

The semantics of functional prepositions in Serbian

Tijana Asic

University of Kragujevac, University of Belgrade

1. Introduction

There are some prepositions in Serbian which denote the existence of the active relationship between the figure¹ and the ground². In other words, they communicate that the subject is activating the function of the prepositional argument. However, it is important to emphasize that the agentivity always interferes with the specific position of a figure in relation to the ground. In this paper we will test whether the semantics of the prepositions in question can be defined using spatial predicates or it has to be based on some additional functional concepts.

2. Basic semantics of spatial prepositions

In our work on spatial, spatiotemporal and temporal prepositions (Asic, 2008, Asic and Stanojevic, 2013.) we have shown that it is possible to define them using a non *ad hoc* and general, spatial ontology, such as the one created by Casati and Varzi in their book (1999).

Moreover, we have created definitions of the prepositions in question consisting of basic mereo-topological predicates (*contact, connection, inclusion*) augmented by the

¹ A figure is a moving or conceptually movable entity whose site, path or orientation is conceived as a variable, the particular value of which is the relevant issue.

² A ground is a reference entity, one that has a stationary setting relative to a reference frame.

directional notions (computed by the frames of reference³; see Levinson 2003). In this perspective none of the functional relation between a figure and a ground is a part of the semantics of preposition but it is a result of pragmatic inferential process.

Our approach obeys the well known Grice's principle of modified Occam's razor (see Grice, 1978) which enjoins semanticists not to multiply the senses beyond necessity.

For example, the preposition *na* (*on*) can be defined with a predicate called external connection (defined in Casati and Varzi's spatial ontology):

Definition of na: $xnay =_{df} ECxy$

(*x is na y is equal by definition to x is externally connected with y*)

$ECxy =_{df} Cxy \wedge \neg Oxy$ (external connection)

(*x is externally connected with y is equal by definition to x is connected with y and x does not overlap y*)

As for the "carrier/carried" relation (often, but not always existing in this relation), it does not exist in its definition and has to be pragmatically inferred.

As for the prepositions based on the notion of direction, such as *ispred* / *iza* (*in front of* / *behind*) they can be defined with notions such as *positive* / *negative frontal region* (which depends on the chosen reference frame): *Ispred* designates either that the figure is situated on the frontal side of the ground (intrinsic frame of reference) or that the figure is closer to the observer / some other reference point (relative frame of reference).

Definition of the positive frontal region of a given object:

$pfry =_{df} \exists w (Pw(ny) \wedge \neg Pyw \wedge Rtw \wedge Clw \wedge fpw(ry))$

(The positive frontal region to y is equal by definition to there is a single w such that w is a part of the neighborhood of y and y is not a part of w and w is a region and w is closed and w is frontally positive to the region of y)

³ A **frame of reference** is a coordinate system used to identify location of an object. In languages different **frames of reference** can be used.

Definition of the negative frontal region of a given object:

$$\text{nfry} =_{\text{df}} \forall w (\text{P}w(\text{ny}) \wedge \neg \text{P}yw \wedge \text{R}w \wedge \text{C}lw \wedge \text{fn}w(\text{ry}))$$

(The negative frontal region to y is equal by definition to there is a single w such that w is a part of the neighborhood of y and y is not a part of w and w is a region and w is closed and w is frontally negative to y)

Definition of *ispred*: $\text{xispred}y =_{\text{df}} \exists w (\text{P}w(\text{pfry}) \wedge \text{RL}xw)$

(x is *ispred* y is equal by definition to there is some w such that w is a part of the positive frontal region of y and x is exactly co-located with w)

Definition of *iza*: $\text{xizay} =_{\text{df}} \exists w (\text{P}w(\text{nfry}) \wedge \text{RL}xw)$

(x is *iza* y is equal by definition to there is some w such that w is a part of the negative frontal region of y and x is exactly co-located with w)

However, further investigations of the spatial expressions in Serbian (Ašić, 2005, 2006.) have shown that definitions of some semantically complex prepositions should be enriched by specifications of the constraints they impose on the nature of the figure and the ground.

For example, the preposition *po* (*over*) just like *na*, denotes the relation of contact but also demands that the figure is either continuous by nature or that it is moving on the ground⁴ (Asic, 2005).

Likewise, the preposition *uz* puts strong constraints on the dimension and shape of the figure and the ground (Asic, 2006).

However, advocates of the functional approach state that some spatial prepositions do not only denote the position of the figure in relation to the ground, but also a type of physical relation between them (Klikovac, 2006). Hence, their definitions should consist of functional notions such as *force*, *support*, *conflict*, *action*, *intention*, *manipulation* etc.

⁴ *Knjiga je na stolu* / A book is on the table. *Brasno je svuda po stolu* / The flour is all over the table. *Mis trci po stolu* / A mouse is running on the table.

Typical examples of “functional spatial prepositions” would be *pred* and *za*. Namely, *biti pred televizorom* (to be PRED TV) means *to watch TV*, and *biti za volanom* (to be ZA steering) means *to drive*.

Before we check the validity of the functionalist approach, we will make an overview of all the different usages of these two prepositions.

3. The preposition *pred*

3.1. The meaning of *pred*

In addition to the spatial directional preposition *ispred*, there is in Serbian also a preposition *pred*, which is morphologically related to it⁵ (see also Asic and Stanojevic, 2008).

Typical examples of the usage of *pred* suggest that it is used when a speaker wants to denote not only a spatial relation between a figure and a ground, but also the fact that the figure (usually an animate entity) is activating the ground’s function⁶. Note that the ground is usually an object which would be called the prominent telic quale⁷ in the Generative lexicon (see Pustejovsky, 1995).

(1) *Dušan je pred televizorom. Gleda crtani.*

Dusan is in front of the TV set. He is watching a cartoon.

(2) *Pas je pred vratima. Pokušava da ih otvori.*

The dog is in front of the door. It is trying to open it.

(3) *Dušan je pred Moneoovom slikom. Divi se nijansama narandzaste boje.*

⁵ They both contain the same root *pred* which meaning is *frontal*.

⁶ For the activation of the ground’s function with the prepositions *na* and *u* in the telic constructions see Asic and Corlin, 2014.

⁷ This means that it has a purpose that is made to be used. For example the telic quale of the book is *to be read*.

Dusan is in front of a Monet's painting. He is admiring nuances of the orange colour.

Contrasting the following two examples may serve as a strong argument for a qualification of the preposition *pred* as *functional*:

(4) *Dečak stoji ispred automata za sokove i čeka.*

A boy is standing in front of the beverage vending machine and waiting.

(5) *Dečak stoji pred automatom za sokove i čeka.*

A boy is standing ?before the beverage vending machine and waiting.

While the first example conveys the information about the subject's position without specifying the object of his waiting, the second one communicates that he is waiting for a beverage from the vending machine. The crucial question is whether this meaning is yielded by the semantics of the preposition *pred* which denotes an active relation between the figure and the ground or the supposed usage of the vending machine is a pragmatic implicature.

One thing is certain: with *pred*, the orientation is encoded exclusively by the intrinsic frame of reference (while with *ispred*, it can also depend on the relative frame of reference) which is relevant for both entities in the relation: the figure is situated on the frontal side of the ground, but it also faces the ground with its frontal part.

This is why the following example is unacceptable:

(6) **Dusan je pred ogledalom ali mu je okrenut ledjima*⁸.

Dusan is in front of the mirror, but his back is turned towards it.

Does it follow from the statement given above that *pred* is actually a symmetric preposition, just like *en face* in French?

⁸ Remember that this sentence becomes acceptable if we replace *pred* with *ispred*: *Dusan je ispred ogledala ali mu je okrenut ledjima* / Dusan is in front of the mirror, but his back is turned towards it.

A strong argument against this position resides in the fact that the inversion usually leads to a sentence with a slightly different meaning and in some cases it is clearly impossible:

(7) *Dusan je pred ogledalom.*

Dusan is in front of the mirror.

(7') **Ogledalo je pred Dušanom.*

The mirror is in front of Dusan.

Does this suggest that the “facing” relation is not sufficient for defining the meaning of *pred*? Is a functionality really a part of the basic semantics of this preposition? If this is so then it would be impossible to cancel it and the sentence to remain true (see Stvan 2011 for a discussion on implicatures created by prepositions). However, the following example shows that this is possible:

(8) *? Dusan je pred ogledalom ali se ne ogleda. Oci su mu zatvorene.*

Dusan is in front of the mirror but he's not looking at himself. His eyes are closed.

We have thus proved that the functionalist definition is not proper for *pred*; it seems, therefore that the definition of this preposition should be based on the notion of the frontal orientation. However, some examples present a problem for such a definition. Actually we have to account for the non-symmetrical nature of this preposition and also for the possibility to use it with objects with no intrinsic frontal part (this is true both for a figure and a ground).

(9) *Trkač je pred linijom cilja.*

The runner is approaching the finish line.

(10) *Lopta je pred golom.*

The ball is in front of the goal.

What motivates the usage of *pred* in these sentences? Although the figure is used with a stative verb there is an understatement of motion: the ground is captured on its way to the ground.

No wonder this preposition (and not *ispred*) is commonly used to express the vicinity to the final point of a trajectory.

(11) *Pred Beogradom smo. Vidim Avalski toranj.*

We are approaching Belgrade. I can see the Avala Tower.

In accordance with the Localistic hypothesis, the spatial proximity easily becomes a temporal proximity. Thus, the following sentence is ambiguous:

(12) *Gosti su ti pred vratima.*

Your guests are in front of the door.

Your guests have almost arrived.

Our next task should be to relate the mentioned dynamic and static usages of *pred*. Our suggestion is that even the usages where there is no movement in the direction of the ground can be considered as fictionnaly dynamic. In the case of watching TV or observing a painting or looking at oneself in the mirror, the sight is directed towards the ground („eyes are travelling towards the ground“). In a sense, the figure is mentally approaching the ground (see Talmy, 2000. for fictive motion).

This dynamic constraint on the figure explains why the preposition *pred* is not symmetric like *en face de* and why the sentence in which we inverse them are often unnatural⁹.

Interestingly, this preposition can be used even with the motionless figure with no intrinsic rontal part. The condition for this usage is that the picture captures also a movement of a third object: the figure is situated on its itinerary to the ground:

⁹ *Televizor je pred Dusanom* / Tv is in front of Dusan.

(13) *Deca trče ka ulazu u školu. Izgleda kao da će svi ući na vreme. Ali ne! Bara je pred školom. Deca moraju da je obidju. vrata se zatvaraju. Ostali su napolju!*

The children are running towards the school. It seems that they will get there on time. But no! There is a puddle in front of / before the school. The children have to bypass it. The door is closing. They have remained outside.

If there is no indication of such a movement the sentence is unacceptable.

3.2. *Pred* with animated ground

The sentences in which both the figure and the ground of the preposition *pred* are animated (usually human beings) have a specific meaning. They imply the existence of a visual contact in both directions.

(14) *Klovn je izveo skeč pred decom*

The clown performed a skit in front of the children.

This sentence communicates not only the position of the subject, but also the fact that the ground is watching and consequently can affect him.

Quite often the preposition *pred* denotes the presence of the figure in the visual field of the ground. In this usage the actual position of the figure is irrelevant.

(15) *On ne puši pred roditeljima, jer su jako strogi.*

He does not smoke in front of his parents because they are very strict.

The implication of „being observed“ also accounts for the fact that some authors analyse it as a causal preposition; namely, it appears with verbs denoting psychological reactions triggered by the ground's presence. As they point out, the causal force is triggered by the visual contact (see Piper, 2005)

All in all, *pred* does not serve to convey the exact position of the figure, but to point to the dynamic relation between its arguments. This characteristic prevents its

modification with quantification phrases. Contrary to this, *ispred* is often modified by this type of adverbs:

(16) *Kornjača je na početku trke 10 metara' mnogo ispred zeca (*pred zecom).*

At the beginning of the race the turtle is 10 metres – very much in front of the rabbit.

(17) **Dva metra ispred komore (*pred komorom) nalazi se sveća sa plamenom visokim 3 cm.*

Two metres in front of the chamber there is a candle with the flame 3 cm high.

3.3. Abstract usages of *pred*

The basic semantics of *pred* based on the notion of the figure moving towards the ground can also explain its abstract usages. In accordance with the Localistic hypothesis, it is used to denote temporal anterior proximity. The metaphor we have is that the figure-event is situated just before the ground-event (Piper, 2001, 138).

(18) *Došli su minut pred ručak¹⁰.*

They arrived just before lunch.

(19) *Daće intervju neposredno pred početak nove sezone u formuli 1.*

He will give an interview just before the start of the new Formula One season.

As we can see from the examples, temporal *pred* can be modified by adverbials denoting a very short temporal distance, but not with adverbials denoting a bigger temporal distance:

(20) *Došli su tri sata *pred/ pre ručka.*

They arrived three hours before lunch.

In this case the neutral temporal preposition *pre* (*before*) has to be used.

¹⁰ There is a change in case - instead of the instrumental case, we have the accusative case here, but this point will not be discussed in this paper.

3.4. *Pred with events*

Let us finally examine a very interesting case in which the preposition *pred* is used with some abstract entities - events. Its function is not only to show that the event in question will happen in the near future; it also serves to show that the subject has to deal with it or to overcome it:

(21) *Oni su pred razvodom.*

They are about to divorce.

(22) *Oni su pred selidbom u novu kucu.*

They are preparing for moving into a new house.

(23) *Francuska je u tom trenutku pred revolucijom.*

France was on the eve of the Revolution at the time.

(24) *On je pred velikom odlukom.*

He is now faced with a major decision/ A major decision lies ahead of him.

(25) *Predsednik tvrdi da smo pred rešenjem tog problema.*

The President claims we are about to find the answer to that problem.

(26) *Novine pišu da je Bašar al-Aasad pred porazom.*

The newspapers report Bashar al-Aasad faces imminent defeat.

Our assumption is that this usage of *pred* is conceptually related to the usage in which the figure and the ground are facing each other. In other words, the animate figure has to confront the ground. This imposes a constraint on the nature of the ground: it has to be an important event or moment in life, an entity which is, metaphorically, powerful. The subject has to invest some energy to reach it.

If the event lacks this power, the sentence becomes unacceptable:

(27) *Milica je pred rođendanom.*

*Milica is now faced with her birthday.

4. The preposition *za*

Among many usages of the preposition *za* in Serbian there is one that seems to denote not only the contact but the functional relation between the figure and the ground. More precisely, as shown in the following example, it denotes that the figure (a human being) is performing an activity using the ground (obligatory inanimate object with a specific function):

(28) *Emma je za klavirom. Divno svira.*

Emma is at the piano. She is playing in a wonderful way.

However, just like with *pred* it is possible here to cancel the activity implicature:

(29) *Emma je za klavirom ali ne svira, već briše dirke.*

Emma is at the piano, but she is not playing - she is cleaning the keys.

Note that it is not possible to disprove the figure's position in relation to the ground.

(30) **Emma je za klavirom ali mu sedi okrenuta leđjima.*

Emma is in front of the piano, sitting with her back turned to it.

It means that there is a strong constraint on the type of contact between the figure and the ground. If we replace *za* with *na* (designating a weak contact between a figure and a ground) we get a mere spatial reading:

(31) *Emma je na klaviru. Pašće!*

Emma is on the piano. She is going to fall!

However, the definition of the basic semantics of *za* as a specific contact cannot explain all the different usages of this preposition.

It should be noted that *za* is actually the shorter form of the basic spatial preposition *iza* denoting that the figure is situated in the negative frontal region of the ground. *Za* in its basic spatial usage chooses a moving figure which is getting

closer to the ground. The image we have it that the figure is trying to catch the ground:

(32) *Decak trci za devojicom.*

A boy is running after a girl.

Note that if we replace *za* in this sentence with *iza*, we get a different image: a boy is just running behind the girl.

(33) *Decak trci iza devojice.*

A boy is running behind a girl.

This preposition can be used with a static predicate on condition that the ground is an entity with salient telic qualia. A dynamic feature “approaching the ground” transforms itself into the “intention to use the ground”.

5. Conclusion

Our analysis has shown that the definition of the so called “functional preposition” can be based exclusively on spatial predicates and specific constraints on the nature and dynamicity of the figure and the ground.

Our observations on the semantics of *pred* and *za* present quite a strong argument for the Aurnague, Vieu Borillo (1997, p. 24) three-level theory that enables the proper representation of prepositional meaning. The geometric level forms a basis of this system. The definitions of prepositions are generated at this level.

The functional level captures the features of the figure and the ground and the non-geometric relations between them. It actually concerns our constraints on the nature of the entities in a relation.

Finally, the pragmatic level is based on the extra-linguistic information, such as context. Thanks to this enrichment we are able to understand that in the example (5)¹¹ the speaker is not talking about the subject's position but saying the subject is waiting for a beverage.

Our findings suggest that the difference between the spatial and spatio-functional prepositions should not be looked for at the basic geometric level, but at the second one.

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