

The Interconnection between Perspective-Taking Process and World-Creating Predicates in Language Use

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Abstract

Perspective-taking (PT) is a fundamental cognitive faculty that enables individuals to understand and engage with others' viewpoints. This paper focuses on overt linguistic items that directly signal perspectival shifts. Central to this investigation are world-creating predicates, such as verbs of cognition (e.g., *think*, *believe*) and utterance (e.g., *say*, *tell*), which contribute to the construction of perspectivity in language. Drawing on attributional semantics, this study argues that these predicates differ in their relation to PT: while predicates of utterance merely express another's perspective, predicates of cognition more actively require the speaker to adopt that perspective. Through contextual analysis, the paper demonstrates how these predicates operate along a private-public domain continuum, with implications for identifying actual PT occurrences in discourse. Ultimately, it has been demonstrated that predicates establish perspectivity in two distinct ways, depending on their degree of egocentricity. For example, predicates of cognition (*think*, *believe*) belong to the private domain and lead to *actual occurrences of PT*, as they compel the speaker to adopt another's perspective — to “put themselves in someone else's shoes”. In contrast, predicates of utterance (*say*, *tell*) belong to the public domain and indicate *merely the linguistic expression of a perspective* without requiring the speaker to adopt it. In other words, these predicates simply attribute verbally expressed content to an “I” distinct from the speaker. Additionally, a five-level partial ordering has been proposed to capture gradations between the extremes of the private-public domain.

Keywords: perspective-taking; world-creating predicates; attributional semantics

1. Introduction

1.1. A brief introduction to PT; hypothesis, and goal

In the literature, various definitions of the phenomenon of PT exist. Most researchers agree that PT is a cognitive faculty enabling us to view or experience events from another person's

perspective (Johnson, 1971; Duan, 2000) and to interpret and predict others' behaviour (Zhang, 2013: 4; Carpendale & Lewis, 2006). Nonetheless, certain ambiguities arise when discussion turns to the topology of PT. Some researchers distinguish between perceptual (e.g., visual), cognitive, and affective PT (Tjosvold, 1977; Kurdek, 1975), and note that empathy, despite being closely related, remains a distinct phenomenon (Galinsky et al., 2008: 378; Healey, 2018; Stietz, 2019). Healey (2018) further divides PT into two components: cognitive and affective. The former relates to thoughts and beliefs, whereas the latter deals with emotions and feelings. Tjosvold (1977: 680) underscores this distinction, highlighting that cognitive PT serves to identify the reasoning of others during controversy. By contrast, Parker and his colleagues (2008: 4) do not separate affective and cognitive components of PT, coining the term “active PT” and defining it as an attempt to an impartial understanding of thoughts, motives, and feelings of others as well as the reason they experience them the way they do. This notion of PT serves as the theoretical starting point for the current study and, at the same time, introduces additional challenges, particularly regarding ongoing debates about the fundamental mechanisms underlying PT. It remains unclear whether PT is automatic, subconscious, and unintentional or whether it is a conscious and deliberate endeavour requiring cognitive effort on the part of those involved (Bezuidenhout, 2013). From Parker et al.'s (2008: 5) PT is intentional, conscious, and goal-directed, as it involves mental exertion emphasizing that it requires effort and engages specific brain regions associated with higher-order cognition. Indeed, several neuroscience studies provide strong evidence that particular regions of the brain are implicated in PT (Ruby & Decety, 2001; Healey, 2018; Bacha-Trams, 2020; Waytz & Mitchell, 2011).

Despite the absence of an exhaustive descriptive model elucidating how PT functions, the ability to take another person's perspective during an interaction is highly beneficial and fulfils a fundamental role in understanding other interactants (Johnson, 1971). In doing so, it helps maintain effective communication and can even enhance the overall quality of interaction. For instance, Parker et al. (2008) demonstrated that active PT enriches mutual understanding among interactants. Individuals who endeavoured to comprehend others tended to convey their messages in a clear and accessible manner, thereby facilitating smooth communication and also reducing the likelihood of aggression.

PT exerts a profound impact on prosocial behaviour. For example, Parker and colleagues (2008) presented research indicating that PT is a key factor in reducing stereotypes, prejudices, and discrimination directed towards specific groups, modifying conflicts so that they become less personal and more manageable, and encouraging helping behaviours. All of these merits have been reported as beneficial in the workplace (Parker et al., 2008; Zappalà, 2016). Grant and Berry (2011) concluded that employees who were asked to consider the perspectives of colleagues, supervisors, customers, or suppliers filtered out less relevant ideas and presented those more likely to resonate with others, thereby increasing the profit from communication.

PT is also regarded as an advantageous instrumental competence in resolving conflicts, conducting negotiations (de Forsberg & Reichenbach, 2021; Boca et al., 2018; Galinsky et al., 2008), and participating in controversies (Tjosvold, 1977, 1978, 1980). Taken as a whole, the capacity for PT profoundly affects the social dimensions of human life. Traces of this

phenomenon extend from the fundamental moral development of humans (Ittyerah, 1990; Timmerman, 2014; Walker, 1980) to the aforementioned basic ability to initiate and sustain social interaction.

Given the crucial role of PT in interactions, including verbal ones, it is hypothesised that PT holds distinct implications for language use. Accordingly, the goal is to determine the nature of the relationship between the cognitive concept of PT and language use per se.

1.2. Structure of the paper

In line with the stated goal, the following outline has been adopted.

Section 1 addresses the notions of the PT process, its conceptual understanding in academic literature, and terminological discrepancies. Particular emphasis is placed on the vital role PT plays in human interactions, including sustaining clear communication, diminishing aggression, fostering prosocial behaviour, guiding moral development, and facilitating negotiations. Following this introduction to PT, a hypothesis and a goal are proposed.

Section 2 explores predicates hypothesised to be associated with PT, since the so-called “world-creating” predicates are responsible for establishing perspectivity in language use. Perspectivity, in turn, encompasses two aspects: perspectivisation and subjectification which are closely related yet differ according to who serves as the active subject in discourse: the speaker or another participant.

Predicates do indeed create perspectivity, although they do so in varying ways. This variation is influenced by the predicate’s position on a spectrum extending from the inner private domain to the external public domain. Section 3 elaborates on these points and offers evidence supporting a twofold relationship between the PT concept and perspectivisation in language use.

Further, the paper deepens the private–public domain distinction by introducing interim levels between the aforementioned extremities. This taxonomy is proposed as a heuristic for assessing the degree to which different predicates signal the speaker’s engagement in actual PT.

The final section summarises the conclusions.

2. Attributional semantics concerns

According to attributional semantics, certain categories of predicates, especially world-creating ones such as cognitive and utterance predicates, are responsible for creating perspectivity (Sanders & Spooren, 1997: 97).

World-creating predicates first clearly theorized in the late 1970s, notably by James McCawley (1978) in a semantic context. McCawley’s work and a parallel study by Mochizuki (1980) on Chinese established the basic idea that certain predicates open up new worlds in semantics. McCawley illustrated that verbs such as *dream*, *imagine*, or *suppose* cause their

complements to be evaluated in an alternative world (for instance, a dreamed or imagined scenario) rather than the actual world of the speaker. For example:

- (1) Alice imagined that unicorns were in her garden.

This does not imply unicorns exist in the real world; but it suggests that they do in Alice's imagined world. Throughout the 1980s, the concept was absorbed into both formal semantics (often under *intensionality* and *opacity*) and cognitive semantics (under *mental spaces*). Barbara Lewandowska-Tomaszczyk (1985) introduced the idea that negation and counterfactuality operate through *alternative reality*, anticipating Fauconnier's (1985) full development of Mental Spaces Theory. Marie-Laure Ryan (1991) extended this shift into narratology, showing how texts systematically cue layered fictional realities. Later, Paul Werth (1999) formalized this insight in Text World Theory, proposing that linguistic structures like tense, modality, and intensional verbs initiate nested "text worlds" within discourse.

However, the traditional possible worlds semantics approach with alternative worlds, has faced criticism. Alberti and Kleiber (2012) offer a compelling alternative through their ReALIS (Reciprocal and Lifelong Interpretation System) framework. They argue that the conventional approach, which treats possible worlds as primitives in semantic theory, suffers from significant issues, notably the "granularity problem". Thus, the notion of world-creation moved from metaphysical models toward cognitive-discursive models, emphasizing mental simulation and perspectivisation rather than static alternative realities.

Despite the ongoing disputes about the nature of the concept of mental spaces, this paper does not intend to cover these points and rather use classical naming of verbs that create mental spaces. Accordingly, I refer to these expressions as "world-creating predicates" in the tradition of McCawley (1978) and Farkas (1992), acknowledging that they require the interpreter to construct alternative representational domains: imagined, desired, believed, or hypothesized.

Perspectivity can be conveyed in language use through various linguistic techniques, such as the selection of certain pronouns, the frequent mention of a referent (serving as a deictic centre), the use of mental-state or perception verbs, direct or indirect speech, particular word orders, modal verbs, reflexive verbs, negation, irony (Dancygier & Sweetser 2012), and numerous others.¹ Each of these techniques requires its own analytical approach, which falls beyond the scope of the current paper. Particular attention here is devoted to the so-called *world-creating predicates* — linguistic items whose complements construct alternative

¹ For a comprehensive inventory of linguistic mechanisms involved in creating perspectivity, see Rzhevskaja (2014), who outlines a wide range of devices used in conflict discourse, and Lu & Verhagen (2016), who examine viewpoint shifts across languages through parallel text analysis, highlighting both universal and language-specific perspectivizing strategies. In addition to these mechanisms, recent formal cognitive and pragmasegmentic studies have highlighted the crucial role of sentence types (such as declaratives, imperatives, and optatives) and discourse markers in constructing perspectivity. In particular, the ReALIS framework and associated works (Alberti & Kleiber, 2012, 2014; Alberti et al., 2016; Kleiber et al., 2016) provide a dynamic model of how sentence mood and inferential markers signal shifts in viewpoint and epistemic stance. These contributions underscore that not only lexical items but also grammatical and discourse-level features play a vital role in perspective-taking.

perspectives within discourse. These predicates, such as those expressing cognition or desire, play a crucial role not only in establishing perspectivisation, but also in compelling the speaker or listener to adopt or simulate viewpoints distinct from their own thereby generating deeper interest in the connection between PT and its linguistic markers. This process aligns with cognitive theories such as *Theory of Mind*, which posits the capacity to attribute mental states to others, and *simulation theory*, which suggests that understanding others involves mentally simulating their perspective (Deonna & Nanay 2014). Thus, world-creating predicates are not merely grammatical tools but gateways to exploring the cognitive underpinnings of perspectivity in language use.

For instance, desiderative predicates such as *want* and *wish* contribute to perspectivisation by requiring the speaker to represent another individual's desires, thus embedding their internal viewpoint into discourse (Neitzel & Penke 2021; Tager-Flusberg 1992). Similarly, perceptual predicates like *see* imply access to another's sensory experience, and engaging with such verbs often entails simulating the subject's perceptual viewpoint. Studies in embodied cognition show that language comprehension involves mental simulation of perceptual experience, suggesting that perceptual predicates invoke mental simulation akin to actually perceiving (Anderson & Dillon 2023; Liu 2024; Schwarzkopf et al. 2011). Furthermore, linguistic research on visual perspectivisation emphasizes that perceptual predicates signal the existence of alternative visual viewpoints and require awareness of such perspectival shifts (Vogels et al. 2023). Overall, these techniques generate multiple perspectives in the discourse and thus enhance compositional integrity and enable readers/listeners to experience different points of view.

World-creating predicates are so termed because their complements introduce a new mental space within the speaker's utterance. For instance, in:

- (2) John believes it is raining.

the speaker adopts John's version of reality (i.e., where it is raining) rather than representing the speaker's own (Brentari et al. 1992). In this utterance, there are effectively two worlds: the first encompasses the time and place in which the speaker produces the statement, while the second comprises John's belief that it is raining, including any spatiotemporal parameters from John's perspective.

These world-creating predicates refer to various possible worlds. In the sentence:

- (3) Oscar believes that I have an elder sister

the predicate *believe* and its complement *I have an elder sister* belong to Oscar's world of beliefs. In a similar vein, the predicate *want* in

- (4) John wants someone to help him

encapsulates the realm of John's desires (Wilson 1984: 415).

Sanders and Spooren (1997: 91) argue that all utterances are subjective and demonstrate two aspects of perspectivity in language: *perspectivisation* and *subjectification*. The first aspect is "restricted to subject other than the speaker", bounded to a subject *in* a discourse, i.e., a

character who the discourse is about; whilst the latter is bounded to the subject of discourse, i.e., the speaker. Each aspect can be signalled by specific linguistic forms. Subjectification arises, for example, when the speaker expresses an attitude towards information attributed to another discourse participant, as in *Surely, Robert is in the library*. Here, the speaker's certainty is conveyed by the adverb *surely*. Sanders and Spooren (1997: 91) list several linguistic markers that produce subjectification, including epistemic modality (*Robert must be in the library*), subjective *I*-embedding² (*I think that Robert is in the library*), predictions (*Robert will be in the library*), conditionals (*If Ann understood it correctly, Robert is in the library*), and evaluative reflections (*Surprisingly, Robert is in the library*).

On the other hand, perspectivisation may be conveyed simply by presenting a person as an active subject without revealing their inner discourse, as in *Mary likes flowers*, which is the most implicit form of perspectivisation. The most explicit form is demonstrated by direct quotation (*Jan said: "At this moment a bear is coming towards my kitchen."*) or indirect quotation (*Jan said that at that moment a bear was coming towards his kitchen.*). In general, whenever world-creating predicates assign thoughts, beliefs, or speech to a discourse subject, perspectivisation is generated (Sanders & Spooren 1997).

So, as it can be noticed, there are some linguistic means which can assist to identify the perspectivity in the language use. Since subjectification reflects only the speaker's own attitude towards the information assigned to someone else, the present study focuses more on perspectivisation, where the speaker conveys information from someone else's point of view. Moreover, expression of perspective and PT are always linked to the subject other than the speaker, and therefore the concept of perspectivisation in the language use is assumed to be closely related to the PT phenomenon. Hence, the next task is to comprehend where the speaker actually takes the perspective of others and how it can be determined in their speech.

3. The twofold nature of predicates: PT occurrence vs. expression of perspective

3.1. Internal-external domain of world-creating predicates

As mentioned in the previous section, world-creating predicates are responsible for perspectivisation and are therefore expected to be the primary linguistic items involved in the phenomenon of PT. So, let us dwell upon predicates in detail.

As Sanders and Spooren (1997: 89) observe, both verbs of utterance (e.g. *say, tell*) and cognition (e.g. *believe, think*) contribute to perspective creation in discourse, though presumably in different ways. Compare the following examples:

(5) Kate said she is in Budapest.

(6) Kate thinks aliens exist.

² Sanders & Spooren (1997: 106) note that *I*-embedding such as *I think, I believe* can combine both subjectification and perspectivisation.

In the example (5), the predicate *said* primarily functions to convey information attributed to Kate — namely, that *Kate is in Budapest*. In contrast, the example (6), involving the predicate *thinks*, requires the speaker to adopt Kate’s perspective. This is so because there is no inner discourse explicitly expressed by Kate such as in (7):

(7) Kate **said** that she thinks aliens exist

that would attribute this belief to her directly. Instead, the speaker presents the information from Kate’s point of view. In this sense, (6) implies that the speaker is representing Kate’s perspective, rather than simply reporting it.

From the above examples, it can be inferred that verbs of utterance and verbs of cognition function in distinct ways. The former merely express a linguistic perspective, whereas the latter serve as actual indicators of the occurrence of a PT process.

Dahl (1979) differentiated predicates according to their level of egocentricity. He proposed a scale ranging from private (internal) to public (external) for ranking predicates. For instance, predicates of cognition (e.g. *think*, *believe*, *know*) are considered egocentric (private), as the judgement of the truth value of what is thought or believed is accessible solely from the agent’s point of view. In contrast, predicates of action (e.g. *give*, *take*) or those denoting physical location can, according to the logic of Dahl’s theory, be classified as belonging to the public domain, since the truth value of such statements is directly accessible from the external environment.

Similarly, Shinzato (2004: 879) concludes that both *think* and *say* originate from the mental, private domain, but represent it differently. *Think* refers to the internal and assumes no audience, whereas *say* externalises the internal and presupposes an audience. Thus, applying Dahl’s ranking of predicates, we can infer that predicates of utterance publicly manifest the inner mental domain or, in our terms, express perspectivity. When the perspective of others is overtly expressed, there is no need to adopt this perspective merely for the sake of cognitive economy.

However, predicates of cognition present a more opaque and complex case. As noted above, they describe internal mental states that are not directly accessible, and therefore the speaker must, to some extent, exert cognitive effort³ to consider the perspective of the individual to whom a mental state is being ascribed. There are several possible explanations for why speakers tend to adopt others’ perspectives when attributing mental states.

Firstly, speaking about another person’s mental states inherently generates a degree of responsibility for the information conveyed. This responsibility is not only epistemic, ensuring accuracy in representing another’s perspective, but also pragmatic, aligning with Grice’s Cooperative Principle (Grice 1975). According to this principle, speakers are expected to make their contributions as informative, truthful, relevant, and clear as required by the communicative context. For example, the statement such as (8):

³ The notion of **cognitive effort** is used here to account for the varying degrees of mental processing required to interpret different perspectivised sentences including assigning mental states to other agents. Numerous studies support the cognitively effortful nature of PT process (e.g., Apperly, 2012; Frith & Frith, 2006; Rosnagel, 2000;).

(8) John thinks that the stock market will plummet.

implicitly invokes Gricean maxims, particularly the Maxim of Quality (providing truthful information) and the Maxim of Relevance (providing information pertinent to the discourse). When the interlocutor responds with (9),

(9) Why does he think so?

the speaker is expected to provide a relevant, well-founded justification of John's belief. And the possible expectation of that question motivates the speaker to adopt John's perspective in advance, supposedly even prior to articulating the statement, to ensure the explanation will be both accurate and contextually appropriate. Moreover, in striving to adhere to the Maxim of Clarity, the speaker must reconstruct John's reasoning in a way that is comprehensible and coherent from John's own point of view. Therefore, adopting another's perspective is not merely an enhancement that improves clarity; rather, it is a necessary step to fulfil the usual norms of effective conversation as described by Grice's Cooperative Principle. Failure to do so risks violating conversational norms. While these considerations are intriguing, they fall outside the scope of the present paper.

A further supporting account comes from the so-called hybrid simulation theory, which suggests that the attribution of mental states to others is underpinned by imagining oneself in the situation of the other (Deonna 2011: 7). Moreover, many studies include verbs of mental states as part of the assessment of PT abilities (Tager-Flusberg 1993; Dodd et al. 2011; Montoya-Rodríguez 2019). For instance, research conducted by Neitzel and Penke (2021) utilised mental state verbs as indicators and measures of PT ability, suggesting that the two are interconnected. However, the authors did not differentiate between verbs of utterance (e.g. *say*) and verbs of cognition (e.g. *think*).

Now let us return to the earlier examples. If one says "Kate thinks aliens exist.", one attributes a mental state (thinking) to another person, namely Kate. In doing so, the speaker is expected to adopt Kate's perspective.

To clarify these subtle distinctions, we may frame the sentence (6) within a broader linguistic context (10).

(10) Kate is constantly collecting information about extraterrestrial civilisations, calling on others to be prepared for their arrival. She thinks aliens exist.

In this context, *She thinks aliens exist* is more than a mere inference from the preceding sentence. Rather, in terms of Palacas (1993), it constitutes a simulation of Kate's viewpoint by the speaker — or, in our terms, the speaker's adoption of Kate's perspective. The first sentence offers observable facts (Kate's actions) which function as premises for the inference drawn in the second sentence. Based on the factual premises, the speaker then infers that *She (Kate) thinks aliens exist*; to put it differently, one attributes a mental state (thinking) to an agent (Kate).

Conversely, we can imagine a situation in which *Kate thinks aliens exist* is treated as a known fact, such as when it is common knowledge (whether via background information or

repeated mention) that Kate holds such a belief. In that case, the predicate functions as an expression of perspective rather than as evidence of actual PT, as shown below:

- (11) Kate is constantly collecting information about extraterrestrial civilisations, calling on others to be prepared for their arrival. She said that she thinks aliens exist.

Here, the final sentence overtly presents a fact or statement — in other words, it verbally expresses the perspective of Kate by the speaker. There is no need for the speaker to infer, imagine, or adopt Kate’s perspective, as she has already expressed her belief herself. Nevertheless, the sentence remains perspectival in a linguistic sense, since the predicate is attributed to Kate, not the speaker.

Let us now consider an example from Palacas (1993: 240):

- (12) In his disturbed condition, John wallows in guilt, real and imagined. For example, John regrets having killed his father, but his father isn’t dead; I just had lunch with him.

In this example, the verb phrase *having killed his father* signals the inclusion of John’s simulated point of view by the speaker. However, not all complex predicates can be used as explicit indicators of PT; the linguistic context plays a vital role. From the context we can infer that John did not kill his father, because: 1) the speaker denied that, and 2) the speaker had lunch with him. So, the proposition of the murder is not true from the speaker’s position. Thus, the proposition *John killed his father* is false from the speaker’s point of view, but true from John’s.

Without contextual cues, this perspectival layering becomes ambiguous, as in (13):

- (13) John regrets having killed his father.

Here, it is unclear whether the speaker is adopting John’s perspective or simply stating a fact. Hence, while complex predicates can serve as indicators of PT, their interpretation must be grounded in context. Villatte et al. (2009: 125) similarly argue that the truth value of propositional content plays a role in perspective-taking. Consider the sentence (14):

- (14) Paul thinks that Mary is not there.

Paul thinks is true, while *Mary is not there* may be false. Understanding this sentence requires the hearer to adopt Paul’s perspective: from Paul’s point of view, Mary is absent, though she may not be from another’s. It is also possible that both propositions (*Mary is not there* and *Paul thinks*) are false. In this case, the speaker has attempted to take Paul’s perspective by assigning him a mental state, but this attempt has failed.

Although this paper focuses on explicit linguistic items indicating PT, it is also important to consider cases where PT is indicated by syntactic relationships between sentences, as in the examples from Palacas (1993: 249):

- (15) Chomsky no longer believes in multiple transformations. Instead, he believes that there is just one transformation.
- (16) Chomsky no longer believes in multiple transformations. Instead, there is just one transformation.

Palacas claims that only the second version (16), viz. the second sentence in it, reports the simulated point of view of Chomsky by the speaker. Indeed, the second sentence in (16) does not overtly state that the thoughts expressed belong to Chomsky but rather implies that they do. The second part of that text is a continuation of what Chomsky believes and framed into the direct speech. This is unlike the first example, wherein both sentences, predicates of mental state are assigned to Chomsky, however, they are not simulations of Chomsky's mind by the speaker. These snippets clearly illustrate the difference between the expression of perspective and genuine PT occurrence. Even though the verb *believe* is a cognition verb and typically signals PT, in this instance it marks only the expression of perspective and not a simulated point of view. The explanation lies in context. Chomsky is a publicly known figure whose views are widely accessible via published works and public discourse. Accordingly, these beliefs are no longer private and fall within the public domain according to Dahl's (1979) ranking. Moreover, since Chomsky published his ideas, the truth value of the given predicates is accessible and verifiable by the audience. Thus, context has shifted the function of the predicate from indicating PT process to signalling the mere expression of perspective.

The difference between the actual PT occurrence and the mere expression of perspective is also reflected in the comparison of the predicates of action and inner mental states.

(17) Maria baked a cake yesterday.

(18) Maria believes the cake was good.

In (17), the predicate *baked* belongs to the external domain. The action is observable and its truth value can be directly verified. Although this sentence involves perspectivity (it attributes an action to someone other than the speaker), there is no PT but a mere expression of perspective. In contrast, (18) involves the internal domain. The predicate *believes* denotes a mental state whose truth value is opaque to external observers. Thus, the speaker must take Maria's perspective to express the content of (18), which constitutes an instance of actual PT.

In addition, some more elucidations must be provided regarding (17) and (18). First, in (18), while the speaker attempts to adopt Maria's perspective, this does not guarantee success. What matters is the presence of the attempt to take the perspective. Second, the tense of the sentence influences interpretation. While the domain of action predicates is largely unaffected by tense (*Maria is baking, Maria bakes*), the same cannot be said for cognition verbs, as shown in (19):

(19) Maria believed the cake was good.

In this case, it is unclear whether *believed* belongs to the private or public domain without additional context mirroring the ambiguity noted in examples (15) and (16). The above examples mostly reflect two extreme points within the internal-external domains. The next part is devoted to delineating intermediate categories.

4. Intermediate categories within internal-external domain

To capture gradations between private and public domains, I propose a continuum of five levels. Each level reflects how epistemically accessible the predicate's content is to outside observers (and thus how much perspective-taking or inference is required). Below I define each level with examples:

Level 1: Deeply Private Internal States. These predicates denote a subject's inner cognition or unexpressed reasoning, entirely hidden from others unless voluntarily revealed. Examples include cognitive verbs like *think*, *believe*, *imagine*, *doubt*, *plan*, *realize*, *conclude*, etc. Such verbs describe an "internal reality" in the mind of the subject. For instance, if we say

(20) Alice believes that the solution is correct.

that belief exists only in Alice's mind; an observer cannot directly see or hear a belief. As Dahl (1997, 1979) explains, mental predicates depict the subject's internal reality remaining in the private domain. Shinzato (2004) similarly argues that a verb like *think* represents an internal counterpart to speaking, essentially "the same phenomenon" as saying but kept private. At this deepest end of the continuum, the opacity of the state is highest – only the thinker has direct access to the content, making these predicates highly perspective-bound. An external person must use PT to infer such states. This category denotes what has been discussed earlier – the *actual occurrence of PT*.

Level 2: Internal Affective or Experiential States. This category includes predicates for emotions, desires, and certain sensory experiences that originate internally but may produce outward cues. Examples: *fear*, *enjoy*, *love*, *hate*, *hope*, *want*, *feel (an emotion)*, *be happy*, *be angry*, etc. These states are still primarily private (one can silently be afraid or love someone without others knowing), yet they often manifest in observable ways (facial expressions, tone of voice, physiological reactions). For instance:

(21) John is afraid of the dark.

describes an internal fear. John's fear itself is inaccessible to observers except via indirect signs (e.g. John's trembling or avoidance behavior). Compared to pure cognition, emotions and desires can be slightly more epistemically accessible because humans readily read emotional cues; however, they remain subjective. Deonna and Nanay (2014) emphasize that emotions are "essentially perspectival," bound up with the subject's individual appraisal and motivations. Thus, to understand an emotion predicate about someone, observers must still adopt or simulate that person's viewpoint (e.g. know their goals or sensitivities) albeit with some help from expressive clues. This places affective predicates slightly closer to the public side than pure thoughts, but they are still largely internal states requiring inference.

Level 3: Semi-Private Subjective Assessments. Between internal feelings and overt speech acts, we find predicates that encode a subject's evaluative stance or epistemic attitude, which might be expressed in language or deduced from context. These include verbs of judgement, opinion, or knowledge that straddle the line between the internal and public domain. Examples: *find* (as in "Alice finds the movie boring"), *consider*, *suspect*, *assume*, *know*,

remember, forget, decide, agree, prefer. Such predicates often imply an internal state with some outward manifestation or consequence. For instance:

(22) Bob suspects that his neighbor is lying.

The suspicion is private, but Bob might act warily, giving observers partial evidence of his mental state. Knowledge predicates (*know, remember*) are internally held, yet they pertain to factual content in the world and often become evident through behavior (e.g. if Bob knows the password, we'll see him enter it correctly). These states are *potentially* more accessible than Level 1 or 2 because they frequently surface in discourse: people voice opinions, make judgments, or demonstrate knowledge. Indeed, certain cognition verbs shift toward the public domain when their content is epistemically accessible to others through inference. For instance, if Alice just shared the answer or consistently acts like she knows it, we can safely say that “Alice knows the answer”. Pragmatically, we treat some of these states almost as public if common evidence exists (consider how saying “I suspect...” or “I believe...” in conversation externalizes an internal attitude as a public claim). Still, unlike full speech acts, subjective assessments retain an element of privacy – they reflect the subject’s personal stance, and others must **evaluate how reliable or shared that stance is**. Thus, Level 3 predicates occupy a middle ground: they are about the mind but commonly expressed or evidenced in communication, reducing some guesswork.

Level 4: Communicative Acts (Speech Act Verbs). This category covers predicates that describe utterances or communicative actions, which inherently reside in the public domain of observable language, even though they originate from an internal intent. Examples: *say, tell, ask, announce, promise, confess, argue, exclaim, admit, deny*. When we use such a verb, we refer to something the subject did outwardly with words. For instance:

(23) Carol said that she was tired.

(24) Dan promised to help.

These acts are directly perceptible to others (one can hear or read what Carol said or note that Dan uttered a promise), so the core event is public. The important point is that with speech predicates, the content that was private is now explicitly shared or at least observable as an utterance. As a result, PT is easier in one sense: an observer doesn’t have to infer that the subject has a thought; the subject literally voiced it. However, speech act predicates still carry perspective nuances. They can indicate the subject’s pragmatic intent or attitude (for example, *promise* implies commitment and *confess* implies admitting a fault, which signal internal states like intention or guilt). These subtleties mean that while the surface action (speaking) is public, understanding the full implications can require mind-reading of the speaker’s goals or sincerity. They are actions of communication, socially visible and usually taken at face value in terms of occurrence (if Dan promised something, we all heard the promise). The cognitive effort here mostly involves interpreting *how* the speech act was meant (pragmatics), rather than wondering *whether an act occurred* or *what content is in the subject’s mind* — the content is overtly expressed. Empirical work in discourse analysis supports this placement: even individuals with autism (who typically struggle with inferring mental states) often handle

direct speech quotations well in narratives (Stirling et al. 2009), suggesting that reporting *what someone said* poses less PT challenge than reporting *what someone privately thought*. Several studies, including Tager-Flusberg & Sullivan (1995), Brown et al. (2012), and Geelhand et al. (2020), found that autistic and neurotypical children were equally competent in using social, modal, and evaluative terms when telling stories. However, describing characters' unspoken thoughts proved to be more challenging for the first cohort. This contrast underscores that speech act predicates, being public events, require a lower threshold of mindreading.

Level 5: External Public Actions. At the far end of the continuum are predicates describing purely observable behaviours or events with no direct mental content in the description that earlier were mentioned as pertaining to the public domain. These are ordinary action verbs or event verbs: *run, eat, kick, build, laugh, cry (action), pick up, drive*, etc. Such predicates refer to what an outside observer can directly see or hear without needing inside knowledge. For example:

(25) Emma kicked the ball.

(26) Frank is laughing.

Everyone present can perceive these actions. PT effort is minimal here in terms of ascertaining what happened, because the information is available through standard perception. These predicates are thus firmly in the public domain. However, I note that even observable actions can involve subtle perspective considerations: actions can imply intentions or emotions (*laugh* might imply joy, *cry* might imply sadness — though *cry* as an action can also be a deliberate performance or caused by wind in one's eyes, etc.). But crucially, the verb itself in this category does not encode the perspective or mental state. Compared to all earlier levels, Level 5 predicates place the least cognitive load on PT processes because they deal with the objective layer of an event (what physically transpired) rather than the subjective layer (why or how it was experienced). This is reflected in language development and clinical observations (Capps 2000; Ronfard & Harris 2014): children describe actions earlier and more easily than thoughts or feelings, and individuals with theory-of-mind deficits often focus on describing visible behaviors in narratives while omitting internal motivations. In sum, public action verbs anchor the continuum's extreme where information is maximally shared and verifiable in the immediate context, requiring minimal mental state inference to understand the predicate. Thus, this extreme level does not signify **actual PT occurrence**, but rather **merely the linguistic expression of a perspective** of another person.

4.1. *Partial ordering note*

The above levels are arranged from most private (Level 1) to most public (Level 5). I should stress that this is a conceptual continuum, but some predicates might not slot neatly into a single linear hierarchy. Thus, a strict total order may give way to a **partial ordering**. For instance, are emotions (Level 2) **always** more accessible than knowledge states (Level 3)? It may depend on context and specific verbs. This gradations serve as a useful heuristic, but certain predicates

could be ordered differently on a different scale. For example, *see* (a perception verb) is an interesting borderline case: seeing is a private sensory experience (only I directly see what I see), yet it's caused by an external stimulus and others can usually tell if I am looking at something. One might place *see* between Levels 3 and 4 (internal perception but with an external target), illustrating that not every verb falls strictly into one slot. Thus, consider the continuum a flexible **partial ordering by degree of “innerness”**, rather than an absolute ranking.

In sum, the line between “private” and “public” predicates is not fixed – context and **epistemic accessibility** can shift how a predicate is interpreted on the private-public scale. In other words, a predicate typically classed as private may appear more public in a context where evidence for it is readily available, and vice versa.

5. Conclusion

According to Sanders and Spooren (1997), all utterances are inherently subjective and involve two types of perspectivity: *subjectification* and *perspectivisation*. Each type is associated with specific linguistic markers that signal the nature of perspectivity involved. *Subjectification* refers to the speaker's attitude towards information attributed to others, while *perspectivisation* relates more directly to the process of PT itself, as it entails adopting another individual's point of view.

Having outlined several issues within the field of attribution semantics, I concluded that predicates of mental states function as key indicators of this perspectivising process. Within this class, subgroups such as predicates of utterance and predicates of cognition reveal perspectivisation in distinct ways. It has been shown that perspectivity in language is a twofold phenomenon. On the one hand, through world-creating predicates of utterance, the speaker conveys another's perspective without necessarily adopting it. In such cases, the speaker merely reports an observable act (e.g. an utterance), which belongs to the public domain and therefore requires no perspectival shift.

On the other hand, when employing predicates of cognition, the speaker is compelled to adopt the other's perspective, as attributing a mental state necessitates an effort to simulate the agent's point of view. Mental states are not directly accessible; they belong to the private domain of the individual. Hence, for the speaker to accurately ascribe a mental state, they must attempt to see the world from that individual's perspective.

Thus, two dimensions of the PT process emerge: the *expression* of perspectivity and the *occurrence* of PT. The distinction between these aspects has been explored. Taking someone's perspective involves metaphorically “putting oneself in the other's shoes”, while expressing someone's perspective consists merely in reporting information attributed to another party. Notably, predicates of cognition may shift their function depending on contextual factors: from signalling an actual perspectival shift to simply expressing perspectivity. The context determines whether the predicate remains within the private domain or moves towards the public one, thereby allowing us to classify it as an indicator of one of these two aspects.

To further refine this distinction, a five-level partial ordering has been proposed, mapping predicates along a continuum from the private to the public domain. This taxonomy

serves as a heuristic for capturing nuanced differences in perspectivity, illustrating that not all predicates fit neatly into binary categories. By introducing interim levels, the scale accounts for predicates that lie between fully internal mental states and externally observable acts, thereby offering a more fine-grained tool for identifying where actual PT process occurs and where perspectivity is merely expressed.

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