Space in Language and Culture in aṣ-Ṣāniʕ Arabic: The Case of Sheep and Goat

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1. Introduction

Traditional aṣ-Ṣāniʕ Arabic (TAA) is a North-Western Bedouin Ḥijāzi variety, spoken by the elderly speakers of aṣ-Ṣāniʕ Bedouin tribe, settled around four decades ago on a portion of tribal estates in the north-eastern fringes of the Negev desert. It is a tribal variety of Traditional Negev Arabic (TNA). While in the large historical perspective of Afro-asiatic linguistic family, central nomadic Arabic varieties are thought of as foci of linguistic innovation, the rigorous observation of strict endogamy as well as of other ethnic and cultural habits and traditions seems to have fostered within these groups the stabilization of deep semantic groundwork structures, such as those pertaining to the encoding of spatial relations (Cerqueglini 2015).

Spatial cognition is a fundamental requirement for every mobile species with a fixed territory or home base. It plays a central role in human thinking and reasoning, as proved by spatial metaphors used for many other domains, by the obvious cognitive utility of diagrams and tables, and by the special role of space in memory and temporal processing (Lakoff 1993: 218). The idea that space is a fundamental intuition built into our nature goes back at least to Kant (1768), and the idea that our apperception of space is governed by cognitive universals informs much current research. Within the epistemological framework of the Universalistic lesson, the different strategies used by human languages to describe spatial arrays are functional to the revelation of the conceptual structures of human spatial thinking, since universal structures of spatial thinking should be reflected in a universal grammar of space, supporting the existence of an innate, universal and restricted number of primitive spatial notions, according to which all languages and cognitive systems organize the spatial experience (Jackendoff 1983; Landau & Jackendoff 1993; Landau 1994; Talmy 2000a, 2000b; Li & Gleitman 2002; January & Kako 2007; Cardini 2010).

But the very variability of language revealed interesting insight into the possible cultural variability of spatial thinking, as stressed by Deterministic or Neo-Whorfian and, more in general, Neo-Relativistic approaches (Levinson 2003; Levinson&Wilkins 2006). The neo-Relativist and Functionalist approaches (Brugman 1983; Herskovits 1986; Lakoff 1987; Brugman & Lakoff 1988; Cuyckens 1991; Vandeloise 1991; Boroditski 2001; Fitch 2001; Bowerman & Choi 2003; Gentner & Goldwin-Meadow 2003; Levinson 2003) claim a strict interdependency of spatial language and cultural conventions, and a strong priming effect of the native language on one's system of cognitive representations. Even the Relativistic paradigm still assumes a close correlation between spatial language and spatial thinking – essentially, a kind of isomorphism between semantics and conceptual structure. For the supporters of Universalism, linguistic and cognitive variation occurs within a restricted inventory of possibilities, while Relativist approaches do not impose any preliminary limitation onto this phenomenon, accepting even the idea of its hypothetical infinitude (Evans & Levinson 2009: 431).

In the last decades, with more data from different languages added to the cross-linguistic analysis, the domain of space has revealed itself increasingly as differently partitioned, conceptualized and encoded across languages (Levinson & Wilkins 2006: 512).

In particular, space is a complex and multilayered domain for typological investigation, where linguistic variation can occur on several levels. When we observe and describe a spatial array, the

spatial information can be differently selected. Talmy proposed the notion of 'schematization' to summarize the process applied by speakers selecting and reporting only those aspects of a scene which they feel to be relevant (Talmy 1983: 225). Tyler and Evans (2003: 53) support the idea that such selective variations are symptomatic effects of what they call 'vantage point', a function according to which the way languages represent spatial scenes is due to the way speakers see them, so that different aspects or features of the spatial discourse can be given diverse degrees of importance and salience, as happens to manner or path in the sub-domain of motion (Talmy 1985) and distance, visibility, size in the sub-domain of location.

As a fundamental common behavior, all human languages represent space in terms relations occurring between objects to locate (Figures, Fs) and objects (Grounds, Gs) with respect to which Fs are located. In particular, static spatial relations in the horizontal plane, dealt with in this paper, can be either topological – such as FG distance/containment/support, like in 'Marc is in Rome', 'The picture is on the wall'– or projective, when the representations entail the criterion of 'direction' – like:

a. "Joan is in front of the building".

b. "Roy is left of the car"

a. establishes a Front/Back axial distinction on G-building, in order to locate F-Joan, while b. establishes a Right/Left axial distinction on G-car in order to locate F-Roy. In a., the English-speaking Observer (O) probably projects a Front Region onto the G-building on the basis of his routine experience of this object, whose functional accessible side is considered its **intrinsic** Front Region, irrespectively for O's own perspective. Same O may also project Front Region **relatively** to his own coordinates, i.e. F-Joan is between O and G-building, irrespectively for the inherent orientation of G. Same two options are generally available to western Os to represent the Right/Left Axis, so 'left of the car' in b. may be meant as the **intrinsic** G-car's Left Region or the Left side of the car **relatively** to O's perspective (two options may coincide when O and G [+FACED] are [+ALIGNED] - i.e. GO's Right/Left axis is aligned along a same line - and [+FACING SAME DIRECTION]. According to formulations by Talmy (2000) and Levinson (2003), representations based on G's inherent facets apply the **Intrinsic Frame of Reference** (FoR), while representations based on O's perspective apply the **Relative FoR**.

2. Frames of Reference

Levinson (2003) defines spatial FoR as cognitive and semantic strategies used to project coordinate systems onto spatial arrays in order to conceptualize and linguistically describe projective (or angular) spatial relations, i.e. relations entailing the criterion of 'direction', as in a. and b., where F is to be located in a certain direction of G.

2.1. The Intrinsic FoR

The Intrinsic FoR involves a coordinate system centered on G: the coordinates of the spatial array are determined by 'inherent features' or certain 'properties' belonging to the G referred to in the utterance. In order to become the center of the coordinate system, G has to show some 'inherent' functional or geometric asymmetry.

Interestingly, on a lexical level, while 'in front of the television' is acceptable, we never speak about the 'front of the television', rather using 'the screen', which is not used prepositionally. Similarly, in

aṣ-Ṣāniʿ: 'the door of the vase' (*bāb al-jarrah*), 'the head of the hill' (*rās al-gōz*), 'the belly of the mountain' (*baṭn al-biṭīn*), 'the tail of the tent' (*dīl al-bīt*, the lower edge of the posterior curtain of the tent), 'the hind-legs of the tent' (*rijl al-bīt*, each posterior pillar of the tent) never become spatial prepositions. Only *wijh*, in 'the face of the tent' (*wijh al-bīt*, the entrance of the tent), 'the face of the knife' (*wijh al-ḫūṣah*, the blade) has been grammaticalized into a projective spatial preposition (Cerqueglini, forthcoming).

Furthermore, cross-linguistic studies reveal that the attribute 'inherent' for G 'facets' or 'sides', though widely used in the literature, is misleading: facets are conceptually assigned by different languages according to some algorithm, or learned on a case-by-case basis depending on the object, or more often a combination of these. They basically rely on culturally variable conventions. That the concept of inheritance is sensitive to cultural variation is seen in Heine's report (1989) that among the Chamus (Eastern Nilotic), trees have an intrinsic Front Region according to their inclination or to their most prominent branch.

2.2. The Relative FoR

In the **Relative** FoR the body of the O is the origin of the coordinate system: *Black Cat is in front of the ball of wool* means that F-Black Cat is in a region of space contiguous to that part of the ball of G-wool where O's front is projected. This FoR can be easily primed by faceless Gs such as ball/tree/stone/pole, which lack intrinsic salient asymmetry on the Front/Back axis, so that some salient asymmetry must be mapped onto them from an external source. The Relative FoR can be applied according to three different strategies of projection: by 180° **Rotation**, by **Reflexion** across the frontal transverse plane, or by **Translation, as shown in Figure 1**.

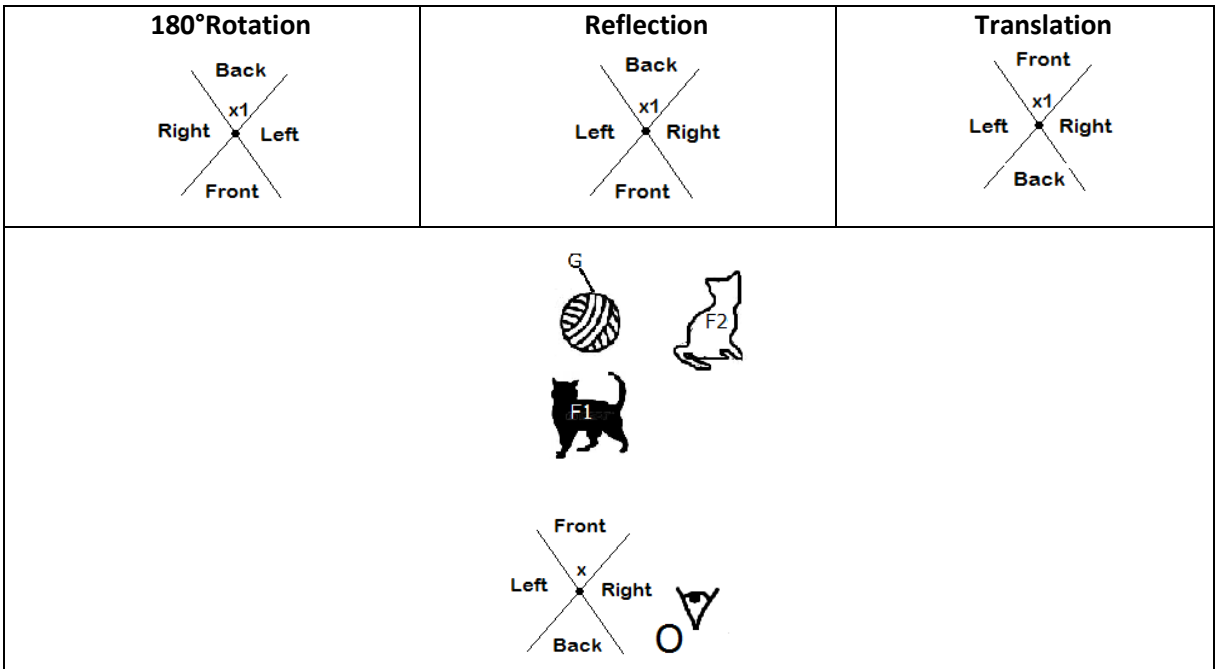


Figure 1: Transfer of O-Centered Axes (X) onto G (X1).

In Figure 1 F1 and F2 are Black Cat and White Cat respectively. According to the rules of 180° **Rotation**, whereby the X axial system has been turned 180° to become X1, we see that *White Cat is to the left of the ball of wool* and *Black Cat is in front of it*. **Reflexion** transfers the coordinates from

O (X) to G (X1), leaving the Right/Left axis unchanged, as when we face a mirror, so now *White Cat is to the right of the ball of wool* and *Black Cat is in front of it*. **Translation** treats the X1 axial system as a direct replica of X, so now *White Cat is right of the ball of wool* and *Black Cat is behind it*. The strategy of Translation, rare in western languages, is generally called the 'Hausa System' after Hill's (1982) contrastive description of Hausa and English spatial languages.

2.3. The Absolute FoR

In the turn of the Seventies, Haviland (1979) working on aboriginal Australian Guugu Yimithirr language, reported that there is no use of bodies as origin of coordinate systems in locative expressions, but rather cardinal directions are consistently exploited. This framing strategy has been labeled Absolute FoR, The coordinate system of the **Absolute** FoR is derived from some environmental gradient or feature, such as the four cardinal directions or a known landmark, providing fixed bearing throughout space, as in *Marc* (F) *is north of the house* (G).

2.4. FoRs Studies: From Language-to-Cognition Correlation to the Discovery of Mixed Types

The discovery of the Absolute FoR had a tremendous impact on behavioral, cognitive and psychological sciences, introducing the concept of cross-linguistic 'untranslatability' of spatial concepts, what dramatically undermined Universalistic claims. As spatial cognition is considered a fundamental biological requirement for every mobile species, and it is assumed to be reflected in language, the discovery of radical cross-linguistic diversity in processing spatial relationships could entail the existence of structurally different 'minds'. After Haviland's discoveries, the Whorfian hypothesis about the influence of linguistic choices onto habitual thought was again up-to-date, leading to extensive cross-linguistic surveys to test the correspondence between linguistic and cognitive representations.

As long as the methodological attention in the study of FoRs has been concentrated on the demonstration of linguistic and cognitive conceptual analogy, the observation of the restricted set of three referential options – among whose one strategy was assumed to be dominant in every linguistic group ('default perspective' hypothesis) – could be contextually considered as exhaustive. Nevertheless, the existence of type-mixing referential styles (or 'referentially promiscuous languages' (Bohnemeyer 2011) has opened up new perspectives for the study of development, conceptual contiguity and contextual selection of referential strategies, beyond both their basic typological classification and deterministic claims. Bohnemeyer (2011) explained the existence of different types of referentially promiscuous languages, describing them as referential systems lacking any default perspective and mixing the three basic referential strategies. He gave a first classification of such systems, based on socio-linguistic observations, dividing i) languages where all speakers use all three FoRs; ii) languages where all FoRs are used by a group of speakers (Ewe, Kgalagadi and Yucatec) and iii) languages where different groups of speakers use different FoRs (Hindi and Tamil).

In fact, the coexistence in the same language of all FoRs suggests *per se* the existence of an ancestral universal spatial mind, from which different specialized systems derived possibly just losing part of the original endowment (Bohnemeyer et al. 2014). So, for example, Indo-European languages seem to have lost the Absolute FoR, very common in most of linguistic families, with the exception of peripheral relics, such as Icelandic.

As an immediate outcome of the fieldwork among the aṣ-Ṣāniʕ, TAA showed the use of all three FoRs, representing thus a mixed type (Cerqueglini, 2015; Cerqueglini&Henkin, forthcoming), not freely switching among them. This discovery represented a turning point in the history of FoRs studies, as it provided the occasion to test – beside the affinity between linguistic and cognitive strategies – the criteria according to which speakers select FoRs, when a large inventory of strategies is available to them. In Cerqueglini (2015) and Henkin&Cerqueglini (forthcoming) the complex system of FoRs' complementary distribution in TAA and TNA has been partially described as based on a combination of 3 main criteria G's [+/-SYMMETRY] and [+/-FAMILIARITY] and OFG's [+/-ALIGNMENT]. Therefore, TAA/TNA are not definable 'referentially promiscuous systems', but rather represent a new type of mixed style, we define 'referentially complementary system'.

3. Methodology

The emergence of the TAA referential system – fundamentally based on culture-specific criteria - is strictly connected to a sustained observation of informants' reactions to stimuli, from the standardized stimuli series developed by the Levinsonian team at Max Planck Institute to the gradual development of a culture-based methodology for the design of stimuli priming the emergence of salient semantic distinctions. The development of the culture-specific methodology, adopted also to elicit the data discussed in the present contribute, is extensively described in Cerqueglini (2015) and in Cerqueglini&Henkin (forthcoming).

I restrict my description here to mention that the data shown in this work represent the answers given by elderly aṣ-Ṣāniʕ informants – 8 men and 8 women over 67 years old – to 'where'-questions such as 'where is F with respect to G?', *wīn F min G?* Questions were asked showing controlled stimuli, consisting in FG spatial arrays constituted by real objects and toy objects. Experimental arrays were placed in different positions with respect to the visual field of O: from its middle to its lateral periphery; at different distances; inside and outside the tent and the modern house; in different conditions of FG's and OFG's [+/-ALIGNMENT]. By [+ALIGNMENT] between two or more entities, I intend the coincidence of one of their axes, either the Front/Back or the Right/Left axis, along the same line, irrespectively of [+/- COINCIDENTAL FACING DIRECTION], as shown in Figure 2, where only the Front/Back axis in illustrated, as per the requirements of the present analysis:

	
1. [+ALIGNMENT][+COINCIDENTAL FACING DIRECTION]	2. [+ALIGNMENT][-COINCIDENTAL FACING DIRECTION]
Figure 2. Conditions of [+ALIGNMENT] along the Front/Back Axis	

Different conditions of [+/- ALIGNMENT] among O, F and G in spatial scenes can yield puzzling systems of representations. The ALIGNED FIELD, or Hausa system (Hill 1982) entails the condition of OFG's [+ALIGNMENT] along the Front/Back Axis.

5. Scope of this Contribute

According to Cerqueglini (2015) and Cerqueglini&Henkin (forthcoming), in TAA the Relative FoR is applied exclusively according to the strategy of Translation or ALIGNED FIELD (Figure 1).

This work accounts for the strategies underlying the selection and distribution of the ALIGNED FIELD in TAA, comparing the data yielded by the experimental sets carried out on G-stone/tree (Cerqueglini 2015; Cerqueglini&Henkin forthcoming) with experiments carried out on G-sheep/goat.

The choice of comparing G-stone/tree with G-sheep/goat is not random: all are part of the speakers' traditional cultural environment.

G-stone/tree attracts the projection of external coordinate systems, being geometrically 'symmetric', i.e. without inherent difference on the Front/Back Axis nor on the Right/Left Axis. Gs like stones and trees are widely considered as inanimate symmetric objects and frequently used in the literature for detecting the Relative Frame of Reference (see: 'Man and Tree Stimuli' in Levinson 1992, kit 1.: 7-14 and Hill 1982: 22). Nonetheless, not in all cultures are trees considered as symmetric objects: for the Chamus trees have an intrinsic Front Region corresponding to the direction of their inclination or to their most prominent branch (Heine 1989). Furthermore, within the mineral kingdom, on a large scale, mountains, hills and peaks often have an intrinsic partition, as happens, for example, in aṣ-Ṣāniʿ, where a crag on the slope of a mountain represents its nose (*ḥašm al-gōz* 'the nose of the mountain'). It seems thus that the criterion of [+/-FACEDNESS] shows several cultural variabilities. Therefore, to be a [+FACETED] object in general and to be a [-SYMMETRIC] G in the domain of space may be two different stories. Indeed, according to Cerqueglini's observations (2015), in TAA sheep and goat show scanty [-SYMMETRY] in the domain of space - differently from G-horse/donkey/dog – while in all other semantic contexts (details on the anatomical partition, colors of the coat, traditional medicaments to keep their wellness) they enjoy same treatment as other quadruped mammals. With respect to the function of G in the domain of spatial relations, not all quadruped mammals are considered homogeneously. G-sheep/goat do not attract the Intrinsic FoR, differently from G-man/horse/donkey/dog/camel, but the Relative FoR when OFG [+ALIGNMENT] - in its TAA declination, i.e. the ALIGNED FIELD – and the Absolute FoR when OFG [-

ALIGNMENT], like G-stone/tree. TAA speakers do not recognize Front/Back asymmetry to G-sheep/goat, as if these were poles or stones.

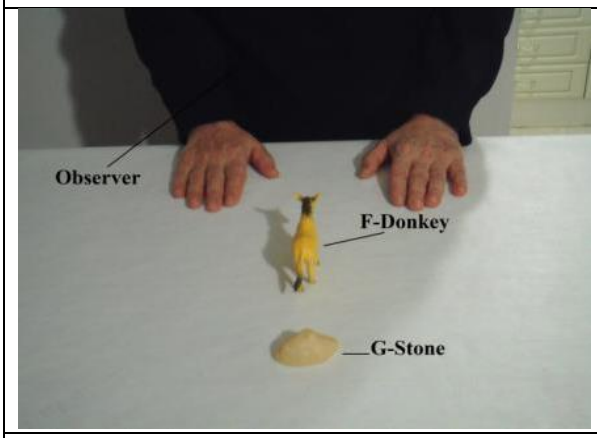
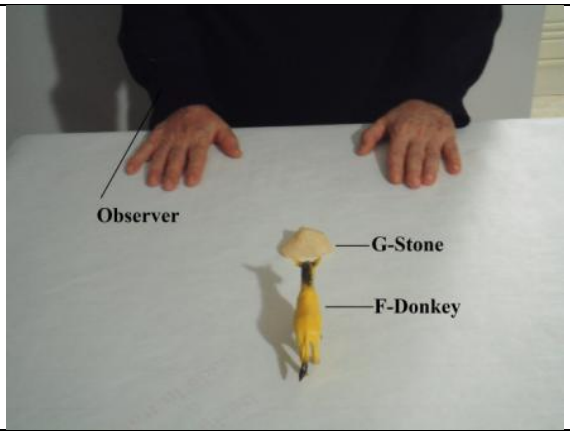
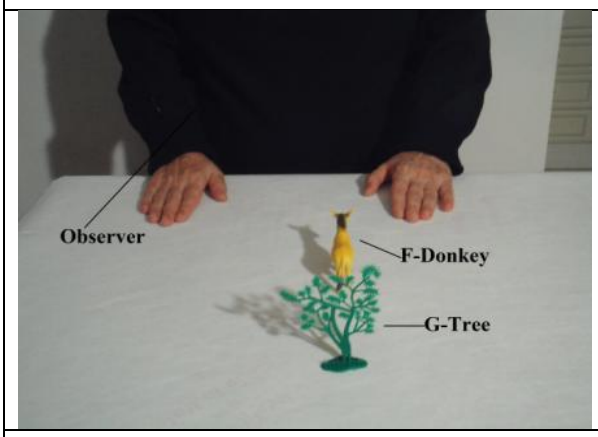
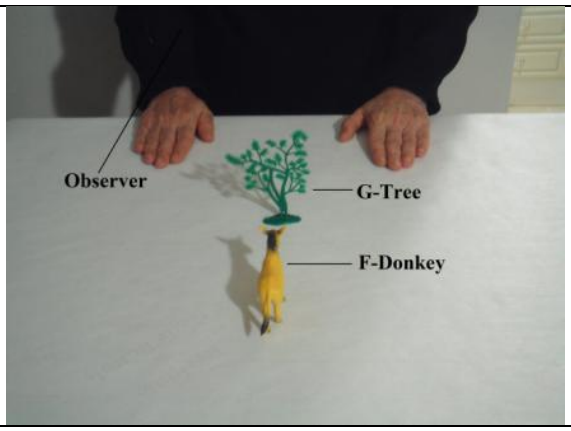
The ALIGNED FIELD requires by definition a G's [+SYMMETRY], i.e. G does not possess any element which can inherently differentiate its Front Region from its Back Region. Exploring the ALIGNED FIELD in TAA, in comparison to its first description in Hausa, I will show here how the concept of [SYMMETRY] can vary cross-linguistically beyond its 'logical' definition and that it is related to non-geometric features and to culturally established values.

These new findings support the hypothesis of the existence in TAA of a culture-based and domain-related ontology of Gs strategies, according to which spatial representations are processed. Semantic features, such as [+/- SYMMETRY], are attributed by TAA speakers to Gs according to community-wide conventions.

6. TAA ALIGNED FIELD

In TAA, the Absolute FoR is always used to establish oppositions along the Right/Left Axis with all kinds of Gs, as concepts for 'right' and 'left' are used only to distinguish the human hands and are not grammaticalized as spatial Regions and spatial prepositions. Absolute prepositions (*šarg* = east, *ġarb* = west, *šimāl* = north, *giblih* = south) are used when FG are in [-CONTACT] and limited interaction, due to distance, while the undistinguished *ʕa janb* ('beside') is used when FG are in [+CONTACT] or at a distance enabling interaction. [- FAMILIAR] and [+ SHAPED] Gs – such as key/shoe/dinosaur – are treated Absolutely, as if [-SYMMETRIC]. The Intrinsic FoR is used to distinguish Front from Back Region of [+FAMILIAR] [+SHAPED] Gs, while [+FAMILIAR] [-SHAPED] G-stone/tree attract the ALIGNED FIELD when OFG's [+ALIGNMENT] and the Absolute FoR in OFG's [-ALIGNMENT].

Figure 3 shows the response of aṣ-Ṣāniʕ speakers to 'where' questions on angular spatial relations where G is stone/tree, i.e. [+FAMILIAR] [-SHAPED], in condition of OFG [+ALIGNMENT]:

BACK REGION	FRONT REGION
	
1. G-STONE L: *wīn al-ḥmār min ad-dims*? I: *alḥīn al-ḥmār wāgif wara ad-dims.* L: where is the donkey with respect to the stone? I: now the donkey is standing behind the stone.	3. G-STONE L: *wīn al-ḥmār min ad-dims?* I: *al-ḥmār ʿa-nuṣṣ ad-dims, biʿīd ʿannih šwayyih.* L: where is the donkey with respect to the stone? I: the donkey is in the middle of the stone, a little bit far from it.
	
2. G-TREE L: *wīn al-ḥmār min aš-šajarah?* I: *alḥīn al-ḥmār wāgif wara aš-šajarah.* L: where is the donkey with respect to the tree? I: now the donkey is standing behind the tree.	4. G-TREE L: *wīn al-ḥmār min aš-šajarah?* I: *hal-ḥīn mwajjih ʿ-aš-šajarah bass biʿīd šwayyih ʿanha, ʿ-an-nuṣṣ, ʿa-nuṣṣ aš-šajarah.* L: where is the donkey with respect to the tree? I: now it faces toward the tree, but a little bit far from it (the tree), in the middle, in the middle of the tree.
Figure 3. Front/Back Axis of G-stone/tree in OFG [+ALIGNMENT]	

As we see, when G is stone/tree, the Back Region is projected onto the side of the G closer to O and the Front Region onto the opposite side, i.e. the further side with respect to the O's position. The coordinate system projected onto G is a parallel extension of the original coordinate system centered on O, i.e. it is obtained by Translation. Translation is possible because of OFG [+ALIGNMENT]. So, this solution for the projection of the Front/Back Axis onto symmetric Gs has been labeled by Hill 'the ALIGNED FIELD', first detected and described by this author in the Hausa language (Hill 1982). The ALIGNED FIELD is used to project O's spatial coordinates onto G's Front/Back Axis, as no

salient Front/Back asymmetries are inherently recognized to these Gs by the speakers, the reason why such asymmetries are projected from O.

As shown in Figure 4, in the condition of OFG [-ALIGNMENT], G-stone/tree prime the Absolute FoR:

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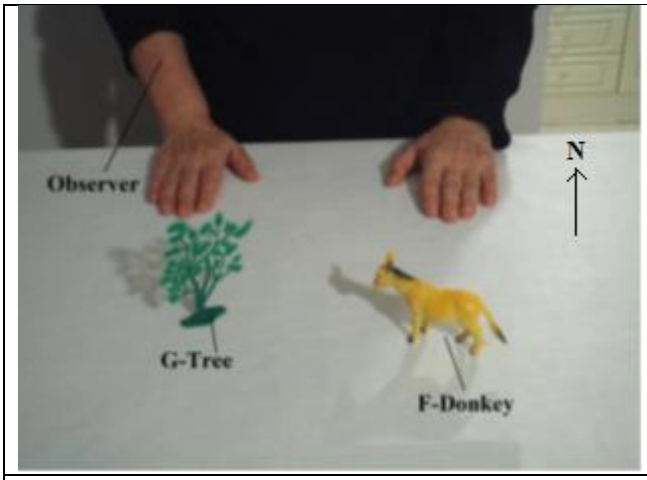
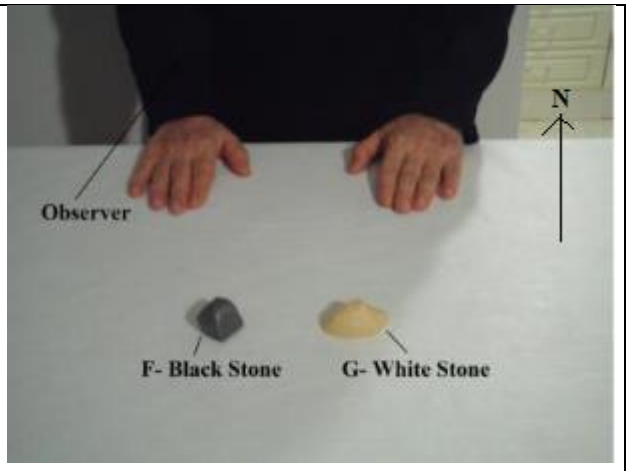
<tr><td> 
</td><td> 
</td></tr>
<tr><td>1. G-TREE
L: wīn al-ḥmār min aš-šajarah?
I: hal-ḥīn al ḥmār wāgif šarg aš-šajara.
L: where is the donkey with respect to the tree?
I: now the donkey is standing east of the tree.</td><td>2. G-STONE
L: wīn ad-dims al-asmar min ad-dims al-abyaḌ?
I: ad-dims al-asmar ġarb ad-dims al-abyaḌ.
L: where is the black stone with respect to the white stone?
I: the black stone is west of the white stone.</td></tr>
<tr><td colspan="2">Figure 4. Front/Back Axis of G-stone/tree in OFG [-ALIGNMENT]</td></tr>
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6.1. A noteworthy Asymmetry in the aṣ-Ṣāniʿ ALIGNED FIELD

An evident asymmetry can be observed in the treatment of Front and Back Region in TAA ALIGNED FIELD. In Figure 3, images 1 and 2, the examples describing the Back Region are all lexicalized by *wara*, 'behind', while in the answers given for the lexicalization of the corresponding Front Region, images 3 and 4, where I would expect the use of utterances like 'F *giddām* G', *giddām* was never used. Lexicalization of Front Region in the ALIGNED FIELD is variously solved: no Front Region is actually recognized. Thus, the TAA ALIGNED FIELD cannot be formally represented by the paradigm of the 'Hausa system' where the Front Region was consistently represented by the preposition 'in front'. This is the reason why I designate this TAA strategy using the more general label of ALIGNED FIELD.

TAA speakers look at the properties of Gs rather than following the geometric layout of the visual field. Generally speaking, the use of *giddām* strictly depends on the properties attributed by the speakers to Gs. Such properties – [-SYMMETRY] [+MOBILITY] – are prototypically non-recurrent in the Gs priming the ALIGNED FIELD, which are symmetric, as we have already discussed.

If we trace back the process of grammaticalization of the prepositions *wara* and *giddām* we clearly have to deal with an evident semantic asymmetry: *giddām* originates from g.d.m, the same root as *gidm* 'foot', while *wara* does not have any etymological relationship to body-parts located in the Back Region of human or animal body nor in any other kind of natural elements. Furthermore, the semantic meaning rooted in *giddām* strongly correlates this preposition to the idea of the natural and prototypical direction of the forward movement, the direction in which we are walking.

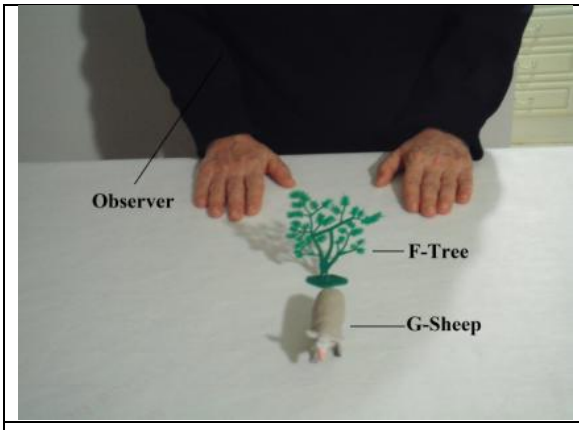
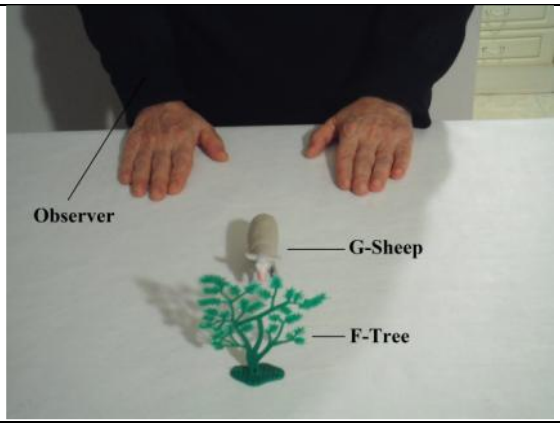
All this to say that since a preposition is etymologically bound to objects which show [-SYMMETRY] on the Front/Back Axis and [+MOBILITY], as is the case of *giddām* (which in its semantic history is related to the direction of the march of intrinsically oriented and mobile beings), TAA speakers avoid or at least resist projecting it onto objects which show [+SYMMETRY] on the Front/Back Axis and [-MOBILITY]. To project a Front Region onto a stone/tree is thus perceived by TAA speakers as stranger or more erroneous than to project a Back Region onto them, since the Back Region is prototypically less animated than the Front Region in asymmetric and mobile bodies, from which such a semantic distinction originally yielded.

Furthermore, the semantic origin of *wara* is literally less 'embodied' than the etymological origin of *giddām*; in an 'object-sensitive' spatial system, this fact can favor the extension of *wara* (and other prepositions not originally bound to body-parts) to a larger set of ontologically differentiated entities (under the respect of properties like [ANIMACY], [DIRECTIONALITY] and [MOBILITY]) and to a larger set of geometric arrays than the set of situations where it is possible to properly use *giddām*.

TAA preserves the remnants of a spatial system deeply based on the features of the object protagonist of the arrays, based on a mighty classificatory system of the entities of the world.

6.2. The aṣ-Ṣāniʿ Sheep/Goat in the ALIGNED FIELD: The Cultural Relativism of Spatial Ontologies

As we can clearly see in Figure 5, in OFG [+ALIGNMENT], TAA speakers surprisingly apply the ALIGNED FIELD to G-sheep (same holds for G-goat, therefore from now on G-sheep/goat), despite G-sheep/goat has a face, so it should have an intrinsic or inherent Front Region, like G-donkey/horse/man.

	
1. *L: wīn aš-šajarah min al-ḫurūf?* *I: aš-šajarah wara al-ḫurūf.* L: where is the tree with respect to the sheep? I: the tree is behind the sheep.	2. *L: wīn aš-šajarah min al-ḫurūf?* *I: minnih w ġād.* L: where is the tree with respect to the sheep? I: from it (G) and away (with respect to O).

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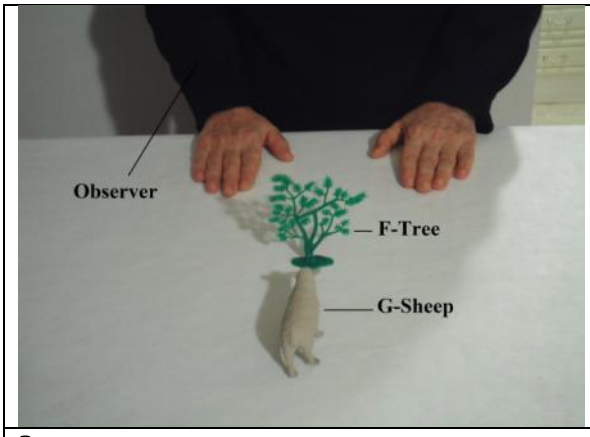
<td> 
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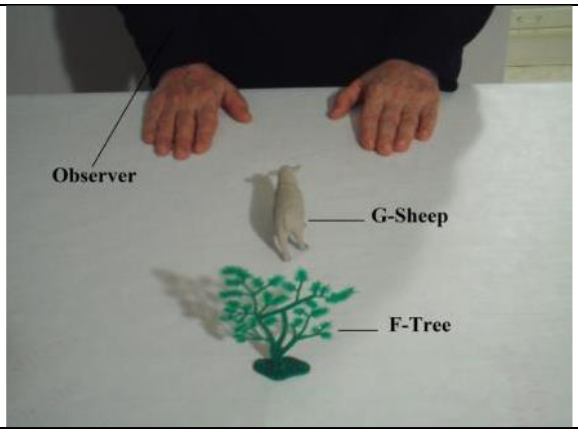
<td> 
</td>
</tr>
<tr>
<td>3.
L: wīn aš-šajarah min al-ḫurūf?
I: aš-šajarah minnih w jāy.
L: where is the tree with respect to the sheep?
I: the tree is from it (G) and coming (toward O).</td>
<td>4.
L: wīn aš-šajarah min al-ḫurūf?
I: aš-šajarah minnih w ġād.
L: where is the tree with respect to the sheep?
I: the tree from it (G) and away (with respect to O).</td>
</tr>
<tr>
<td colspan="2">Figure 5. G-Sheep in the ALIGNED FIELD</td>
</tr>
</table>

The use of *wara*, ‘behind’, in Figure 5, image 1 may be interpreted as Intrinsic as well as Relative representation. Indeed, it is an ambiguous case, because the rear part of the animal coincides with the Back Region of the ALIGNED FIELD. I suggest that *wara* is used here rather in its Relative sense, because in fact the rear part of the animal does not prime the use of *wara* in any other position (see Figure 5, image 3). Thus, in Figure 5, image 1 *wara* depends on the layout of the ALIGNED FIELD and has to be interpreted as a Relative representation. This case parallels Figure 5, image 2, because in such a situation, both the anatomical properties of the animal and the general partition of the ALIGNED FIELD should prime the use of *giddām*. But this is not the case: the resistance against projecting a *giddām*-Region onto G-sheep/goat is as strong as the resistance against projecting the *giddām*-Region onto G-stone/tree: thus, having a face and deserving a Front Region seem to be two different deals, at least for the aṣ-Ṣāniʿ G-sheep/goat, considered, in the domain of space, in G-function as more symmetric than G-man/horse/donkey.

TAA speakers attribute a Back Region to G-stone/tree and choose other strategies for indicating the Front Region, since *giddām* seems to them inappropriate. But in the case of G-sheep/goat the ALIGNED FIELD is realized using two prepositional phrases: *minnih w jāy/minnih w ġād*, lit. ‘from it (G) and coming (toward O)/ from it (G) and away (from O), regardless of the facing direction of G-sheep/goat. The only exception is coincidence of the rear part of the sheep/goat with the Back Region of the ALIGNED FIELD (see Figure 5, image 1).

When the informants have to substitute the lacking Front Region of any G in the ALIGNED FIELD, they generally resort to two distinctive strategies for distinguishing a stone/tree from a sheep/goat:

- in the case of G-stone/tree, the informants resort to geometrical descriptors, like ʿa-nuṣṣ aš-šajarah ‘in the middle of the tree’ or distance descriptors, like biʿīd šwayyih ‘a little bit distant’ (see F 3, images 3, 4).
- in the case of G-sheep/goat, the speakers generally use the expression *minnih w ġād,* , i.e. F is beyond G.

The pair of prepositional phrases *minnih w ġād/minnih w jāy* is here considered as a distinctive marker of the ontological properties of G-sheep/goat, distinct from other symmetric objects like the stone/tree. But these two phrases are also used in other situations where the Relative FoR is preferred, yet they will not be described in this work.

The examples reported until now on the effects of the presence of a sheep/goat as Ground in the ALIGNED FIELD associate the sheep/goat to the stone/tree, i.e. to symmetrical objects. Nonetheless, the use of the special *minnih w jāy/minnih w ġād* strategy demonstrates that the sheep/goat occupies an intermediate position between the mineral and vegetal worlds, on the one hand, and animals like donkeys, horses and camels on the other.

The intermediate position of G-sheep/goat between G-stone/tree/flock on one hand and G-donkey/horse/man on the other hand appears in a light effect of the anatomical properties of G-sheep/goat in the ALIGNED FIELD, i.e. when the snout and the rear part of G-sheep/goat in the ALIGNED FIELD do not correspond to the Front Region and to the Back Regions respectively, as established by the properties of the ALIGNED FIELD itself.

Differently from G-stone/tree, G-sheep/goat produces a grammatical opposition between the use of *wara* for the Back Region / *minnih wġād* for the Front Region when OFG [+ALIGNMENT] [+COINCIDENTAL FACING DIRECTION] (Figure 2, image 1)

and the use of *minnih wjāy* for the Back Region / *minnih wġād* for the Front Region when OFG [+ALIGNMENT] [-COINCIDENTAL FACING DIRECTION] (Figure 2, image 2).

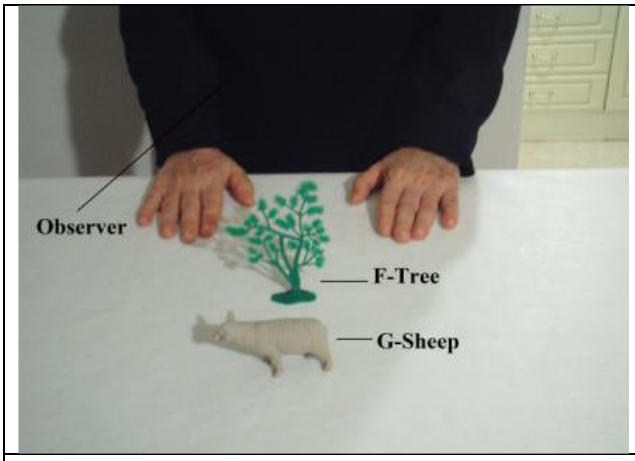
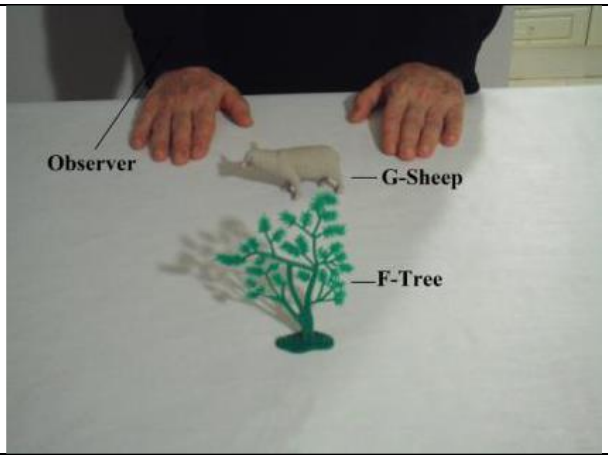
In the case of OFG [+ALIGNMENT] [-COINCIDENTAL FACING DIRECTION] (Figure 2, image 2), reflected in Figure 5, images 3, 4, i.e. when G-sheep/goat faces O, the anatomical part of the animal conflicts with the Region of the ALIGNED FIELD. Indeed, in that case, the face of the animal corresponds to the Back Region of the ALIGNED FIELD: *wara* is thus felt as improper (because of the 'light anatomical effect' of the snout of the animal), as also *giddām* (because of the effect of the ALIGNED FIELD).

In other words, when the inherent properties of the entity in the domain of space are weak and produce 'light' effects, the geometric rules of the visual field of the O tend to compete with the ontological properties and to prevail. Thus, in the semantic organization of space, geometric properties of visual fields override ontological properties not only in those cases where the entities present themselves with weak ontological properties, as the weak asymmetry of G-sheep/goat with respect to the strong asymmetry of G-donkey/horse/man in the partition of the Front/Back Axis.

So, we can conclude that, from a semantic point of view, different Gs, such as stone/tree/flock and the sheep/goat, selected on the basis of their ontological properties, produce in TAA grammatical distinctions even in the application of the same strategy of Translation, comprised within the Relative Frame of Reference.
This fact suggests a discrepancy between the domain of linguistic semantics (linguistic description) and that of cognitive semantics (cognitive attribution of the FoR). It indicates the importance of adopting different methodological approaches, oriented toward the analysis of the cultural ontologies of space.
The ontological properties of the objects and their partition into spatial REGIONS affect not only the Intrinsic Frame of Reference, but the so-called Ternary Frames as well, including the Relative Frame of Reference (as we have just seen) and even the Absolute Frame of Reference, which is generally classified as the more abstract coordinate system.
Ontological properties of spatial entities affect the application and the selection of the most appropriate FoR one for each situation.

6.3. TAA G-Sheep/Goat Set Perpendicularly to the ALIGNED FIELD

The slight anatomical effects of G-sheep/goat inherent facets and the prevalence of the geometric layout of the ALIGNED FIELD are evident also when G-sheep/goat are set perpendicularly to O's visual field, as in Figure 6:

	
1. L: *wīn aš-šajarah min al-ḫurūf*? I: *aš-šajarah minnih w jāy.* L: where is the tree with respect to the sheep? I: the tree is from it (G) and coming (toward O).	2. L: *wīn aš-šajarah min al-ḫurūf*? I: *aš-šajarah minnih w ġād.* L: where is the tree with respect to the sheep? I: the tree is from it (G) and away (with respect to O).
Figure 6. G-sheep/goat set perpendicularly to O's visual field.	

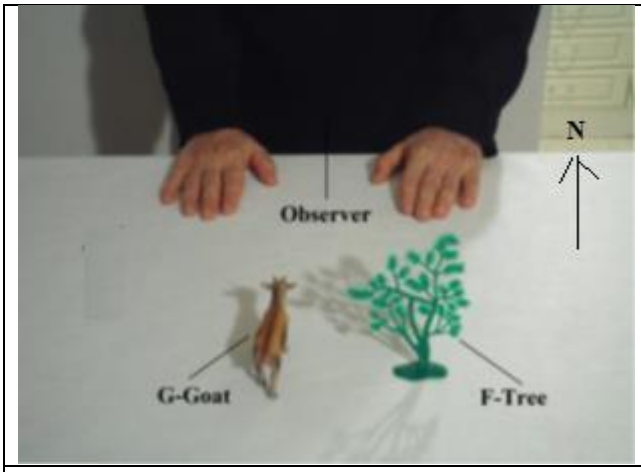
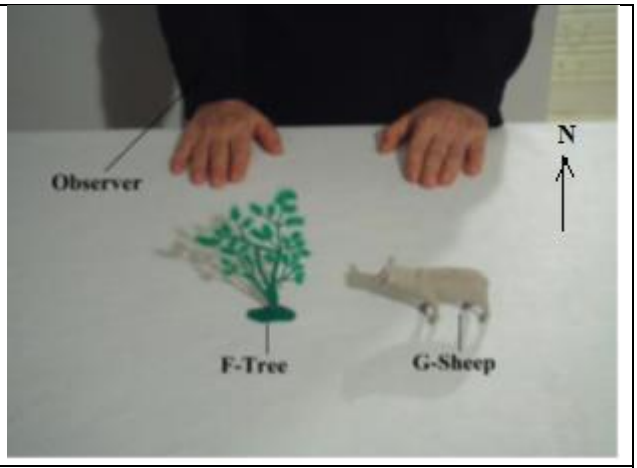
In the eyes of speakers of Western languages, recognizing to G-sheep/goat its inherent anatomical partition also in the domain of spatial relations, this layout would simply represent OFG [-ALIGNMENT], and the G-sheep/goat would prime the use of a 'beside' relations, referring to the presence of a Lateral Region coincidental with the anatomical flank.

Nevertheless, as TAA speakers don't recognize anatomical partition, the condition of OFG [+ALIGNMENT] is active, and the doublet *minnih w jāy/minnih w ġād* 'from it and coming'/'from it and away' are applied again.

This means that in the domain of space, G-sheep/goat shows no difference between its Front/Back and Right/Left axis, similarly to G-stone/tree. In other words, it does not matter where the sheep/goat is facing, since it is treated as a symmetric G in all its facets.

6.4. G-sheep/goat in OFG [-ALIGNMENT]

Further proves of the lack of spatial effects G-sheep/goat anatomical partition come from G-sheep/goat set in condition of OFG [-ALIGNMENT], as shown in Figure 7:

	
1. L: *wīn aš-šajarah min al-ʿanz?* I: *aš-šajarah šarg al-ʿanz.* L: where is the tree with respect to the goat? I: the tree is east of the goat.	2. L: *wīn aš-šajarah min al-ḫurūf?* I: *aš-šajarah ġarb al-ḫurūf.* L: where is the tree with respect to the sheep? I: the tree is west of the sheep.
Figure 7. G-sheep/goat set in condition of OFG [-ALIGNMENT]	

When [+SYMMETRIC] G is [-ALIGNED] with O, the array is automatically described applying the Absolute Frame of Reference, i.e. by means of cardinal directions, exactly as in Figure 4, with G-stone/tree. TAA [-ALIGNMENT] is realized when FG are located along a different axis with respect to O, both in the middle or outside O's visual field, as shown in Figure 8:

	
OFG [-ALIGNMENT] in the middle of O's visual Field	OFG [-ALIGNMENT] outside the middle of O's visual Field
Figure 8. Conditions of TAA OFG [-ALIGNMENT]	

7. Discussion

Considering the ideal inventory of possible properties which have been cross-linguistically detected and which could affect the treatment of Gs in spatial discourse, I hypothesized that the different treatment of G-sheep/goat with respect to G-donkey/horse/man could be a question of size, wondering if the smaller size could be the reason for less [ANIMACY], [MOBILITY] and more [SYMMETRY]. I then tested the informants putting a G-dog instead of G-sheep/goat in the same positions occupied by G-sheep in former experiments, and exemplified in the images reported before. Significantly, G-dog primed the use of Intrinsic FoR, just as G-donkey/horse/man. The rules of the regional partition of the ALIGNED FIELD did not appear at all. G-dog is thus not considered in TAA a symmetric G, although its size is more similar to that of G-sheep/goat than to that of G-donkey/horse/man. The hypothesis of size proved to be wrong.

TAA ontologies in spatial discourse show particular and special criteria for the classification of entities, which are not totally reducible to geometrical properties, like [SIZE] and [SYMMETRY], nor to mechanical properties like [MOBILITY]. TAA system of ontological classification of world entities presents itself with a structure of classificatory features which combines different proportions of geometrical and mechanical elemental categories, on one hand, and culture-specific features, on the other. Those specific features are strictly related to the daily experience of the speakers with the entities in question; at the same time they entail complex semantic and symbolic properties, understandable only within the cultural context. In other words, these are culturally-related ontological features which are not understandable as cognitive universals.

Carnivore animals of the Negev, like wolves and foxes, even small-sized, are very familiar to the Bedouins as a constant threat to the flocks. These animals are considered to be very active, mobile, dynamic and animated entities. My informants say that the best sheep dogs are the half breed born from the cross of dogs and wolves, but they sometimes change their character and attempt to eat the sheep instead of protecting them, so you can't really trust them. The carnivores have their own intentions, even their own character, and are often protagonists in fairy tales, mostly in the role of the villains, and of detailed descriptions of hunting sessions (Alatamin 2011, Vol 2, text 1) where their interesting and somehow curious behaviors in the wild are carefully reported.

I asked my informants why the sheep appeared in many cases as less animated with respect to other animals like donkeys, horses and dogs. They answered that carnivores, similarly to horses and camels, are considered intelligent, capable of decisions about targets, movements and directions. This fact explains - for TAA - the higher mobility and directionality of these animals, their grace and their beauty, when compared to sheep.

The fact that G-sheep/goat is considered [+SYMMETRIC] in the domain of space is thus not related to its anatomical properties as such, but rather to a combination of geometric, behavioral, and symbolic meanings which, in the final analysis, represents the expression of the specific culture.

The informants said that camels and horses are treated with respect, with care. They can move across great distances, run and follow directions[1], while sheep and goats always go together without a precise target. They just move around never raising their head, always eating face down. Someone who has

[1] Among the Rwala, the body of the camel is used as a means to orient one's own direction according to the stars, the same as the body of the traveler: 'Mind the North Star, ofṭon al-ğedi'. 'Lay the North Star on the face of thine animal' meaning a northerly course; 'Lay it on thy left brow' meaning a north-northeast course; 'Lay it on thy left shoulder' indicates 'go northeast'; 'Lay it on thy saddleback from the left' means 'go eastwards'; 'Lay it on the back saddle knob' means 'go south' etc. (Musil 1928: 355). As we can see, 'right' and 'left' are sometimes used. Nonetheless, their use is anchored to the system of the cardinal directions. Descriptions of spatial relations by means of 'right' and 'left' according to the Relative or the Intrinsic Frame of Reference are very rare. In the language of the Rwala the root y.m.n, from which yamīn 'right (side)' comes, also produces the verb yamman 'to set right': "Should the rider fall asleep and the animal change her course while grazing, his companion call to him 'set thy camel riding right!' jammen delûlak!" (Musil 1928: 355).

no target in life is said ‘to be one who goes around like a sheep’, or just ‘who goes where others go’. This attitude is considered a sign of limited intelligence, and a dangerous form of behavior; such people, like sheep, are seen as victims of circumstances and unable to accomplish a better destiny[2].
In contrast, a plethora of specific motion verbs is used to describe different manner, speed, and conditions of the gait of horses and camels. Another important feature which affects the treatment of G-sheep/goats is that they are seen usually in flocks and very seldom alone. This plurality somehow decreases the individualistic value of [ANIMACY] attributed to an individual member of the category.[3]
The explanation I have given to justify the intermediate position of G-sheep/goat between highly mobile animals (donkey/horse/camel) or carnivores (seen as gifted of a high degree of volitional impulses and mobility in hunting), on one hand, and symmetric Gs such as stone/tree, on the other hand, relates to properties attributed to these entities within the ontology of space in the traditional aṣ-Ṣāniʿ culture.
The origins of such a cognitive split between Gs attracting the use of the Intrinsic FoR and those attracting the Relative FoR are doubtlessly worth investigating, because they seem to contradict the universalistic claims of those acquisitional theories supporting the earlier development of the Intrinsic FoR with respect to the Relative and their implicational relationship.
The semantic categorization of entities in space and the attribution of different features or degrees of semantic features to animals of the traditional aṣ-Ṣāniʿ world seem very likely to be primed by the routine and ritualized day-to-day experience of the linguistic group in its activities with these animals. In the traditional life, sheep farming entailed a number of different seasonal practices, from driving ahead the herds every day to neighboring grazing fields and driving them back at evening, to the temporary transfer of some members of the family with the herds to pastures located at a certain distance from the village, to seasonal migrations along the east-west axis (toward the inland – toward the sea) involving the relocation of the entire family encampment. All these activities are described with a specific lexicon, comprising a plethora of motion verbs, often entailing temporal information according to the recurring time set-ting. As per my direct experience, the second way is still practiced by some of the elderly, exclusively men, including my informants. Generally, in the month of April, they leave the village with the herds and move to the pastures, located at a certain distance from the village, where they will stay over the summer living in tents or in other kinds of provisional shelters. Nowadays, in wintry months, herds are kept within stalls inside the village. According to the narratives of one of my oldest informants (92 years old), once girls as well as boys went to watch the herds away from the village, in daily grazing or even at significant distances from the village, moving on foot or, more seldom, on camel back. This is the reason why they proudly refer to being able to ride animals and shoot for defense. The only difference was that girls and boys once moved in groups, while men nowadays move away often alone.
From tales, narrations, sayings and metaphors, we find that for the aṣ-Ṣāniʿ a notorious characteristic of the sheep/goats is that they proceed without raising the head, i.e. without knowing any direction but the next tuft of grass. Shepherds usually drive them ahead, walking behind them to prevent them from spreading around and getting lost.
In a Sinai dialect narrative (Marom 2011: 126), we find a depiction of the girl-shepherd driving the herd ahead: *bitxalli lmiʿzë yğin giddāmha* ‘she lets the goats go before her’.

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[2] The lack of purpose and target and the tendency to a weak will is considered by all my in-formants to be a severe affliction in life, and it is often described by metaphors related to the domain of motion and specially to the lack of direction in one’s motion. This behavior is often associated to that of sheep in proverbs and in colloquial expressions.

[3] Animals generally living in flocks can show as single entities the semantic properties of the group. In the Bedouin languages there is a lexical difference between al-ġanámah ‘the sheep’ (singl.), ġanamāt ‘many single sheep’ (pl.), and ġanám ‘sheep’ (collective). As outlined by Blanc 1990: [9-10], the collective term ġanám is used for the flock of goats or of sheep and goats (Stewart 1990: 225). In the rural Arabic dialect of Tulkarem, ʿanzih can refer to both the sheep and the goat (while ʿanz in Negev Arabic means only ‘goat’). For the northern Arabs, ġanamih is the kid of the ʿanzih, i.e. the kid of the sheep or goat (from recent fieldwork in the Northern dialects, February 2014).

Consequently, the routine position of sheep/goats – especially when in motion – is alignment in front of the shepherd, facing the direction of movement. Therefore, the Front Region of the animal coincides with that of O, while its Back Region coincides with the space right in front of O and so its distinction becomes salient and it is expressed by the preposition *wara* 'behind' according to the general rule of the ALIGNED FIELD.

The same does not happen with horses, donkeys and camels, which are usually ridden, nor with dogs, which usually go alongside humans, when hunting or herding. These quadrupeds tend to "fuse" with humans in terms of space and movement. This differs radically from human interactions with sheep/goat herds, which the herder follows.

The attribution of the Back Region marked by the use of the preposition *wara* when the rear part of the sheep/goat coincides with the Back Region of the ALIGNED FIELD could be a residual effect of an incipient intrinsic partition, where the only salient part of the animal experienced in routine activities finds its place within the framework of the traditional spatial ontology.

In other words, the ritualized conceptualization of day-to-day activities has introduced an asymmetry in the axial Front/Back opposition, according to what has been observed by Levinson (2006: 42) "Having found, for example, the 'front', this may be used to anchor a ready-made system of oppositions 'front', 'back', 'sides' etc. Alternatively, in other languages, there may be no such fixed armature as it were, each object having parts determined by specific shapes; in that case, finding 'front' does not predict the locus of 'back' etc., but nevertheless determines a direction from the volumetric center of the object through the 'front' which can be used for spatial description".

With respect to this observation, the case of the knife in aṣ-Ṣāniʿ is very interesting, because this utensil shows an intrinsic Front Region expressed by the body part 'face' (ʿa-wujih al-ḫūṣah, lit. 'at the face of the knife'), but it has no inherent Back Region (something like *ʿa-Ḍahar al-ḫūṣah, lit. 'at the back of the knife', to indicate that something is on the opposite side of the knife with re-spect to the blade, is not in use).

In TAA, the impact of culture-specific constraints seems to intersect and deeply affect not only the selection of the appropriate FoR with respect to the features attributed to Gs, but also to call into question the terms of the supposedly universal process of sequential acquisition, or application, of the FoRs.

In no other position but the routine array in the ALIGNED FIELD do sheep/goats have an intrinsic Back Region priming the use of *wara*.

The priming effect of recurrent experience with sheep/goats in motion accounts for the poverty of [-SYMMETRY], [+MOBILITY] and [+DIRECTIONALITY] in their linguistic spatial location.

It is important to remember that, in the language of the aṣ-Ṣāniʿ, the ontological properties attributed to entities with respect to the domain of space are not necessarily valid in other linguistic domains: in the domain of space the sheep/goat is less mobile, and, somehow, less relevant than the donkey/horse/man, but the low salience of the inherent asymmetries of the body of the sheep/goat within the domain of spatial description does not correspond to a lack of knowledge about the anatomy of these animals: in a discourse among aṣ-Ṣāniʿ housewives on kitchen recipes, the anatomy of sheep/goat may turn out to be very detailed.

Moreover, as we have seen, in the domain of color terms, sheep, goats and stones enjoy the same abundance of specific terms as camels and horses (Borg 2007). This may be explained by the fact that a precise color system describing the coat is the best way to recognize each owner's animals.

In sum, properties culturally attributed to the entities do not constitute an absolute ontology, according to which the entity is classified once and forever in every domain of the given language. We should rather maintain that, to a certain extent, linguistic ontologies can be considered as domain-based classifications: in spatial relations, the sheep/goat is considered as having less inherent asymmetry and salience than the donkey/horse/man, but more than the stone/tree/flock. In other domains, salience and pertinent linguistic distinctions may well change.

8. Conclusions

TAA uses all three FoRs, representing thus a mixed type of a new and unprecedented fashion, called 'referential complementarity' (Cerqueglini&Henkin, forthcoming), as FoRs are used in a complementary distribution based on criteria of [+/-SYMMETRY], [+/-FAMILIARITY] and OFG [+/-ALIGNMENT]. TAA criteria determining the selection of the appropriate FoR in every context are strictly related to the nature of the Gs involved in the spatial arrays, i.e. to the features and values whereby speakers classify objects in space, or spatial entities. These properties seem to be not only culture-based – and hardly understandable outside TAA community –but also domain-related, i.e. they show their efficacy only in the domain of space, and more precisely when the mentioned objects function as G.
The culture-specific nature of these semantic properties contradicts the attempts of Universal Typology to identify a basic inventory of universal properties, usually thought to be geometric, mechanical and motor. Indeed, types of these properties and proportion in which they are attributed to entities can vary surprisingly in a cultural modality, as we will see in the analysis of the spatial domain in TAA. The property of [SYMMETRY] is culturally attributed by aṣ-Ṣāniʿ speakers in variable proportion to different Gs, as represented by different grammatical strategies within the same Relative FoR.

Moreover, TAA Relative FoR, or TAA ALIGNED FIELD, vs. Intrinsic and Absolute FoRs, shows the coexistence of two distinct types for the criterion of [SYMMETRY]:

1. independent [SYMMETRY], which does not increase or decrease proportionally with [+/-FAMILIARITY], used in the Relative FoR,

2. dependent [SYMMETRY], increasing and decreasing proportionally with the criterion of [+/-FAMILIARITY], largely applied to specific categories of Gs treated Intrinsically and Absolutely.

As demonstrated in Cerqueglini&Henkin (forthcoming), the criterion of [+/- FAMILIARITY] largely takes over geometric features such as [+/-SHAPEDNESS] [+/-MOBILITY]: Intrinsic FoR is attributed for example to [+FAMILIAR] but [-SHAPED][-MOBILE] Gs (e.g.: G-tent's cushion/pole set inside the tent) and the Absolute FoR is attributed to [+SHAPED] but [-FAMILIAR] Gs (e.g. key/shoe/computer/dinosaur). These culturally-specific uses of the criterion of [+/- SYMMETRY] are of type 2., i.e. dependent on [+/- FAMILIARITY]. On the contrary, G-stone/tree and G-sheep/goat are all [+FAMILIAR], yet equally considered as [-SHAPED]; therefore, the criterion of [+/-SYMMETRY] applied in the ALIGNED FIELD is of type 1, independent from [+/- FAMILIARITY]. The case of TAA spatial treatment of G-sheep/goat is thus even more surprising, as these animals have an inherent anatomical partition, well recognized in TAA outside the domain of space, and are [+FAMILIAR].

Furthermore, TAA spatial ontology for Gs classification and FoRs' selection shows the coexistence of two different types of semantic criteria:

1. Criteria which can only be present/absent in a certain G, such as [+/-FAMILIARITY], which I define 'polar', as based on +/- condition;

2. Criteria which can manifest in variable degrees in different Gs, such as [+/- SHAPEDNESS], which I define 'scalar', as they are quantifiable, relative to other Gs (not as absolute quantity). This is the case shown by the two different grammatical representations primed by G-stone/tree and G-sheep/goat within the ALIGNED FIELD, revealing the slight anatomical effects of these animals with respect to strictly [-SHAPED] G-stone/tree.

Both types are based on culturally embedded conventions, such as the way TAA speakers attribute different degrees of [MOTOR INTELLIGENCE] to different entities in space, independently from their objective capability of motion, [+/- MOBILITY].

The correspondence of one FoR (Relative FoR) to different linguistic strategies (*wara*/0 for G-stone/tree vs. *minnih wjāy/minnih wġād* for G-sheep/goat along Back/Front axis) ends up destabilizing the belief in the correspondence of linguistic and non-linguistic (or cognitive) knowledge, accepted by Levinson still in 2003, as a residual component of the Universalist lesson. Therefore, these experimental findings represent an exploration of the cognitive reflexes of the prepositional network, showing the clear impact of prepositional etymologies on the linguistic matching between the prepositions themselves and the referential strategies. The role of Frames of Reference and culture in the paths of prepositional grammaticalization is outlined here, representing a noteworthy contribution to both theoretical models of grammaticalization and, more specifically on a socio/historical level, to the field of Arabic dialectology.

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