

APPENDIX

A. FML SPECIFICATION PROPOSAL

A.1 Introduction

This appendix contains the current FML specification with some modifications. Most part of the specification is taken from the FML specification developed at the *USC/Information Science Institute in Marina Del Rey* [1]. Modifications and additions to the original specification are made in order to give a more complete model of communicative functions as described by Poggi et al. [2]. Unlike BML, FML is not being given attention at the moment and a formal specification does not exist by this time of writing. Therefore the specification described here should be seen as an optional specification in which some new tags, attributes or naming conventions are proposed. Alterations made to the ISI specification are outlined below each element.

A.2 FML Reference Proposal

The FML specification consists of two types of tags. The first type is used to identify the evolution of the discourse turn. They control the flow of the turns, topics and phrases. These are known as interactional tags. These tags are illustrated in section A.2.1.

The second type is used to give additional information about semantic units in the form of sentence parts, phrases or words which already have been structured by the first type. These are known as propositional tags. They are illustrated in section A.2.2.

Note that each FML element has an *ID* attribute associated with it which is not shown in the reference. This *ID* should be unique in the scope of each communication block and can be used to refer to a specific FML tag.

A.2.1 Interactional Tags

element **TURN**

Description	Describes the speaking turn.				
Attributes	Name	Type	Use	Default	Description
	TYPE*	Name	required		The type of turn operation. [TAKE, GIVE, KEEP, REQUEST, ACCEPT]
	START	string	required		Time marker that identifies when this communicative function takes effect.
	END	string	required		Time marker that identifies when this communicative function is no longer in effect.

* More **type** attribute values have been added.

element **TOPIC**

Description	Marks the current topic of discussion, reflecting discourse structure.				
Attributes	Name	Type	Use	Default	Description
	SHIFT*	int	required		Specifies the percentage of topicshift occurring.
	TOPICID**	string	required		An identifier specifying the topic.
	START	string	required		Time marker that identifies when this communicative function takes effect.
	END	string	required		Time marker that identifies when this communicative function is no longer in effect.

* This attribute has been added.

** This attribute has been renamed from *ID* to *TOPICID*.

element **PERFORMATIVE***

Description	The speech act being performed.				
Attributes	Name	Type	Use	Default	Description
	TYPE	string	required		The type of speech act category. [INFORM, REQUEST, ENQUIRY]
	START	string	required		Time marker that identifies when this communicative function takes effect.
	END	string	required		Time marker that identifies when this communicative function is no longer in effect.

* This element was previously known as *intent*.

element **THEME**

Description	The part of a clause that ensures cohesion with the previous contribution.				
Attributes	Name	Type	Use	Default	Description
	START	string	required		Time marker that identifies when this communicative function takes effect.
	END	string	required		Time marker that identifies when this communicative function is no longer in effect.

element **RHEME**

Description	The part of a clause that contains the new contribution to the discourse.				
Attributes	Name	Type	Use	Default	Description
	START	string	required		Time marker that identifies when this communicative function takes effect.
	END	string	required		Time marker that identifies when this communicative function is no longer in effect.

element **CONTENT**

Description	Doesn't represent a communicative function, but specifies the actual content of the communicative act.				
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A.2.2 Propositional Tags

element **CERTAINTY***

Description	Describes how certain and assertive the speaker is about a specific unit.				
Attributes	Name	Type	Use	Default	Description
	LEVEL	Name	required	NEUTRAL	The level of certainty. [CERTAIN, NEUTRAL, UNCERTAIN]
	START	string	required		Time marker that identifies when this communicative function takes effect.
	END	string	required		Time marker that identifies when this communicative function is no longer in effect.

* This element has been added.

element **ADJECTIVAL***

Description	Specifies an adjectival function that can be used to give additional information about a semantic unit.				
Attributes	Name	Type	Use	Default	Description
	TYPE	Name	required		The type of adjectival. [DIMINISH, INTENSITY, INCLUSIVITY]
	LEVEL	Name	required	MEDIUM	The intended strength of the adjectival. [STRONG, MEDIUM, WEAK]
	START	string	required		Time marker that identifies when this communicative function takes effect.
END	string	required		Time marker that identifies when this communicative function is no longer in effect.	

* This element has been added.

element **EMPHASIZE**

Description	Emphasizes a word or semantic unit.				
Attributes	Name	Type	Use	Default	Description
	LEVEL	Name	required	MEDIUM	The intended strength of the adjectival. [STRONG, MEDIUM, WEAK]
	START	string	required		Time marker that identifies when this communicative function takes effect.
	END	string	required		Time marker that identifies when this communicative function is no longer in effect.

element **RELATION***

Description	Specifies the rhetorical relation in which the enclosed text is involved in.				
Attributes	Name	Type	Use	Default	Description
	TYPE	Name	required		The type of rhetorical relation. [CONTRAST, CAUSE, RESULT, LISTING]
	RELATIONID	string	required		The unique ID of the belief group. All elements with the same belief ID are considered to be in relation.
	START	string	required		Time marker that identifies when this communicative function takes effect.
END	string	required		Time marker that identifies when this communicative function is no longer in effect.	

* This element has been added. The original specification contained a separate *contrast* element which has now been included here as subclass.

element **ILLUSTRATION**

Description	Indicates a feature of a discourse entity that could be clarified through illustration.				
Attributes	Name	Type	Use	Default	Description
	DESCRIPTION	string	required		Describes the elements of the illustration that can contribute to a depiction by a gesture for example.
	START	string	required		Time marker that identifies when this communicative function takes effect.
	END	string	required		Time marker that identifies when this communicative function is no longer in effect.

element **REFERENCE**

Description	Identifies a discourse entity through a textual or visual reference.				
Attributes	Name	Type	Use	Default	Description
	TYPE	Name	required		The type of the entity being referred to. This is visual if the entity is visible in the environment and textual if the entity occurred in previous speech. [VISUAL, TEXTUAL]
	REFID*	string	required		The unique ID of the entity being referred to.
	SOURCE	string	optional		If textually evoked, this is the unique ID of the speaker who last referred to the entity.
	START	string	required		Time marker that identifies when this communicative function takes effect.
	END	string	required		Time marker that identifies when this communicative function is no longer in effect.

* This attribute has been renamed from *ID* to *REFID*.

element **AFFECT**

Description	Describes the affective state of the speaker.				
Attributes	Name	Type	Use	Default	Description
	TYPE*	Name	required		The affect being displayed. [HAPPINESS, SADNESS, ANGER, FEAR, SURPRISE, DISGUST, EMBARRASSMENT, SHAME]
	STANCE	Name	optional	INTENDED	Describes whether the emotion is intentionally given off or involuntarily leaked. [INTENDED, LEAKED]
	TARGET	string	optional		The ID of the person who is being targeted by the affective behavior.
	EVENT	string	optional		Event that triggered the change in affective state.
	START	string	required		Time marker that identifies when this communicative function takes effect.
	END	string	required		Time marker that identifies when this communicative function is no longer in effect.

* For now only the eight basic emotions that are universally recognized are included.

This can be extended in the future.

element **COGNITIVE***

Description	Describes a meta-cognitive activity associated with a specific unit.				
Attributes	Name	Type	Use	Default	Description
	TYPE	Name	required		The type of cognitive activity. [THINK, REMEMBER, INFER, DECIDE]
	START	string	required		Time marker that identifies when this communicative function takes effect.
	END	string	required		Time marker that identifies when this communicative function is no longer in effect.

* This element has been added.

The ISI specification of FML contained the element *coping* which identifies a coping strategy that is employed by the speaker. This element has been removed because it's not a communicative function as seen by Poggi et al. [2]. A coping strategy can be seen as a property of an ECA, a dynamic factor which has an influence on meanings and behaviors to express.

BIBLIOGRAPHY

- [1] Information Science Intistute: <http://www.isi.edu>.
- [2] I. Poggi, C. Pelachaud, and F. de Rosi. Eye communication in a conversational 3d synthetic agent. *AI Communications*, 13(3):169–181, 2000.