i>The writer's bookmark</i>
Il polso della giacca <i>The jacket's cuff</i>	La spilla della giacca  <i>The jacket pin</i>	Il polso del comandante <i>The commander's pulse</i>	La spilla del comandante <i>The commander pin</i>
La caviglia della bambola <i>The doll's ankle</i>	Il tutù della bambola  <i>The doll's tutu</i>	La caviglia della ballerina <i>The dancer's ankle</i>	Il tutù della ballerina  <i>The dancer's tutu</i>
L'ala dell'aereo <i>The airplane's wing</i>	Il cibo dell'aereo <i>The airplane food</i>	L'ala del piccione <i>The pigeon's wing</i>	Il cibo del piccione <i>The pigeon food</i>
La smorfia del burattino	Il movimento del burattino	La smorfia dell'attore	Il movimento dell'attore

<b>INALIENABILI INANIMATI</b> <i>The marionette's grimace</i>	<b>ALIENABILI INANIMATI</b> <i>The marionette's movement</i>	<b>INALIENABILI ANIMATI</b> <i>The actor's grimace</i>	<b>ALIENABILI ANIMATI</b> <i>The actor's movement</i>
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### Procedure and Design

Participants were instructed that they would be seeing a series of phrases and that their task was simply to decide, as quickly as possible, if the phrase was plausible (made sense) or not. They were to signal their response by pressing a designated key (A) if they considered the phrase plausible, and another key (N) if the phrase did not make sense. If some other key was accidentally pressed the program would not allow the participant to proceed to the next trial; thus, only responses to the designated keys for plausible/implausible responses were registered. Participants could independently choose how long to rest between trials by pressing a key to view the next trial. The phrase remained in view until a response was given. A millisecond timer was triggered by the onset of the stimulus and stopped with the participant's key press response. The design was a 2(Possessum Type) x 2(Possessor Type) within-subjects factorial.

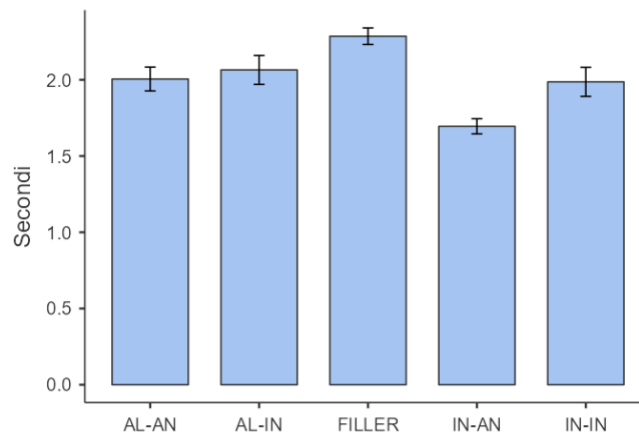
### Methods

A repeated measures analysis of variance was conducted by-participants and by-item responses on mean response latencies to correct responses for plausible stimuli. For the data analysis RStudio was used (version: 2023.06.0-Build 421, packages: languageR, pastecs, lme4, ggplot2, clinfun, car, tidyverse, readxl). The independent variable was the type of possession (alienable vs. inalienable), and the dependent variable was reaction time. The possessor was both animate and inanimate.

### Results

An initial analysis of GLMM with inverse Gaussian distribution was conducted to compare target and filler phrases on response time. The results showed that filler type had a significant effect on response time (GLMM with inverse Gaussian distribution: deviance = 4271.2, df.resid = 2107,  $p = 0.00206$ ). Participants took longer to respond to filler sentences than to non-filler sentences. We conducted a generalized linear mixed model (GLMM) with a binomial distribution to test the effect of sentence type (filler vs. target) on accuracy, but this effect was not statistically significant ( $p = 0.36$ ). The correlation between the fixed effects was not significant as well ( $p = 0.36$ ). These data suggest that accuracy is the same for filler and target sentence types.

A generalized linear mixed model (GLMM) with an inverse Gaussian distribution was fit to the data. The random effects structure of the model included random intercept for subject and items. The model showed that the mean reaction time for judging the plausibility of possessive phrases was 1392 ms (95% CI: 1372, 1412). The type of possessum had a significant effect on reaction time, with phrases with inalienable possessums being judged faster than those with alienable possessums (1392 ms vs. 1402 ms,  $p = 0.017$ ). The type of possessor also had a significant effect on reaction time, with phrases with animate possessors being judged faster than those with inanimate possessors (1382 ms vs. 1402 ms,  $p = 0.001$ ). To test the significance of each fixed effect we performed an ANOVA analysis which showed a significant effect too ( $\chi^2 = 18.11$ , Df= 4,  $p = 0.001$ ).



## Outcomes

- The results showed that inalienable animate possession was processed faster than alienable animate possession.
- This finding is consistent with the hypothesis that inalienable possession is processed faster than alienable possession because it lacks an element of control by the possessor over the possessum.
- The advantage for inalienable animate possession was found even when the possessor was not human, suggesting that the animacy of the possessor is an important factor in processing.
- This is likely because animate entities are more likely to be associated with inalienable possession, as they are more likely to have parts or qualities that are essential to their identity.

## 4.3 Experiment 2

### Research questions

RQ1: What are the factors that influence the interpretation of alienability in predicative possessive constructions?

RQ2: How does the selection of determiners affect the interpretation of alienability in predicative possessive constructions?

RQ3: Is there a preference of the used definite determiners related with the animacy of the possessor?

### Predictions

P1: We think that the interpretation of alienability in predicative constructions is influenced by a more detailed semantic scale in the possessum noun, where will be important to understand on what grade of in/alienable possessum they are.

P2: We suppose that there is a pattern in the use of determiners to disambiguate the alienability of predicative possessive constructions.

P3: Based on the finding by Bassano et al. (2008), inanimate common nouns in English are more likely to be used with determiners than animate common nouns. The authors of this study explained this finding by suggesting that inanimate nouns are more “individuated” than animate nouns, meaning that they are more likely to be seen as distinct entities. In this

perspective, it is possible to expect that animated possessors will show more definite determiners.

## Participants

A sample of 300 participants who had Italian as their L1 with a high educational level.

## Materials

A list of 640 Italian possessive sentences using the *have*-construction was constructed. The sentences will be divided in 4 main groups: 160 sentences with the form *the N1 HAVE the N2* (6a), 160 with the form *the N1 HAVE a N2* (6b), 160 with the form *a N1 HAVE the N2* (6c), 160 with the form *a N1 HAVE a N2* (6d). Every group will be split in 4 categories (40 animate alienable possession phrases, 40 animate inalienable possession phrases, 40 inanimate alienable possession phrases, 40 inanimate inalienable possession phrases). Each participant will judge 160 phrases (10 for each subgroup), that were randomly presented.

(6a) The worker has the bulldozer.

(6b) The worker has a bulldozer

(6c) A worker has the bulldozer

(6d) A worker has a bulldozer

## Procedure and Design

### Task 1: Picture Selection

Participants will be presented with a series of images and asked to select the sentence that best described the image out of four options. The images were selected to represent a variety of possessive relationships, including animate alienable possession, animate inalienable possession, inanimate alienable possession, and inanimate inalienable possession.

### Task 2: Likert Scale Rating

Participants will be presented with a series of sentences and asked to rate them on a Likert scale from 1 to 5, with 5 indicating the most natural or appropriate sentence. The sentences were designed to represent a range of different possessive forms, including *the N1 HAVE the N2*, *the N1 HAVE a N2*, *a N1 HAVE the N2*, and *a N1 HAVE a N2*.

### Task 3: Written Production

Participants will be presented with two items (a possessor and a possessum) and will be asked to write the first verbal way that came to mind to express the possession relationship between the two items. The possessors and possessums will be selected to represent a variety of different categories, including animate alienable, animate inalienable, inanimate alienable, and inanimate inalienable.

## Methods

After the use of descriptive statistics to summarize the data and identify any patterns or trends, we will use an ANOVA to compare the mean ratings for the four groups of sentences:

- *the N1 HAVE the N2*
- *the N1 HAVE a N2*
- *a N1 HAVE the N2*
- *a N1 HAVE a N2*

In the third part of our procedure we will use qualitative analysis to analyze the written responses from participants. This would involve looking for patterns and themes in the responses: the most common ways that participants expressed possession for animate alienable possession phrases, inanimate alienable possession phrases, animate inalienable possession phrases, and inanimate inalienable possession phrases.

### **Outcomes.**

- The results of the first task will show the preferences of the participants when viewing a clear scene in a picture, i.e., in a restricted context.
- The second task will reveal the limits of the acceptability of different types of possessive constructions, as measured by a Likert scale.
- The third task, which allowed participants to write the first possessive construction that came to mind without any constraints, will provide insights into the preferred ways of expressing possession in different contexts.

## **4.4 Experiment 3**

### **Research questions**

RQ1: Are Italian participants faster to process animate inalienable possessive sentences in a predicative structure as well?

RQ2: Are attributive structures effectively easier to process than predicative structures?

### **Predictions**

P1: We predict that animate inalienable possessive sentences will be processed faster in a predicative structure as well, because this is due to their semantic features rather than their syntactic structure.

P2: It is more difficult to predict whether attributive structures are easier to process than predicative structures. We expect to see an advantage for inalienable structures, but not necessarily for alienable structures.

### **Participants**

A sample of 65 participants who had Italian as their L1 with a high educational level.

### **Materials**

A list of 160 Italian possessive phrases. They will include 128 semantically plausible phrases, divided into 2 groups: predicative possession structures and attributive possession structures. Every group was divided in four categories (alienable animate, inalienable animate, alienable inanimate, alienable animate) with 32 implausible sentences as fillers. Each participant will judge 64 phrases that are randomly presented: 32 plausible phrases (16 in predicative construction and 16 in attributive construction: in each structure there will be 4 animate alienable possession phrases, 4 animate inalienable possession phrases, 4 inanimate alienable possession phrases, 4 inanimate inalienable possession phrases) and 32 implausible phrases.

### **Procedure and Design**

Participants will be instructed that they would be seeing a series of sentences and that their task will be simply to decide, as quickly as possible, if the sentence is plausible (makes sense) or not. They will signal their response by pressing a designated key (A) if they considered the sentence plausible, and another key (N) if the sentence doesn't make sense. If some other key

are accidentally pressed, the program would not allow the participant to proceed to the next trial; thus, only responses to the designated keys for plausible/implausible responses will be registered. Participants can independently choose how long to rest between trials by pressing a key to view the next trial. The sentence remains in view until a response is given. A millisecond timer is triggered by the onset of the stimulus and stopped with the participant's key press response. The design will be a 2(Possessum Type) x 2(Possessor Type) within-subjects factorial.

### **Methods/Data analysis**

A repeated measures analysis of variance will be conducted by-participants and by-item responses on mean response latencies to correct responses for plausible stimuli. For the data analysis RStudio will be used (version: 2023.06.0-Build 421). The independent variables will be the type of possession (predicative vs attributive) and the dependent variable will be reaction time. The possessor will be both animate and inanimate and the possessums will be both alienable and inalienable.

### **Outcomes**

- The task will show if there is a significant difference between predicative and attributive possession in a cognitive way.
- These measures will allow us to understand if there are contrasts in reaction time about the same semantic shade.

## **4.5 Experiment 4**

### **Research Questions**

RQ1: Are there age-related variations in how children and adults interpret possessive constructions that may violate Gricean maxims of quantity or relevance?

RQ2: Do children exhibit greater tolerance for linguistic expressions that violate Gricean maxims compared to adults, and does this tolerance extend to possessive constructions involving familiar entities?

### **Predictions**

P1: The development of pragmatic competence gradually emerges in children as they grow up. Therefore, it is reasonable to expect differences in the interpretation of possessive constructions between adults and children, reflecting the evolution of their pragmatic skills over time.

P2: We hypothesize that children will exhibit greater tolerance than adults towards sentences that are not fully informative but remain factually accurate. Children may prioritize semantic meaning over pragmatic considerations, indicating a stronger reliance on semantic cues in their interpretations compared to adults.

**Participants** A sample of 100 participants, comprising an equal number of adults and children.

**Materials** A list of predicative animated possessive phrases will be constructed, including 120 semantically plausible phrases, divided into two groups: one with simple sentences (e.g., "The witch has a nose") and one with more detailed sentences (e.g., "The witch has a huge nose"). Each group will be further divided into alienable and inalienable possessive sentences. An image corresponding to each sentence description will be created. Sixty images that do not correspond to any sentence (e.g., a witch without a nose) will be created, equally divided

between those with no alienable possession and those with no inalienable possession. Each participant, both adults and children, will evaluate sentences corresponding to an image, randomly presented: 60 plausible sentences (30 simple sentences, divided into alienable and inalienable possessives, and 30 more detailed sentences, divided into alienable and inalienable possessives) and 60 implausible sentences.

**Procedure and Design** Each participant will be instructed that they will see a series of pictures paired with sentences and will simply have to decide whether the presented sentence, paired with the picture, is acceptable as a description of the picture or not. They will signal their response by pressing a designated key: (A) if they consider the sentence acceptable and (N) if the sentence does not make sense. If another key is accidentally pressed, the program will not allow the participant to proceed to the next trial, thus registering only responses to the designated keys for plausible/implausible responses. Participants can independently choose how long to rest between trials by pressing a key to view the next trial. The sentence will remain in view until a response is given. A millisecond timer will be triggered by the onset of the stimulus and stopped with the participant's keypress response. The design will be a between-subjects factorial.

**Methods/Data Analysis** A repeated measures analysis of variance will be conducted for both participant and item responses on mean response latencies to correct responses for plausible stimuli. RStudio (version: 2023.06.0-Build 421) will be used for data analysis. The independent variables will be the type of possession (simple possessive sentences and more detailed possessive sentences), and the dependent variable will be reaction time.

### Outcomes

- The task will show if there is a significant difference of the interpretation of possessive sentences between adults and children.
- Children will exhibit greater acceptability about simple sentences to describe the images, also when there was obviously more to describe to be precise. The level of tolerance in confront of adults towards sentences that are not fully informative but remain factually accurate will be higher.

## 5 Conclusions and future plans

This research significantly advances our comprehension of possessive constructions and their multifaceted interpretation, revealing nuanced variations spanning semantics, syntax, and pragmatics. Operating within a robust theoretical framework encompassing linguistics, cognitive psychology, and pragmatics, this study effectively illustrates the profound impact of linguistic distinctions on cognitive processing and the interpretation of language. Moreover, it underscores the basic role of Gricean maxims as a foundational concept bridging linguistic theory with pragmatic competence.

In summary, this research provides invaluable insights into the intricate landscape of possessive constructions and their processing, underscoring the imperative nature of considering linguistic distinctions, semantics, and pragmatics within the broader tapestry of language and cognition. It not only deepens our comprehension of how language shapes our perception of the world but also elucidates the fundamental cognitive processes that underpin our linguistic abilities.

Here are some possible avenues for future research based on this study:



- Cross-Linguistic Analysis: An intriguing avenue for future research entails the examination of possessive construction processing across diverse languages. This comparative exploration promises to unveil the extent to which a language's differentiation between alienable and inalienable possession impacts linguistic processing.
- Atypical Investigation: Delving into the processing of possessive constructions within distinct population, such as children with language disorders or adults with aphasia, offers the potential to elucidate the specific roles of various brain regions in language processing. This avenue carries profound implications for clinical linguistics and neurocognitive research.
- Neuroimaging Inquiry: The utilization of cutting-edge neuroimaging techniques represents another promising direction. Investigating the associated brain activity during the processing of possessive constructions holds the promise of identifying the precise neural networks engaged in this cognitive task. Such neuroscientific insights are instrumental in comprehending the intricate interplay between language and cognition.

In conclusion, this research plays a crucial role in the constantly developing fields of linguistics and cognitive science. It not only deepens our understanding of language complexities but also sparks further investigations into the deep links between language, thinking, and the human mind.

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