A Verbal Spatial Morphology and Mobile App for English as a Foreign Language

Robert C. Meurant

Founding Director, The Institute of Traditional Studies • Seojeong College University
Yongam-Ri 681-1, Eunhyun-Myeon, Yangju-Si, Gyeonggi-Do, Seoul, Korea 482-863
Ph.: +82-10-7474-6226 •E-mail: its@rmeurant.com • Homepage: http://rmeurant.com/its/home.html

Abstract

Ubiquitous learning requires learning objects to be available at the right time and place. EFL/ESL learners face confusion in their use of English verbs, but appropriate learning objects enable learners to creatively imagine and navigate grammatical schema. A spatial morphology of English verb forms and tenses is advanced, and applied to generate simple sentences without objects. Its structure enables the language learner to form adequate cognitive structures in the mind's eye. This is complemented by its use in interactive applications for smart phones and tablets. The spatial morphology offers an *aide-mémoire* to the learner, and educational App for the iPad.

Key Words: EFL, verb, tense, app, spatial morphology, ubiquitous learning, language learning, iPad.

Fig. 1. Touch gesturing on the iPad and iPhone.

1. Introduction

Fiaidhi observes that for effective ubiquitous learning, learners need access to appropriate learning objects at the right time and place [1]. English is fundamentally a verbal language; given its complexity it is no surprise that EFL/ESL students face confusion in their recall and use of the English verb tenses and forms appropriate to an intended communicative act. Naturally, the best place to locate such learning objects is within the learner's own awareness, so that they can form cognitive structures that are adequate. They can then creatively imagine and navigate the necessary schema, and determine the correct formal expression for what they intend. My spatial morphology of English tenses and forms provides for effective learning through offering appropriate cognitive schema, with an interactive mobile app for support.

The visual spatial structure is *imageable:* it allows the learner to visualize the schema in their imagination, and manipulate and navigate it in the mind's eye, to support retention and further use. This process is assisted by the spatio-visual nature of the schema, in contrast with the oral structure of natural language. *Spatialization* allows for ready implementation in visual interactive digital resources i.e. for on-screen displays. It can be realized in mobile apps for smart phones, tablets like the iPad [2], head up displays (for gamers, pilots, etc.), and electronic dictionaries and online resources. The primary intended realization of the spatial morphology is thus two-fold: it functions as an *aide-mémoire* in the learner's mind; and it provides the formal grammatical structure for a learning App for correct cognitive structures.

2. Structure and Use

2.1. The spatial morphology

The spatial morphology, used in the sense of formal organization, derives from traditional configurations of art and architecture that have historically enabled complex learning. The geometrical form is of the *aedicule,* here represented as a flat vertical rectangular surface in the normal field of vision. The fundamental Infinitive form of the verb is imagined at the center, but is then displaced to the upper right for convenience. An inner zone displays the verb's four aspects, sentences that accord with those aspects, their construction, and their use. A peripheral border displays the other major grammatical categories.

For the inner quadrant, the starting point for the basic grammatical Aspects is the Simple verb at bottom left, as in Fig. 2. Extension of the Simple to the right gives the Continuous form of the verb at bottom right. An octave of the Simple above gives the Perfect at top left. Extension of the Perfect to the right - an octave directly above the Continuous - gives the Perfect Continuous at top right.

The peripheral border of interactive buttons, tabs, and drop-down menus accommodates the other major grammatical categories. The important TENSE-ASPECT-MODE dimension is provided vertically, as in Fig. 2. The base form of the verb, the bare Infinitive, is entered or selected from a drop-down menu in the major right-hand top field. Grammatical categories of QUALITY (i.e. Finiteness), NUMBER, VOICE and POLARITY are minor side options of the top and bottom borders. NUMBER at right top works with PERSON and GENDER in the right border. MODE at bottom is differentiated into major Fields of MOOD at left and MODALITY at right, as in Fig. 2. Contextual fields expand these options in the left border. Learners need to avoid unnecessary complexity, so Realis and Irrealis moods are not dealt with. Similarly, the App is restricted to Intransitive or Optionally Transitive verbs, and sentence objects are not included.

2.2. Usage

The user firstly selects a base verb at top right from a drop-down menu, or enters one with intelligent word recognition and completion. Options are then selected from the border for the intended communicative act. Minor side fields on top and bottom borders offer exclusive binary "or" choices, but for NUMBER, where neither, either, or both options can be selected.

QUALITY (Finiteness) provides for Finite or Non-finite Verb form, as in Figs. 6 and 7; VOICE allows for Active or Passive form, as in Figs. 4 and 5, while POLARITY allows for Affirmative or Negative form, as in Figs. 4a and 4b.

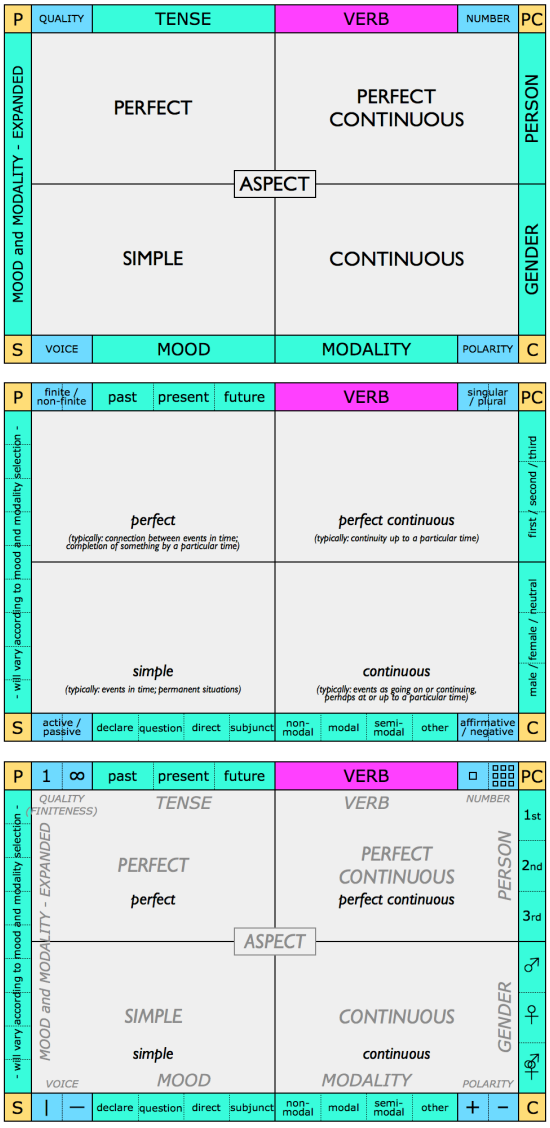


Fig. 2. Development of App interface: how main grammatical categories are disposed, differentiated, and presented.

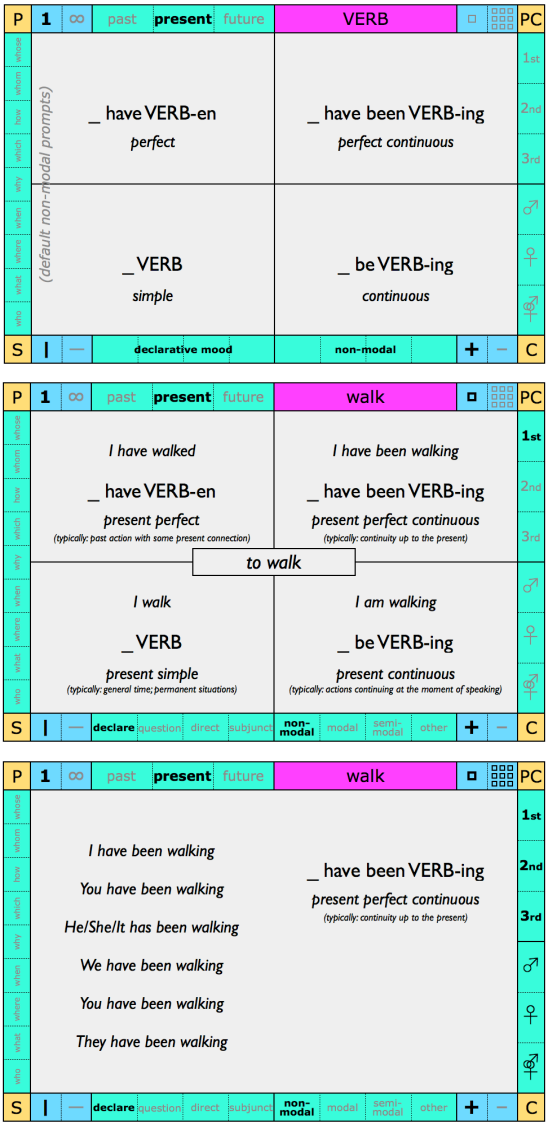


Fig. 3. Further development of the interface for base Finite/Present/Active/ Declarative/Non-modal/Affirmative.

Major border fields offer multiple options. TENSE is contextual, and for non-modal Finite Quality, provides exclusive Past/Present/Future as in Fig. 5. For Non-finite QUALITY, in Fig. 7, options depend upon other settings e.g. Active/Passive VOICE. MOOD, at bottom left in Fig. 4, provides for exclusive Declarative/Interrogative/Imperative/Subjunctive forms.

The contextual menu along the left border may be activated by these choices, e.g. for Interrogative Question, the left border shows Wh- question words *who/what/where* etc. as prompts as in Fig. 3, and/or toggles with Polar question words such as *do/did/is/are/will* etc. MODALITY at bottom right provides for exclusive Non-modal/Modal/Semi-modal/Other modal. For Modal, as in Fig. 6, the left border displays Modals *may/might/can/could* etc.

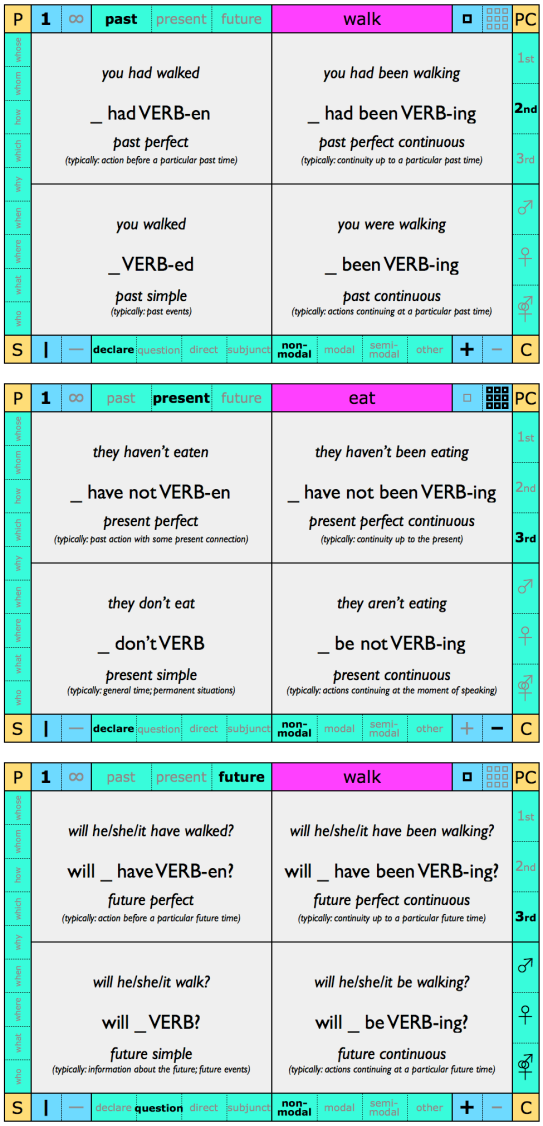


Fig. 4. Past, Present and Future Positive and Negative Declarative and Interrogative sentence constructions.

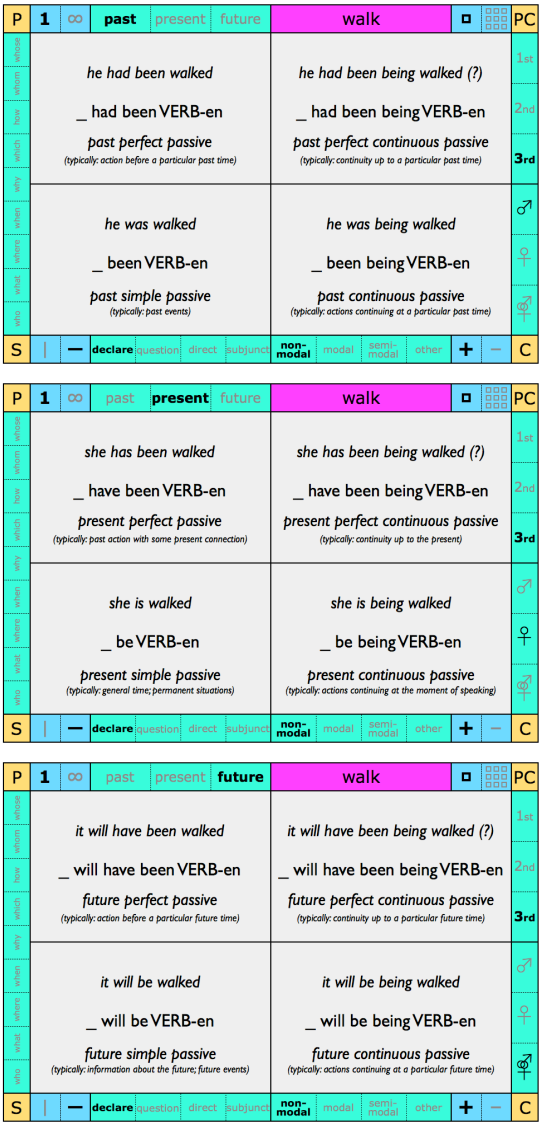


Fig. 5. Finite/Singular/3P/Passive/ Declarative/Non-modal/Affirmative Tense and Gender constructions.

The right border differs in that choices need not be exclusive, but as for NUMBER may be partially or totally inclusive, and are intended to function in conjunction with the Number selection at right top. PERSON is selected as none, any, some or all of First/Second/Third. GENDER can be selected as none, any, some or all of Male/Female/Neutral. This allows the display of just one PERSON, in Fig. 5, or of a limited, or full conjugation.

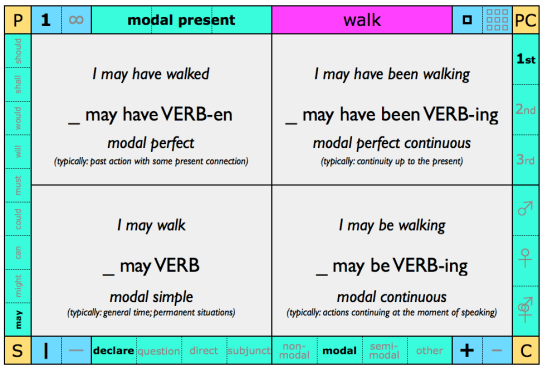


Fig. 6. Finite/Modal sentence constructions.

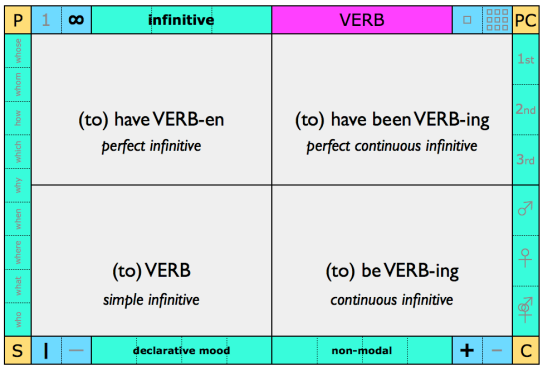
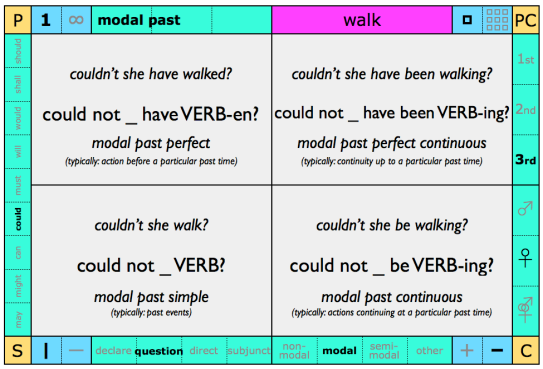
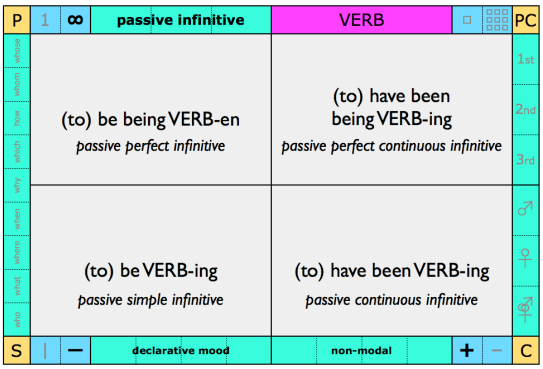


Fig. 7. Non-finite/Infinitive sentence constructions.





With each choice the inner quadrant displays the corresponding four Aspects of the specific verb base and chosen grammatical categories, thus showing four simple sentences, sentence constructions, tenses, and typical uses. A Verb form assumes the same relative position in each inner rectangle: for any given TENSE, as shown in Fig. 4, constant relations between the Simple, Continuous, Perfect, and Perfect Continuous aspects become evident, so helping the learner internalize the language structure.

2.3. Finger Gestures

Finger gesturing, as in Fig. 1, accords with Apple's iOS Human Interface Guidelines [3]. Single tapping a Finite ASPECT zooms the quadrant to fill the entire inner space, allowing detailed information to be displayed; tapping a zoomed interior collapses it to four-quadrants.

Horizontally swiping the interior cycles through the TENSEs: a right swipe regresses the Tense, while a left swipe advances it e.g. from Past to Present, or Present to Future. The swipe could also include the Infinitive, cycling through Past-Present-Future-Infinitive. If just one NUMBER and PERSON is selected, vertical swiping the interior zone allows cycling through Number/ Person combinations: 1PS–2PS–3PS–1PP–2PP–3PP. Swiping quadrants upwards/downwards then advances/regresses the Number/Person displayed: e.g. 2PS–3PS.

3. Pros and Cons

The App encourages playful exploration of various grammatical categories, thus allowing a deepening appreciation of the structure of the English language. Correspondences between verb forms for a particular tense can be seen in relation to the other tenses, as a Verb form assumes the same relative position in each configuration. This structure should assist learning.

The main limitations that are met are those of the structural complexity of language in general, and of the English language in particular. These must be set against the understandable limitations of the second language learner. A compromise needs to be made between a simplicity that can be comprehended, and a complexity that does justice to the target language. Thus the structural morphology presented does not address sentence objects, and is restricted to simple sentences, as opposed to compound and complex. Passive and non-finite forms have been simplified, as have imperative/subjunctive moods, and modalities.

The display resolution of 960x640 px equals that of the iPhone 4/4S screen, and fits comfortably on the 1024x768 px iPad 2 screen, as shown in Fig. 1. Color-coding enhances legibility; note that for limitations of space, images in this paper have been reduced in size.

4. Conclusion

The ICT revolution is radically impacting pedagogy, as I elsewhere discuss in some detail, particularly in regard to digital literacy [4], which has now become critical. In second language learning, the need is now evident for effective cognitive schema to utilize in conjunction with language learning strategies that are more tailored to the digital age. Fiaidhi maintains that the pervasive impact of the Internet, mobile apps, smart phones and tablets indicates learning objects are needed to satisfy demand for ubiquitous learning at the right time and in the right place [1]. Clearly, they need also to be in the right form. How language is conceived, imagined, learnt, and utilized is changing, as intuited by Hobari [5], and Van De Bogart [6]. It is my belief that envisaging and developing spatial morphologies that aid

learning, in dialectic between the space of the imagination and the digital realm of mobile apps, may contribute to this exciting educational evolution.

5. Acknowledgements

This paper is a revised and developed version of a paper presented at the December 2011 UNESST International Conference at Jeju-do, Korea [7]. A related paper, intended for a linguistic audience, was published the same month in TESOL Review [8]. Finally, my sincere thanks are due to Prof. Kim Tai-hoon. Until quite recently, he has for many years served as Vice Chair of SERSC. In that role, he has embodied the very highest qualities of selfless and dedicated support to scholarly scientific and engineering research.

6. References

[1] Fiaidhi, J., Towards Developing Installable e-Learning Objects utilizing the Emerging Technologies in Calm Computing and Ubiquitous Learning, *IJUNESST,* 4:1 (2011), 1–12.

[2] Meurant, R.C., iPad Tablet Computing to Foster Korean EFL Digital Literacy, *IJUNESST,* 3:4 (2010), 49–62.

[3] Apple Inc., iOS Human Interface Guidelines. Apple Inc., Cupertino (2011).

[4] Meurant, R.C., Applied Linguistics and the Convergence of Information Communication Technologies. The Opoutere Press, Auckland (2010).

[5] Obari, H., Integration of E-Learning and M-Learning in Teaching EFL in Japan. PPT presentation, E-Learn 2009, Vancouver (2009).

[6] Van De Bogart, W., Behavioral aspects of Thai students toward cell phone adoption in the classroom. International e-Learning Conference, Bangkok (2011), accessed 8 Jan 2012 http://www.earthportals.com/Portal_Messenger/willard.html

[7] Meurant, R.C., Developing EFL/ESL Cognitive Structures Using a Mobile App to Exploit a Spatial Morphology of Verb Forms in Simple Sentences, *IJUNESST,* 4:4 (2011), 63–74.

[8] Meurant, R.C., A Proposal for a Spatial Morphology of Verb Forms in EFL/ESL to Develop Cognitive Structures using Mobile Apps, *TESOL Review,* 3 (2011), 127–144.

Corresponding author: Robert C. Meurant, Ph.D.
Director, Institute of Traditional Studies,
Seojeong College University,
Yongam-Ri 681-1, Eunhyun-Myeon, Yangju-Si, Gyeonggi-Do, Seoul, Korea 482-863.
E-mail: its@rmeurant.com