

**Proposal to the Deutsche Forschungsgemeinschaft  
(German Research Foundation)**

Kennedyallee 40, 53175 Bonn

on the granting of a research project

**Half in Common:  
How Common Ground Shapes the Meaning of *Half***

First-Time Research Grant

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February 26, 2026

## Project Description – Project Proposals

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### Half in Common: How Common Ground Shapes the Meaning of *Half*

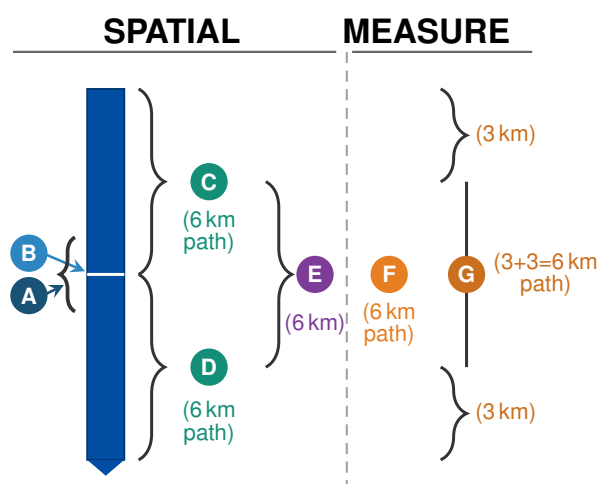
## Project Description

### 1 Starting Point

#### State of the art and preliminary work

##### 1.1 General aim and context

Every language can partition entities into fractions, proportions, and measures, yet only a handful of these divisions are lexicalized as simple words. *Half*-words appear to denote the simplest non-trivial division, yet their reading space is surprisingly complex: a single 12 km path yields seven logically distinct partitions (A–G, Fig. 1).



**Figure 1:** Seven readings of *half* for a 12 km path, grouped into spatial (A–E) and measure (F, G) families.

(A) is the center, (B) the midpoint, (C, D) the first and second halves, (E) a contiguous half, (F) a contiguous measure, and (G) a discontinuous measure. These form two families: *spatial* readings (A–E), defined by the spatial structure of the entity, and *measure* readings (F/G), where topology is irrelevant (any portions summing to half the total). Within the spatial family, C and D are identified instances of E; within the measure family, F is the special case of G where the portions happen to be contiguous. Three nested distinctions generate A–G: *extension* separates spatial (A–E) from measure (F/G); *contiguity* separates F from G; *ordering* separates C/D from E. Within spatial, A (center) and B (midpoint) are location readings; C/D and E are half-partitions.

The *direction* that establishes this ordering can come from three sources: the entity itself (a path's source and goal, a film's temporal arrow), modifiers (*prima/seconda*), or common ground (CG; contextual imposition of direction on an undirected entity). Even when the entity has inherent direction, whether the interlocutors share knowledge of that direction is a CG variable [0].

No language encodes all seven partitions distinctly: a few forms cover multiple partitions, creating systematic ambiguity. Despite extensive work on partitives [0], domain restriction [0], and fraction words [0], no theory explains how speakers disambiguate *half*-words. I argue that the answer lies in

common ground (CG): the shared knowledge that speaker and hearer bring to the interaction. CG operates through grammar, discourse goals, and lexical alternatives to select the intended partition. Languages map these partitions onto lexical items in structurally different ways [0]. English and Italian provide an informative contrast: English concentrates most readings in a single form (*half*); Italian distributes them across two (*mezzo*, adjective, vs. *metà*, noun), so grammar narrows the reading space further before CG is needed. As (1)–(2) show, the same form routinely covers multiple readings: noun type, morphosyntactic frame, and CG jointly determine the partition (Table 1).

(1) English — *middle*, *mid-*, *half*:

- a. The part in the *middle* of the path was flooded. [A]
- b. She stopped at *mid* path. [B] (cf. *mid-life*, *midnight*, *mid-way*)
- c. The first [C] / second [D] *half* (of) the path was flooded. / The two *halves* of the path were flooded. [C + D]
- d. *One/a half* of the path was flooded. [C, D]
- e. *Half* (of) the path was flooded — from the start to the river crossing [C] / from the river crossing to the end [D] / a continuous 6 km stretch. [E]
- f. *Half* (of) the students passed. [F]/[G] (non-spatial noun: measure only)
- g. *Half* a kilo (of flour) was left. [F]/[G] (measure noun: measure only)
- h. *Half* a glass of water was left — the lower half [E] or 0.5 of a glass. [F] (ambiguous noun; CG selects)
- i. The road was *half* the length of the path. [F] (measure paraphrase)
- j. She was *half* asleep. (degree; outside partition domain)

(2) Italian — *mezzo* (adjective) / *metà* (noun):

- a. La parte nel *mezzo* del percorso era allagata. [A]  
the part in.the *middle* of.the path was flooded
- b. *Mezzo* percorso era allagato. [C, D]/[E]  
*half* path was flooded.
- c. *Mezzo* chilo (di farina) era rimasto. [F]/[G] (measure noun; cf. \**metà chilo*)  
*half* kilo (of flour) was left.
- d. *Mezzo* bicchiere d'acqua era rimasto. [E]/[F] (ambiguous noun; CG selects)  
*half* glass of.water was left.
- e. È *mezzo* matto. (degree)  
is *half* crazy
- f. Si è fermata a *metà* percorso. [B]  
REFL AUX stopped at *half* path
- g. *Metà* percorso era allagata. [F]/[G]  
*half* path was flooded.
- h. La *metà* del percorso era allagata. [F]/[G]  
the *half* of.the path was flooded.
- i. La *metà* del percorso dall'inizio al guado [C] / dal guado alla fine [D]  
the *half* of.the path from.start to.the ford / from.the ford to.the end  
era allagata.  
was flooded.
- j. La prima [C] / seconda [D] *metà* del percorso era allagata. / Le due *metà*  
the first / second *half* of.the path was flooded. / The two *halves*  
erano allagate. [C + D]  
were flooded.
- k. Questa/quella *metà* del percorso era allagata. [C, D]/[E]  
this/that *half* of.the path was flooded.
- l. Una *metà* del percorso era allagata. [C, D]/[E]/[F]/[G]  
a/one *half* of.the path was flooded.

- m. La strada era la *metà* della lunghezza del percorso. [F]  
the road was the *half* of.the length of.the path

**Table 1:** Morphosyntactic frames and partition readings [0]. Boldface = ambiguous frames requiring CG-driven resolution.

		Spatial				Measure	
Frame		A	B	C/D	E	F	G
<i>English</i>							
<i>middle of the+N</i>	(1a)	●					
<i>mid-+N</i>	(1b)		●				
<i>the first/second half of+N</i>	(1c)			●			
<i>one/a half of+N</i>	(1d)			●			
<b><i>half (of) the+spatial N</i></b>	(1e)			●	●		
<i>half (of) the / a+non-spatial N</i>	(1f)					●	●
<b><i>half a+ambiguous N</i></b>	(1h)				●	●	
<i>Italian — mezzo (adjective)</i>							
<i>nel mezzo del+N</i>	(2a)	●					
<b><i>mezzo+spatial N</i></b>	(2b)			●	●		
<i>mezzo+measure N</i>	(2c)					●	●
<i>Italian — metà (noun)</i>							
<i>a metà+N</i>	(2f)		●				
<b><i>bare metà+N</i></b>	(2g)					●	●
<b><i>la metà del+N</i></b>	(2h)					●	●
<b><i>la metà del+N + mod.</i></b>	(2i)			●	●		
<i>la prima/seconda metà del+N</i>	(2j)			●			
<b><i>questa/quella metà del+N</i></b>	(2k)			●	●		
<b><i>una metà del+N</i></b>	(2l)			●	●	●	●

Grammar and **common ground** [0] interact to resolve these ambiguities. Grammar structures the reading space in two steps. At the lexical level, the choice of *half*-word eliminates location readings: *metà* is a noun whose base semantics lacks location readings (no A; B arises only in the prepositional frame *a metà+N*, Table 1); *mezzo* retains A in fixed expressions (*nel mezzo del+N*, now largely literary; §1.2).<sup>1</sup> At the frame level, the syntactic environment gates the reading family: for *metà*, the bare definite restricts to measure (F/G) and modifiers open spatial (C/D, E); for *mezzo*, noun type selects the family (*mezzo percorso* → C/D, E; *mezzo chilo* → F/G). **Grammar-as-gatekeeper** (grammar gates, CG selects) thus operates at two levels, corresponding to Layer 1 and Layer 2 in Fig. 3. This predicts the ungrammaticality of *\*metà chilo*: two nouns cannot compose; *mezzo*, an adjective, faces no such restriction. This reverses the standard CG-to-grammar direction [0]: rather than CG licensing grammar (presuppositions), grammar restricts which readings CG can select among—from categorial blocking (*\*metà chilo*) through frame restriction (*la metà del+N* (2h) → F/G only) to the residual space within which Relevance and Informativeness complete disambiguation.

Italian's construction system reveals a **CG-demand gradient** (boldface rows in Table 1). At the bottom, bare *metà+N* (2g) restricts to F/G and demands no spatial CG—the reading is purely measure (restricted to nouns with a linear dimension: *\*metà studenti* [0]). The definite *la metà del+N* (2h) likewise restricts to F/G; the half-measure is inherently unique, so CG does not license the definite but **selects among the readings grammar leaves open**: QUD determines contiguous (F) vs. discontinuous measure (G). Adding a modifier shifts the architecture: *la metà del+N + modifier* (2i) opens spatial readings (C/D, E), demanding shared spatial knowledge; ordinals (*la prima/seconda metà* (2j)) resolve to C/D; non-aligned modifiers leave E open. At the top, the indefinite *una metà del+N* (2l) is maximally ambiguous (C/D, E, F/G) and maximally CG-demanding: *una* is ambiguous between numeral (F/G) and article (C/D, E), and only CG resolves the reading

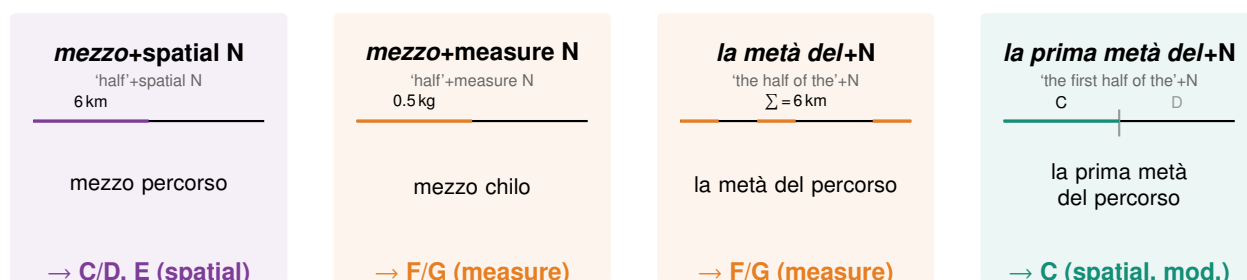
<sup>1</sup>For linear entities, modern Italian strongly prefers *a metà del percorso* over *nel mezzo del percorso*. The productive modern *in mezzo a+N* (*in mezzo al mare*) is locative, not a partition reading, and falls outside the A–G domain.

family. This gradient distinguishes *metà* from other proportional expressions [0]: there, the definite tracks measure uniqueness alone (F); only *la metà del+N* allows modifiers to open spatial readings (the gradient maps onto the weak/strong D distinction; see formal sketch in §1.2).

For *mezzo+N*, the gatekeeper is noun type, not syntax: spatial nouns yield C/D, E (2b); measure nouns yield F/G (2c); quality adjectives escape the partition domain entirely (*mezzo matto* ‘half-crazy’).<sup>2</sup> Ambiguous nouns confirm the pattern: *mezzo bicchiere d’acqua* (2d) denotes the connected lower half (spatial; shared knowledge of the glass’s structure) or 0.5 of a glass (measure; quantity salient). But noun type cannot resolve ambiguity *within* a family: whether C/D is accessible alongside E depends on shared knowledge of the entity’s direction (§1.1); which reading the hearer selects depends on the shared QUD (Experiments 1, 3). Grammar narrows; CG resolves.

English reveals the same gating principle at a different grammatical level: in both languages, bare constructions compose with the noun’s inherent dimension (no CG); functional structure opens spatial readings and increases CG demands.<sup>3</sup> Bare *half+N* [0] parallels bare *metà+N*, productive only with length/duration nouns (*\*half confidence*). *Half (of) the+spatial N* (1e) accesses C/D and E: *half the path* picks out a self-connected entity-part (E, by the MSSC condition [0]), identifiable as C/D by context; *half the students* (1f) yields only F/G (measure readings with spatial nouns require the paraphrase *half the length of* [0]). *Half a+ambiguous N* (1h) is ambiguous between E and F, paralleling *mezzo bicchiere*. The cross-linguistic contrast is revealing: Italian restricts the construction (*\*metà studenti*); English restricts the readings (*half the students*: grammatical, measure only).

Once grammar opens spatial readings, what matters is not whether the hearer *has* spatial knowledge, but whether the *speaker shares it* (Fig. 2). Experiment 1 tests the categorical prediction directly: bare forms should accept position-independent regions (measure), while modified forms should accept only start-anchored regions (spatial).



**Figure 2:** Grammar as gatekeeper (noun-type gating). *Mezzo+spatial* noun restricts to topology-sensitive readings C/D, E (panel 1); *mezzo+measure* noun restricts to measure readings F/G (panel 2). For *metà*: bare *la metà del+N* restricts to F/G (panel 3); a modifier opens spatial reading C/D (panel 4). CG operates *within* the grammatically delimited space.

For standard DPs (*il percorso/un percorso*), CG is binary: the definite is felicitous if the referent is in CG, infelicitous otherwise [0]. For *half*-words, the CG effect is graded, measurable as continuous mouse-trajectory shifts between readings (Experiment 3), making *half*-words a richer testing ground than standard definites. Cross-linguistically, Italian’s modifier-sensitive system constrains the reading space before CG intervenes; English, lacking the *mezzo/metà* split, places higher CG demands on interlocutors (WP 1).

The remaining two mechanisms operate at the pragmatic level. **Relevance:** the shared QUD selects among the readings that grammar leaves open. Located QUDs (*Where ...?*) favor spatial readings (B, C/D, E); quantity QUDs (*How much ...?*) favor measure readings (F, G). The same logic applies *within* a grammatically restricted frame: for English *half the path* (C/D, E only, measure

<sup>2</sup>Even here, CG intervenes: *mezzo uomo* denotes the visible upper body (shared spatial knowledge) or scales masculinity (*è un mezzo uomo* ‘not fully a man’), extending the gatekeeper beyond A–G.

<sup>3</sup>This claim differs from Wagiel [0], who classifies English predeterminer *half* as topology-neutral (like Polish *połowa*). We argue that *half the+N* with length-dimension nouns is topology-sensitive (spatial, like *pół* and *mezzo*), an empirical prediction testable through cross-linguistic corpus analysis (WP 1.1).

excluded), a located QUD (*Where is it safe to walk?*) yields the identified half C/D, while a non-locating QUD (*How bad was the flooding?*) yields the unordered contiguous half E. The QUD must be *mutually recognized*: a mismatch in assumed discourse goals shifts the partition reading. **Gricean informativeness**: the hearer reasons about what the speaker *could have said* but didn't. Since *the first half of the path* (C) and *the middle of the path* (A) exist, the bare form *half the path* biases toward E. The alternative set differs across languages: Italian speakers share knowledge of *mezzo*+N (E), so when a speaker chooses bare *metà*+N instead, the measure reading F/G is reinforced (the speaker avoided the spatial form; left branch of Fig. 3). When a modifier opens spatial readings for *la metà*, informativeness again operates: *la prima metà* (C/D) is available as a more specific alternative, so *la metà* + spatial modifier biases toward E. English lacks the *mezzo/metà* split, so the alternative set is smaller and more work falls on CG. The RSA framework formalizes this:  $P(\text{partition} \mid \text{utterance})$  drops for readings with a dedicated alternative in the shared lexicon.

Table 2 summarizes how the three CG-sensitive mechanisms resolve each residual ambiguity identified in Table 1.

**Table 2:** Disambiguation of ambiguous frames by CG-sensitive mechanisms.

Ambiguous frame	Readings	Resolved by	Tested in
Eng: <i>half (of) the</i> +spatial N	C/D vs. E	QUD	WP 1
Ita: <i>mezzo</i> +spatial N	C/D vs. E	QUD	WP 2: Exp. 1, 3
Ita: bare <i>metà</i> +N	F vs. G	Inform. + QUD	WP 2: Exp. 1
Ita: <i>la metà del</i> +N	F vs. G	Inform. + QUD	WP 2: Exp. 1, 2
Ita: <i>la metà del</i> +N + mod.	C/D vs. E	CG (spatial order) + QUD	WP 2: Exp. 1, 2, 3
Ita: <i>una metà del</i> +N	C/D/E vs. F/G	QUD + Informativeness	WP 2: Exp. 3

What makes *half*-words an ideal testing ground is the convergence of four properties: a **small, enumerable reading space** (A–G); **multiple, independently manipulable CG mechanisms** whose interaction can be experimentally isolated; **precisely comparable cross-linguistic variation**; and **traceable diachronic change** (the redistribution of readings between *mezzo* and *metà*). The project accordingly investigates *half*-words (*metà/mezzo*, *half/mid/middle*, *halb/Hälfte/Mitte*, *mitad/medio*, *moitié/mi-*) across five languages, with full experimental testing in Italian and English (WP 2) and typological comparison in German, French, and Spanish (WP 1).

The project has three integrated objectives, each mapping onto one work package:

- (1) To map cross-linguistic variation and diachronic evolution of partition inventories as variation in CG demands and conventionalization of communal CG defaults; (→ WP 1; SFB: B1, B2, B3, C5)
- (2) To determine experimentally how grammar-as-gatekeeper, CG, and QUD-driven Relevance govern the real-time disambiguation of *half*-words; (→ WP 2; SFB: A1, A5)
- (3) To investigate how *half*-words interact with CG-management devices (mitigators, mirativity markers) and to integrate findings into a formal CG-enriched model. (→ WP 3; SFB: B3, B4, A1)

My MSCA project SEMSUBSET (2019–2023, ZAS Berlin; [0]) established the syntactic and semantic foundations; the present project advances from *structure* to *interpretation*: the CG-based theory, the three-mechanism architecture, the experimental program, and the diachronic model are new (§1.3).

**Ambition and novelty.** The project asks a question the SFB has not yet addressed: is CG a co-constitutive component of the grammar–meaning interface—governing **content words**, not only functional morphemes—or merely a discourse-management mechanism? *Half*-words serve as the testing ground, integrating morpho-syntactic, corpus/diachronic, experimental, and formal methods.



**Connection to the host.** The project is rooted in Prof. Dessì Schmid's onomasiological model of aspectuality [0]: given a conceptual domain, how do languages select among the logically available structuring options? The A–G partition typology is an onomasiological model in her sense, applied to spatial, mereological, and temporal structure.

The productive nouns for *half*-words (*path, journey, hour, century, film*) are precisely those with linear extension, including temporal nouns that fall squarely in Dessì Schmid's aspectuality research. Additionally, her B4 project investigates how mirativity markers *update* CG in Romance; this project studies how *half*-words *require* CG for reading selection. These are complementary CG operations.

## 1.2 State of the art

**Half-words: an underexplored domain.** Despite extensive work on partitives [0], proportional determiners [0], and quantification more broadly, the lexical semantics of *half*-words—*half, middle, metà, mezzo*—remains largely uncharted. The closest precedent is Wągiel [0], who shows that Polish distinguishes three lexical half-forms (*połowa, pół, połówka*) along a topological dimension: topology-neutral forms (like *połowa*, which allows discontinuous parts) vs. topology-sensitive forms (like *pół*, which requires the part to be self-connected). This establishes that *half*-words encode the spatial/measure distinction lexically. What Polish lexicalizes as distinct words, Italian collapses in a single form: *mezzo* accesses spatial readings with spatial nouns (*mezzo percorso* → C/D, E) but only measure readings with measure nouns (*mezzo chilo* → F/G), making noun-type gating the Italian analogue of Polish lexical selection (§1.1). Wągiel [0] treats Polish *pół*+measure N as a fractional numeral outside the partition space; I argue instead that the reading is the same G that applies to any non-spatial complement (*half the students* → F/G), with the noun's dimensional structure determining which readings are accessible within A–G. The spatial/measure split has independent formal grounding: spatial readings require self-connected parts (MSSC; [0]); measure readings do not (monotonic measure functions are topology-indifferent; [0]). The A–G framework [0] refines Wągiel's insight: it decomposes the spatial family into five structurally distinct types (A–E, with C/D as identified instances of E), maps syntactic frames to partition subsets (Table 1), and adds the CG dimension that Wągiel does not address, namely how morphosyntax gates which reading family is accessible and how shared knowledge selects among the readings grammar leaves open. Ionin and Matushansky [0] address the mass/count behavior of fraction words, but three questions remain open: why certain partitions recur while others do not; how partition inventories change diachronically; and how shared knowledge governs real-time disambiguation. The spatial/measure distinction constitutes one axis of cross-linguistic variation in *half*-words. I propose that a second, independent axis is *ordering*: the morphology of Japanese *half*-words illustrates this directly: *zenhan* (lit. 'front-half' = C) and *kōhan* (lit. 'back-half' = D) lexicalize ordered halves as distinct lexemes, while *hanbun* (lit. 'half-portion') denotes an unordered half (E/F/G), encoding the directed/undirected distinction rather than the connected/disconnected one. The two axes predict a richer typological space than either parameter alone (Table 3), and WP 1.1 will map how the project languages distribute across it.

**Table 3:** Two independent axes predict the partition space of *half*-words. Margins: each axis is independently lexicalized cross-linguistically. [A]/[B]: location readings outside the ordering axis.

Axis 1: extension	Axis 2: ordering		
	Unordered	Ordered	
<b>Spatial</b>	[E] contig. half	[C, D] ordered halves	← It. <i>mezzo</i> +spatial N
<b>Measure</b>	[G] discont., [F] contig.	—	← It. <i>metà; mezzo</i> +meas. N
	Jp. <i>hanbun</i>	Jp. <i>zenhan/kōhan</i>	

**Common ground and lexical interpretation.** Common ground [0] is a contested notion: Geurts [0] maps three competing views; Harris and Rubio-Fernandez [0] advocate cognitive pluralism. CG

constrains referential domains in real time [0], though egocentric biases can limit deployment [0]; Experiment 2's partner-visibility manipulation addresses this tension directly. CG has been extensively studied for *functional* devices: discourse particles, evidentiality [0], mirativity [0]. The SFB 1718 represents the state of the art, with probabilistic CG models (A1: [0]), particles and diachronic change (B1), evidentials (B2: [0]), mitigators (B3), mirativity (B4: [0]), reprise questions (B5: [0]), and cognitive CG architecture (A5: [0]).

What remains unexplored is the role of CG in interpreting **content words** with systematic, structured ambiguity. The SFB's B-area devices *update* CG: evidentials add epistemic information, discourse particles signal speaker attitudes, mirativity markers flag unexpected content. *Half*-words involve the reverse direction: rather than updating CG, they *require* it—the hearer cannot identify the intended partition without shared spatial knowledge, shared QUDs, and the syntactic frame. CG thus **selects which lexical meaning the term expresses**. The distinction is qualitative: particles and evidentials check CG *status* (is  $p$  in CG? expected? disputed?); *half*-words use CG *content* to determine the proposition itself.

The gap is precisely locatable. Standard presupposition theory [0] checks *whether* a condition holds in CG (binary felicity); it does not predict that different CG states yield different grammatical structures that open different reading families. Free pragmatic enrichment [0] and Relevance Theory [0] predict that the hearer's private context suffices for disambiguation; they do not predict that grammar *categorically blocks* readings regardless of context. Neither mechanism alone generates both predictions: that grammar blocks readings no CG can rescue (Exp. 1) and that CG selects among the readings grammar opens (Exp. 3). The three-stage architecture (CG<sub>1</sub>→grammar→CG<sub>2</sub>) does, because it separates *when* CG is accessed from *what* CG contributes. The project operationalizes CG as three independently manipulable components (shared spatial knowledge, shared QUDs, shared lexical alternatives), testing common ground proper rather than contextual enrichment.

The CG–grammar interface is not new: my work on covert partitives [0] established it at the DP level (the DL reading presupposes CG-status of the referent set). *Half*-words add a further layer (§1.1), yielding a CG–grammar progression: *is the entity in CG?* (*il/un*) → *is the set in CG?* (DL/nDL) → *which readings does grammar open?* (frame) → *which reading does CG select?* (*la metà* + modifier: C/D vs. E). This progression is feed-forward: within a frame, the reading set can only narrow (Fig. 3). The double CG access is not stipulated but follows from the fact that CG<sub>1</sub> and CG<sub>2</sub> access CG through different mechanisms at different derivational stages: CG<sub>1</sub> checks identifiability via presupposition [0], categorically determining D-type and thereby the frame; CG<sub>2</sub> evaluates QUD-relevance and informativeness via probabilistic inference [0], selecting among grammar-opened readings. The two mechanisms generate distinct empirical signatures: categorical blocking (Exp. 1) vs. gradient competition (Exp. 3).

Beyond the grammar, **pragmatic reasoning** operates over the CG state (§1.1): Relevance selects among frame-compatible readings, and Informativeness suppresses readings with dedicated forms [0]. In WP 3.4, in collaboration with Franke (SFB 1718 A1), the project extends these models to partition disambiguation.

**Formal sketch.** In Falco and Zamparelli [0], we analyze *metà/half*+N as a nominal operator that converts a DP into a partition along its contextually relevant linear dimension.<sup>4</sup> The goal is to derive partition resolution compositionally: D-head selection (CG<sub>1</sub>) gates the accessible reading set; post-compositional inference (CG<sub>2</sub>) selects within it. The derivation splits at the D-head [0]:

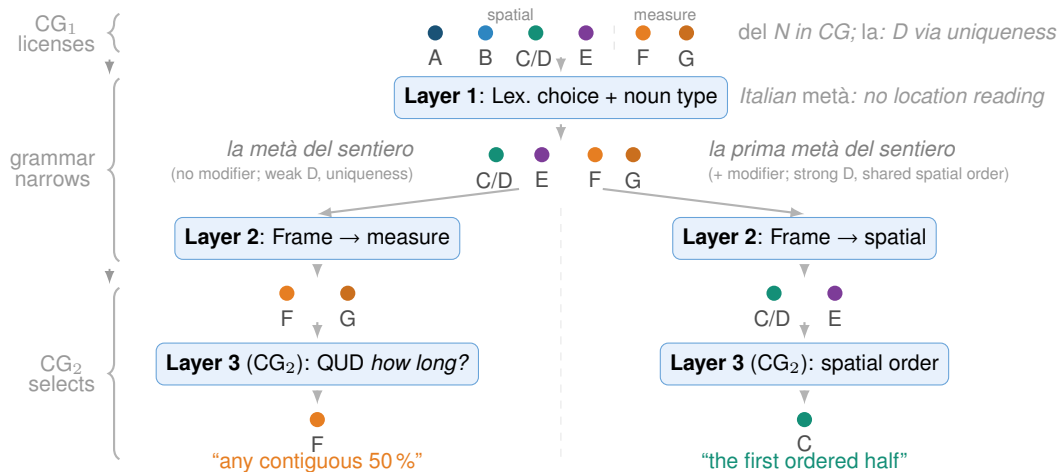
- (3) a.  $\llbracket \text{metà del sentiero} \rrbracket = \lambda z [z \sqsubseteq p \wedge \mu_d(z) = \mu_d(p)/2]$  *all halves of  $p$ ; type  $\langle e, t \rangle$*   
 b. Bare *la metà del sentiero* → D<sub>weak</sub> (no CG<sub>1</sub> required; left branch of Fig. 3):  
 Presup:  $\exists!$  half-measure (satisfied: the measure  $\mu_d(p)/2$  is unique; spatial halves are not, since a path has two ordered halves but one length).  
 →  $\iota z [z \sqsubseteq p \wedge \mu_d(z) = \mu_d(p)/2]$ ,  $\pi \in \{F, G\}$ . CG<sub>2</sub>:  $P(\pi \mid u, \text{CG})$  selects [0]

<sup>4</sup>The CG-silent entry is:  $\llbracket \text{metà} \rrbracket = \lambda P. \lambda x'. \lambda z'. [P(x') \wedge z' \sqsubseteq x' \wedge \mu_d(z') = \mu_d(x')/2]$ , where  $P$  is the noun restrictor,  $\mu_d$  is a measure function along the contextually salient dimension  $d$  presupposed by the noun's denotation (length for *sentiero*, cardinality for *studenti*). This entry does not specify *which* partition the speaker intends.



- c. *La prima metà del sentiero* →  $D_{\text{strong}}$  (CG<sub>1</sub>-anchored; right branch of Fig. 3):  
*Prima* requires  $\leq_p \rightarrow D_{\text{strong}}$ ; presup: CG<sub>1</sub>  $\models \text{ord}(p)$  (satisfied).  
 $\rightarrow \iota z[z \sqsubseteq p \wedge \mu_d(z) = \mu_d(p)/2 \wedge \text{first}(z, \leq_p)], \pi = C$ . CG<sub>2</sub>: trivial

Examples (b–c) map onto the two branches of Fig. 3; in (c), *prima* short-circuits CG<sub>2</sub> (for non-ordinal modifiers, CG<sub>2</sub> selects among C/D and E as in Layer 3). In typical discourse disambiguation succeeds; the experiments (WP 2) isolate each mechanism by manipulating CG.



**Figure 3:** Three-layer disambiguation for *la (prima) metà del sentiero*. CG<sub>1</sub> licenses DP structure (weak D for the bare form; strong D with modifier). Grammar (Layers 1–2) narrows the reading space. CG<sub>2</sub> (Layer 3) selects among surviving readings. Feed-forward: readings can only narrow.

**Core Claim.** Common ground is not a peripheral discourse mechanism but a co-constitutive component of the grammar–meaning interface: grammar alone narrows but does not select a reading; CG alone has no structured space to operate on; only their interaction (CG<sub>1</sub>→grammar→CG<sub>2</sub>) yields determinate interpretation. *Half-words* are the testing ground, because they combine an enumerable ambiguity space (A–G), geometry-constrained readings, independently isolable CG mechanisms, and cross-linguistically comparable lexicalization. The architecture extends to any domain with grammar-gated structured polysemy; demonstratives are an independently confirmed parallel [0]; spatial relational nouns (*front/back*, *top/bottom*), whose frame-of-reference readings are gated by noun type and resolved by shared conventions [0], are a predicted further case.

The synchronic architecture raises a diachronic question: how did the current grammar-to-CG mapping arise, and how does it change over time?

**Common ground in diachronic change.** Diachronic semantics recognizes that meaning change is shaped by communicative pressures [0], but how shared assumptions themselves evolve remains formally underdeveloped. Clark’s [0] distinction between *communal* CG (knowledge shared by a speech community) and *personal* CG (knowledge shared by specific interlocutors) provides the needed framework. The diachronic redistribution of readings between *mezzo* and *metà* in Italian is a case of **communal CG conventionalization**. Both forms descend from Latin *medius/medietatem* and have coexisted since the earliest Italian texts, but their partition coverage has shifted: *mezzo* lost its broader nominal-spatial uses (cf. Dante’s *nel mezzo del cammin*, reading B), contracting to adjectival spatial readings (C/D, E) with spatial nouns while retaining measure readings (F/G) with measure nouns (*mezzo chilo* = 0.5 kg; §1.1). The locative *in mezzo* a+N (*in mezzo al mare*) survives productively but is locative, not a partition reading, and falls outside the A–G domain. Whether this measure use is a relic of the broader historical distribution or a later development is an open empirical question (WP 1.3). Meanwhile, *metà* consolidated as the measure form (F/G), with spatial readings (C/D, E) becoming available only through the definite + modifier construction *la metà del/+N + mod*. This predicts a measurable diachronic corpus signature: co-occurrence with explicit

CG markers (spatial adverbs, demonstratives) should *peak* during the transition period, then *decline* as the new defaults stabilize. Synchronically, *half*-words also interact with hedging strategies (*più o meno a metà, como la mitad*), connecting to Mihatsch's work on Romance approximators [0] and to SFB 1718 B3 (WP 3.1).

### 1.3 Preliminary work by the PI

**Prior publications.** Falco and Zamparelli [0] established a typology of partitive constructions with null operators—the syntactic backbone for analyzing *half*-words. Falco and Zamparelli [0] then showed that discourse-linked (DL) nounless DPs involve covert partitive structures whose availability depends on CG status, establishing the CG–grammar interface at DP level that the present project extends (§1.2). Falco [0] provided the first systematic study of Italian proportional determiners, supplying the formal tools for part-whole structure.

**Splitting *half*-words.** Work on Italian proportional determiners [0] revealed that *half*-words pose a distinct problem: fractions and proportions presuppose a well-defined whole, but *half*-words additionally require selecting *which partition* of that whole is intended. This motivated the collaboration with Zamparelli [0], which presented the core empirical puzzle: the A–G partition space, the cross-linguistic comparison of *half/mid* vs. *metà/mezzo*, and the finding that *half*-words combine productively only with nouns having a linear dimension (a journal article is in preparation). The present project is my independent theoretical expansion: the CG-based theory, the three-mechanism architecture, the experimental program, and the diachronic model are original contributions, marking a shift from partitive structure to lexical interpretation under common ground.

**Guest editorship and experimental methods.** I guest-edited the Glossa special collection *Partitives and Partitivity* [0], coordinating international contributions across six languages. At CIMeC Trento (2012–2014) and ZAS Berlin (2019–2023, under Sauerland), I acquired hands-on experience in designing and running crowd-sourced behavioral experiments (acceptability judgments, forced-choice tasks via Prolific). The present project extends this toolkit to mouse-tracking [0], with methodological support from SFB 1718 A1 (Franke) and A5 (Kaup).

## 2 Objectives and work programme

### 2.1 Anticipated total duration of the project

Financial support is requested for three years (36 months). The prospective start date is 1 September 2026 or as soon as practicable thereafter.

### 2.2 Objectives

**Main Question:** How does common ground, i.e. the shared knowledge that interlocutors bring to interaction, shape the interpretation, cross-linguistic variation, and diachronic evolution of *half*-words?

**Goal 1** Map cross-linguistic variation and diachronic evolution of partition inventories as variation in CG demands and conventionalization of communal CG defaults. → WP 1; SFB 1718: B1, B2, B3, C5.

**Goal 2** Determine experimentally how grammar-as-gatekeeper, CG, and QUD-driven Relevance govern the real-time disambiguation of *half*-words. → WP 2; SFB 1718: A1, A5.

**Goal 3** Investigate how *half*-words interact with CG-management devices (mitigators, mirativity markers) and integrate findings into a formal CG-enriched model. → WP 3; SFB 1718: B3, B4, A1.

**Q1** Do languages with richer partition lexicons place lower CG demands, and does diachronic change follow a conventionalization trajectory from personal to communal CG? (→ Goal 1, WP 1)

- Q2** What role does each CG-sensitive mechanism (grammar gating, QUD-driven Relevance, Informativeness) play in real-time partition disambiguation, and how do they interact? (→ Goal 2, [WP 2](#))
- Q3** How do *half*-words interact with CG-management devices, and how can the architecture be formally modeled? (→ Goal 3, [WP 3](#))

### Core hypotheses and predictions:

**Cross-linguistic CG Hypothesis:** Languages with finer-grained partition lexicons require less explicit CG for unambiguous partition communication; diachronically, lexical change in *half*-words follows a conventionalization trajectory from personal to communal CG.

**Predictions:** *Synchronic:* If richer grammars lower CG demands, Italian's five-way frame system (Table 1) should narrow the reading space before CG intervenes, while English *half the+N* overloads across C/D, E (spatial nouns) and F/G (non-spatial nouns). Consequently, Italian corpora should show *fewer* explicit spatial markers co-occurring with partition-specific constructions. *Falsified if* partition-specific constructions co-occur with spatial markers as frequently as ambiguous ones. *Diachronic:* As *metà* consolidates as the measure form (F/G), co-occurrence with explicit spatial markers should *peak* during the transition period and decline as communal defaults stabilize; *mezzo*'s co-occurrence with spatial markers should decline as it contracts to C/D, E. *Falsified if* co-occurrence rates show no transitional peak. (→ [WP 1](#))

**CG Disambiguation Hypothesis** (Fig. 3): The interpretation of a *half*-word is determined by three CG-sensitive mechanisms: (1) **grammar-as-gatekeeper**, where the morphosyntactic frame restricts which readings are accessible (bare *la metà del+N* and bare *metà+N* → F/G; modifiers on *la metà* open C/D and/or E; *mezzo*+spatial N → C/D, E; *mezzo*+measure N → F/G); CG then operates within the grammatically delimited space through (2) **Relevance**: the shared QUD selects among frame-compatible readings; and (3) **Informativeness**: alternative-based reasoning over the shared lexicon eliminates readings with dedicated forms.

Each prediction targets one layer of the architecture and distinguishes it from weaker alternatives:

- P1 Grammar gating (Exp. 1):** The morphosyntactic frame determines the accessible reading space. Bare *la metà del+N* accepts any contiguous 50% region regardless of position (measure F/G); modified *la prima metà del+N* accepts only start-anchored regions (spatial C/D). *Mezzo*+spatial N accepts only anchored regions; *mezzo*+measure N accepts position-independent regions, confirming noun-type gating. *Falsified if* bare *la metà del+N* rejects non-start-anchored regions (patterning with modified forms rather than accepting any contiguous half).
- P2 CG<sub>1</sub> modulates frame choice (Exp. 2):** Speakers use modified forms (*la prima metà*) for spatial scenes and bare forms (*la metà*) for measure scenes; critically, partner visibility modulates spatial form selection (shared CG → more spatial forms) but not measure form selection (interaction). This interaction is the empirical signature of CG<sub>1</sub>: spatial scenes require CG<sub>1</sub> to license strong D (shared spatial order), so removing shared CG forces a frame shift; measure scenes require only weak D regardless of CG state. *Falsified if* speakers use bare forms in spatial scenes regardless of CG, or partner visibility affects measure scenes equally.
- P3 QUD drives reading selection (Exp. 3):** When the QUD conflicts with the grammatically favored reading, mouse trajectories show greater AUC and negative excursion compared to congruent conditions (located QUD + spatial frame → direct trajectory; located QUD + measure frame → curved trajectory toward competitor). The QUD × frame interaction tests whether grammar constrains the range over which QUD operates. *Falsified if* conflict conditions produce trajectories indistinguishable from congruent conditions.

P1 is the central empirical hinge: if confirmed, grammar *categorically* blocks readings regardless of CG content (bare forms reject spatial even when the scene makes it available), distinguishing the co-constitutive claim from “CG helps disambiguate,” which predicts only graded effects. If falsified, the bare form carries spatial structure, challenging the gatekeeper architecture. The three-

layer architecture predicts that grammar resolves before pragmatics: frame-disambiguated items (Exp. 1) should show faster RTs than QUD-dependent items (Exp. 3). Crucially, the conjunction of Exp. 1 and Exp. 2 distinguishes CG<sub>1</sub> licensing from Audience Design [0]: Audience Design predicts speaker adjustment but not categorical comprehension blocking; if Exp. 1 confirms that grammar categorically blocks spatial readings *and* Exp. 2 confirms that CG determines frame choice, then CG determines a grammatical structure that constrains interpretation—a licensing step, not a production preference. If Exp. 1 confirms gating but Exp. 2 shows a null interaction, CG modulates comprehension but not production, narrowing the architecture rather than destroying it. In formal terms (§1.2), Experiment 1 tests which readings  $\pi$  the D-head licenses; Experiment 2 tests whether CG<sub>1</sub> modulates frame choice; Experiment 3 tests how QUD constrains  $P(\pi | u, \text{CG})$ . The feed-forward architecture generates a further processing prediction beyond the current experiments: CG<sub>1</sub> effects on D-type should manifest earlier in the processing stream than CG<sub>2</sub> selection effects—a prediction testable through time-sensitive methods (ERP, eye-tracking) in future work. (→ WP 2)

**CG Composition Hypothesis:** CG-management devices (mitigators, mirativity markers) compose with *half*-words within the grammatically gated reading space; the full grammar–CG interaction is formally capturable in CG-enriched semantics integrated with probabilistic (RSA) modeling.

**Predictions:** The gating architecture (tested in WP 2) constrains what CG-management devices can do: they modulate within the gated space, not across it. Mitigators shift boundaries within a reading family: approximation loosens the half boundary for measure (F/G); precision markers narrow it; for locative *a metà*+N (B), approximation expands the midpoint to an interval (A). Mirativity targets the CG-selected partition content (*which* reading), not the partition fact. *Falsified if* mitigators or mirativity override grammatical gating, or if the RSA model assigns zero weight to CG-content parameters. (→ WP 3)

## 2.3 Work programme including proposed research methods

The project is organized in three work packages following a **describe** → **test** → **integrate** logic. WP 1 maps the cross-linguistic and diachronic landscape of *half*-words. WP 2 experimentally tests the CG mechanisms identified in WP 1. WP 3 consolidates results through SFB collaboration and formal modeling. Together, the WPs test both directions of the co-constitutive claim: WP 1 tests CG→grammar (do CG states drive construction choice and diachronic change?); WP 2 tests grammar→CG (does grammar restrict CG’s selection space?). The project is modular: WP 1 independently yields publishable typological and diachronic contributions even if WP 2 effects are smaller than predicted, and WP 3’s RSA model quantifies relative contributions regardless of effect magnitude.

### WP 1 Cross-linguistic and diachronic foundations (Months 1–20).

This WP tests the **Cross-linguistic CG Hypothesis**: do languages with finer-grained partition lexicons place lower CG demands? It maps the synchronic and diachronic landscape of *half*-words across five languages, laying the empirical foundation for WP 2 (experiments) and WP 3 (formal modeling).

**WP 1.1: Comparative morpho-syntax.** Survey lexicalized *half*-words in three Romance languages (Italian, French, Spanish), English, and German. Italian and English are the core experimental languages (WP 2); French, Spanish, and German serve as typological comparators. German’s three-way system (*halb/Hälfte/Mitte*) provides a typological bridge: noun *Hälfte* patterns with Italian *metà*, predeterminer *halb* with English *half*, testing whether the grammar-as-gatekeeper extends beyond Romance. For each term, document:

- partition coverage (which of A–G it can denote)
- syntactic frames (bare, partitive, adverbial, adjectival) and definiteness/number behavior
- inherent direction (whether the noun provides ordering for C/D without modifier support)



- CG demands (how much contextual CG is needed for unambiguous interpretation)
- noun-type sensitivity (whether the same *half*-word yields different reading families depending on noun type, as Italian *mezzo* does)

Build a typological database organized by partition type, syntactic frame, and CG-demand level, extending Table 1 to all five languages. The two-axis framework (Table 3) generates specific predictions: German *Hälfte* should pattern as unordered-spatial, *halb* as topology-neutral; the survey tests these predictions, not open-ended description. Preparatory work: [0] established the A–G framework for English and Italian.

**WP 1.2: Synchronic corpus analysis of CG markers.** The synchronic prediction is testable in corpus data: if Italian grammar narrows more than English grammar, Italian *half*-words should co-occur with fewer explicit CG markers. Using synchronic corpora (ItWaC, UKWaC, deWaC, esTenTen, frTenTen), extract concordances for *half*-words and code for: partition reading in context; presence of explicit CG markers (spatial adverbs, demonstratives, hedges); co-occurrence with CG-management devices (feeding into WP 3).

**WP 1.3: Diachronic reading redistribution.** A key empirical question: did *mezzo*'s measure use (*mezzo chilo* → F/G) persist from a broader historical distribution, or develop as the spatial reading contracted? Using diachronic corpora (DiaCORIS, OVI for Old Italian, Google Ngrams), trace how partition coverage shifted between *mezzo* and *metà* across centuries (13th–21st). Measure co-occurrence with explicit spatial context markers; test the Cross-linguistic CG Hypothesis (diachronic prediction). The quantitative analysis will combine frequency trajectories, collostructional strength, and regression modeling of contextual marker co-occurrence, testing the prediction that co-occurrence with explicit contextual support peaks during transitional instability and declines once communal CG defaults stabilize. All inferential claims rely on curated diachronic corpora (DiaCORIS, OVI, Frantext, CORDE/CREA); Google Ngrams serves only as a coarse-grained frequency diagnostic. Reading identification relies on collocate diagnostics (spatial adverbs, demonstratives, ordinal modifiers for C/D, E; quantificational contexts for F/G). A pilot annotation of 200 concordances will calibrate the coding scheme; double annotation on a subset (target:  $\kappa \geq .75$ ) ensures reliability.

**WP 1.4: Parallel developments and literary CG.** The Italian case study (WP 1.3) serves as the primary diachronic model. French and Spanish provide confirmatory comparisons: targeted checks for parallel redistribution in French *moitié/mi-* (Frantext) and Spanish *mitad/medio* (CORDE/CREA), not full century-by-century analyses. Dante's *Nel mezzo del cammin di nostra vita* is the critical test: *mezzo* here denotes the midpoint B of an abstract path; modern Italian requires *a metà del cammino*, confirming that *mezzo* has contracted away from location readings. If communal CG fossilization preserved reading B in literary registers while productive syntax lost it, this constitutes a direct test case for the Cross-linguistic CG Hypothesis.

**SFB collaboration:** Shared corpus methodology with B1 (Axel-Tober & Stolderfoht); Spanish data relevant to B3 (Hennecke & Mihatsch) and B2 (Menéndez Benito). The “Constant Entailments” framework [0] (B1/C5), which models diachronic reanalysis as facilitated by CG-update equivalence, extends naturally to the *mezzo/metà* redistribution. The Dante case connects to C5 (literary CG). Shared annotation schemes with the S project.

## WP 1 – Summary

**Aim:** Map partition inventories, CG demands, and diachronic evolution across Romance, English, and German.

**Method:** Comparative morpho-syntax; synchronic and diachronic corpus analysis.

**Output:** (i) Open-access typological database. (ii) Journal article on partition variation and CG demands. Target: *Linguistics* or *Linguistic Typology*. (iii) Journal article on diachronic CG evolution, including the Dante case study (with C5). Target: *Journal of Historical Linguistics* or *Diachronica*.

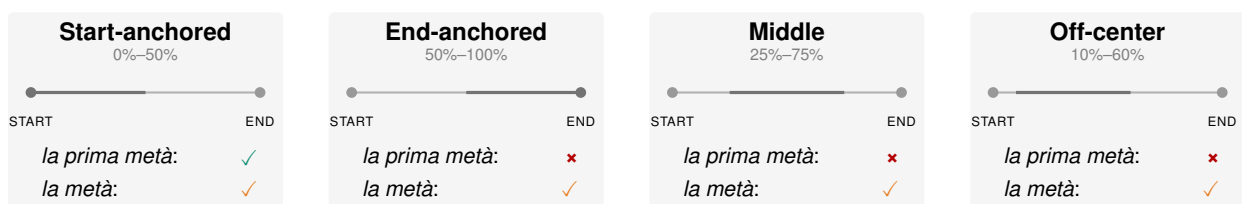
**Feasibility:** Methods and corpora are familiar from the PI's prior cross-linguistic work [0]; the A–G framework provides a structured coding scheme.



## WP 2 CG-driven partition disambiguation: Experiments (Months 12–28).

This WP puts the **CG Disambiguation Hypothesis** to empirical test: three experiments isolate the three CG-sensitive mechanisms (P1–P3), providing the first experimental evidence on how grammar and CG jointly determine *half*-word interpretation.

**WP2.1: Experimental tests of grammar gating.** The design exploits a structural asymmetry between spatial and measure readings: spatial readings (C/D) are *start-anchored* (the “first half” must begin at the entity’s starting point), while measure readings (F) are *position-independent*: any contiguous 50% qualifies. This dissociates the readings even when both pick out 50% of a linear entity. Preliminary forced-choice piloting ( $N = 24$  Italian speakers, Prolific) confirms robust differentiation between contiguous-half (E) and ordered spatial (C/D) readings (>85% consistent classification), validating the core stimulus design. Experiments 1–3 combine verification judgments (Exp. 1, Fig. 4), production data (Exp. 2), and mouse-tracking (Exp. 3) to provide converging evidence across comprehension and production.



**Figure 4:** Experiment 1: Start-anchoring dissociates spatial from measure readings. Each panel shows a path (start–end) with a contiguous 50% region highlighted (gray = neutral stimulus). Modified *la prima metà* (spatial C/D) accepts only the start-anchored region; bare *la metà* (measure F) accepts all four. ✓ = spatial YES; ✓ = measure YES; ✗ = NO.

Table 4 summarizes the three experiments and their mapping to the three-layer architecture (Fig. 3).

**Table 4:** Experiment overview: each experiment tests one prediction (P1–P3).

Exp	Mechanism	Manipulation	Critical prediction	P
1	Grammar gating	Frame $\times$ region position	Bare accepts non-start-anchored 50%; modified rejects	P1
2	CG in production	Scene $\times$ Partner visibility	CG modulates spatial forms; no effect on measure	P2
3	QUD + Inform.	QUD $\times$ Frame	Located $\rightarrow$ spatial; Quantity $\rightarrow$ measure	P3

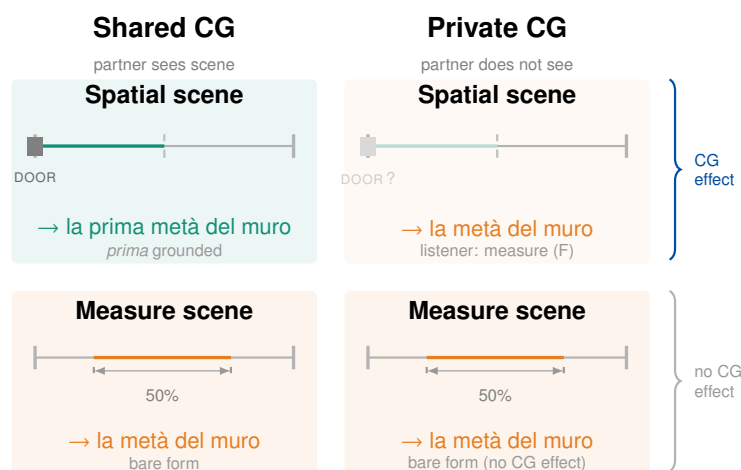
*Experiment 1: Grammar-as-gatekeeper (verification).* Participants see a linear entity (a path with known endpoints) on screen with a contiguous region highlighted, hear a sentence containing a *half*-word, and judge whether the highlighted region matches the description (YES/NO + RT). The critical manipulation is the *position* of the highlighted 50% region, which dissociates spatial from measure readings without relying on different endpoints: spatial C/D readings are start-anchored (the “first half” begins at the entity’s origin), while measure F readings are position-independent (any contiguous 50% qualifies [0]). Four region positions are crossed with three sentence frames:

- **Start-anchored** (0%–50%): consistent with both C/D and F  $\rightarrow$  YES under all frames.
- **End-anchored** (50%–100%): consistent with F and D (“second half”); inconsistent with C.
- **Middle-anchored** (25%–75%): consistent with F only; inconsistent with C/D.
- **Off-center** (10%–60%): consistent with F only; inconsistent with C/D.

Sentence frames: (i) modified *la prima metà del percorso* (forces C); (ii) bare *la metà del percorso* (predicted: F/G); (iii) *mezzo percorso* (spatial noun  $\rightarrow$  C/D, E); (iv) *mezzo chilo* (measure noun  $\rightarrow$  F/G, control). Stimuli include directed entities (a path, a journey) and undirected entities (a rope, a wall), testing whether noun-level directionality modulates C/D accessibility. Predictions: modified *la*

*prima metà* accepts only start-anchored regions (YES for 0%–50%, NO for others); bare *la metà* accepts *any* contiguous 50% regardless of position, confirming restriction to F; *mezzo*+spatial N patterns with modified forms (start-anchored only); *mezzo*+measure N patterns with bare forms (position-independent). A secondary **tolerance gradient** varies start-anchored regions from 40% to 60%: modified forms should show wider tolerance (spatial approximation [0]), bare forms a narrower window centered on 50% (metric precision).

*Experiment 2: Form–meaning mapping and CG in production.* A 2×2 design crosses **scene type** (spatial vs. measure) with **partner visibility** (shared CG vs. private; [0]; Fig. 5). Stimuli use **undirected entities** (rope, wall, fence) where *prima* requires shared spatial knowledge to ground, unlike paths, which have inherent direction (§1.1). Spatial scenes highlight one half relative to a contextual landmark (e.g., the door end); measure scenes highlight 50% with a scale bar. The undirected-entity design maximizes the CG<sub>1</sub> manipulation: unlike paths (inherent direction), walls and ropes require *shared* landmark knowledge for spatial grounding, so removing partner visibility should force a frame shift from *la prima metà* to *la metà*. The critical **interaction**: partner visibility modulates spatial form choice but not measure form choice.

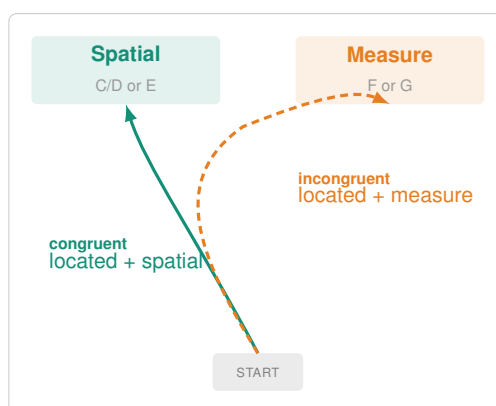


**Figure 5:** Experiment 2 (2×2): Scene type × Partner visibility for undirected entities (wall). Shared CG grounds *prima* (top left); private CG removes grounding, shifting toward bare forms (top right, faded). Measure scenes (bottom) are unaffected.

*Experiment 3: QUD manipulation (mouse-tracking).* A QUD context precedes the partition sentence: located (“Where . . . ?”), quantity (“How much . . . ?”), or neutral (“What happened?”); Fig. 6. Tested across the most ambiguous frames: Italian *mezzo*+N (C/D vs. E) and *una metà del*+N (C/D, E vs. F, G). Prediction: located QUDs favor spatial readings; quantity QUDs favor measure readings. For *mezzo*+spatial N, QUD should modulate C/D vs. E; for *mezzo*+measure N, QUD should have no effect (F/G only). This is the direct test of feed-forward ordering: if grammar resolves before pragmatics, QUD cannot rescue a reading that grammar has already excluded. The QUD × frame interaction quantifies this constraint.

Experiments will be implemented in jsPsych (Pavlovía; mouse-tracking via the mousetrap plugin [0]), with a lab subset (~20 per experiment) at the SFB 1718 infrastructure. Experiments 1–2 use forced-choice verification and production tasks; Experiment 3 uses mouse-tracking to capture trajectory dynamics. Each targets 60–80 participants (~200 total), based on medium-to-large effects ( $d \approx 0.5$ – $0.8$ ) in analogous paradigms [0]; a sensitivity analysis confirms that  $N = 80$  detects  $d = 0.45$  ( $\alpha = .05$ , power = .80, within-subjects). If piloting yields  $d < 0.3$ , the design will be simplified or  $N$  increased to 120. Verification and RT data (Experiments 1–2) and trajectory data (AUC, maximum deviation; Experiment 3) will be analyzed using Bayesian mixed-effects models (brms/Stan), with participants and items as crossed random effects.

Together, Experiments 1–3 test grammar gating (Exp. 1, comprehension), CG in production (Exp. 2), and QUD-driven resolution (Exp. 3, mouse-tracking), ensuring interpretability under partial confirmation.



**Figure 6:** Experiment 3: Mouse-tracking. Solid: congruent QUD + frame (direct trajectory). Dashed: incongruent (trajectory curves toward competitor, greater AUC).

**SFB collaboration:** A1 (Franke: RSA framework [0] for partition disambiguation). A5 (Kaup: spatial cognition [0] and mouse-tracking methodology for Experiment 3). B5 (Griffiths: accommodation failure connects to clarification strategies). Experimental design will be developed with Kaup (A5), whose group has established web-based methods for spatial-linguistic processing; the PI will undergo methodological training during months 1–3, supported by the S project (Hörnig, Kaup & Stolterfoht).

## WP 2 – Summary

**Aim:** Test grammar gating and CG-driven partition disambiguation experimentally.

**Method:** Verification (Exp. 1), production with CG manipulation (Exp. 2), mouse-tracking (Exp. 3).

**Output:** Journal article (E1–E3). Target: *Journal of Memory and Language, Cognition, or Glossa*.

**Feasibility:** The PI has experience designing crowd-sourced behavioral experiments (Prolific); SFB infrastructure (S project) supports experimental implementation.

## WP 3 SFB integration and formal modeling (Months 20–36).

This WP tests the **CG Composition Hypothesis**: do CG-management devices compose with *half-words* within the grammatically gated space? It integrates results from **WP 1–WP 2** through SFB collaborative case studies and delivers the formal CG-enriched model.

**WP 3.1: Half-words × mitigators (→ B3).** If grammar gates and CG selects, then devices that modulate CG should operate *within* the gated space. Using corpora from **WP 1.2**, extract Romance *half-words* + approximators (*más o menos, più o meno, à peu près*). Predictions: for bare *metà+N* (F/G), approximation loosens the half boundary; precision markers (*esattamente*) narrow it. For prepositional *a metà+N* (B), approximation expands the midpoint into an interval (A).

**WP 3.2: Half-words × mirativity (→ B4).** Dessì Schmid’s B4 project distinguishes *speaker-oriented* mirativity (the speaker’s CG was violated) from *hearer-oriented* mirativity (the information should violate the hearer’s CG) [0]. Extract Romance sentences with *half-words* + mirativity markers. What partition content triggers mirativity: the *which* partition, or *the fact of being at a partition*? How do mirative CG-updates compose with partition CG requirements? This connects directly to the host’s SFB project.

**WP 3.3: CG-enriched partition semantics.** Extend the DP-internal analysis of *half-words* [0] to include a CG parameter, building on contextual domain restriction [0]. The formal model captures the grammar-as-gatekeeper architecture: bare *la metà del+N* restricts to F/G (measure uniqueness, weak D); modifiers open spatial readings (C/D or E); CG then selects among the grammatically opened readings. For *mezzo*, the model captures noun-type gating: spatial nouns activate topology-sensitive readings (C/D, E), measure nouns restrict to F/G, and ambiguous nouns (e.g. *bicchiere*)

leave both open for CG-driven selection. The CG parameter is formalized as a covert context variable  $c$  that restricts the partition set to those compatible with the interlocutors' mutual knowledge:  $c$  narrows  $\{C, D, E, F, G\}$  to the subset supported by shared spatial or dimensional information, operating within the space that grammar has already gated.

**WP3.4: Probabilistic modeling.** In collaboration with A1 (Franke), develop an RSA-style model that computes  $P(\text{partition} \mid \text{utterance}, \text{CG})$  over A–G, where grammar constrains the prior and CG shifts the posterior. The model's critical test: do CG-content parameters improve fit over a grammar-only baseline? Zero improvement falsifies the co-constitutive claim. Test against mouse-tracking data from WP 2. Even if behavioral effects are weaker than predicted, the model quantifies the *relative* contribution of grammar, QUD, and alternatives—graded evidence rather than binary confirmation.

**SFB collaboration:** Interface with B3, B4 (corpus studies); A1 (Franke: RSA modeling); B5 (Griffiths: accommodation failure in WP 2 connects to clarification strategies). Collaborative studies generate co-authored outputs; results are presented at the WP 3 workshop.

### WP 3 – Summary

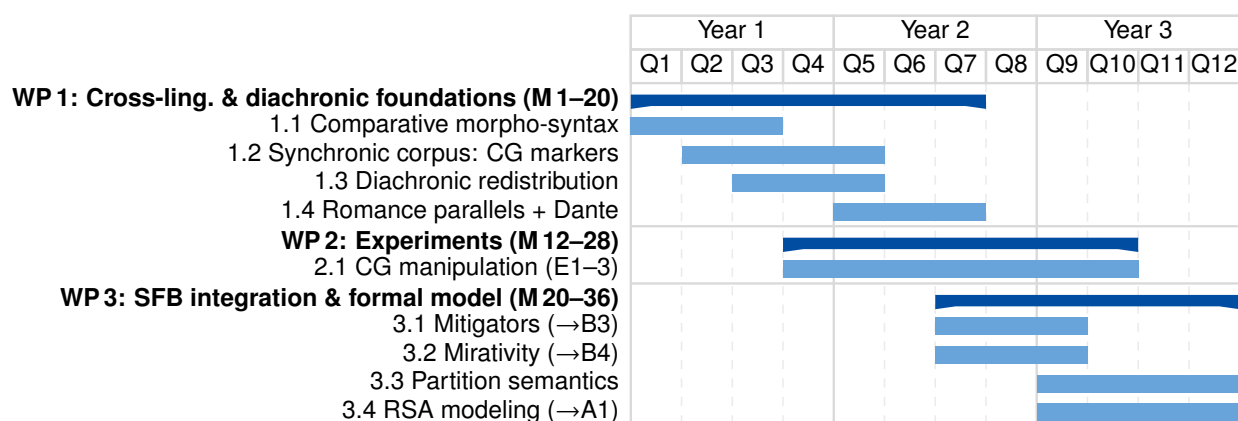
**Aim:** Map *half*-word interactions with CG-management devices; produce an integrated formal model.

**Method:** Corpus analysis across Romance (collaboration with 2 SFB projects); formal semantics (DP structure + CG); probabilistic modeling (RSA with A1).

**Output:** (i) Integrative paper combining SFB collaboration results with formal CG-enriched partition model. Target: *Semantics and Pragmatics*, *Linguistics and Philosophy*, or *Glossa*. (ii) Cross-project workshop: “CG management from function words to content words.”

**Feasibility:** Builds on WP 1 corpora; SFB partner PIs have agreed to collaborate; collaboration with A1 (Franke) on RSA modeling is confirmed.

**Summary of expected outputs.** The project targets at least three single- or first-author journal articles (partition typology, diachronic CG evolution, experimental results) and one integrative paper combining SFB collaboration with formal modeling, for a minimum of four peer-reviewed outputs.



## 2.4 Handling of research data

Corpus data: results will be stored in a publicly accessible repository (GitHub/Zenodo), subject to original corpus licensing. The typological database of *half*-words (WP 1) will be released as open-access. Where possible, publicly available corpora will be used.

Experimental data: no personal data is collected. Prolific data is pseudoanonymized. Anonymized behavioral data (mouse trajectories, response choices) will be archived via OSF or GitHub. All experimental materials and analysis scripts will be shared following FAIR principles and open

science practices. Hypotheses, exclusion criteria, and analysis models for each experiment will be preregistered on OSF prior to data collection.

## 2.5 Relevance of sex, gender and/or diversity

Experiment participants will be balanced for gender using Prolific’s demographic tools. The cross-linguistic design inherently addresses linguistic diversity (three Romance languages, English, and German). No sex/gender-specific effects are anticipated in *half*-word processing, but this will be tested in the data. All stimuli and tasks are designed to be culturally neutral.

## 3 Project- and subject-related list of publications

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- [0] **M. Falco and R. Zamparelli. “Discourse-linked DPs as covert partitives: Ellipsis and pro-form strategies in Italian and English.” In: *Isogloss: Open Journal of Romance Linguistics* 10.3 (2024), pp. 1–33. DOI: [10.5565/rev/isogloss.345](https://doi.org/10.5565/rev/isogloss.345).**
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## **4 Supplementary information on the research context**

### **4.1 Ethical and/or legal aspects of the project**

#### **4.1.1 General ethical aspects**

This project does not raise particular ethical issues. It concerns everyday language use and linguistic reasoning. Ethics approval for crowd-sourced and lab-based experiments will be sought from the relevant committee at Universität Tübingen.

#### **4.1.2 Descriptions of proposed investigations involving humans, human materials or identifiable data**

Participants will be recruited via Prolific.co (online) and locally at Tübingen (lab). Native speakers of Italian and English, aged 18–65, 60–80 per experiment. No sensitive personal data is collected; demographic variables are recorded in anonymized form. Behavioral data (mouse trajectories, response choices) will be archived via open-access repositories. Power calculations and sample sizes are detailed in [WP 2](#).

#### **4.1.3 Descriptions of proposed investigations involving experiments on animals**

Not applicable.

#### **4.1.4 Descriptions of projects involving genetic resources (or associated traditional knowledge) from a foreign country**

Not applicable.

#### **4.1.5 Explanations regarding any possible safety-related aspects**

##### **4.1.5.1 “Dual Use Research of Concern”; foreign trade law**

Not applicable.

##### **4.1.5.2 Risks in international cooperation**

The level of risk is very low. Outside Germany, cooperation is planned within the EU only.

#### **4.1.6 Considerations on aspects of ecological sustainability in the planning and implementation of the project**

The project's energy consumption is low. Travel will be by train where possible. Online experiments minimize the need for in-person data collection. No large-scale AI or high-energy computing is used.

## 4.2 Employment status information

The PI's research program has followed a two-phase trajectory. Phase 1 (2005–2014) established expertise in the syntax–semantics interface, culminating in a typology of partitive constructions [0] and the identification of covert partitive structures as CG-sensitive [0]. Phase 2 (2019–present), initiated by a Marie Skłodowska-Curie Individual Fellowship (Career Restart panel, success rate ~14%; SEMSUBSET, Horizon 2020, ZAS Berlin), pivoted to the lexical semantics of part-whole expressions, producing the A–G partition framework [0], the first formal analysis of Italian proportional determiners [0], and the CG-based theory of reading selection that motivates the present proposal. The PI is not currently employed at a research institution; since the MSCA fellowship ended in 2023 he has continued independent research, producing a peer-reviewed journal article [0] and two conference presentations [0] directly on the proposed topic. The current project represents the natural consolidation of Phase 2 into a unified experimental, typological, and formal program. The scope and integration of these components require dedicated full-time research capacity. The requested Eigene Stelle position would enable him to carry out this research at Universität Tübingen under the supervision of Prof. Dr. Sarah Dessì Schmid, consolidating his transition from postdoctoral fellow to independent research leader. The combination of cross-linguistic, experimental, and formal components is designed to qualify him for a W1 junior professorship or Habilitation in linguistics at a German university.

## 4.3 First-time proposal data

Michelangelo Falco, first-time applicant.

## 4.4 Composition of the project group

Prof. Dr. Sarah Dessì Schmid (Romanisches Seminar, Universität Tübingen) will supervise the project and contribute to WP 1 (diachronic Romance) and WP 3.2 (mirativity) without being paid from project funds.

## 4.5 Researchers in Germany with whom you have agreed to cooperate on this project

**Prof. Dr. Sarah Dessì Schmid**, Romanisches Seminar, Universität Tübingen. PI of SFB 1718 B4 (Mirativität und Common-Ground-Updates in den romanischen Sprachen). Host professor. Collaboration on WP 1 (diachronic Romance, WP 1.3–1.4), WP 3.2 (*half-words* × mirativity), and general intellectual supervision. Connection: shared onomasiological methodology, diachronic Romance expertise, linear dimension bridge between aspectuality and partition semantics. As a member of the Accademia della Crusca, Dessì Schmid provides privileged access to the historical lexicographic resources central to WP 1.

**Prof. Dr. Michael Franke**, Seminar für Sprachwissenschaft, Universität Tübingen. PI of SFB 1718 A1. Collaboration on WP 3.4 (RSA modeling of partition disambiguation) and interpretation of experimental results from WP 2.

**Prof. Dr. Wiltrud Mihatsch**, Romanisches Seminar, Universität Tübingen. PI of SFB 1718 B3. Collaboration on WP 3.1 (*half-words* × mitigators/approximators).

**Dr. Paula Menéndez Benito**, Englisches Seminar, Universität Tübingen. PI of SFB 1718 B2. Collaboration on WP 1 (Spanish partition data and cross-linguistic CG demands).

**Prof. Dr. Uli Sauerland**, Leibniz-Centre General Linguistics (ZAS), Berlin. Sauerland supervised the PI's MSCA fellowship SEMSUBSET (2019–2023) on partitive syntax and proportional determiners. Consultation on the formal semantics of proportional operators and partitive structure (WP 3.3), connecting the project's CG-enriched partition semantics to his broader work on degree expressions and measurement.

#### 4.6 Researchers abroad with whom you have agreed to cooperate on this project

**Prof. Roberto Zamparelli**, CIMeC – Center for Mind/Brain Sciences, University of Trento, Italy. Long-standing collaborator (4 joint peer-reviewed publications, 6 joint conference presentations). The PI's work on proportional determiners led him to identify the *half*-word puzzle, which he then developed jointly with Zamparelli into the A–G partition framework. Collaboration will be limited to theoretical consultation on the A–G framework (WP 1) and formal modeling (WP 3.3); all experimental, diachronic, and CG-theoretical components are led solely by the PI.

**Prof. Greg Scontras**, Department of Language Science, University of California, Irvine, USA. Scontras's work on the semantics of measurement and his co-development with Franke of the RSA framework for probabilistic language understanding [0] provide the formal and computational tools central to WP 3. Consultation on the measurement-theoretic grounding of partition readings (WP 3.3) and joint calibration of the RSA model for *half*-word disambiguation (WP 3.4), bridging the Franke (A1) collaboration with measurement semantics expertise.

#### 4.7 Researchers with whom you have collaborated scientifically within the past three years

- Roberto Zamparelli (CIMeC, University of Trento)
- Uli Sauerland (Leibniz-Centre General Linguistics, ZAS, Berlin)
- Lorenzo Filipponio (Università di Genova)

#### 4.8 Project-relevant cooperation with commercial enterprises

None.

#### 4.9 Project-relevant participation in commercial enterprises

None.

#### 4.10 Scientific equipment

All experiments are conducted online via jsPsych and Pavlovia. No special scientific equipment is required. The SFB 1718's experimental infrastructure (S project) is available for methodological support and pilot testing.

#### 4.11 Other submissions

None.

#### 4.12 Other information

**Connection to SFB 1718.** This Eigene Stelle project is designed to be embedded in the intellectual environment of SFB 1718 "Common Ground: Cognition – Grammar – Communication" at Universität Tübingen. While not a formal subproject, the project occupies a **bridge position between the SFB's three research areas**, and this is by design.

The SFB's B-area investigates how grammatical devices (particles, evidentials, mitigators, mirativity markers) interact with common ground: they *check* CG status (whether a proposition is shared, expected, or disputed) and *update* it. This project asks the complementary question: how does CG *determine the content* of lexical items? Where B-area devices have fixed content and check CG status, *half*-words use CG content to select among structurally distinct readings, a qualitatively different operation that fills a gap in the SFB's architecture.

Beyond the empirical program, the project tests a hypothesis with foundational consequences for CG theory. Current models treat CG primarily as the *target* of linguistic operations: grammar updates, manages, and checks CG. The  $CG_1 \rightarrow \text{grammar} \rightarrow CG_2$  architecture revealed by *half-*words suggests that CG and grammar are in a **co-constitutive** relationship: grammar restricts what CG can select (gating), and CG determines what grammar means (content selection). If confirmed experimentally (WP 2), this extends CG from a discourse-level bookkeeping mechanism to a component of the grammar–meaning interface, connecting to the SFB’s long-term goal of a unified theory of common ground across cognition, grammar, and communication.

Concretely:

- WP 1, WP 3 → B-area grammar projects (CG management in particles, evidentials, mitigators, mirativity)
- WP 2 (experiments), WP 3.4 (RSA) → A-area cognition projects (A1 Franke, A5 Kaup)
- WP 1 diachronic component → B1 (Axel-Tober & Stolterfoht)
- WP 3 collaborative outputs → B3 (mitigators), B4 (mirativity); B5 (Griffiths: accommodation in WP 2)

The experimental paradigm (combining verification, production, and mouse-tracking to test grammar gating in lexical disambiguation) is novel within the SFB’s toolkit and will generate paradigms reusable by other subprojects. Even independently of SFB collaboration, the project stands as a self-contained investigation with clearly delimited empirical tests and publication targets.

## 5 Requested modules/funds

### 5.1 Basic Module

#### 5.1.1 Funding for Staff

Student assistant (HiWi), 60 hrs/month, 36 months	36 × 780.00 €
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Student assistant tasks: corpus annotation and concordance extraction (WP 1, WP 3), experiment preparation and data formatting (WP 2), bibliography and database management.

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Total funding for staff	28 080.00 €
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#### 5.1.2 Direct Project Costs

##### 5.1.2.1 Equipment up to 10 000 €, Software and Consumables

Portable workstation (laptop, ≥24 GB RAM, ≥512 GB SSD)	3800.00 €
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Required for RSA modeling (MCMC sampling in Stan/PyMC, ≥16 GB RAM), jsPsych experiment development and local pilot-testing (WP 2), and corpus processing across 10 corpora (WP 1, WP 3). Portability is essential for SFB 1718 lab sessions, collaboration visits, and conferences. The Eigene Stelle does not include institutional provision of a portable workstation.

External hard drives (2×2 TB) for secure data archiving and backup	500.00 €
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Redundant backup of experimental data (mouse trajectories), corpus extractions, and project databases, following FAIR data management principles.

External monitor (27", high-resolution) for dual-screen corpus annotation and data analysis	1000.00 €
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### 5.1.2.2 Travel Expenses

Travel to national and international conferences and collaboration visits. Detailed explanations are given below.

Funding for	Year 1	Year 2	Year 3
Conference travel	3 000	3 000	2 000
Collaboration visits	1 000	1 000	1 000
<b>Total</b>	<b>4 000</b>	<b>4 000</b>	<b>3 000</b>

Conference travel (8 conferences × ca. 1000 €) 8000.00 €

Priority venues mapped to WP milestones: Year 1 (WP 1): DGfS, Going Romance, IGG (typological and diachronic results). Year 2 (WP 2): SALT, Sinn und Bedeutung, AMLaP (experimental results). Year 3 (WP 3): ESSLLI, Sinn und Bedeutung (formal model and integration).

Collaboration visits (Zamparelli, Trento; SFB partner institutions) 3000.00 €

Two short research stays per year to work with Prof. Zamparelli (Trento) and to visit SFB partner institutions.

### 5.1.2.3 Visiting Researchers (excluding Mercator Fellows)

None.

### 5.1.2.4 Expenses for Laboratory Animals

None.

### 5.1.2.5 Other Costs

*Experiments 1–3 (WP 2):* Pilot study: 15 participants, 30 minutes, 6€ per participant (12€/participant/hour) = 90€. Additional service fee for Prolific: 30€. Main study: 80 participants, 30 minutes, 6€ per participant = 480€. Additional service fee for Prolific: 100€. Total per experiment: 700€. Total for 3 experiments: 2 100€.

Prolific participant fees and service charges (3 experiments) 2100.00 €

Pavlovia license (3 years × 100 €) 300.00 €

### 5.1.2.6 Project-related publication expenses

Where possible, publications will be sought from diamond open access journals (e.g. *Glossa*, *Semantics and Pragmatics*). However, for some project-related publications, other journals are more appropriate (e.g. *Linguistics and Philosophy*, *Journal of Historical Linguistics*). The article processing charges for gold open access in these journals range from ca. 1 000 to 1 500 €. Funding for up to 3 articles is requested.

Open-access publication fees (up to 3 articles) 3000.00 €

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Total direct project costs 21 700.00 €

**Summary: Total sum of requested funding for direct project costs**

<b>Requested funding in EUR</b>	
Equipment (laptop, drives, monitor)	5 300
Experiments (Prolific + Pavlovia)	2 400
Travel (conferences + collaboration)	11 000
Publication expenses	3 000
<b>Total</b>	<b>21 700</b>

### 5.1.3 Instrumentation

#### 5.1.3.1 Equipment exceeding 10 000 €

No major equipment required. Experimental infrastructure is available through the SFB 1718's S project.

#### 5.1.3.2 Major Instrumentation exceeding 50 000 €

Not applicable.

### 5.2 Module Temporary Position for Principal Investigator

The following funding for the temporary position of the Principal Investigator is requested (all figures in Euro):

<b>Funding for</b>	<b>Quant</b>	<b>Year 1</b>	<b>Quant</b>	<b>Year 2</b>	<b>Quant</b>	<b>Year 3</b>
PI, 100%	1	88 200	1	88 200	1	88 200
<b>Total</b>		88 200		88 200		88 200

The PI requires this position to carry out the proposed research at Universität Tübingen under the supervision of Prof. Dr. Sarah Dessì Schmid. The Romanisches Seminar provides the ideal institutional environment: it houses PIs of two SFB 1718 Romance-focused projects (B3 Hennecke & Mihatsch, B4 Dessì Schmid), ensuring daily intellectual exchange, with B2 (Menéndez Benito) in the neighbouring Englisches Seminar. The SFB's experimental and methodological infrastructure (S project) supports the planned experiments.

### 5.3 Module Replacement Funding

Not applicable.

### 5.4 Module Temporary Clinician Substitute

Not applicable.

### 5.5 Module Mercator Fellows

Not applicable.

## 5.6 Module Workshop Funding

Funding is requested for a one-day workshop “CG management from function words to content words” (Year 3), bringing together SFB 1718 members and external researchers to present collaborative results from [WP 3](#).

Workshop: speaker travel, catering, room hire (1 day, ca. 15 participants)	3500.00 €
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Total workshop funding	3500.00 €
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## 5.7 Module Public Relations

Not applicable.

## 5.8 Module Standard Allowance for Gender Equality Measures

Not applicable (single PI, not a network).