

**1. METAPHORS IN LANGUAGE AND COGNITION** After Lakoff and Johnson's *Metaphors We Live By* (1980), and the subsequent development of the **Conceptual Metaphor Theory** (CMT, Lakoff, 1987), the importance of metaphorical awareness was also acknowledged in the fields of translation and language acquisition (Block, 1992; Cortazzi and Jin, 1999; Thornbury, 1992). Indeed, **metaphors vary greatly across languages, as languages are embedded in different sociocultural and geographic milieus** (Bolognesi, 2015; Kohl, 2010; Littlemore and Low, 2006). In particular, semantic domains eligible as sources of metaphorical expressions seem to differ across languages and cultures (Boers, 2009). From the perspective of traditional CMT, when we say 'the country grows,' we map our knowledge of 'growth' onto the concept of 'country.' Other approaches propose that source and target domains associated with the metaphor create new mental spaces ('Blending Theory', Fauconnier and Turner, 2002; Bichisecchi and Bolognesi, 2014). Recent studies demonstrate how **metaphors are expressed beyond language, in cognitive representations** such as gestures (Boroditsky and Ramscar, 2002; Casasanto, 2009). **2. SPACE AS SOURCE DOMAIN FOR METAPHORICAL EXTENSIONS** A constant cross-linguistic element seems to be the **primacy of the spatial domain as an empirical source of metaphorical extensions into more abstract domains**: time, causality, concession, and ethic and esthetic values in both linguistic and cognitive representations (Boroditsky, 2000; Gießner, S.R., Schubert, T.W., 2007; Tversky, B., Kugelmass, S., Winter, A., 1991; Verheyen, S., Stukken, L., De Deyne, S., Dry, M.J., Storms, G., 2011; Yoshida and Smith, 2003).

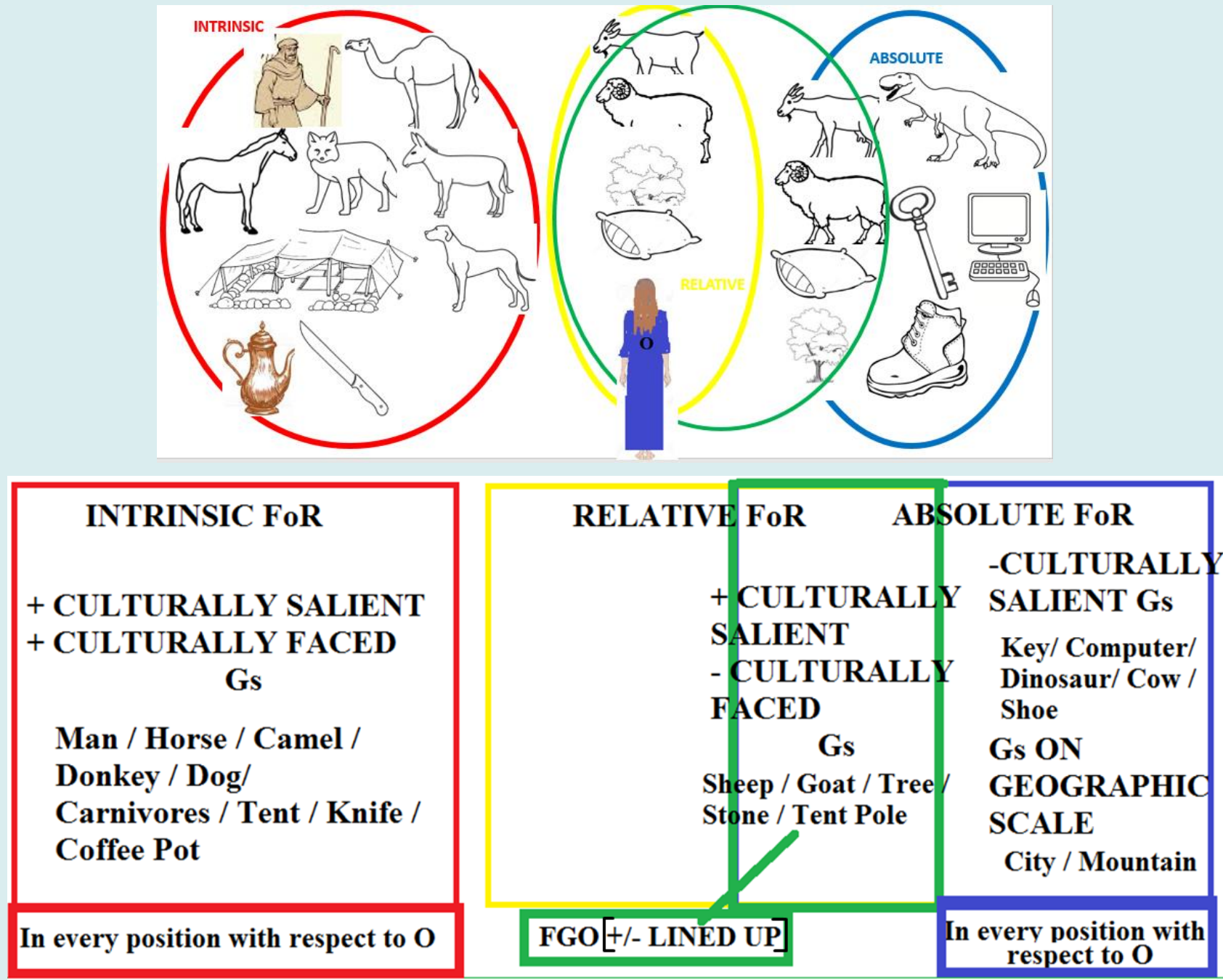
**The Linguistic and Cognitive 'Space-to-Time' Hypothesis** Since in many languages, the same lexicon, prepositions, adverbs, and frames of reference serve in both the spatial and temporal domains, the human metaphorical understanding of time in terms of space is considered an obvious phenomenon (Boroditsky, Fuhrman & McCormick, 2011). "Across cultures, people use spatial representations for time: graphs, time-lines, clocks, sundials, hourglasses, calendars, etc. In language, time is also closely tied to space, with spatial terms often used to describe the order and duration of events. In English, we move the meeting forward, push deadlines back, attend a long concert or go on a short break. People make spatial gestures when talking about time, and spontaneously invoke spatial representations when processing temporal language" (Majid, Gaby, Boroditsky, 2013). People who speak different languages and are from cultures differ in linguistic and cognitive selection in terms of 1. the spatial axis along which they represent the temporal relation of anteriority/ posteriority ('before'/'after') – i.e., the horizontal (front/back, as in English; right/left; east/west), or the vertical (up/down, as in Mandarin) axes – and 2. its orientation (left-to-right, right-to-left, front-to-back, back-to-front, east-to-west, west-to-east, up-to-down, down-to-up) (Casasanto and Boroditsky, 2008). **From space to Causation and Concession** Spatial prepositions are a source of grammaticalization via metaphorical transfer for more abstract domains, including aim, exclusion, causation, and concession (Šarić, 2008). So, in **Bedouin Arabic dialects** ḥatta, 'all the way to,' introduces final clauses and complements (Esseesy, 2010); ṣugb, 'the rear part of the neck,' becomes 'behind' > 'after' > 'because of' (Kurpershoek, 1999; Musil, 1918); gafa, 'the nape,' becomes 'behind' > 'except' (Kurpershoek, 1999; Nishio, 1992); ṣan, 'side,' means 'distant from' and acquires several secondary meanings, including 'notwithstanding' (Cerqueglini, 2017).

**Spatial Metaphors Represent Ethical and Esthetic Values** The association of spatial axial polarities to positivity/ negativity in ethic values, power, spiritual, and physical primacy and esthetic canons has been recognized as a trans-cultural attitude (Meier, B.P. et al., 2007; Torralbo, A., Santiago, J., Lupiáñez J., 2006). The way people represent value oppositions differs across languages and cultures depending on the available spatial representations, dominating spatial and cognition. The vertical axis is connected to spiritual values, while the right/left axis is associated with human morality. **3. METAPHORICAL EXTENSIONS OF CARDINAL DIRECTIONS INTO DIFFERENT CONCEPTUAL DOMAINS** Boroditsky and Gaby (2010) found that speakers of Australian languages, using only astronomical spatial representations, represent time along the east/west axis. Brown (2012) discovered that in Tzeltal, using geo-centric spatial representations, the future is uphill and the past is downhill. Cultural studies on South American, Australian, and Austronesian societies show that cardinal directions, used in daily linguistic and cognitive projective spatial representations on a small scale, dominate the organization of domestic, public, and religious spaces and activities (Brown, 2001; Le Guen, 2006), correlating with spiritual practices and values (Brown, 1984; Cardona, 1985; Dixon, 1899; Gaby, 2017; Levinson, 1998).

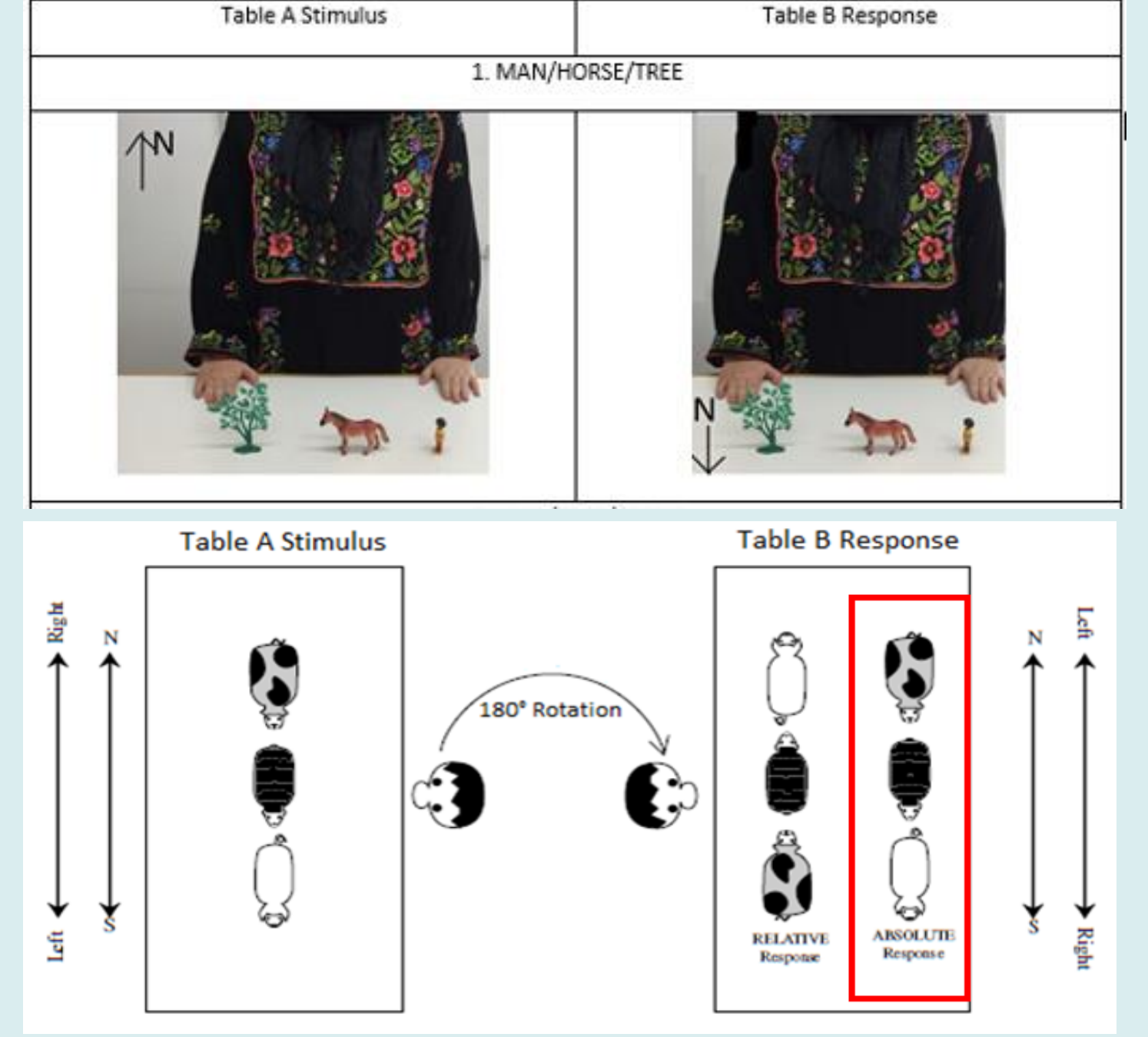
**METHODOLOGY** applied for elicitation of linguistic spatial FoRs and prepositions is described in Cerqueglini (2015). Elicitation of spatial cognitive data is based on the 180° rotation parameter in individual tasks of memory, path finding, pointing gestures, and map sketching (Levinson, 2003; Li and Gleitman, 2001). Elicitation of linguistic temporal representations is based on analysis of spontaneous speech, while cognitive representations are based on observation of pointing gestures and the application of stimuli in Boroditsky, Gaby, and Levinson (2008). In order to verify the hypothesized similarity between spatial and temporal representations, I apply FoR theory to temporal representations, treating these as projective spatial relations. Data were collected during fieldwork across southern Israel, Jordan and Egyptian Sinai, across different Bedouin Arabic types and several varieties of each type (Rosenberg, 1984). Literary and cultural data are based on direct observation and linguistic corpora of narrative, poetry, and spontaneous conversations (Al-Atamin, 2001; Bailey, 1991; Boris, 1958; Henkin, 2010; Cerqueglini, 2012-2018; Ingham, 1994; Kurpershoek, 1999-2015; Musil, 1918; Ritt Ben-Mimoun, 2011, 2014; Shawarbah, 2007, 2012).

**AIM OF THIS STUDY** I analyze the use of cardinal directions in linguistic and cognitive spatial representations in Bedouin Arabic languages. I detect the use of cardinal directions in language and cognition in more abstract domains, focusing on time. Eventually, I show how cardinal directions, the basic default system of spatial orientation in Bedouin Arabic languages, are used to metaphorically represent social, religious, ethical, and esthetic values, influencing domestic, ritual, and social spaces and material culture.

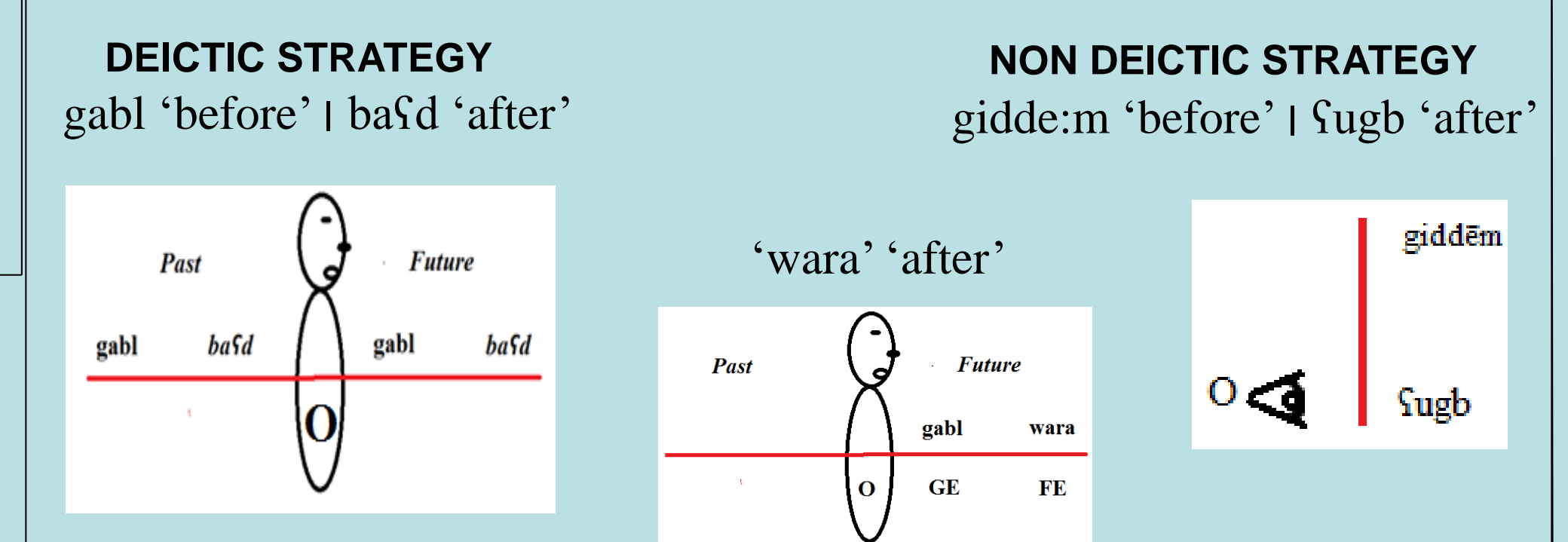
**G-based Selection of Spatial FoRs in Language**



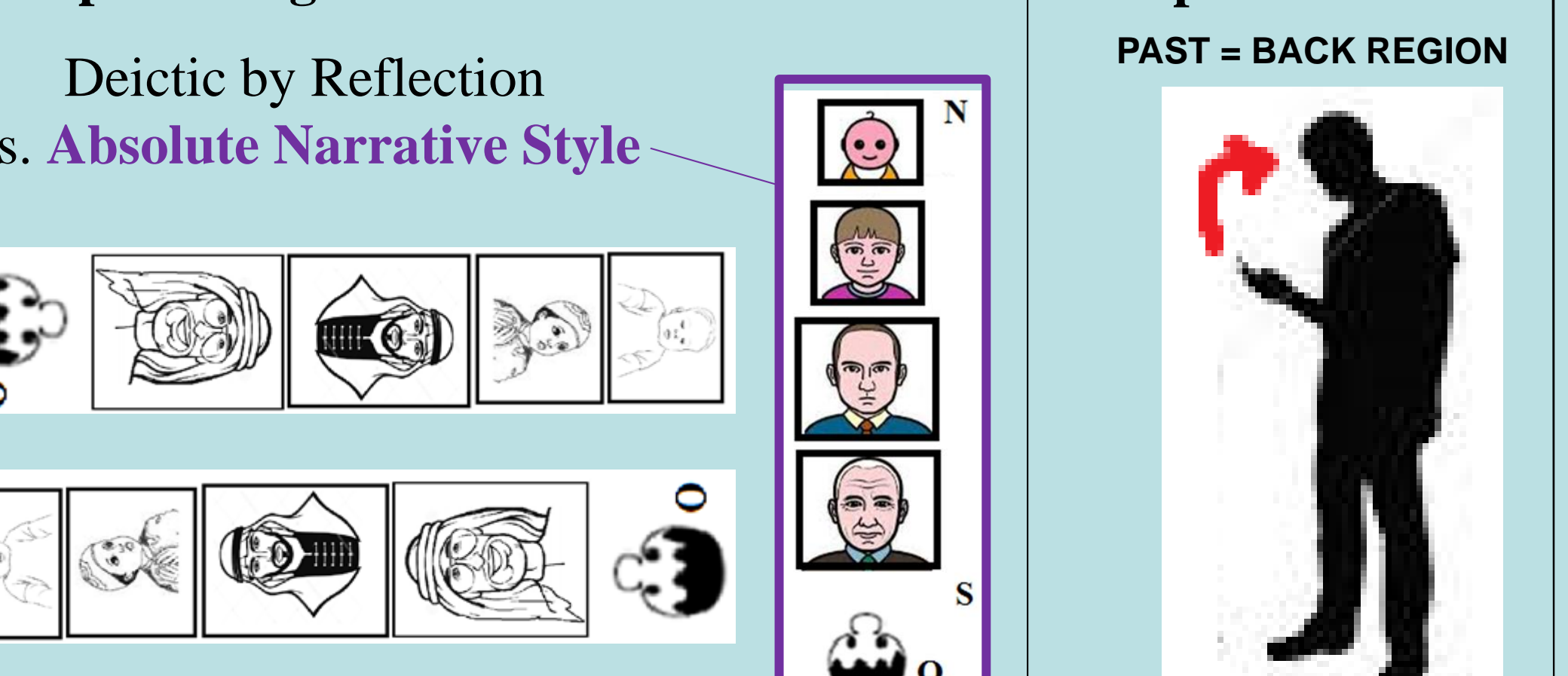
**Absolute Spatial Cognition**



**Temporal Linguistic FoRs in TAA**



**Temporal Cognitive FoRs in TAA**



**METAPHORICAL SEMANTIC TRANSFER: CARDINAL DIRECTIONS' LINGUISTIC POLYFRAMING AND COGNITIVE ABSOLUTE REFERENTIAL MODULARITY**

Names for cardinal directions may be derived from different lexical sources, primarily from the daily course of the sun, but also from winds, the positions of stars, and landmarks, both natural and manmade (Brown, 1983). The number and distribution of lexicalization sources vary cross-linguistically. For example in Mauritania winds are a prominent source for compass orientation (Taine-Cheikh, 1991). Two semantically distinct types of Absolute FoR exist, depending on the type of fixed bearings they are anchored on. Type A is anchored to the course of the sun, yielding the cardinal east-west opposition with its two cardinal directions, east and west (šarg and ġarb, respectively). Type B anchors to the typical direction of prominent local landmarks. A sun-based absolute cardinal direction of type A can acquire a local-based relative meaning of type B; in certain Egyptian varieties, miġirre:b (from ġarb 'west') and miširre:g (from šarg 'east') mean not only 'towards the west' and 'towards the east,' respectively, but also 'to the district town' and 'to the village center.' Human artifacts, such as cities, or large-scale landmarks like the sea or a mountain chain, come to designate cardinal directions; aš-ša:m 'Damascus; Syria' designates north (ša:m) south of the city. Similarly, dialectal reflexes of qiblah [giblah], literally, 'front,' designating the direction of Mecca, are used to mean 'south' in dialects north of Mecca (Behnstedt, Abu Mansur, and Woidich, 2011). In Egyptian dialects, baħr, 'sea' designates the north; in Yemeni dialects, šadan, the direction of Aden, indicates south. Cardinal directions may be designated via the body-centered front-back and right-left axes. 'Left' and 'north' are manifested in Arabic in the root š.m.l; similarly prominent is 'front when facing Mecca', giblah. These uses of 'front,' 'back,' 'right,' and 'left' depend on the Absolute anchoring. In parts of Sinai, north is wara, 'behind', being obscured by mountains, while south is gidde:m 'in front,' where the horizon is visible (Behnstedt, Abu Mansur, and Woidich, 2011). Due to multiple anchoring strategies, the polysemy of cardinal directions is a meaningful aspect of the ability to shift among different kinds of bearings, what I call here Absolute Referential Modularity, typical of many Absolute-framing languages. ARM shows shared features worldwide. When a direction is multiply anchored in a language, this ambivalence may disappear when the speakers leave the home space; Tzeltal 'uphill' also means 'south,' being astronomically and geo-morphologically oriented. Outside his land, should the Tzeltal speaker find that the uphill direction does not coincide with 'south,' he will continue to use 'uphill' meaning 'south' only, showing that the astronomical value prevails. The same happens in Bali, where 'mountainward' (secondarily 'north') and 'seaward' (secondarily 'south') are used in their astronomical sense for orientation and speaking outside the island. Outside the Bedouin world, 'east'/'west' lose landmark-based semantics, so šarg/šarrag and ġarb/ġarrab are used only in the astronomical sense, without secondary reference to desert, cultivated land, and coastal cities, and an up/down axis based on the familiar geomorphic slopes. ARM and lexical polysemy of cardinal directions terms are often based on the physical, embodied experience of directions associated with the conditions of the terrain in familiar landscapes. Indeed, task-specific TAA responses to linguistic and cognitive experiments demonstrate that informants behave differently within and outside of the tribal lands. Just as in Tenejapa (Brown and Levinson, 1993) and North-Balinese (Wassman and Dasen, 1998), all the cases where the landmark-based anchoring and the astronomical anchoring conflict are avoided in favor of the latter.

Issues of spatial framing, and particularly the cardinal directions, are clearly tied to culture. In the nomadic Arabic sprachraum, from Iraq to western Africa, the primary cardinal direction and the first to lexicalize is east, which, by virtue of the rising sun, associated with birth, freshness, and renewal. In the ancient Near East it was the locus of sun worship. Next is west, as the other pole of this axis. **EAST-WEST AS TOTALITY** The dual form of the noun mašriq 'eastern location,' al-mašriqa:ni, represents 'east and west,' and the binominal maša:riq al-arq wa-maġa:ribuha 'the eastern locations of the earth and its western locations' represents the entire world (Wehr, 1976). In contrast, north and south are more prone to be represented by secondary, locally anchored strategies lexicalized as toponyms, or intrinsically anchored to the human body as 'left' and 'right' or 'front' and 'back.' These are based on the position of the man facing in the direction of prayer, towards Mecca (Behnstedt, Abu Mansur, and Woidich, 2011). Therefore, the north-south axis is clearly secondary.

al-ħaġġ— xalla:ħ rabḥ-na fi-farġ w al-yaṛb  
the-justice— created-it Lord-our in-the-east and the-west  
'Our Lord created justice in the east and the west.' (Bailey 2004:245 no. 690)

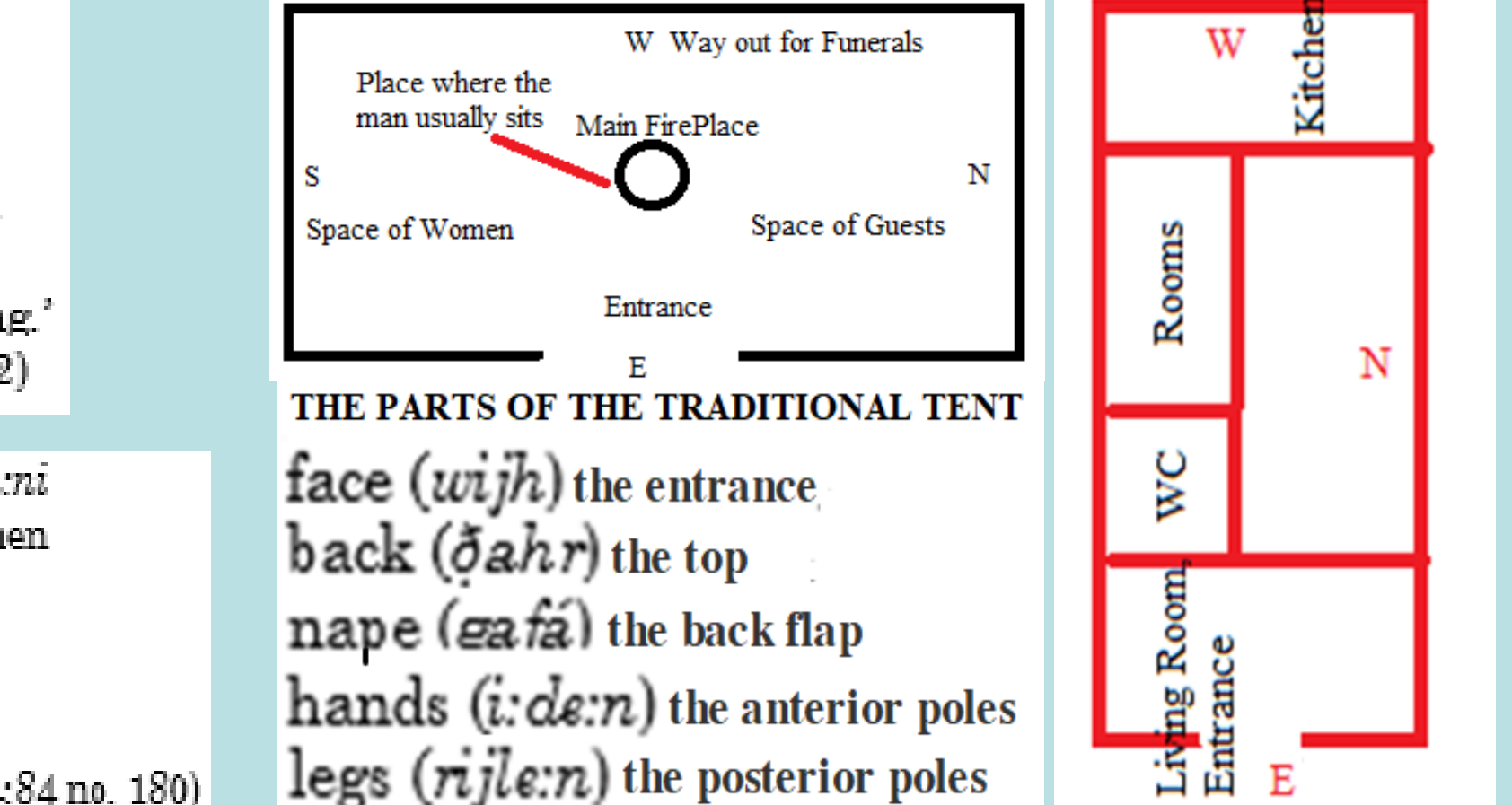
alliy yaṛrab yaṛrab walliy farraġ farraġ  
'He who has gone west has gone west and he who has gone east has gone east.'

**ESTHETIC AND ETHICAL VALUES**

fi šra:f-jaṛġ ġaṭfin min zaħar  
fi šra:l-gibla naġfin min ħajar  
fi šra:l-yaṛb faṭtin min ba šar  
'Poetry from the east is like a bouquet of flowers.  
Poetry from the south is like carvings in stone.  
Poetry from the west is like crumbs of camel dung.'  
(Bailey 2004:109 no. 262)

al-yaṛi:b mu:-ħu: yaṛi:b a:f-ħa: w al-yaṛa:ni  
the-stranger not-he stranger the-šħam and the-Yemen  
al-yaṛi:b yaṛi:b al-ħaħad w al-ħaḥa:ni  
the-stranger stranger the-grave and the-shroud  
'A person isn't gone when he's in šħam or the Yemen;  
A person's gone in the grave and the shroud.'  
(Bailey 2004:84 no. 180)

**ORGANIZATION OF DOMESTIC SPACE**



**CONCLUSIONS** In Bedouin Arabic languages, the default perspective relies on cardinal directions. These terms are highly polysemic, as they can be associated with different anchoring systems. This process takes place in language and cognition (ARM). In temporal cognition, cardinal directions are used to avoid deictic implications in a sequence of events. Cardinal directions express ethical and esthetic values in old poetry and a linear archaic world conception, where east includes south and west north, east-south being Bedouin space and west-north the foreign land. Cardinal directions determine the organization of the house.

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