

North at the top: Cardinal directions in languages, maps, and Hollywood movies

John Campbell-Larsen

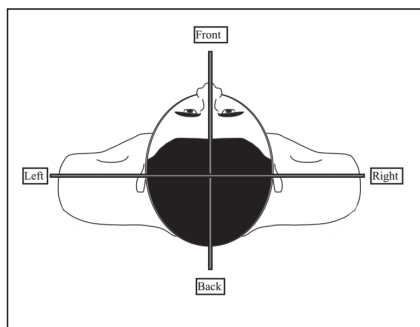
Abstract

Humans rely on variety of different systems to describe location, with different cultures and languages having differentials in the ways they express location and movement through space. The three main ways that such spatial concepts are verbalized are: 1) relative – relating location to the speaker (e.g., to my left; behind me), 2) intrinsic – ascribing some fixed orientation system to an object and using this as a reference (e.g., the front of the classroom; behind the truck) and 3) absolute – referring to cardinal directions (e.g., north of the river, west of the town). Absolute locational systems are described as being central to the spatial systems of languages such as Gugu Yimithirr and Tzeltal. It is generally assumed that speakers of such languages as English have a poor here-and-now awareness of cardinal directions and make sparse use of this resource for every day small-scale expressions of location. In this paper I will examine the way that cardinal directions are visually encoded in several mainstream Hollywood movies and suggest that although cardinality is not as prominent in English as some other languages, English speakers do orient to cardinal directions in certain visual situations and seem align with 'north at the top' representations in visual media, especially for larger scale narrative activities and events.

1. Introduction.

Locating items in space and describing movement through space are basic operations in all human languages. But as noted by Brown, (2015, p. 89), “...human spatial language turns out to vary significantly across languages.” Three basic systems are outlined by Levinson and Wilkins (2006). Firstly, there is the deictic or relative perspective. In this view, the basic configuration of the human body is used as a resource. Humans have a quadripartite division of physical space, centered on the human body; forward/front; backward/ back; left and right.

Figure 1. Relative direction frame.



This allows humans to describe locations and directions centered on this universal physiological template. Left of me, behind me, in front of me, and to my right.

Secondly there is the ‘intrinsic’ system which relates the location of an item with respect to its position comparative to another item. This system partially borrows from the deictic body system in that it conceptualizes various items, objects and spaces as having fronts, backs and sides, just as a human body does. Items such as cars, swimming pools, rivers, classrooms, parade squares,

queues of people, desks, and so on can be conceptualized as variably having fronts, backs, sides. Some of the items will have all four orientations operating in a balanced system. A car for example has a clear front, back and sides. By contrast an Olympic swimming pool has sides, but not necessarily a front or back.

Yet other items have no intrinsic directional aspects. A tree does not have an intrinsic left or right or front or back, and whilst a classroom has a front, back and hence sides, a living room in a typical family house or apartment would not be viewed as having a front, back or sides. This variability in intrinsic and non-intrinsic features can lead to variable interpretations when describing location. The utterance, “the man is standing in front of the car” can mean either of the following two situations.

Figure 2. Intrinsic direction. The man is standing in front of the car.

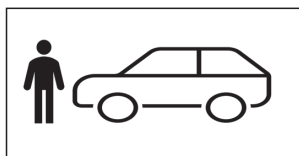


Figure 3. Relative direction. The man is standing in front of the car.

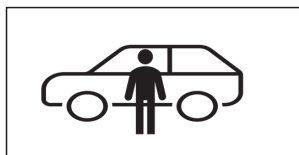


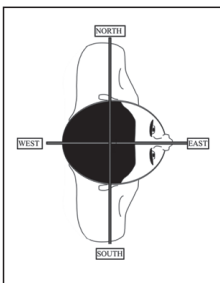
Figure 2 utilizes an intrinsic spatial system, with the man being seen as standing near to the part of the car which is recognizably the front; front being conceptualized as the direction of travel in normal circumstances. In this

description the sentence remains true whatever the viewpoint of the person making the utterance. Figure 3 relies on a dietetic or relative system of spatial configuration. In this case the meaning of 'in front of' relies on the position of the viewer. The standing man is between the viewer and the car, with the implicit understanding that the standing person is closer to the car than to the viewer. (If the standing person was closer to the viewer than the car, then the sentence would more accurately be, 'The man is standing in front of me.')

In figure 3 the statement is only true when this particular configuration of viewer and viewed items pertains and can reference occlusion as the main principle as in 'don't stand in front of the T.V. when I'm watching it.'

The third orientation system that humans have available is the use of some kind of absolute direction system. The four cardinal directions, north, south, east, and west, lie at 90 degrees from each other. This four-part division may be based on the configuration of the human body mentioned above; a front and a back, left and right sides, representing four perpendicular axes are mirrored onto four cardinal (and perpendicular) directions.

Figure 4. Absolute direction. Cardinal points.



Brown (1983) reports that among a wide variety of the world's languages the rising and setting of the sun form a basis for cardinal directions. The most

common reference system is for the human to face the rising sun and for the other directions to be taken from this orientation. Sunrise to the front, north to the left, sunset behind and south to the right. The system retains its perpendicularity even though sunrise deviates from true east throughout year. For example, in Great Britain, sunrise in summer is closer to northeast and in winter it is closer to southeast. Only at the solstices does the sun rise in the east. Nonetheless, the cardinal directions are seen as aligning with the perpendicular configuration of the human body.

Figure 4 shows the default setting of facing east which is embedded in many languages. The word 'orient' in English means both 'east' and when used as a verb it means to align with the points of the compass. The east-facing default for direction finding has its foundations in Proto-Indo-European. Mallory & Adams (2006, p. 294) state that the basic orientation system of Proto-Indo-European "was one that presumed that the speaker was facing the rising sun." They go on to add that the PIE word for dawn "...also provided the word for 'east' in many Indo-European traditions [...] in both Celtic and Sanskrit the east is the 'forward direction' and the west the 'behind direction.'" (2006, p. 301). The east-facing orientation system entails that the north is to the left and the south is to the right. North was traditionally associated (in northern latitudes where PIE originated) with cold, death, evil and other negative connotations. Conversely, the south was associated with light, warmth, and other positive concepts. The positive and negative connotations are deeply rooted. For example, the Latin word for left, 'sinister' came to have negative associations in English usage and the Latin word for right, 'dexter' is connected to notions of skillfulness, strength, and other positive ideas. (The predominance of right-handedness in humans may also influence this.)

Although the 'facing east' system is widespread as the basis of directionality, there are other systems. In Hawaiian the term for north is also the term for

right (*akau*) and the term for south is also the term for left (*hema*). This repositions the basic orientation from east-facing to west-facing.

Sunrise and sunset as a basis for cardinal directions represent approximately 45 percent of the languages surveyed in C.H. Brown's (1983) study. Brown finds that other systems of geographical orientation rely not on sunrise and sunset, or sun position, but on local geographical features such as uphill/downhill, shoreward/landward, prevalent wind direction and the like.

Whatever the basis of the directional system, whether it be the canonical cardinal directions or other landscape alternatives such as slopes or river basins, the underlying concept is centered around real referents in a real landscape. English and Warlpiri differ in the scale at which absolute directions are applied. English speakers "restrict their use of absolute FoR [Frames of reference] to large-scale geographical descriptions." (Majid, Bowerman, Kita, Haun & Levinson, 2004, p. 108). For example, 'Mount Fuji is west of Tokyo', 'The majority of the world's population lives north of the equator', 'the stadium is north of the river' and the like. Speakers describing smaller, human scale situations will probably eschew cardinal directions as a resource. The cup may be left of the bowl or behind the jug in English, but a statement that the cup is north of the bowl would sound odd to most native speakers of English. Using cardinal directions for such small-scale situations is found in languages such as Guugu Yimithirr where speakers can state that the cup is north of the bowl and so on.

Researchers have shown that for languages that use cardinality as a primary resource for location description, speakers of those languages have a constant awareness of cardinal directions. Even when indoors or at night. (Levinson, 2003). In contrast to these speakers, people from modern, developed industrialized societies often have a much poorer awareness on a moment-by-moment basis of the cardinal directions. But this is not to say that cardinality

plays no role in the daily perception of these people.

2. Schematic representations of cardinality.

In addition to the description of real-world referents using cardinal directions or other systems, people also engage in the symbolic representation of space. That is, people attempt to represent spatial relations in diagrammatic form on maps. These spatial descriptions may be encoded with greater or lesser fidelity to the real-world referents they describe. For example, the Ordnance Survey 1:1250 scale maps produced in the United Kingdom attempt to represent a 'birds-eye' view of the ground features. In this case the ground is envisioned as a Euclidian plane and the curvature of the earth is not a significant factor in the representation. Larger scale maps such as the Mercator projection take the curvature of the earth into account and distort certain features to facilitate navigation at large distances. Other maps such as the famous London Underground map dispense with many aspects of scale and represent the information at a level of abstraction and simplification that suits the task at hand. The subway lines are represented schematically as straight verticals, horizontals, or diagonals even if the lines themselves curve and twist. The distance between stations is not codified at all on the map. Whatever distortions or manipulations are introduced to these schematic representations, a common feature of such maps is the orientation of the map so that the four cardinal directions are represented in a perpendicular orientation. In most modern, developed societies, the default setting has been to represent north at the top of the map, with east to the right, south at the bottom and west to the left. The Ordnance Survey, Mercator and London Tube maps all follow this schema. But, as we saw with the linguistic coding of cardinality, (east-facing as in PIE or west-facing as in Hawaiian) representations of cardinality on maps are subject to variation.

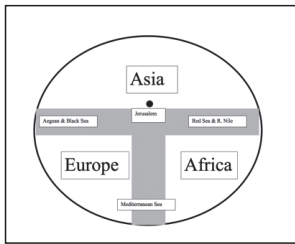
Before we examine these other systems, it is necessary to tease out what it meant when we say 'at the top' of a map. A map is typically a two-dimensional representation of physical space. The medium may be parchment, paper, or a screen on a device and so on. The paper, or whatever medium is being used, may be suspended in a vertical position, for example, pasted on a wall. In this case the top is the part which is highest. The unidirectional constant of gravity informs notions of highest and lowest. This up/down vertical orientation is an omnirelevant experience for all humans at all times.

Now, if the map is suspended in such a vertical way, then it makes sense to refer to top and bottom. However, these maps can be placed on a horizontal surface. In this case the up/down orientation becomes non-relevant in strict terms. The medium of the map, such as paper or parchment, is conceptualized as having zero vertical dimension when laid flat and thus the terms 'top' and 'bottom' do not apply in their canonical meanings when the map is in this position. In the case of a map being presented on a horizontal surface, it is assumed that the viewer will position themselves or the map in such a way as to make any text on the map the right way up and what was the bottom of the vertically positioned map will be the edge closest to the viewer and the erstwhile top will be the edge furthest away from the viewer. Despite the negating of the gravitationally determined top and bottom orientations of the vertically positioned map, the terms are redeployed for the horizontally placed map without any confusion as to what is meant.

The common north-at-the-top orientation for maps is not a universal. In medieval maps in Europe, such as the famous Mappa Mundi in Hereford cathedral in England, (c.1300) east was placed at the top. The style of the Mappa Mundi was common across Europe and is referred to as a T and O map. In this representation Jerusalem was placed at the center of the earth. Asia was positioned to the top with Europe at the bottom left and Africa at the

bottom right. The O represented the circular world and the T represented an idealized system of water body demarcations between the continents. The vertical between Africa and Europe was the Mediterranean and the horizontal representing the river Don, Aegean and Black Seas separating Europe from Asia and the river Nile and the Red Sea separating Africa from Asia.

Figure 5. T&O Map.



Other variations of map orientation exist. In the painting titled ‘The art of painting’ by Johannes Vermeer, a large map is suspended on the wall of the artist’s studio. This map is a representation of the map ‘The Seventeen Provinces’ by Nicolaes Visscher published in the early 1600’s. In this map of the Netherlands, west is represented at the top of the map rather than at the left.

In early Islamic culture, maps were oriented with south at the top of the map. This was due to the fact that Islamic culture initially spread north from Mecca and the adherents of Islam looked ‘up’ to Mecca as the holiest place. The Muslim scholar al-Idrisi who was advisor to the Norman King Roger II of Sicily in the twelfth century created a famous map showing south at the top.

In the Chinese tradition, maps were oriented with north to the top, but the underlying conceptual model reveals some intricacies that are specific to that culture. The Chinese character for north is 北. This character is derived from

the concept of 'back' – the pictorial underpinnings of the character show two figures back to back. The pronunciation of the character (*pei*) is also connected to the pronunciation of the Chinese word for (human) back. Brotton (2012, p. 58) notes,

In China, the north was accorded primacy as the sacred direction. Across the empire's wide plains, the south brought sunlight and warming winds and so was the direction towards which the emperor looked down on his subjects. [...] Etymologically, the Chinese 'back' is synonymous with 'north', because the emperor's back faces that direction.

Thus, the people of China looked 'up' toward the emperor-up being direction of respect and hierarchical superiority in a similar way to the Islamic tradition of looking up to Mecca mentioned above. But it seems that the emperor was not primarily perceived of as facing south, in the way that the PIE speakers 'faced' east, but rather was seen as having his back turned towards the north.

This very brief overview of the variability in map orientations will give an idea of some of the conceptual and cultural issues that underlie map orientations and highlight the culturally specific nature of the north at the top maps. The cultural particularities of this system of cardinal direction organization find linguistic expression in English with the collocations 'up north' and 'down south'. Similarly, cultural convention in England dictated that persons taking trains went 'up' to London, no matter what direction they were traveling in order to reach the capital. So, we can see that 'up' has the 'top of the map' reading in some cases and 'towards an important/ superior/sacred goal' in other senses. (Consider the psychological aspect of going 'up' to Oxford, that is, towards an exalted and rarefied academic location.) A related pair of collocations from American usage are the expressions 'out west' and 'back east' which reflect the primarily east-to-west direction of European

expansion across the North American continent. Although cardinality seems to be resource that is drawn upon in only certain situations in daily English usage, the deep, culture-specific concepts underlying the four cardinal directions are reflected in collocational language patterns and usage.

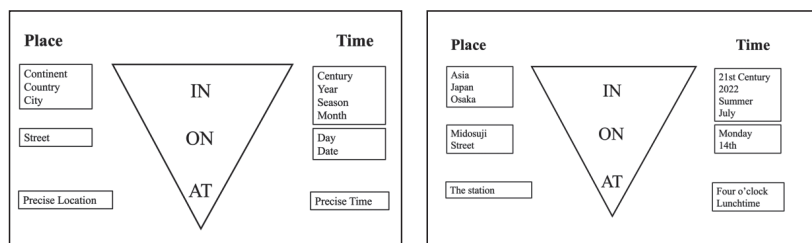
3. Scale and orientation.

The English language makes use of all three (relative, intrinsic, and absolute) systems to describe location and path. But, as was noted above, English speakers tend to reserve use of the absolute system (cardinal directions in the case of English) for relatively large-scale phenomena. As noted by Levinson (2003),

...although English has cardinal direction terms, it is not colloquial in any dialect that I know of to say, "The book is on the north end of the desk". For most English speakers, most of the time, the cardinal direction terms are usable only on geographic scales, and then normally with reference to maps where they come to signify relative directions on a map (north at the top). (p.92)

The notion of scale with regard to location finds expression in other parts of the lexicon of English. On one construal, the common English prepositions *in*, *on*, and *at* conceptualize relations of containment, suspension, and simple position respectively. But these prepositions also have an underlying scalar hierarchy in both their locational and temporal uses. *In* is used at the largest scales of time and space, followed by *on*, and concluding with *at* for the most precise and small-scale times and places, as illustrated in figures 6a and 6b. This accords with a cognitive schema that sees containers as three-dimensional entities, surfaces as two-dimensional planes and points as one dimensional, thus scaled from large to small.

Figures 6a, 6b. Scalar hierarchy of prepositions.



It seems that in addition to the common conceptual categories of space and movement such as containment, support, force and so on (See Talmy; 2000, Langacker, 2008) scale is also encoded at a conceptual level. The phenomenon is also found in a tacit manner in words apart from prepositions. Consider the words *coast* and *shore* in English. On a very simple reading both words can be used to indicate a demarcation line between land and water. But the words are not synonyms and the cognitive underpinnings of the two words are subtle and nuanced. For example, as pointed out by Filmore (1982, p.121) a journey from coast to coast is conceived of as a journey across land, such as a journey from San Francisco to New York. This contrasts with a shore-to-shore journey which suggests a movement across water, for example from one island to another island or to the mainland. Thus, cognitively, a coast is in some senses the land/water demarcation line seen from the landward side, whilst a shore is the same demarcation line seen from the seaward side, at least in some cases. In addition to this viewpoint aspect of coast and shore, there is also the scalar aspect. A coast is a large-scale phenomenon, associated with continents, seas and oceans at a geographical scale. The notion of shore is intuitively of a smaller scale. Lakes can have a shore or shores, but they are not usually described as having a coast. What precisely is the scalar demarcation between a shore and a coast may be graded rather than precise, but the underlying

concept is, no doubt, composed of several elements such as viewpoint direction, type of body of water and also, it seems, scale.

Also mentioned by Fillmore (1982) is the cognitive distinction between the words 'ground' and 'land'.

The difference between these two words appears to be best expressed by saying that LAND designates the dry surface of the earth as distinct from the SEA, where as [sic] GROUND designates the dry surface of the earth as distinct from the AIR above it. (p. 121)

In addition to this sea/air oppositional frame, there is also the concept of scale. The word land seems to refer to a larger scale phenomenon than ground. Land can be a synonym for country

(For example, in collocations like 'distant/other lands, and also the names of some countries, England, Deutschland, Iceland). Land also refers to larger concepts of physical space as in 'live off the land', or 'get off my land'. The word ground seems to refer to a smaller concept. One says that there is a rugby/cricket/soccer ground. In an immediate, here and now sense one says that leaves are lying on the ground, rather than lying on the land.

The underlying notion of human scale seems to come into play here. Humans can interact meaningfully with environmental components at a certain scale. One can walk along a shore for a few minutes, or an expedition can spend several months charting the coast of a newly discovered continent. One finds a penny on the ground, and you stick a tent peg in the ground. These are the kinds of small-scale events that humans can experience and perceive in real time. Spatial conception encodes scale in addition to viewpoint and so on. A mountain differs from a hill mostly in terms of its scale. Similarly, a pond is different from a lake primarily because of scale and a river is bigger than a stream, a forest is different from mere woods mostly on account of the extent

of the wooded area. As with coast and shore, the demarcation between any two of these items may be fuzzy and graded. Not only physical and measurable size or extent may be in play here, but also perhaps some psychological notion of human scale.

Returning to cardinal directions, the preference for English speakers, as noted above, is to employ a cardinal direction frame at a larger geographical scale. But speakers of some other languages can employ cardinality at much smaller scales. One finding in the literature is that speakers of these languages have what seems like an uncanny ability to discern cardinal directions in the here and now, even at night or indoors, and also to remember them, even after significant time has passed since the event they are referring to. (See Levinson 2003.)

Compared to these speakers, speakers of English may seem to have a severely underdeveloped sense of cardinality. But orientation to cardinal directions may not be as poor as this account suggests and there may be a sensitivity among speakers of languages like English to cardinality that manifests itself in certain circumstances. This will be the subject of the next section.

4. Cardinal directions in Hollywood movies.

The English language has codified certain aspects of cardinal directions in ways that reflect underlying cultural assumptions. For the north/south axis there are the collocative phrases 'up north' and 'down south'. A study of the *Corpus of Contemporary American English* (Davies, 2008) revealed that examples of 'down north' or 'up south' were rare (56 and 55 instances respectively) and upon investigation these occurrences were almost entirely centered around the preposition being part of a phrasal verb ('shot down north of Okinawa', 'jumped bail and turned up south of the border'.) rather than

expressions conceptualizing the direction as being either up or down. By contrast, 'up north' and 'down south' (1712 and 1045 instances respectively) were almost universally expressions of the directions themselves being up or down. The canonical orientation of a map with north at the top is reflected in collocational language use. What this vertical orientation implies is that west is left, and east is right, although there is no matching 'left west' or 'right east' collocation as was found with 'up north' and 'down south'. It would appear that at some conceptual level cardinal directions in English are thought of as primarily referring to a representation on a map, rather than the actual directions in sensorimotor reality.

In addition to the actual orientation of maps and the linguistic conventions that tie in with this canonical orientation, some visual media that represent action in space and time can be shown to orient to the canonical 'north is up' schema. Below I review several instances of movie scenes that seem to represent cardinal directions purposefully and consistently according to the west/left, east/right canonical system, or some conceptualization thereof, often referring to some kind of action at a large scale.

Firstly, I will examine parallel scenes from three different war movies. *The Longest Day*, (Annakin, Marton, Oswald, Wicki & Zanuck, 1962) and *Saving Private Ryan* (Spielberg, 1998) both deal with the 1944 allied invasion of Normandy. *The Thin Red Line* (Malik, 1998) deals with the combat between Japanese and American forces on the island of Guadalcanal in the second world war. What is interesting here is that in terms of the actual historical locations, both the Normandy landings and the Guadalcanal landings took place with the seaborne assault troops approaching the landing beaches from the north. However, in all three movies the approach of the landing craft is represented in long distance establishing shots that suggest east to west or west to east movement. In the two Normandy films the landing craft are shown

approaching from the left (i.e. west). In *The Thin Red Line*, the establishing shots have the landing craft approaching from the right (east). Although historically the landings were from the north, the west/east cardinal direction representations in the movies suggest a macro-orientation schema at play. In global, historical terms, from an American perspective the US forces in the European theater were moving from west to east, crossing the Atlantic, France and moving into Germany. In the Pacific theatre the movement is perceived as being in a direction from east to west across the pacific towards Japan.

Figure 7. Saving Private Ryan. D-day beach assault.



Figure 8. The Thin Red Line. Guadalcanal beach assault.



In the case of *The Longest Day*, there are multiple separate scenes showing the various beach assaults, often employing extensive tracking shots. The default establishing shot for these scenes is the landing craft approaching from the left, symbolically representing west. In another prolonged aerial shot,

representing the point of view of a German pilot overflying the invasion beaches, the direction of travel of the allied forces is again left to right, or schematically, west to east.

The same orientation schema can be found in other movies depicting historical events. The 1992 film *Far and Away* (Howard, 1992) depicts the story of a young couple fleeing poverty and social constraints in late nineteenth century Ireland and making their way to America to start a new life. The opening shots of agricultural life on the west coast of Ireland show the land to the left of the screen and the ocean to the right, contrary to the expected directionality, i.e., the canonical left is west/right is east. Later in the film, the characters find themselves in Oklahoma territory taking part in a land rush. This is a climactic event in the characters' story arc but also represents the characters joining as participants in a large-scale historical event. In this sequence, the direction of the settlers is from right to left across the screen. This aligns with the canonical east/west directionality and symbolic at a deeper level of the perceived direction of colonial advance across the North American continent as being from east to west. It may be the case that some sense of scale is also at play in a very subtle fashion here. The rural life depicted at the opening of the film is to be conceived of as essentially parochial, intimate and small scale, whilst the land rush event is on a larger, macro-historical scale, representing a continental event, of a similar scale and importance to the invasion sequences in the war movies mentioned above.

Figure 9. Far and Away. Land rush scene.



Moving on from the macro historical, large scale representations, it is also possible to see an alignment with cardinality in more subtle ways. In the film *Master and Commander* (Weir, 2003), the journey of a British warship in pursuit of an enemy French ship is charted. The opening titles show the British ship located at 'the N. coast of Brazil'. The ship is oriented so that its direction of travel is from right to left, as would match a European ship traveling westwards over the Atlantic. In a panning shot, at 4 minutes 14 seconds the camera moves to the ships stern, and shows land on the right (starboard) side of the ship. This places the ship off the eastern coast of the South American continent, with the direction of travel being southward.

Figures 10 & 11. Master and Commander. Journey south along the coast of Brazil.



The narrative proceeds and the ship journeys further southwards. The

director represents this course with visual cues based on cardinality. As the ship stops off for supplies, the crew interacts with a local European official in Portuguese, indicating that this is again the coast of Brazil. The establishing shot for this sequence shows the ship viewed from the prow, with the land again on the starboard side of the vessel. This would be consistent with a southerly direction of travel along the Atlantic coast of South America.

What is interesting here is that the IMDB page for this film notes the filming locations as the Galapagos Islands and Ecuador. The country of Ecuador is on the western, Pacific Ocean side of the South American continent and thus in actual terms, if the coast is to starboard, the ship must have been facing north, rather than south as the narrative would require. It seems as if the consistency of narrative cardinality has taken precedence over the actual cardinal directions of filming

After the ship rounds Cape Horn and heads in a northerly direction there is an establishing shot of the ship seen from a high altitude and it seems to be sailing towards the top of the screen, i.e., northward in canonical map reference terms. The distance makes it somewhat difficult to state conclusively that we are looking at the stern for the ship, but the next shot is a closer view of the ship's stern, and it seems that this may be designed to emphasize this northward/up screen direction of movement suggested in the long shot.

The direction of the journey undertaken by the ship in this narrative, south and then north on a continental scale and covering a prolonged time period are attended to by the director with both canonical (north at the top) and intrinsic (Brazil to starboard) orientations on screen.

Two final examples will also show how underlying cardinality concerns may manifest themselves on screen in subtle ways. In the film *The New World* (Malik, 2006) the first arrival of the European settlers in Virginia is

represented with a variety of point of view shots with no on-screen direction predominating. The ships are represented as being in an inland waterway, not the ocean, and based on the direction of sunlight, it seems that, counter to any expectations, the ships in the filming were moving from west to east. As the camera moves from a dynamic point of view shot of the native Americans viewing the arrival of the ships it settles to a more stable establishing shot of the villagers looking from left to right, signifying, it seems, the western/leftwards position of their continent when looking towards the origin of the newcomers from the east. The shifting viewpoints may be seen here as mixing the personal, and situated with the macro-historical and large scale.

Towards the end of the film, the director shows a ship departing England for America. The ship is shown moving away from the camera towards a sun which is close to the horizon. This strongly suggests a westerly course, coming as it does at the very end of the film, west being the direction of sunset the end of the day as well as being the overall direction which ships from England to the new world would have to sail. This representation of the western direction is used both practically to reflect geographical realities and also symbolically to signify an ending and a culmination of the story. Quite literally 'sailing into the sunset'. Cultural expectations of cardinality at a larger scale are embedded on screen.

The final example will serve to illustrate how cardinal directionality can be represented on screen in setting that is both intimate and large-scale. The film *The Shawshank Redemption* (Darabont, 1994) is set mostly within the confines of the eponymous penitentiary. The setting of the story in a jail with many cramped and windowless interiors would seem to preclude any orientation to cardinality. At the end of the story, the character Red, freed on parole, journeys to find a message that has been hidden for him in a hayfield with a 'big oak tree at the north end'. As he enters the field the camera is positioned

behind him with the oak tree at the top (north) of the screen. Red then absconds while on parole and makes his way from Maine to Texas. On the shot of the bus carrying Red away, the initial orientation is that the bus is traveling from right to left, that is east to west, in line with the general direction of the journey. The action then skips to what is supposed to be the Pacific coastline of Mexico. (In fact, the scene was filmed in the Virgin Islands in the Caribbean). Red is shown walking towards the camera with the ocean on his right, which is the left side of the screen for the viewers, neatly aligning with the west/left east/right canonical map layout. The camera pulls back to an extremely long shot as Red and his friend Andy approach and greet each other. This is not only an intense and personal moment, but also the culmination of a decades long journey for both men. The scale of the landscape (including the Pacific Ocean which Red had previously described as scarily large) matches the large time scale of the story's unfolding and thus the small-scale local and the personal events of the meeting are expanded upon and the closing scene encompasses both the large temporal and geographical scale, with a recognizable east/right, west/left orientation on the screen.

5. Discussion.

The ability of speakers of Guugu Yimithirr and Tzeltal to orient themselves according to an absolute system is described at length by Levinson (2003). In describing the uphill/downhill orientation skills of speakers of Tzeltal, at night, indoors and far away from their familiar landscapes, Levinson notes, "We are dealing here with something like the same uncanny sense of direction that we met with Guugu Yimithirr speakers – Tenejapans clearly run a mental compass in the unconscious background as it were." (pp. 151 – 152). The ability of Guugu Yimithirr speakers to utilize an absolute framework that far surpasses the abilities of members of technologically advanced cultures is described by

Levinson as "...an intellectual achievement of the first order..." (2003, p. 145). Levinson also notes that the ability to discern absolute directions is not only something that speakers orient to in the here-and-now of ongoing interaction, but also something that speakers can remember accurately even after considerable time has elapsed. Jack Bambi, a Guugu Yimithirr speaker relates a story to a researcher while being filmed. The researcher realizes that he has film of the same individual relating the same story two years previously. Upon comparing the two films, the researcher realizes that the cardinal direction encoding in the two versions match exactly (2003, p. 5).

Using absolute spatial reckoning is, by comparison, a much less developed ability in speakers from technologically advanced cultures, so it would seem. However, this is not to say that apart from the commonplace orientation of maps and in these societies, and associated geographical talk, cardinal directions find no real place in the mental world of these speakers. The purely cultural convention of 'north at the top' seems to find expression in collocational language and also, at least in some cases, in the visual narrative of popular films. Positions and movements of individual characters within filmed scenes will have to be consistent with the positions laid out by establishing shots. Who was sitting or standing where in a room or on a street or in a vehicle needs to be internally consistent to avoid continuity errors, but at small scales (temporal and physical) there is usually no immediate need to establish cardinality. North, south, east, and west are usually of zero consideration in quotidian scenes in bars, bedrooms, restaurants and all of the other human scale, non-historical settings of motion picture drama.

But when the scale becomes sufficiently large geographically or is conceptualized as a part of a larger historical or narrative time scale, the cardinal directions sometimes establish themselves in a visual sense that coincides with a ubiquitous western cultural conceptualization of 'north at the

top'. Allied forces invading Europe in the second world war move from left to right, symbolizing west to east, even if the actual events occurred on a north to south axis. American landings on Japanese held islands in the same war move from right to left, suggesting an east to west axis of movement. Land rushes of European settlers across the plains of North America are from right to left, representing the centuries long westward expansion of European settlers across that continent. Film makers can switch from the essentially quotidian and local to the large-scale and macro-historic in the space of a few moments of screen time and alignment of canonical north at the top map directions and screen action can often be found at various key points in selected films.

Of course, there are counter examples to be found in numerous filmic representations of movement and orientation. West is not always left, and right is not always east, even in scenes representing large scale, historical events. It may be argued that the examples cited in this paper are cherry-picked and non-representative, and that happenstance and the practical needs of *mise en scene* and other considerations determine directionality and layout in film making. This may be so, but in researching this paper, I became aware of my own differential memories of film scenes. The recollection of key scenes in the movies mentioned here was instant and accurate, even though years or even decades had passed since the original viewing. I did not have to re-watch the films in question to confirm my memories of the cardinality represented in the scenes. I do not claim any 'uncanny' absolute directional ability or assert that this is any kind of 'first-order' intellectual achievement, but I was struck by how readily my intuition and recollection worked once I had formulated the idea that representations of cardinal directions may find systematic representation in motion pictures. Recollection of small-scale scenes set in rooms, cars, restaurants, and the like are much harder to recollect in terms of the spatial representation and movement.

In the case of movies, we are clearly talking about a different order of spatial reckoning from the absolute systems of Guugu Yiminthirr and Tzeltal which work at all scales from table-top space to large-scale geographic wayfinding. The western absolute system is used predominantly at larger, geographic scales in daily speech. The 'north at the top' system is a culturally embedded convention used to describe abstracted representations of spatial reality (maps) rather than the actual space referred to, and this vertically indexed description survives 90-degree rotation to a horizontal plane. In this paper I have suggested that members of a particular culture (western European derived, modern, technological society) have a culturally embedded cognition that takes an absolute spatial system and uses such a system in particular and often subtle ways, not limited to here-and-now verbal interactions to describe actual location in real space. In movies there may be an underlying orientation to this 'large scale' absolute spatial system. This could be large scale in pure physical dimension from tens of meters to tens of kilometers scale. Or it could be in symbolic large-scale temporal terms. Here-and-now actions that can be viewed as parts of historical events that unfolded on a continental, centuries spanning scale can align with a 'north at the top' system of visual representation. There is also a notion that the scale may be tied to the narrative. Individual, human-scale actions, and scenes can have larger import. Two men meeting and shaking hands on a beach is a small-scale event, but as a culmination of a multi-decade narrative its larger scale is implicit, and a geographic type of visual reference seems apt. The system may not be universally applied in visual media, but when it is, it seems, at least for this author, to be available for recall in a marked way.

References.

- Annakin, K., Marton, A., Oswald, G. Wicki, B. & Zanuck D.F (Directors). (1962). *The longest day*. [Film]. Twentieth Century Fox.
- Brotton, J. (2012). *A history of the world in twelve maps*. Penguin.
- Brown, C. H. (1983). Where do cardinal direction terms come from? *Anthropological linguistics* 25, 121 – 161.
- Brown, P. (2015). Space: Linguistic expression of. *International Encyclopedia of the Social and Behavioral Sciences (2nd ed.) Vol. 23*, 89 – 93.
- Davies, Mark. (2008 –). *The Corpus of Contemporary American English (COCA)*. Available online at <https://www.english-corpora.org/coca/>.
- Darabont, F. (Director). (1994). *The Shawshank redemption*. [Film]. Castle Rock Entertainment.
- Fillmore, C. (1982). Frame Semantics. In The Linguistic Society of Korea (Ed.) *Linguistics in the morning calm: Selected papers from SICOL-1981* (pp.111 – 137). Hanshin Publishing. http://brenocon.com/Fillmore%201982_2up.pdf
- Howard, R. (Director). (1992). *Far and away* [Film]. Imagine Films Entertainment & Universal Pictures.
- Langacker, R.W. (2008). *Cognitive grammar: A basic introduction*. Oxford University Press.
- Levinson, S. C. (2003). *Space in language and cognition: Explorations in cognitive diversity*. Cambridge University Press.
- Levinson, S.C. & Wilkins, D. (2006). The background to the study of the language of space. In S.C. Levinson & D. Wilkins, (Eds.), *Grammars of space: Explorations in cognitive diversity*. (1 – 23). Cambridge University Press.
- Majid, A., Bowerman, M., Kita, S., Haun, D. B., & Levinson, S. C. (2004). Can language restructure cognition? The case for space. *Trends in Cognitive Sciences*, 8 (3), 108 – 114.
- Mallory, J.P. & Adams, D.Q. (2006). *The Oxford introduction to Proto-Indo-European and the Proto-Indo-European world*. Oxford University Press.
- Malik, T. (Director). (1998). *The thin red line*. [Film]. Fox 2000 Pictures, Geisler-Roberdeau Phoenix Pictures.
- Malik, T. (Director). (2006). *The new world*. [Film]. New Line cinema, Sunflower Productions & Sarah Green Film.
- Spielberg, S. (Director). (1998). *Saving private Ryan*. [Film]. Dreamworks Pictures.
- Talmy, L. (2000). *Toward a cognitive semantics: Volume 1. Concept Structuring systems*. Massachusetts Institute of Technology.
- Weir, P. (Director). (2003). *Master and commander: Far side of the world*. [Film]. Twentieth Century Fox, Miramax & Universal Pictures.