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## **The impact of geography and culture on the expression of spatial relations.**

Communicating about spatial relations is a day-to-day task throughout our life. We accomplish it so spontaneously and easily that it was thought for long that our own way of transmitting spatial information was universal. However, when anthropologists and linguists started to carry on detailed studies on 'exotic' cultures, they found that the verbal expression of even basic spatial relations may differ significantly from language to language. This article contributes to this line of research and focuses on the local factors, notably cultural and geographic, which interfere with the linguistic expression and the precise transmission of spatial information in a few Arabic and Dravidian languages.

### **Introduction**

In the past decades, space has been a fast growing field of research. Obviously, the reasons of this surge of interest go beyond simple linguistic issues, ranging from cognitive questions to practical problems of information technology. For long, debates on space were confined to the philosophical and scientific traditions, notwithstanding a general agreement on the fact that it was an experiential universal and a core property of the human cognition (a Kantian *a priori*). The idea that space is a universal is so deeply entrenched that its conceptualization was equally thought to be universal. The linguistic expression of spatial relations, commonly addressed in languages through case systems, deixis or verbs of motion, were mainly viewed as language specific variations on a common conceptual basis. The debate mainly focused on general questions like the priority of space on other domains ('localist hypothesis', Anderson 1971) or its relation to time. It is only more recently, in the last decades of the 20th c., when the detailed description of many languages of small traditional communities scattered across all the continents (notably in South America and the Pacific) became available, that new questions emerged. The diversity of the encoding of space into languages started to raised doubts about the idea that space is uniformly conceptualized in the human mind. Since then, researches on space increased steadily in all domains, in linguistics as well as outside of it. While the cognitive debate is going on, many concrete and practical questions are also emerging, notably due to the computerization of the data (GIS, robotics...) and their handling, coding and use, by humans. A good example of these concrete difficulties is addressed by the geographers:

« Spatial relations are considered to be one of the most distinctive aspects of spatial or geographical information. Other than by maps, diagrams and models, humans inevitably use language to communicate where objects are [...]. Similarly, almost any GIS (geographic information system) query uses spatial relations to analyze or describe the constraints of spatial objects. »

« However, exploring, extracting and understanding the meaning encapsulated in movement data from a user perspective has become a major bottleneck, not only in GIScience but in all areas of science where this kind of data is collected. [...] » [Lautenschütz 2009].

As stated in the quotation, this problem has direct implications for many scientific fields, but also for computational linguistics, semantics and all other linguistic domains aiming at generalizations about languages. Linguistic variation is a major obstacle ('bottleneck') to access to and exchange of spatial information. Thus, unexpectedly for what is a human universal, effective communication about spatial relations appears to be singularly difficult.



For many domains therefore, the detailed knowledge of languages' specific usage is crucial as: "[t]o progress towards this [a better communication], we have to understand the factors that influence the choice of spatial terms (verbs and prepositions, and similar forms) when a speaker of a given language attempts to describe, or evaluate a description of, a specific spatial relation. "(Lautenschütz et al. 2007: 440).

A large body of studies has already allowed identifying the main factors which frame the diversity of the linguistic expressions of spatial relations (section 1). Our paper focuses on specific geographic and socio-cultural factors which interfere with the linguistic expression of spatial relations in some languages of two linguistic families: Afro-Asiatic (Arabic data, section 2) and Dravidian (section 3). Each section is organized around two known areas of variation, (i) the frames of reference, addressed here through the terms of cardinal directions and (ii) the expression of motion (verbs and spatial references) in route descriptions.

## 1. Main factors of variation

In the last decades, research on spatial relations developed fast and in many directions. Initially focused in linguistics on cases and adpositions (Hjelmslev 1935), the role of space in the construction of the linguistic representations came to be viewed as fundamental for several other relational domains, not only for time<sup>1</sup> relations, but also for thematic relations (Jackendoff 1983), representation of

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<sup>1</sup> Most of the influential works in English tended to assume the prevalence of space over time, but recent works are more nuanced, see Jaszczolt and Filipović 2012.

events (Talmy 1972) or even whole grammar<sup>2</sup> (Space Grammar, Langacker 1982) and was approached from many different angles: semantics, typology, cognitive linguistics, psycholinguistics, formal linguistics... The present trend is to try to bring together these different approaches, see for instance Filipovic & Jaszczołt 2012 or Tenbrink et al. 2013. For our purpose, the works oriented towards a typology of the languages offer a useful background reference. Among them, Talmy (1972, 1985) was one of the first to propose a typology of the spatial relations. He introduced the analysis of a 'Motion event', into four basic components: figure, ground, path and motion (2007: 70) and elaborated the distinction between 'verb-framed' (where 'path' appears in the verb-root) and 'satellite framed' ('path' in the 'satellite': particle, prefix, non-head verb..., p.139) languages (p.153). Another important reference is the research in semantic typology carried on by the group of the Space project<sup>3</sup> (MPI, Nijmegen) which used a common series of linguistic and non-linguistic tests (based on pictures, toys and verbal descriptions) on a large and diverse sample of languages in order to document more precisely the complex question of the language/cognition relationship. The methodology and the main determiners of the variation are presented and discussed in Levinson 2003 while a companion book (Levinson & Wilkins 2006) presents a systematic and in-depth exploration of the 'grammar of space' of a dozen of languages, analyzed by linguists having first-hand knowledge of the data, allowing the editors to substantiate and precise their theoretical conclusions. Their descriptions focus on the locative constructions, the frames of reference and the motion descriptions.

Among many other proposals, notably on the methodology for a semantic typology, their views on the articulation between variation and universals are significant. Acknowledging « the extraordinary diversity in both the underlying conceptualizations of spatial distinctions and the manner in which they are coded in specific languages », they stressed that « [d]irect generalizations are not to be found on a superficial level. Rather, what we will find is that the cross-linguistic patterns can only be extracted on the basis of in-depth study of a reasonable sample of languages. These patterns are sometimes quite abstract » (2006:512). As the authors noticed, the kind of generalizations which can be extracted from the analyses of the data –implicational hierarchies, 'a limited set of semantic types' for spatial sub-domains– do not differ from those found in empirical linguistic typology.

At the other end, the details of the variation found at the descriptive level bring a

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<sup>2</sup> The francophone literature is also often less categorical about the prevalence of space, both at descriptive and theoretical levels. See for instance Vandeloise (1985/1991), who introduced functional properties to characterize the French spatial prepositions and Hickmann & Robert 2006 for the analysis of various languages. Note also some theoretical lines of research (Guillaume, Culioli, Pottier, Desclés...) which subsume spatial (as well as temporal, notional...) relations under more abstract representations and processes, see Desclés 2012 for a glimpse of this trend.

<sup>3</sup> A project of the Max Planck Institute for Psycholinguistics in Nijmegen (the Netherland) which lasted nearly ten years and involved more than forty researchers.

wealth of to refine the typologies and may offer some cues to answer the empirical concern of other disciplines, such as the one expressed above by geographers (Lautenschütz et al. 2007: 440).

Among the main factors of variation mentioned in the literature on spatial relations, the existence of distinct frames of reference (called ‘absolute’, ‘relative’ and ‘intrinsic’ in Levinson 2003) is probably the main finding of the modern research. Contrary to the old western common hypothesis, spatial relations are not exclusively based on an egocentric view (‘relative’ frame) derived from human body asymmetries (front, back, left, right...). Two other frames of reference: ‘intrinsic’, based on the facets of an object, and ‘absolute’ based on cardinal directions, play a dominant role in many languages of the world. The distinction between relative and absolute frames is cognitively crucial, as stated by Pederson et al. (1998:571) “The system of using (speaker’s) left and right requires knowledge of the speaker’s own internal left/right division and the projections from this. The system of cardinal directions requires knowledge of the position of the figure and ground in the larger world and is indifferent to the speaker”. And the consequences for cross-cultural communication are obvious: “In order to translate from an information system in which a lexeme glossed as ‘left’ is embedded to one in which lexemes glossed as ‘north’, ‘south’, and so on are embedded, we need access to different information from that which was encoded in the original utterance.” (*ibid.*)

Among the linguistic features, the most common factors of variation mentioned in the literature are: the *loci* of the encoding of spatial information (cases, adpositions, adverbs, nominals, verbs...), the distribution of the semantic components in the clause and their combination or ‘conflation’ (Talmy 1972, 2007: 70), in lexical units (ex. verbs :Talmy’s word/satellite framed verbs, serial verbs..., adpositions or other units, Levinson & Wilkins 2006: 519-26) ) and the semantic sets of properties privileged for a specific sub-domain, ex. position (horizontal, vertical..., ex. stand, lie, hang for verbs), manner (ex. for motion verbs: running, floating...), contact, containment (ex. in, above..) are among. But many other factors<sup>4</sup> like scale (small, very large...) or physical properties (solid, liquid..., shape: round, long...) or even more specific factors, as the cultural factors described below for the Arabic data, may play a role in the expression of the spatial relations.

## I. Arabic Data

Not all of the world's languages have terms for the four cardinal directions. When they do, one sees a variety of situations: some languages have terms for the four points of the compass, others for some of them only. Based on the detailed

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<sup>4</sup> See Levinson & Wilkins (2006: 515) for a list of the factors of variation and the implication hierarchies which organize the figure/ground relations.

examination of 24 languages (out of a total of 127) covering only some of the compass points (between 1 and 3 terms), C. Brown (2001: 1183) sheds light on a universal tendency whereby the most often expressed points are 'east' and 'west', due to their association with the sun's rising and setting:

[...] Thus languages having 'north' and/or 'south' typically have 'east and/or 'west' but not vice versa. These implicational associations indicate a universal tendency for both 'east' and 'west' to be lexically encoded before languages add a term for either 'north' or 'south', a finding which may reflect the relatively greater importance of the rising and setting sun for humans compared to the sun at its zenith.

C. Brown's findings are echoed in the Arabic domain. Beyond dialectal diversity with its specific spatial configurations, it would seem that Arabic dialects which express the directions 'North' and/or 'South' also express 'East' and/or 'West'. One further notes that if only one compass point is expressed by a dialect, it is most often East. The actual linguistic situation is however far more complex. In some dialects the cardinal system itself is destabilized: terms for one compass point have come, for historical reasons, to express another.

### 1.1. Terms for cardinal directions

In formal registers of Arabic (e.g. classical, literary, standard, and in dictionaries) one finds four terms expressing the cardinal directions.<sup>5</sup> Those which refer to East and West are heliocentric: *farq* 'East' is built on the root ( $\sqrt{frq}$ ) which, in the 1st verb form, means 'rise', and *yarb* 'West' is built on the root ( $\sqrt{yrb}$ ) which, in the 1st verb form, means 'go away, disappear'. There are two additional prefixed forms derived from the same roots; their temporal and/or spatial meaning depends on the context: *ma-friq* 'the place/the time the sun rises' and *ma-yrib* 'the place/the time the sun disappears'.

The terms 'North', *famāl* and 'South', *gunūb* have not given rise to equivalent morphological derivations. They do however take on other meanings when there is a change in scale (egocentric reference). In this context, the term *famāl* 'North' means "left", i.e. it is associated with the left side of the human body (as in other languages of the world, Brown 2001: 1182): *tsīri famāl* "go left" means "go to **your** left" (Yemen). Moreover, one also finds in Yemen a kind of bracelet called *fumajleh* (same root  $\sqrt{fml}$ ) which is worn on the left arm. As for the term *gunūb* 'South', morphologically speaking it corresponds to the plural of *zanb* "side, flank" which, when referring to humans, means 'leg' in various dialects, especially eastern ones.

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<sup>5</sup> For arabic data, we use the IPA transcription system, except for the notation of pharyngalized consonants, transcribed by a subscript dot, and for the notation of long vowels, transcribed by a macron.

## 1.2. Cardinal directions under the pressure of real life

Generally speaking, Arabic dialects have systems which partially preserve the denominations of the compass points (with phonological variations). However, all, or at least most of them, have mixed systems, i.e. cardinal orientation can combine with various frames of reference: 1) topographic (mountain, sea, highlands, hills) 2) intrinsic (above, below, behind, inside) 3) atmospheric (direction of the winds) 4) astronomic (constellations) 5) cultural and/or worship.

We will limit ourselves here to illustrating first the relativity of frames of reference in dialects belonging to different groups (Egyptian vs. Yemeni Arabic) and second, the variation within a given geographic area or country.<sup>6</sup> Out of the five dialects we shall examine here,<sup>7</sup> four have terms in accordance with those of the compass point system, as far as East and West are concerned (*farq* ‘East’ and *yarb* ‘West’). Moreover, in almost all of these dialects, the City of Mecca constitutes an ‘absolute’ point of reference.

### 1.2.1. Egypt

#### 1.2.1.1. Caireen dialect

In Caireen, the word for northwards is *baħrī*, related to *baħr* ‘sea’. Southwards is *ʔiblī*, in connection with the *qiblah* ‘direction, orientation’ of the *Kaʔbah*, the sacred building in Mecca to which Muslims turn at prayer. Actually, Mecca is South-East of Cairo. The two words *baħr-i* and *ʔibl-i* bear the relationship suffix /-i/ which indicates a fixed point of reference, i.e. respectively the ‘sea’ (*baħr*) (the Mediterranean) and the *Kaʔbah*.

In everyday language, the two words are also associated with the atmospheric elements noted by North and South: the phrase *faʔʔa ʔiblī*, which literally means ‘An apartment with southern exposure’, is used for ‘a warm apartment’.

#### 1.2.1.2. Northern Sinai Bedouin dialect

The Northern Sinai Bedouin dialect has its own distribution of the compass points. In this Bedouin variety, the terms *farg* ‘East’, *yarb* ‘West’, *ʔamāl* ‘North’ and *gibli* ‘direction of Mecca’ are attested but they do not refer to the usual cardinal directions (East, West, North and, by default, South): *farg* refers to South, *gibla* West, *yarb* North and *ʔamāl* East. This reorientation or redistribution of the compass point words is due to the history of their migration. Apparently, before they settled in the Sinai, these tribes were nomads in western Saudi Arabia, in the *ħiḏāz* region, along the eastern shore of the Red Sea.<sup>8</sup> In their original orientation system, West corresponded to the location of the Red Sea which served as a fixed

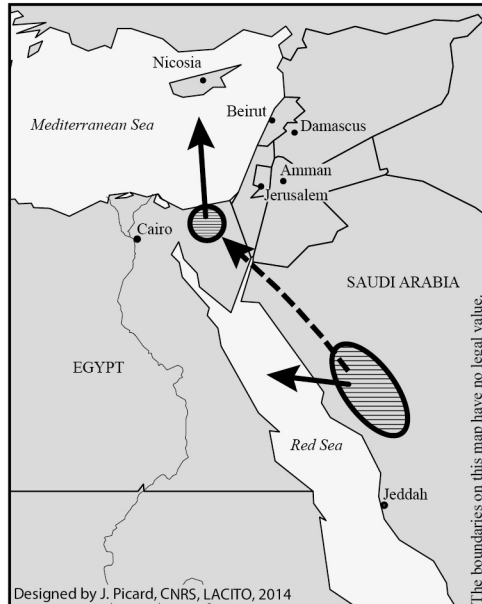
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<sup>6</sup> For a comprehensive presentation of the situation in the Arabic speaking world, cf. BEHNSTEDT & WOIDICH (eds), *Wortatlas der arabischen Dialekte*, 2011, Brill, maps 148-151.

<sup>7</sup> If no source is specified, examples are taken from my own corpuses.

<sup>8</sup> I am grateful to Rudolf de Jong for having helped me clarify this point (p.c.).

point of reference. When they migrated to the Northern Sinai, they faced the sea, but this time the Mediterranean Sea, situated to the north of the Sinai, and not to the west. This did not affect their established orientation system. In other words, it is not because the Red Sea is not the Mediterranean sea that going *seawards* cannot continue to be expressed as *myarrib* 'going west'. “The word moved with the tribes” and the whole compass turned 90° clockwise (R. de Jong 2000: 469).



C. Levinson (1992: 15-16) notes a similar situation in two Mayan languages, where the orientation system of Tzotzil differs from that of neighboring Tzeltal by 90°. Both systems use topographical references (uphill ~ downhill), but in the case of Tzeltal the incline is oriented south-north whereas for Tzotzil it is east-west. However the Sinai Bedouin system differs from that of the two Mayan languages in that the term *yarb* refers to the West (not to the North) as a cardinal direction (1.1.).

## 1.2.2. Yemen

### 1.2.2.1. Yemenite Highlands: *Ṣanʿāʿ*?

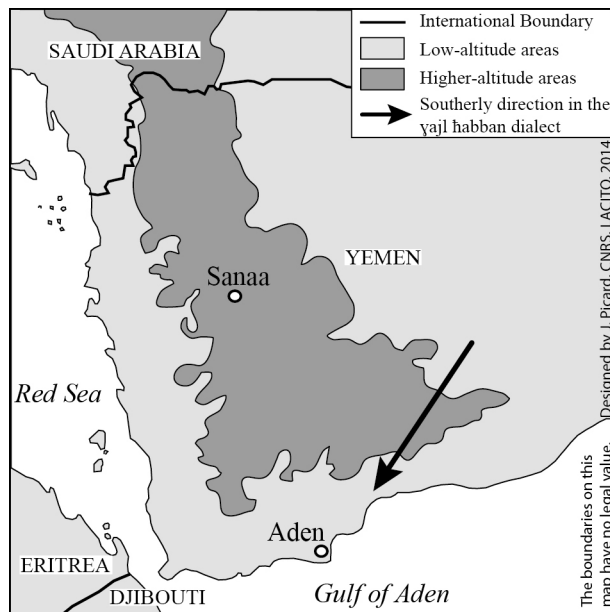
In the *Ṣanʿānī* dialect, the word *gibl-ī* (phonologically equivalent to *?ibl-ī*) means Northwards, the city of Mecca being situated to the North of Yemen. However North is also expressed by another word, *fām*, a landmark which refers to the Levant area (*fām* ‘Damascus’), the eastern part of the Mediterranean situated to the north of Yemen. Beyond serving as a geographic localizer, this word bears testimony to longstanding continuous trade between Yemen and Levant. Thus the *Ṣanʿāʿ* dialect displays two frames of reference for Northwards, one focused on

religious duty (*giblī*), and the other on a commercial landmark (*fām*) on the route to the Levant.

Similarly, the *Ṣanʿānī* dialect expresses Southwards by the word *ʕadan-ī*, a landmark related to the city of Aden, *ʕadan*, situated in South Yemen, i.e. south of *Ṣanʿā*?. The words *giblī* and *ʕadanī* also serve as fixed reference points for expressing where the wind is blowing from, *rīh giblī*, ‘North wind’ (a wind blowing from the North), *rīh ʕadanī* ‘South wind’ (a wind blowing from the South).

### 1.2.2.2. South Yemen: *Yajl ḥabban*

The oasis of *Yajl ḥabban* is located in South Yemen, east of Aden. In the dialect of *Yajl ḥabban* ‘North’ is expressed by the word *gabil* and ‘Northwards’ by *giblī* or *mugbal* [Habtoor 1989: 387-88) in connection with the direction of Mecca. Actually, Mecca is North-west of the oasis. South is called *baṭin* and ‘Southwards’



*mubṭan*.

The word *baṭin* may take on different values and meanings depending on the context. In a number of Arabic dialects it refers to ‘belly’. A connection between body parts and spatial location is not unusual in Yemeni dialects, nor cross-linguistically. In the *Ṣanʿānī* dialect, for example, the back of the hand is called *ḍahr ʔl-jadd* (lit. **back** of the hand), the palm is *waḡh ʔl-jadd* (lit. the **face** of the hand), and ‘the summit of a mountain’ is *rās ʔl-ḡabal* (lit. mountain head). In the metaphorical use of body parts, ‘belly’ is usually associated with ‘inside’ as opposed



to 'back' which is associated with 'outside'. This is regularly illustrated in oral literature, for example in the corpus of riddles which I collected in *Ṣanʿāʿ*.<sup>9</sup> A riddle about a match compares the *inside* drawer of the match box to a 'belly' and the *outside* container to a 'back':

- (1) *ḥāḍḡe jixruḍ min baṭn ummu-h w jḥukk*  
 thing exit:IMPERF:3SG from belly mother-3SGM and scratch:IMPERF:3SG  
*ḍahr ʿabū-h*  
 back father-3SGM  
 'Something that comes out of the **belly** of its mother and scratches the **back** of its father.'

Furthermore, the word *baṭin* may also be connected to *bāṭin* (√*baṭn*) 'hidden, secret' in correlation with the important notion of 'interiority' in Islamic mysticism, in reference to the two levels of meaning in the Book, the 'internal, hidden' meaning *bāṭin*, and the 'external' meaning *ḍāhir* (√*ḍhr*).

The *Yajl ḥabban* oasis is situated in Southeast Yemen. It is part of the governorate of *fabwah* which is bordered on three sides by the escarpments of the Hadramawt Mountains and, to the North, opens onto the *Al-Rubʿ al-xālī* desert.<sup>10</sup> The South direction of *Yajl ḥabban* is indeed 'hidden' behind the mountains, 'inside' South Yemen.

### 1.2.2.3. North Yemen: *Ṣaʿdah*

In the dialects of the *Ṣaʿdah* sector, South is called *jamanin/jaman* 'Yemen' (Behnstedt 1987: 316). This designation can be explained by the location of *Ṣaʿdah*, at the northern extreme of Yemen, next to the border of Saudi Arabia. In other words, in the dialect spoken in the North of the country, the viewpoint adopted for expressing 'South' is that of Saudi Arabia: Yemen is south Saudi Arabia. Thus in the dialect spoken in the town of *Abhā*, situated in Asīr, the southern province of Saudi Arabia,<sup>11</sup> the word *jaman* 'Yemen' refers to 'South', as in the dialects spoken in the *Ṣaʿdah* region.

However, *Ṣaʿdah* (Yemen) and *Abhā* (Saudi Arabia) dialects differ in their expressions of North: in the area of *Ṣaʿdah*, North is termed *fām* in reference to Levant 'Damascus' (Northward of Saudi Arabia), whereas in *Abhā* it is termed *gibla* in reference to Mecca.

<sup>9</sup> NAIM 2000

<sup>10</sup> Cf. GENTELLE PIERRE. Les irrigations antiques à Shabwa. In: *Syria*. Tome 68 fascicle 1-4, 1991. p. 5-52.

<sup>11</sup> Dr. Al-Azraqi Munira p.c.

	North/Northwards	South/Southwards
Formal registers	<i>ʃimāl</i>	<i>ʒunūb</i>
Caireen	<i>baħrī</i>	<i>ʔibli</i>
North Sinai	<i>ʔarb</i>	<i>ʃarg</i>
Şan <sup>ʕ</sup> ā <sup>ʔ</sup>	<i>ʃām/gibli</i>	<i>ʃadani</i>
ʔajl habban	<i>gabil/gibli</i>	<i>batin/mubtan</i>
Şa <sup>ʕ</sup> dah	<i>ʃām</i>	<i>jaman/jamanin</i>

Cardinal North/South directions in formal and colloquial Arabic

## 2. Motion verbs

### 2.1. From lexicon to grammar

With very few exceptions, the lexicon for the spatial orientation systems reviewed here has given rise to verb forms, most often derived in the 2nd form, a pattern where one finds many denominatives. These denominative verbs express the direction of the motion. Their semantic components include the notion of Path, i.e., in Talmy's terminology (2007), they are verb-framed. They function like regular verbs belonging to the category of middle verbs, i.e. alongside the basic suffixal conjugation forms (perfective) and prefixed conjugation forms (imperfective) they express concomitance of a process by the participial form.

The examples presented below have been grouped together depending on the system of cardinal directions. This has the advantage of highlighting dialectal variation for a given direction. Moreover, in square brackets, we indicate the reference point taken into account by a given dialect, when relevant.

- ‘To go East’ (compass point, *ʃarq*):  
Cairo (Egypt): *ʃarra<sup>ʔ</sup>* (PERF.), *mʃarra<sup>ʔ</sup>* (PTCP)  
North Sinai (Egypt): *ʃammal* (PERF.) *mʃammil* (PTCP) [Red Sea]
- ‘To go West’ (compass point, *ʔarb*):  
Cairo (Egypt): *ʔarrab* (PERF.), *miʔarrab* (Badawi & Hinds, 1986)  
North-Sinai (Egypt): *gabal* (PERF.), *migbil* (PTCP) [Qibla]
- ‘To go North’ (compass point, *ʃamāl*):  
Cairo (Egypt): *baħħar* (PERF.), *mbaħħar* (PTCP) (Mediterranean Sea)  
North Sinai (Egypt): *ʔarrab*(PERF.), *miʔarrib* (PTCP) (Red Sea)  
ʔajl habban (South Yemen): *gabal* (PERF.) (Qibla)

– ‘To go South’ (compass point, *zunūb*):

North Sinai (Egypt): *farrag* (PERF.), *mʃarrig* (PTCP) (by default)

Cairo (Egypt) *gabbal* (PERF.)<sup>12</sup> (Qibla)

*yaʃl ḥabban* (South Yemen): *baʃan* (PERF.)<sup>13</sup> (Ḥadramawt Mountains)

The geocentric point of reference *fām* ‘Levant’ also gives rise to a verbal form, found namely in the participial form: *fājam* (active PFCT), *miʃājim* (passive PTCP) ‘to go North’, which in Yemeni and Saudi dialects<sup>14</sup> is used alongside other terms referring to the North.

### 2.1.2. Verb-framed ~ satellite framed

The denominatives referring to the North *gabal* and the South *baʃan*, in the *yaʃl ḥabban* dialect, do not have the same meaning if they are followed by an adverb, whether it lexically specifies the Path or not. When Path is not expressed lexically, it is incorporated to the semantic structure of the verb (2-3).

(2) *Mḥammad gabal* [Habtoor 1988-89: 387]

M. go North:PERF:3SGM

‘Mḥammad went North.’

(3) *Mḥammad baʃan*

M. go South:PERF:3SGM

‘Mḥammad went South.’

When Path is expressed by the adverbs *mugbal* ‘northwards’ and *mubʃan* ‘southwards’ of the same respective roots ( $\sqrt{qbl}$ ,  $\sqrt{bʃn}$ ), the motion's spatial orientation is mainly conveyed by the respective adverbs: in (2'-3') the primary meaning of *gabal* and *baʃan* is to express the basic active notion of 'go'.

(2') *Mḥammad gabal mugbal*

M. go:PERF:3SGM northwards

‘Mḥammad went northwards’

(3') *Mḥammad baʃan mubʃan*

M. go:PERF:3SGM southwards

‘Mḥammad went southwards.’

In these constructions, *gabal* and *baʃan* freely permutate with the verb *ḥabb* which regularly encodes the basic notion ‘go’. In (2'') and (3''), *ḥabb* may be used instead of both *gabal* and *baʃan* without there being any change to the sentence, whether syntactically or semantically.

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<sup>12</sup> Cf. Behnsted & Woidich 1994

<sup>13</sup> Cf. Habtoor 1988-89: 387

<sup>14</sup> Behstedt & Woidich 2011: 439.

(2") *Mhammad gabal / habb mugbal*  
 M. go:PERF:3SGM northwards  
 ‘Mhammad went northwards’

(3") *Mhammad baṭan / habb muḃtan*  
 M. go:PERF:3SGM southwards  
 ‘Mhammad went southwards.’

It could be that *gabal* and *baṭal* are undergoing a process of grammaticalization (semantic bleaching), however documentation is insufficient to trace or determine any intermediate stages. One should nonetheless note that *gabal* and *baṭan* are incompatible with eastward or westward motion.

(4) *habb l-mifrig*  
 go:PERF:3SG the-East  
 ‘He went East’ (Habtoor 1988: 388)

(?) *gabal/baṭan l-mifrig*  
 go:PERF:3SG the-East

## 2.2. Temporal inscriptions in spatial relations: the Zabid dialect

The above-studied verbs whose semantics include the notion of Path (2.1.) are underpinned by heliocentric, topographic (hills, mountains, seas) and worship (Qibla) factors. As pointed out in (1.2.), Mecca constitutes an absolute point of reference.

The verbs we will now present belong to a different type of motion verbs, with a more complex semantic structure. Such verbs, when combined with Path, add a temporal component. These verbs are attested in the dialect of Zabid, a town situated in West Yemen, in the Tihama plains bordering the Red Sea.

In the Zabid dialect, eight verbs express the basic active notions ‘going’ and ‘coming’:

– ‘going’: *rāḥ, naṣar, bāk, ṣāb, sāfar*.

– ‘coming’: *?ata, rawwaḥ, warad*.

Out these verbs, five are distributed depending on routine motion events: *bāk, naṣar* and *ṣāb* for ‘going’; *rawwaḥ* and *warad* for ‘coming’. These are verb-framed verbs, that is to say that, in their semantic structure, they incorporate the *path* and for some verbs the *goal* of the motion. Their frame of reference (or Ground in Talmy’s terminology 2007)<sup>15</sup> is the town of Zabid.

<sup>15</sup> Talmy provides a sketch of a motion event: “The basic Motion event consists of one object (the ‘Figure’) moving or located with respect to another object (the reference-object or ‘Ground’). It is analysed as having four components: besides ‘Figure’ and ‘Ground’, there are ‘Path’ and ‘Motion’. The ‘Path’ is the path followed or site occupied by the Figure object with respect to the Ground

## 2.2.1. Motion events at a town scale

### 2.2.1.1. To go: *bāk*, *naṣar*, *ṣāb*

*Bāk* and *naṣar* incorporate in their semantic components the *Source* of the motion, which is 'home'. They are centrifugal verbs, because 'home' constitutes the center of all motion events when the scale is that of a town.

- (5) *bākan*            *m-ṣōq*            /    *naṣaran*            *m-ṣōq*  
go:PERF:3SGF the market / go:PERF:3SGF the market  
'She went to the market.' / 'She went to the market.'
- (6) *fēn*    *bājke*            /    *fēn*    *nāfre*  
where go:PTCP:2SGF / where go:PTCP:2SGF  
'Where are you going?' / 'Where are you going?'

What differentiates the distribution of these verbs is their peculiarity of keeping with temporal subdivisions of the day: *bāk* is temporally anchored in the period ranging from the morning (*ṣabḥa*) until the middle of the afternoon (*qarīb al-ʔaṣir*), whereas *naṣar* relates to the period spanning from the middle of the afternoon until nightfall (*baʔd al-ʔifti*). These verbs include a temporal dimension in their spatial meaning, and thus are governed by some semantic constraints.

In the following examples, *bāk* (7) is judged acceptable only, i.e. not example (?), because *naṣar* only is used for afternoon-occurring motion events.

- (7) *bukt*            *ʔatyadde*            *bēt*    *fulān*  
go:PERF:1SG lunch:IMPERF:1SG home someone's  
'I went to lunch at someone's place'
- (?) *naṣart*            *ʔatyadde*            *bēt*    *fulān*  
go:PERF:1SG lunch:IMPERF:1SG home someone's

The verb *sāb* is only used by women. It is a dynamic verb with no determined orientation, i.e. the source and goal of the motion are not part of its semantics. The verb *sāb* refers to women's main afternoon social activities. It means 'visit one another'. It thus incorporates in its semantics temporal and cultural elements but neither the source nor the goal of the motion event (8). When the goal (but never the source) of the displacement is specified, it is introduced by directionals such as *ʔind* or *la* (9)

- (8) *jalla*            *nṣābi*  
EXH            visit:IMPERF:1PL  
'Let us go visit' [have a round of visits].

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object. 'Motion' refers to the presence *per se* of motion or locatedness in the event." (TALMY 2007: 70).

- (9) *jalla nṣābi ʔind / la neʔme*  
 EXH visit:IMPERF:1PL ALL Ne'me  
 'Let us visit/go to Ne'me!'

### 2.2.1.2. To come (back)

Two centripetal verbs, *rawwaḥ* and *warad*, express the notion 'return home'. Thus, their semantics incorporate the *goal* of the motion event, i.e. 'home'.

- (10) *ḥīn rawwaḥti / ḥīn waradti*  
 when come back:PERF:2SGF / when come back:PERF:2SGF  
 'When did you come back?' 'When did you come back?' [home]

These two verbs are subject to the same temporal semantic constraint as *bāk* and *naṣar*. For that reason, *rawwaḥ*, in the following example, is judged unacceptable with 'coming back [home]' from school, because school stops at noon. In (11), the source of the motion is expressed by the ablative *min*.

- (11) *waradu min al-madrasa*  
 come back:PERF:3PL from the-school  
 'They came back from school.'

Moreover, these verbs differ with respect to an additional element included in their semantics: with *warad* (a telic verb) it is the completion of the motion, achieving the goal, which is focalized whereas with *rawwaḥ*, it is the entire path which is focalized. For that reason, a dynamic sentence as in (12) is judged unacceptable whereas *rawwaḥ* can be used if the event takes place during the afternoon. However, if the event takes place during the morning, one must resort to the verb *bāk* (go), a dynamic verb examined above (2.2.1.1.).

- (12) *jalla nūrid*  
 EXH come back:IMPERF:1PL  
 'Let us go home'

The verbs studied so far have had for frame of reference the town of Zabid and its inhabitants' routine motion events within it. As soon as the motion event leads beyond the town limits the motion verb paradigm shifts: the verbs *bāk* (go in the morning) and *naṣar* (go in the afternoon) for example are replaced by *sāfar* which is used whenever somebody goes beyond the town, even a few kilometers away only. One should also note that in other Yemeni dialects and in the majority of Arabic dialects too, the verb *sāfar* means 'to go abroad'.

### 2.2.2. Changing the scale

A change in scale leads on the one hand to the occurrence of two additional verbs, *rāḥ* and *ʔata*, which are not attested in the context of motion events within Zabid, and on the other hand to modifications in the semantics of *bāk* (2.2.1.1) and *rawwaḥ* (2.2.1.2.). Thus, in changing the scale, one leaves daily life in Zabid for

other frames of reference, which vary widely depending on the speaker and viewpoint adopted.

We will examine five verbs in this section. Two express the notion 'go', two others 'come' and the last one, 'come and go'. Unlike what we have seen so far (2.2.), *Source*, *Path* or *Goal* of the motion event do not conflate in the semantics of these verbs. Such elements are instead conveyed by directionals (i.e. satellite-framed verb).

### 2.2.2.1. To go: *bāk*, *rāḥ*

At our new scale of reference, the verb *bāk* has the general meaning of 'go' without any temporal constraint. If the goal refers to an animate element (13), *path* is necessarily expressed by an adposition. If the referent is inanimate, the goal follows the verb and must bear a modifier (14).

(13) *bākan sana rāʔi l-ḥalāwi*  
 go:PERF:3SGF ALL cook the-pastry  
 'She went to the pastrycook.'

(14) *jalla nbūk m-bēt*  
 EXH go:IMPERF:1PL the-house  
 'Let us go home.'

Moreover, because of its reduced lexical meaning (in comparison with 2.2.1.1.), the verb *bāk* has a strong output as a modal, temporal and/or aspectual auxiliary. In these constructions, *bāk* is followed by a verb in the imperfective.

(15) *bākan tamfi tfe thīd*  
 go:PERF:3SGF walk:IMPERF:3SGF want:IMPERF:3SGF see:IMPERF:3SGF  
*bāth-e*  
 daughter-3SGF  
 'She started up, in search of her daughter.'

(16) *tabūk telgaḥ w tēti*  
 go:IMPERF:3SGF come and go:IMPERF:3SGF and come:IMPERF:3SGF  
 'She was coming and going through the streets.'

The verb *rāḥ* has the same semantic and syntactic specificities as *bāk*: the source and/or goal of the motion event are expressed by adpositions, such as the ablative *min* in (17) and the allative *sana* in (18). It is difficult to determine the differences between *bāk* and *rāḥ*. They are interchangeable in constructions which simply express the notion 'go' (18). One does note that in this context, *bāk* is much more recurrent.

(17) *xlas rāḥ l-ak min əl-rəggāl*  
 enough go:IMP:2SGM DAT-2SGM ABL the-man  
 'That is enough, do not annoy this man any more.' [go from him]

- (18) *rāḥ*                      *sanā-Ø*  
 go:PERF:3SGM ALL-3SGM  
 ‘He went to him.’

Like *bāk*, the verb *rāḥ* has a strong output as an aspect-tense auxiliary, usually expressing the near future (semantic expansion from the spatial to the temporal domain is very frequent, crosslinguistically speaking). In these constructions, *rāḥ* is followed by a verb in the imperfective.

- (19) *ʃa-rāḥ*                      *ʔatqarraʔ*  
 FUT-go:IMPERF:1SG have breakfast:IMPERF:1SG  
 ‘I will have my breakfast.’

#### 2.2.2.2. To go away: *rawwaḥ*

At the scale of the town of Zabid, *rawwaḥ* associates a temporal dimension with the motion event and conflates with the goal: *rawwaḥ* means ‘to go back home after the midday period’ (2.2.1.2.).

In changing the scale, the verb *rawwaḥ* loses both its temporal component and its point of reference, i.e. ‘Home’. It is most often used intransitively and is shown in the imperative mood. In this context, *rawwaḥ* means ‘go away’ (20). When the goal of *rawwaḥ* is ‘home’, it figures in the position of a direct object and is necessarily modified. In this context, *rawwaḥ* no longer means ‘go away’, but ‘go back home’ (21).

- (20) *qal-l-u*                      *jalla kōm*                      *rawwiḥ*  
 tell:PERF-DAT-3SGM EXH AUX:IMP:SGM go away: IMP:SGM  
 ‘He said to him: ‘go, go away.’

- (21) *rawwaḥan*                      *m-bēt*  
 go:PERF:3SGF the-house  
 ‘She went back home.’

Therefore the use of *rawwaḥ* does not imply expressing the motion event's source or goal, contrary to *rāḥ* (2.2.2.1).<sup>16</sup> The source implied by *rawwaḥ* is tightly linked to the enunciative context (immediate or discursive). If the source is specified, it is introduced by the adposition *min* (21).

- (22) *rawwaḥ*                      *ʔt-tāli*                      *min ʔindu-hum*  
 go:PERF:3SGM the-other ABL LOC-3PL  
 ‘He went away from their house.’

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<sup>16</sup> Both verbs are formed on the root  $\sqrt{rwḥ}$ ; *rawwaḥ* is inflected in the 2nd form of verbal derivation, which often endows the basic pattern with intensive, factitive meaning.



### 2.2.2.3. To come, to go, to come back, to approach: ?ata

Like the verb *rāḥ* ‘to go’, the verb *?ata* does not belong to the routine motion event verbs used by the inhabitants of Zabid. This verb takes on different values, depending on the point of view of the speaker or the narrator, on whether he is focusing on the source or on the goal of the motion, and whether he is taking a given character as point of reference. Depending on enunciative and pragmatic factors, *?ata* can therefore mean either ‘come’ (23), ‘come back’ (24), or ‘go’ (25). The goal of the motion is expressed by adpositions, as with *sana* in (25) and *?ind* in (23). In the last example (26), the point of reference of the motion event is deictically anchored in the speaker.

(23) *?ata*                      *l-malik*   *jaxṭab*                      *?ind-u*  
come:PERF:3SGM the-king ask-hand:IMPERF:3SGM LOC-3SGM  
‘The king **came** to him to ask for the hand of his daughter.’

(24) *lattaf*                      *kowsara*   *ḥasamu*   *w*   *?ate*  
fill:PERF:3SGM basket stones and come:PERF:3SGM  
‘He filled a basket with stones and **came back**.’

(25) *?ata*                      *sana*   *zōgt-u*  
come:PERF:3SGM ALL wife-3SGM  
‘He **went (to)/approached** his wife.’

(26) *?atan*                      *təzūra-nī*  
come:PERF:3SGF visit:IMPERF:3SGF-1SG  
‘She came to visit me.’

### 2.2.2.4. Come and go: lagaḥ

The verb *lagaḥ* is equivalent to the English ‘come and go’. It differs from all the other verbs by the fact that the motion it expresses cannot be described in terms of source and/or goal. It has no specific orientation. The main semantic component it conveys is a way of moving without destination. Depending on the context, it can be translated into English as ‘to wander’ or ‘to stroll’. The etymology of this verb is unclear. It does not appear to be found in other Arabic dialects.

(27) *tabūk*                      *telgaḥ*                      *w*   *tēti*  
go:IMPERF:3SGF wander:IMPERF:3SGF and come:IMPERF:3SGF  
‘She was wandering through the streets, then she returned [home].’

(28) *jalla*   *nalgaḥ*  
EXH stroll:IMPERF:1PL  
‘Let us stroll.’

### 2.2.3. On semantic ‘packaging’ within the verb

The operation of the motion verbs in the dialect of Zabid shows that the opposition between verb-framed and satellite framed in Talmy's typology (2007), as well as

the other semantic packaging within the verbs, rest mainly on the frame of reference. The scaling is indeed accompanied by a change in the syntax and the semantic structure of some verbs. According to the cases, they lose their source, their goal and/or their temporal semantic components. Consequently, one has every right to wonder if these semantic components may be considered as lexicalised in the verbal root.

At the scale of a town, the verb *bāk* for example has a temporal constraint that he loses when the scale changes. In a previous work (2006, 2010), I suggested that the temporality of this verb has emerged by default (in parallel with the temporality integrated to the verb *naʃar*) and I concluded that verbs with such type of semantic variation has two lexical entries, with temporality integrated in the core of one of them. Nevertheless, the question related to the variation attached to the frames of reference has also to do with the typological classification into verb-framed ~ satellite-framed languages. According to Talmy, Semitic is among verb-framed languages. In this case, in which type could we integrate the Arabic dialect of Zabid, which has the two operating processes, distributed in a complementary way?

## II. Dravidian data – India

Spatial relations in Dravidian have already been studied in details, at least for one representative Dravidian language: Tamil. This language is spoken in South India where most of the Dravidian speakers are concentrated, in the four of states of Tamil Nadu (Tamil), Kerala (Malayalam), Karnataka (Kannada) and Andhra Pradesh<sup>17</sup> (Telugu).

Tamil was among the first languages studied in the innovative methodology of the Max Plank Institute for Psycholinguistics. E. Pederson, the main investigator,<sup>18</sup> published a series of studies (1992, 1995, 1998, 2003) and a systematic account in Levinson & Wilkins (2006: 400-36). Most of his findings are relevant for the majority of the Dravidian languages.

In this brief section we will show how some preferential types of encodings of the spatial relations can be extended to other Dravidian languages and draw the attention on more specific data found in the languages of some minorities. First, we look at the semantics of the lexical terms used for naming the cardinal directions (§ II.1); then, we illustrate the grammatical devices used for a route description (§ II.2).

A large family of over 200 millions of speakers, the Dravidian languages present a

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<sup>17</sup> Recently splitted (2 June 2014) into Telangana and Andhra Pradesh.

<sup>18</sup> It should be noticed that S. Levinson had also worked on Tamil, though from a slightly different perspective (PhD on Social deixis in a Tamil village, 1977) so that he could use and make precise comments on Tamil data in many of his publications.

rather high degree of similarities in their lexicon and syntax. This is not really surprising as the Dravidian speakers are essentially spread over the Deccan plateau, a defined land mass within India, which is itself considered as a ‘linguistic area’. Due to historical factors like the continuous expansion/recession of empires and realms over these territories, a constant flow of exchange in language and culture was maintained in the course of time. From South to Central India linguistic continuity has never been lost across Dravidian languages. Only the languages of the northern group: Malto in India, Kurukh in India and Nepal and Brahui in Pakistan have been, to various degrees, cut from the mainstream.

## 2.1. Terms for cardinal directions

Spatial relations reflect this homogeneity in the lexicon and grammatical devices used to express them. Most of the Dravidian languages have distinct terms referring to cardinal directions, clustering around a few etymologies. The meanings associated with them are cross-linguistically quite common, pointing to heliocentric, topographic or wind-based systems. The main axis, which presents a richer lexicon, is east-west. Looking through the words collected by Burrow and Emeneau in *A Dravidian etymological dictionary* [DEDR] (1984) brings the following words, which will be briefly commented. The final *-ku/kī...* integrated in many terms is a directional.

The south/north axis has only one etymological source for each direction. All the terms for north are found in DEFR 5218, from which we extract the following data:

Ta.[mil] *vaṭa* northern; *vaṭakku* north, north point of the compass... *vātai* north wind, cold wind, wind. Ma.[layalam] *vaṭa* north; *vaṭakku* id., in or towards the north. Ka.[nnada] *baḍa*, *baḍaga*... the north, in the north. Koḍ.[dagu] *baḍaki* north. Tu.[lu] *baḍakāyi* the north, northern. Te.[lugu] *vaḍākūḅoṇḍa* Himalaya.

The terms basically refer to the cardinal direction ‘north’. The topographic landmark ‘Himalaya’ points also to a symbolic reference: the abode of the great god Shiva. The ‘(cold) wind’ meaning contrasts with ‘south (west) wind, monsoon’, a core semantic component of the south direction, as seen in DEFR 3449:

Ta. *teṇ* south, southern region; right side; *teṇṇal*, *teṇṇal* south wind... south-west monsoon; *teṇṇi*, *teṇṇal* south; *teṇku*, *teṇku* south. Ma. *ten* south; *tennal* southern breeze, zephyr; *teṇku* south; *teṅkan* southern. Ka. *teṇ-gāli* south wind; *teṅka*, *teṅkal*, *teṅku*, *tembu*, *teṅkalu*, *teṅku* the south. Koḍ. *tekkī*, *tēkkī* south; *tekkīē* southern. Tu. *teṇkāyi*, *teṅkāyi*, *teṅkāyi* the south, southern. ? Go.[ndi] (ASu.) *teṇṇār* south.

The seme ‘right side’ in Tamil for ‘south’ supports an heliocentric system of coordinates, orientated from facing the sunrising east side. Cardinal directions are very important in the Hindu cosmology and rituals. However it should be noticed that the concept of ‘right’ is culturally splitted. As a cardinal direction it is

associated with Yama, the god of death and popularly connotated as ‘bad’ and inauspicious, while the egocentric ‘right’ is exactly the opposite, with an everyday attention to use the ‘good’ (pure, auspicious ...) right hand for eating, offering, transaction... and not the impure left one.

The east/west axis present several etymological clusters, mainly based on a geocentric (up/down) or an heliocentric system (rising/setting sun) system of coordinates, occasionally with other senses.

As in many parts of the world, the heliocentric system is well attested, with ‘east’ associated with an etymon of origin, DEDR 5035:

<Ta. *mūtu* root, cause, origin. [but not \*east>]. Ka. *mūḍa*, *mūḍal*, *mūḍu* the direction in which the sun rises, east; *mūḍu* to arise... be born... become visible. Tu. *mūḍu* support; the east.

The west direction terms are found in two etymological sets. In the first one, DEDR 3852, the setting of the sun is associated with the opposite meaning ‘to die’:

<Ta. *paṭu* to perish, die, set. [not \*west]>. Ma. *paṭiññāru* west. Ka. *paḍu* to lie down, set, die; n. setting, the west, dying; *paḍuva*, *paḍaval*, *paḍuval*, *paḍuvu* the west. Kod. *paḍi-ñā-rī* west. Tulu *paḍḍāyi* the west. Te. *paḍamara* the west Go. *pharāyīñ* west.

In the second set, DEDR 233, the fall of the setting sun is retained to express west direction:

<Te. *rālu* to fall or drop down. [not \*west]>. Pengo *ar-* to fall; *vēra arbonḍ* setting of the sun, west.

This heliocentric system contrasts sharply with the most widespread geocentric system where ‘up’ refer to the west and ‘down’ to the east, as in DEDR 516:

<Ta. *irañku* to descend, alight... [not \*east]>. Toda *er̥k* down, the east.

The association of the west direction with ‘up’ is found in several etymological groups.

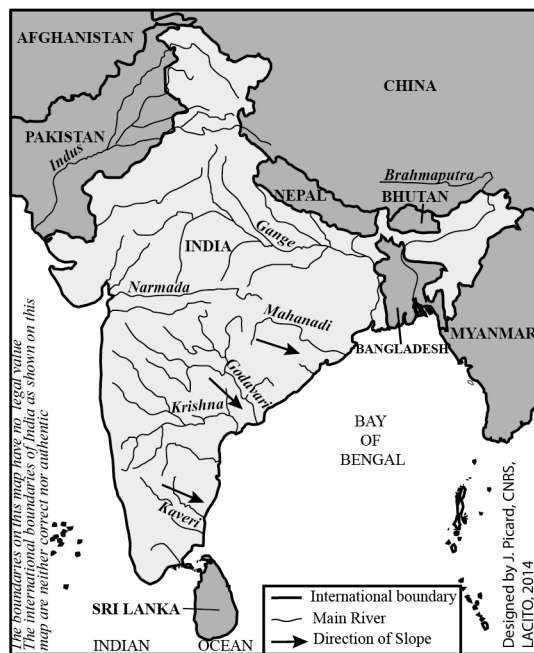
DEDR 2178: Ta. *kō* mountain. Kuwi *kui* up, above, west; *kūita* in the west.

DEDR 4567: <Ta. *porai*, *porrai* mountain, hill. not \*west]. Kolami *pode* high, up, the top; *pōdēlāñ* west.

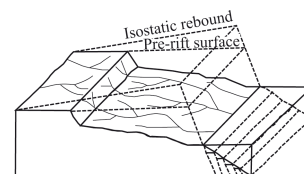
DEDR 5128 : To. *muk*, *mok* up, west.

DEDR 5086: Ta. *mē* excellence; *mēkku* height, high place, superiority; west ; *mēl* that which is over or above, extra; sky, west ; *mēрку* west. Ma. *mērkku* westward. Ko. *mē mul* higher place, up, western side.

In the context of the Dravidian languages, the geocentric up/down reference for the West/East axis requires some comments. Contrary to what happens, for instance, in the small Pacific islands with a central mountain top or range and in other mountainous regions, in the landmass of the Deccan plateau, there is no obvious landmark for a human being of what is up and what is down. We therefore suggest that the up/down directional terms, widely used in south and central India, have their source, not in an obvious geographical elevation, but in relation to the flow of the rivers.<sup>19</sup> As can be seen in the following map, south of the Narmada river, all the main river systems flow down to the Bay of Bengal, in the east. This is due to a particular geographic feature of the Deccan landmass, bordered by two mountain ranges, the Eastern and Western ghats, but slightly tilted down towards the east.



Map: Deccan rivers flowing from West to East



Section of the Deccan Plateau

Additionally, more local landmarks can be found. For instance in South India, west is associated with the high country of the Coorg people in Karnataka: DEDR 1649 Ta. *kuṭakam*, *kuṭaku* Coorg; *kuṭakku* west.

Winds are also a source direction terms for the east/west axis, notably the western monsoon winds, which are important for the agriculture and economy of the southern states.

DEDR 1094 Ta. *kaccān* west wind, west. DEDR 2203 Ta. *kōtai* west wind; Ma.

<sup>19</sup> Similar reference linked to the up and down of rivers is found in the terminology Upper and Lower Egypt in reference to the flow of the Nile.

*kōṭa* west wind, cool wind, west.

A last term for West refers to the country/sea limit and its opening to the outside world, notably to the ancient trade sea-route with the Middle East and the Roman empire.

DEDR 4333 <Ta. *puṛam*, *puṛaṇ* outside, exterior, that which is foreign.> Ma. *puṛam* the outside, west; beyond, more than.

## 2.2. Spatial relations and frames of reference

To express spatial relations, the Dravidian languages make use primarily of case suffixes, postpositions and relational nouns, as well as deictic elements and positional or motion verbs, if required. The precise components of each set vary a lot from language to language in their form and distribution. Cases/postpositions<sup>20</sup> are commonly found to express three basic spatial relations: ‘in’ (‘locative’), ‘to’ (‘dative’) and ‘from’ (‘ablative’), though their uses cover also non-spatial relations. Postpositions/relational nouns specify topological relations and their projections ‘up/on/above’ (ex. Ta. *mēl(ē)*, Pederson 2006:408-10), ‘down/under/below’ (ex. Ta. *kiz(ē)*, id. p.412) front/in front of (ex. Ta. *mun*), back/behind (ex. Ta. *pin*). As noticed by Pederson (id. p.427-28) they can be used with a relative or an intrinsic frame of reference.

As a later detailed study (Dasen & Mishra 2010) seems to confirm, the three frames of reference: intrinsic, relative and absolute (or ‘geocentric’ as these authors call it) are cognitively accessible to all individuals, but there are important differences in their usage. They interpret these differences in terms of ‘cognitive styles’ according to which ‘different individuals (or different groups) react differently to a cognitive problem (task, test, experiment, etc.) in some systematic way even though they have the same underlying cognitive capacity or competence. They “choose” to react in this particular way under the influence of a variety of factors [...]’ (p.11). This “choice” is ‘more likely to be unconscious, linked to habits, customs or preferred values – in other words, to “culture” (ibid.). Dasen & Mishra’s study sheds new light on some crucial findings made by Pederson on Tamil.

One of the most striking fact revealed by Pederson’s experiments (1993) is that Tamil speakers differ in their preference for an absolute or egocentric frame of reference according to their rural or urban settings. The decisive criteria are the terms they use to describe spatial relations in a manipulable space (table-top experimental tasks). Rural people will use absolute cardinal directions terms, ex.: “Plant to the north. He is standing turned to the south” (Pederson 2006:431) ) to instruct a task partner to reproduce the scene, while an urban speaker will give the following instructions: ‘There is a boy is on your left side [...] that plant is behind him’ (id. 430).

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<sup>20</sup> Often grammaticalized from (inflected) nouns or verbs.

Dasen & Mishra (2010) widen the scope of these findings. First, they confirm that, firstly, ‘a geocentric FoR [frame of reference] [is] used in large parts of the Indian sub-continent’ (p.42) and, secondly, that the same ‘urban/rural difference within the same language’ (p.308) is found in other places where they did their experiments (North India, Nepal and Bali).

Though no such strict experimentation have been conducted by other scholars in Dravidian, Pederson’s observation can probably be safely generalized at least on one point: except for the city dwellers and other ‘urbanized’ speakers, the use of the terms ‘left’ and ‘right’ in the spatial language is quite restricted<sup>21</sup> and mainly confined to body parts, notably to discriminate paired body parts (hands, eyes...<sup>22</sup>).

However, the use of cardinal direction terms to express spatial relations in manipulable space, which so clearly indicates the rural Tamil speakers’ preference for an absolute frame of reference, may be less widespread. Pederson himself reports (2003: 302) that his experiment, with another group of people living in the Tamil Nadu state, did not give the same results... According to him, the Bettu Kurumba, a small hunter-gatherer community of the Nilgiri foothills, traditionally did not possess terms for cardinal directions in their lexicon, but the children acquired them through schooling and started to use them as rural Tamils. Pederson explains that ‘a novel system of calculations using cardinal directions must be borrowed along with the lexical items’. However, the fast, easy and early (before the age of seven) way the schooled children were mastering both the cardinal terms and absolute frame of reference may draw our attention to a slightly different type of explanation. In my own fieldwork in the same Nilgiri area, with both hunter-gather (the Alu Kurumbas) and agriculturist/herder (the Badagas) minorities, I have never recorded the use of cardinal terms to express spatial relations in either manipulable space or route description. As the Bettu Kurumba, these people use mainly intrinsic references for the manipulable space and landmarks for navigation in their spatial descriptions (see also below § II.3). In one case at least, the non-use of cardinal terms cannot be linked to a lack in the lexicon as the very name ‘Badaga’ is derived from *\*vata* ‘north’ (DEDR 5218) and its meaning is perfectly known. However, the people of these three communities share remarkable sense of direction, akin to the “‘mental-compass”, a learned ability to maintain fixed bearings at all times’ mentioned by Levinson (2003:168). Factors like ‘children’s opportunity for the exploration of space under their own control’ (Dasen & Mishra 2010: 46) and a regular experience of walking in the wild, through forest and/or up and down the hills –for subsistence, herding or other social activities like visiting distant relatives– probably favor the acquisition of this ability and allow them to

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<sup>21</sup> Even more radical restrictions are found in other languages of the world: ‘Importantly, the lexicons of some languages (e.g. Arrernte, Guugu Yimithirr, Tzeltal) simply do not have spatial terms for left and right that generalize beyond a limited set of body parts’, Pederson et al. 1998: 571.

<sup>22</sup> In my own data on Badaga, the terms ‘left’ and ‘right’ hardly occur more than in a handful of sentences in a corpus of tens of hours of recordings. However, I found an unusual occurrence of these terms used in a narrative to distinguish a woman’s left and right breast.

keep track of their spatial position even in unknown surroundings.<sup>23</sup> These spatial skills could be interpreted as an indirect signal that these communities share with the rural Tamils a common cognitive propensity to use an absolute frame of reference. Keeping in mind that ‘[i]n fact, [...] the language and the encoding do not match systematically’ (Dasen & Misra 2010: 57), this would explain why the Bettu Kurumba schooled children could so easily shift to use Tamil cardinal terms. Rather than borrowing ‘a novel system of calculation’, they simply used new linguistic devices to express their preferred absolute/geocentric cognitive style. Dasen & Mishra precise that ‘one characteristic of cognitive styles is that they are adaptative to the eco-cultural demands, they are functional’ (p.307). It may easily be presumed that an absolute frame of reference is more useful and functional to navigate in the forest than an egocentric one.

### 2.3. Motion and route description

This last section presents a few sample sentences, giving a brief overview of the actual use of spatial elements in the grammar of a Dravidian language. Most of the examples are taken from Badaga, a South-Dravidian language spoken in the Nilgiri hills, close to the meeting point of the three southern states: Tamil Nadu, Karnataka and Kerala. These examples are fairly representative the Dravidian linguistic devices commonly used for expressing spatial descriptions. Other examples, taken from Manda, a South-Central Dravidian language, show an unfamiliar encoding.

#### 2.3.1. Motion events

The main linguistic devices used in Dravidian are comparatively simple: verbs of motion and cases/adpositions.

In Badaga, two verbs of motion are extensively used: *hōgu* ‘to go’ and *bā* ‘to come’. Basically, three case-suffixes, *-nda* ‘ablative’, *-ō(ge)* ‘locative’ and *-ga* ‘dative and a small set of postposition: *mēle* ‘up’, *kīe* ‘down’, *munde* ‘in front’, *hinde* ‘behind’... specify the directionality.

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<sup>23</sup> Incidentally, I witnessed this capacity when my main Badaga consultant came to France for a few weeks: he used to walk alone in Paris for hours –without any map– and never got lost, always coming back home at the required time.



- (1) *Kēti.ga Ottege.nda hōno*  
 Ketti.DAT Ooty.ABL go:T1:1PL<sup>incl.</sup>  
 ‘We’ll go to Ketti from Ooty’
- (2) *mēle bā!*  
 up come.IMPER.  
 ‘Come up!’
- (3) *ā hēṇṇ.a mane.yenda hōrāsu kaḍici buṭṭa*  
 that girl:ACC house.ABL outside send:PC PERF:3SG  
 ‘He chased that girl out of the house’

A converb may specify the manner of motion:

- (4) *kūsu avaka.gū mundāḍu naḍaduṇḍu hōtu*  
 child them.DAT in front walk:PROG go:T2:3N  
 ‘The child was going walking in front of them’
- (5) *bēgana oḍi bāli !*  
 quickly run:PC come:OPT  
 ‘Let him come quickly running!’

In other cases, the converbs describe a sequence of events:

- (6) *Kōlihatti.enda kaḍadu hōdāra*  
 Kolihatti.ABL leave.PC go:T2:3PL  
 ‘They left from Kolihatti and went away’
- (7) *eraḍavū ondu eḍe.ga oī sēdāra*  
 both one place go:PC join:T2:3PL  
 ‘Both went and reached a place’

A few languages of the Pengo-Manda Kui-Kuvi sub-group of the South-Central Dravidian languages developed an unusual morphologization of the motion.<sup>24</sup> Instead of a full verb (converb or finite verb), an infix conveys the spatial motion sense, verb stem – *-ka/-ga* – tense-person:

Ex. Manda (Ramakrishna Reddy 2003: 342)

- (8) *evan ība ru il ruh-t-un*  
 he here one house build-PAST-he  
 ‘He built a house here’
- (9) *evan ēba ru il ruh-ka-t-un*  
 he there one house build-MOTION-PAST-he  
 ‘He (went and) built a house there’

### 2.3.2. Route description

<sup>24</sup> Under the influence of the neighbouring Munda languages, which have a more complex verbal structure.

Route descriptions are frequent in spontaneous speech and narratives. Traditionally, the Badagas move a lot across the Nilgiri hills. They used to walk, individually or in groups, for various subsistence activities (cultivation, herding... for men, cultivation bringing water, gathering wood... for women) or social networking activities (familial, or not: festivals, ceremonies, political meetings...).

The same grammatical devices are used. Here we analyse the statistical use of the spatial elements found in a short sample text:<sup>25</sup> the description of a shortcut, *kuruku*, from one village to another. Walking across the hills will save half of the time compared to a bus journey. The text contains about 36 sentences. Typical of this kind of route description is the high frequency of the verb ‘go’ (31 occurrences) – alone or in combination – and the up/down motion terms, referring to the mountainous relief of the area. Precisions to find the route are given by local landmarks. Not a single use of ‘left’ or ‘right’ is found in this kind of text.

Spatial elements found in the text:

simple verbs : *ōg-* ‘go’ (31), *bar-* ‘come’ (5), *naḍe-* ‘walk’ (8), *hatt-* ‘climb’

adverbs: *eraka* ‘down’ (6) (2), *mēle* ‘up’ (3)

combinations of elements: *naḍe- ōg-* ‘walk+go’, *ōg- sēd-* ‘go+join’, *dāri ōg-* ‘path/through+go’ (2), *kaḍe- ōg-* ‘leave+go’ (3)

landmarks: village names (5), place names (3), temple, rich house, railway

a typical sentence will contain a sequence of two or three distinct motion events:

(10) *dāri dāri suttī, Ellanalli dāri ōgi,*  
road road revolve:PC Ellanalli through go:PC  
*eraḍu mūru aṭṭi.ya kaḍaduṇḍu ōpadu*  
two three villag:ACC cross:PROG go:OBLIG

[By bus] ‘the road winds up and down, you have to go through Ellanalli and cross two or three villages’

The initial repetition of *dāri* ‘path, road’ alludes to the many hairpin turns of a winding mountainous road. In the second clause, the same lexeme is used as an adverb, adding a path component to the verb ‘go’. In the last clause, the same semantic component is deduced from the verb and its construction.

It should be noticed that the language presents a great flexibility, both grammatically and semantically. There is a small number of verbs which occur with a high frequency. Their meaning is fairly abstract and gets precised according to the arguments and the markers which are present. See *kaḍa* in (6) ‘to leave’ with an ablative argument, but ‘to cross’ in (10) with an accusative argument; it would mean ‘to attain’ with a dative argument. Its abstract meaning reflects some trajectory for which one or several points can be specified. Ellipse of the arguments

<sup>25</sup> More sentence examples can be found in Pilot-Raichoor 2006.

is common if they are known or recoverable. The precise interpretation of a sentence depends often on the context.

## Conclusion

By emphasizing the role of the frame of reference, the typological classification suggested by Levison and Wilkins (2006) into absolute, relative and intrinsic frame of reference accounts for the coexistence, inside the same language and the same culture, of several systems for the expression of the space relations. These systems compete one with another.

The present study highlights that many local factors, mainly geographic and cultural ones, interfere with the linguistic expression of the cardinal directions and prevent any straightforward interpretation of the terms.

The Arabic data illustrate clearly the intricacies in the naming of directions which result from a mixed system, based on a fixed cultural landmark, Mecca, and locally variable geographical landmarks.

So, for Arabic data, we proposed to consider Mecca (*qiblah* ‘in the direction of the *Ka’bah* located at Mecca) as an absolute point of reference. This frame indicated as ‘absolute’ does not coincide with a stable cardinal direction since, depending on the dialects (and thus on their geographical distribution), the *qiblah* is in the east, the north or the south (2.1.). But it is undoubtedly for this same reason that it can be described as absolute, i.e. not tributary of the cardinal orientations. This is highlighted by the dialect of the Bedouins of the Sinai. In this dialect, the 90° anticlockwise shift of the compass caused a disorder in the lexicon: the terms for the cardinal directions, East, Nord and South, are used independently of their direct denotations, unlike the term *gibli*, which denotes the direction of the *qiblah* (1.2.1.2.). One could say that if one would stick to the relation of a term to its referent, the orientation *baħri* ‘in direction of the sea’ also should be regarded as absolute. There are however several seas (but just one Mecca) and the direction of the sea varies with the topography of the places. Further more, the Bedouins of the Sinai do not indicate the direction of the sea by *mbaħhirin* ‘in direction of the sea’, but by *myarribin* ‘in the direction of the West’.

In Dravidian, the naming of the cardinal directions is more consistent. The terms are based mainly on two absolute frames of reference, an heliocentric one and a geographical one, with the West/East axis matching the flow of the rivers.

The grammar of the spatial relations has been addressed through the description of

motion events. Here also it appears that the linguistic expression of spatial relations is not completely free from external eco-cultural factors. Some semantic components (scale, temporality, relief...) are more salient in specific cultures and tend to be lexicalized or grammaticalized in the representation of the events.

Thus in Arabic, concerning the semantic structure of motion verbs, we showed, using the data of the dialect of Zabid, that the semantic ‘packaging’ within the verb is in relation with the reference scale (2.2.3.). At the scale of Zabid indeed, the verbs incorporate a temporal component to their semantic structure. This dimension is not considered by Levinson (2006) nor by Talmy (2007). In its typology of motion verbs, Talmy (2007) emphasized three principal components lexicalized in the verb root: the co-event (the manner or the cause of the motion), the path, and the figure (the moving object). Under co-event, this author includes different kinds of specific relations between a co-event and the motion event: percussion, enablement, concomitance and subsequence. None of these relations, which may convey a temporal dimension (the examples given by the author are in connection with aspectuality rather than with temporality), corresponds to the temporality attached to the specific system of the dialect of Zabid. In a previous work (Naïm 2010: 244), I suggested to consider the temporality of these verbs as an equivalent to the Ground object in Talmy’s terminology (2007: 99). This suggestion is compatible with considering the town of Zabid as the frame of reference of the specific system, as we put forward (2.2.). It should however be supplemented to take account of all the coordinates of this frame of reference, i.e. the space-time coordinates of motion inside the city.

In the South-Dravidian languages of the Nilgiri hills presented above, the eco-cultural factors surface in the preference for local landmarks and up and down indications in route descriptions (2.3.2). In a few languages of South-Central Dravidian, like Manda, motion itself is fully grammaticalized in the verb (2.3.1).

Apart from these local specificities, a major eco-cultural factor, the urban vs. rural setting of the speakers, identified by Pederson (1993) in the Tamil data may have a wider relevance. A similar divide –between the rural speakers, favoring an absolute/geocentric frame of reference and the urban speakers, favoring an egocentric frame of reference– has also been found by Dasen & Mishra (2010) in distant places (North India, Nepal, Bali). Some observations made in the Nilgiri area (2.2.) fit with Dasen & Mishra’s findings, and seem to indicate that, even in the absence of clear linguistic signals, the preference for an absolute/geocentric cognitive style could be extended to other population, notably forest-based people. More experimentations on space tasks and verbal expressions should be conducted to assert this proposal. However, rather than to a purely linguistic determinism – dialectal variants of Tamil, as Levinson (2003: 189) proposed to interpret them– these findings seem to plea for a “moderate linguistic relativism” (Dasen & Mishra, p. 302).

Whatever answer we give to this issue, the complex relationship between language and culture remains highly problematic for the exchange of spatial information at a

global level.

Other conventionalized codes, such as writing systems, may also impede the correct transmission of spatial information !



Bilingual road sign in Lebanon

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## Abbreviations

ABL	ablative
ACC	accusative
ALL	allative
AUX	auxiliary
DAT	dative
EXH	exhortative
FUT	futur
IMP	imperative
IMPERF	imperfective
LOC	locative
OBLIG	obligative
PAST	past
PC	conjunct participle
PERF	perfective
PL	plural
PTCP	participial
SG	singular



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