



# **The (controversial) nature of intransitive gestures**

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# Limb Apraxia

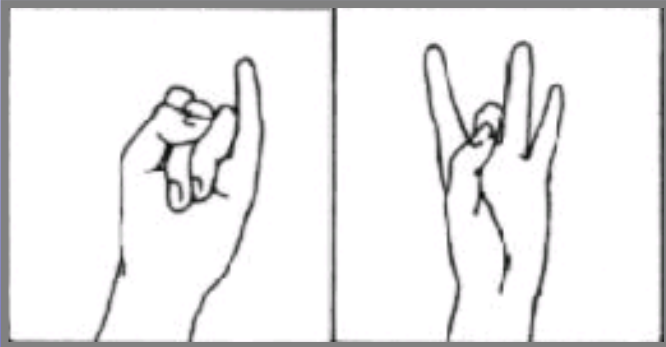
Deficit in gesture processing resulting from neurological dysfunction, which cannot be explained by elementary motor or sensory defects, by task-comprehension problems, or by inattention to command

# Limb Apraxia

Deficit in **GESTURE** processing resulting from neurological dysfunction, which cannot be explained by elementary motor or sensory defects, by task-comprehension problems, or by inattention to command

# GESTURES

**MEANINGLESS**

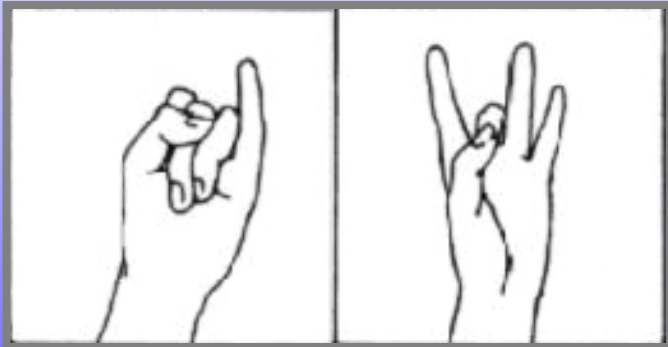


# GESTURES

**MEANINGFUL**

Transitive

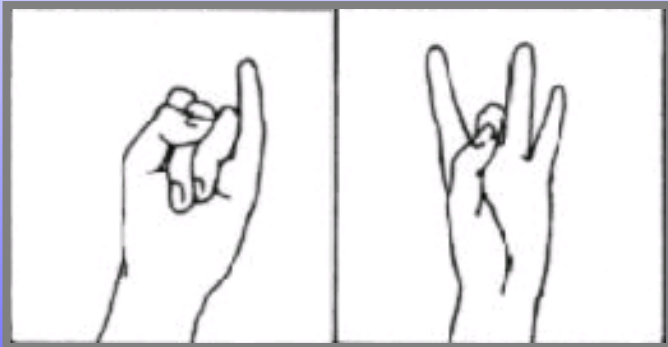
**MEANINGLESS**



# GESTURES

## MEANINGFUL

## MEANINGLESS



## Transitive



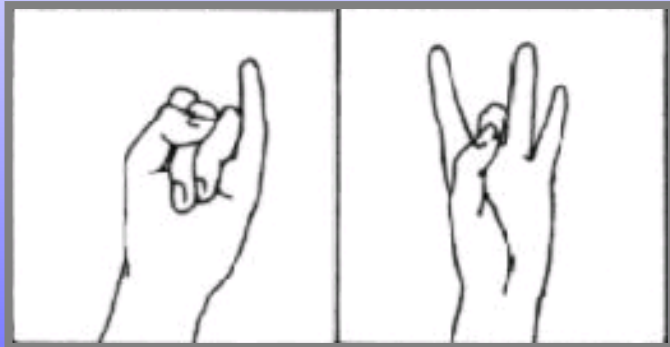
## Pantomime



# GESTURES

## MEANINGFUL

## MEANINGLESS



Transitive

Pantomime



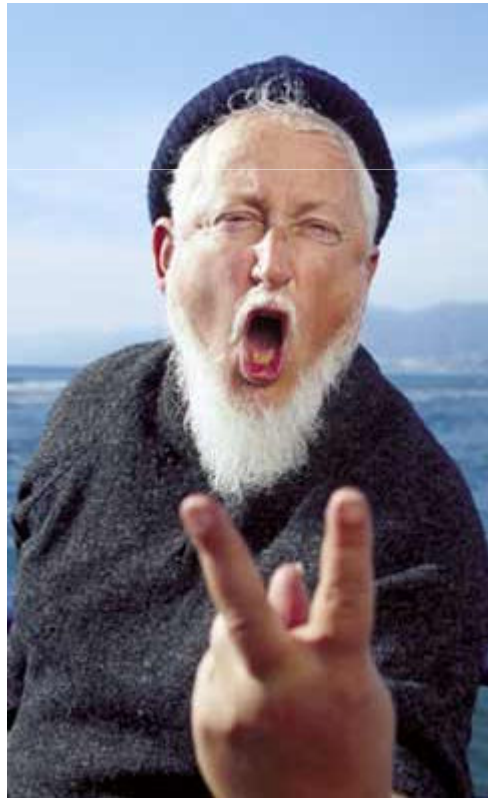
Intransitive



# Intransitive gestures









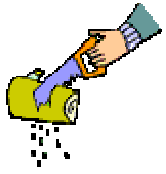
**Egypt**  
*"Be patient"*



**Italy**  
*"What do you mean?"*



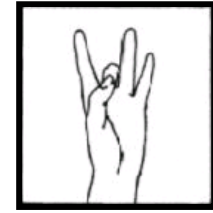
**Greece**  
*"That's just perfect"*



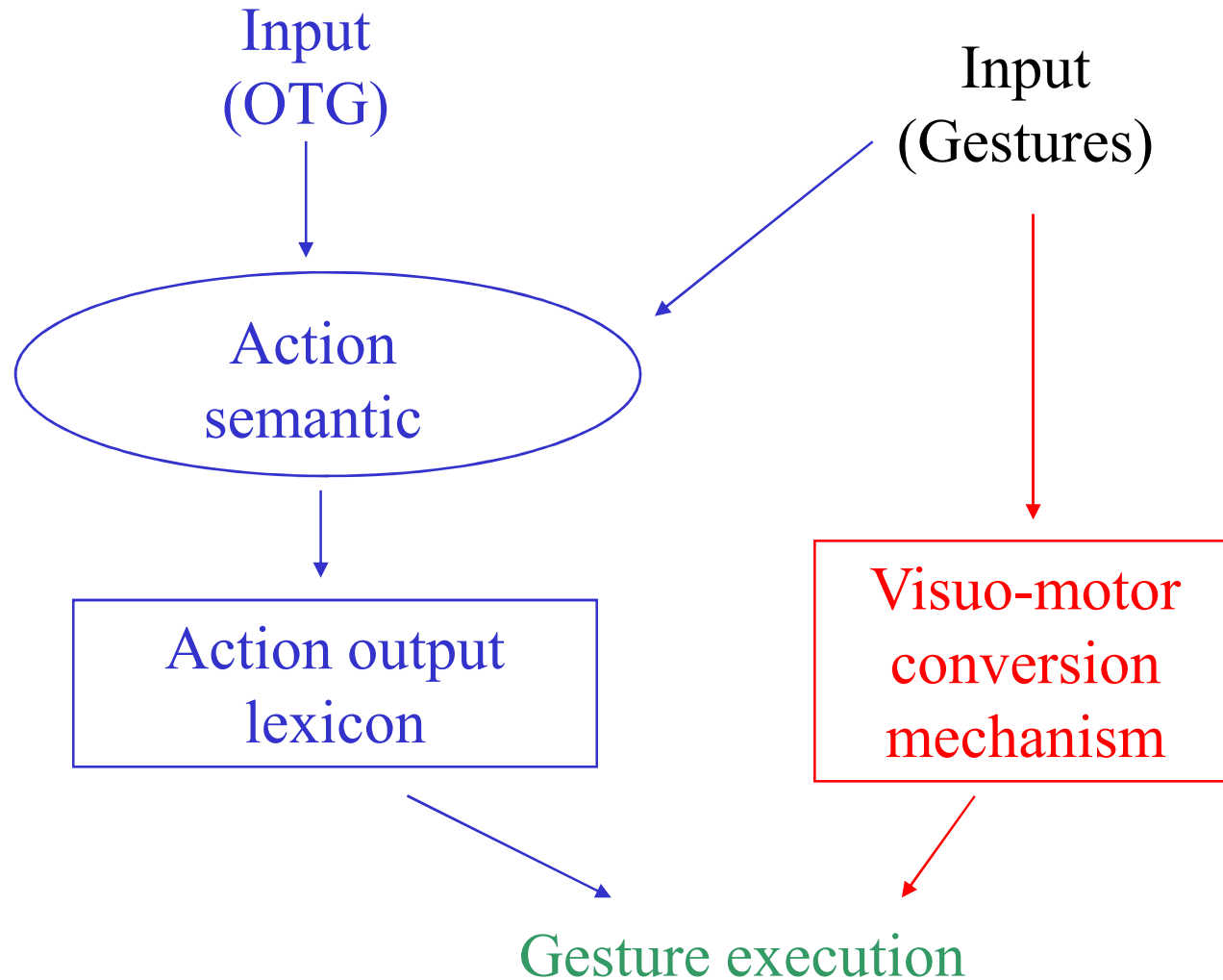
Brain and Cognition 44, 144–165 (2000)  
doi:10.1006/brcg.2000.1226, available online at <http://www.idealibrary.com> on IDEAL®

### Cognition in Action: Testing a Model of Limb Apraxia

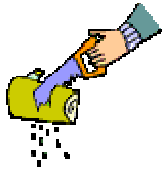
Roberto Cubelli,\* Clelia Marchetti,† Giuseppina Boscolo,\*  
and Sergio Della Sala‡



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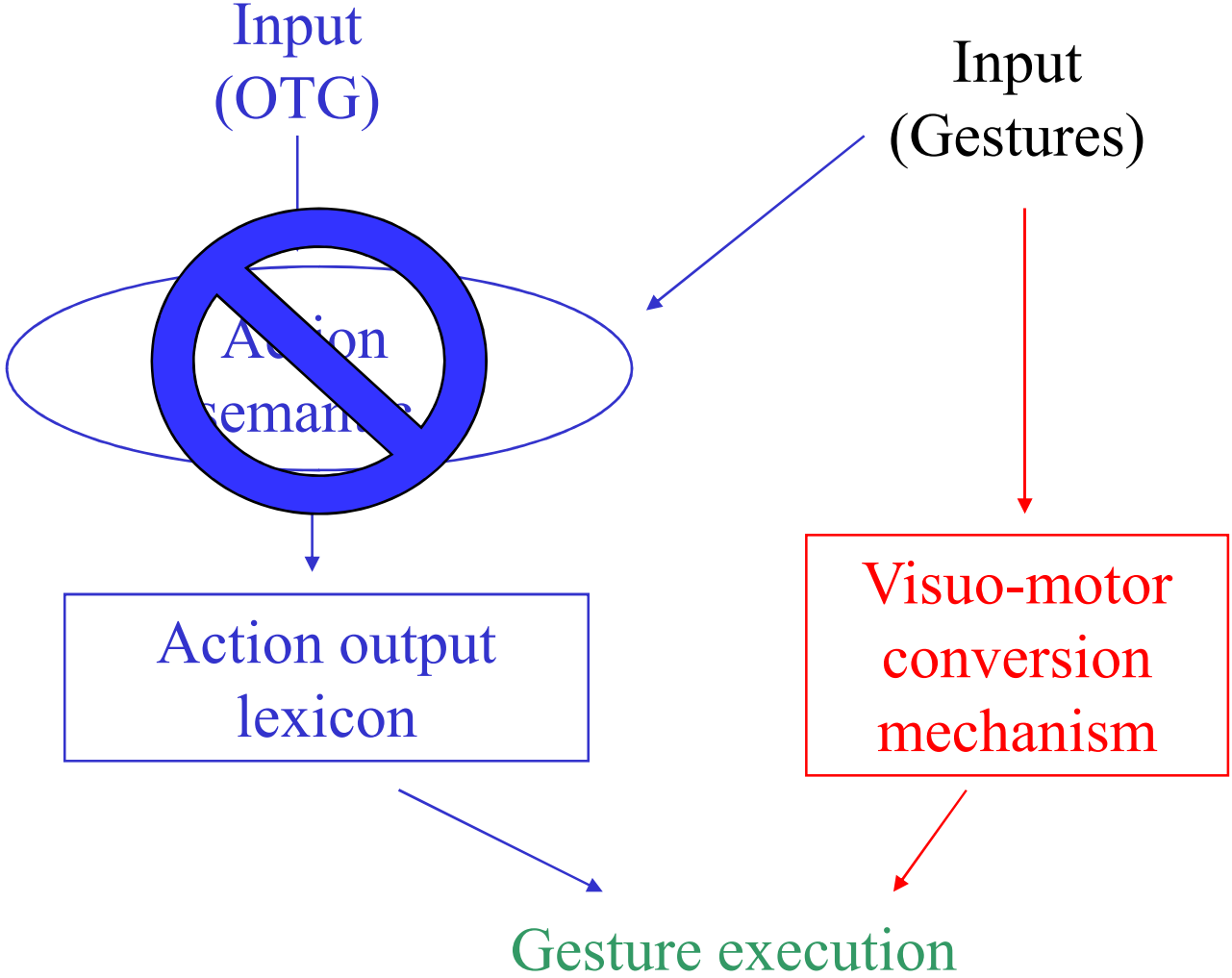


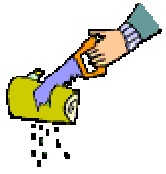
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Roberto Cubelli,\* Clelia Marchetti,† Giuseppina Boscolo,\*  
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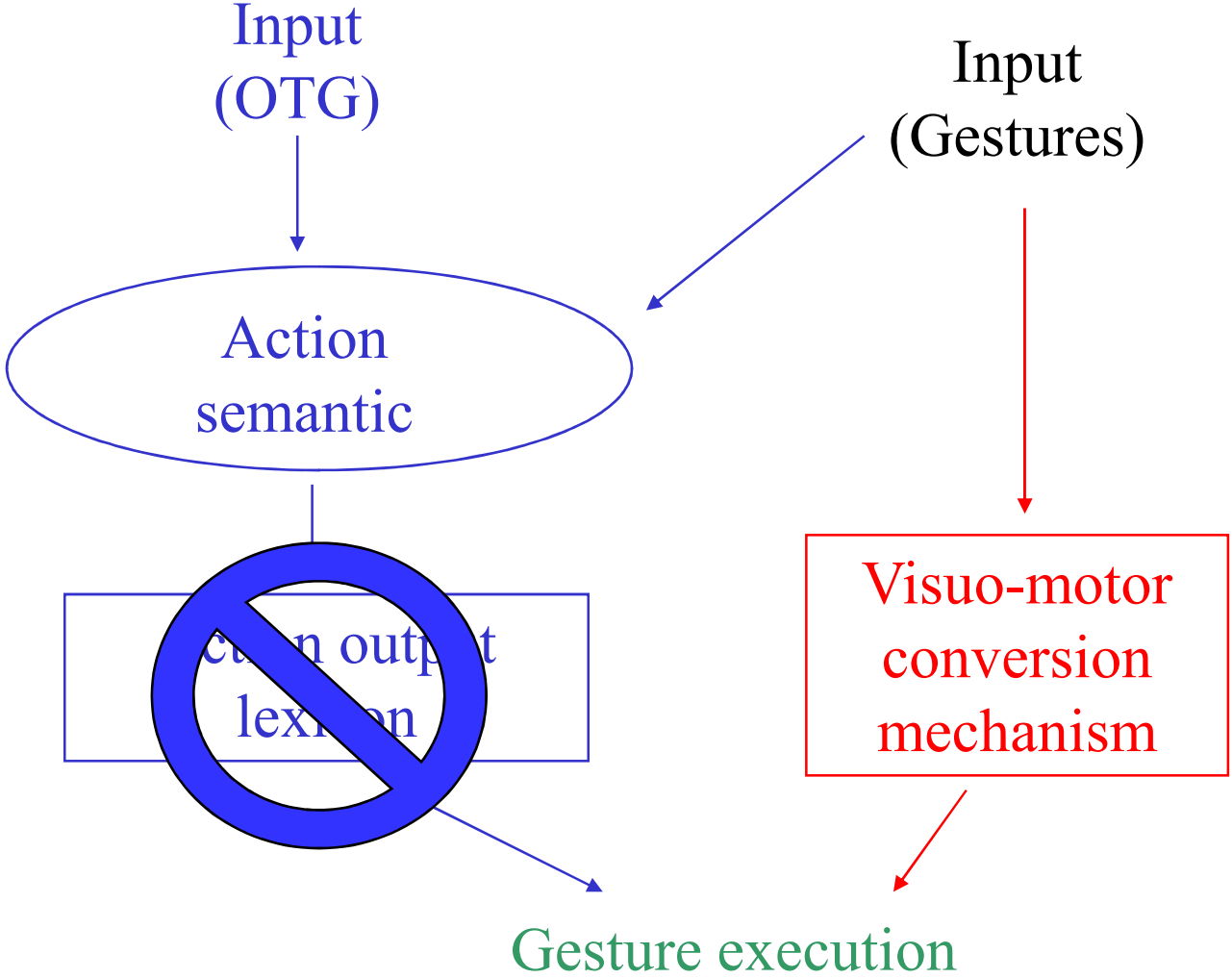


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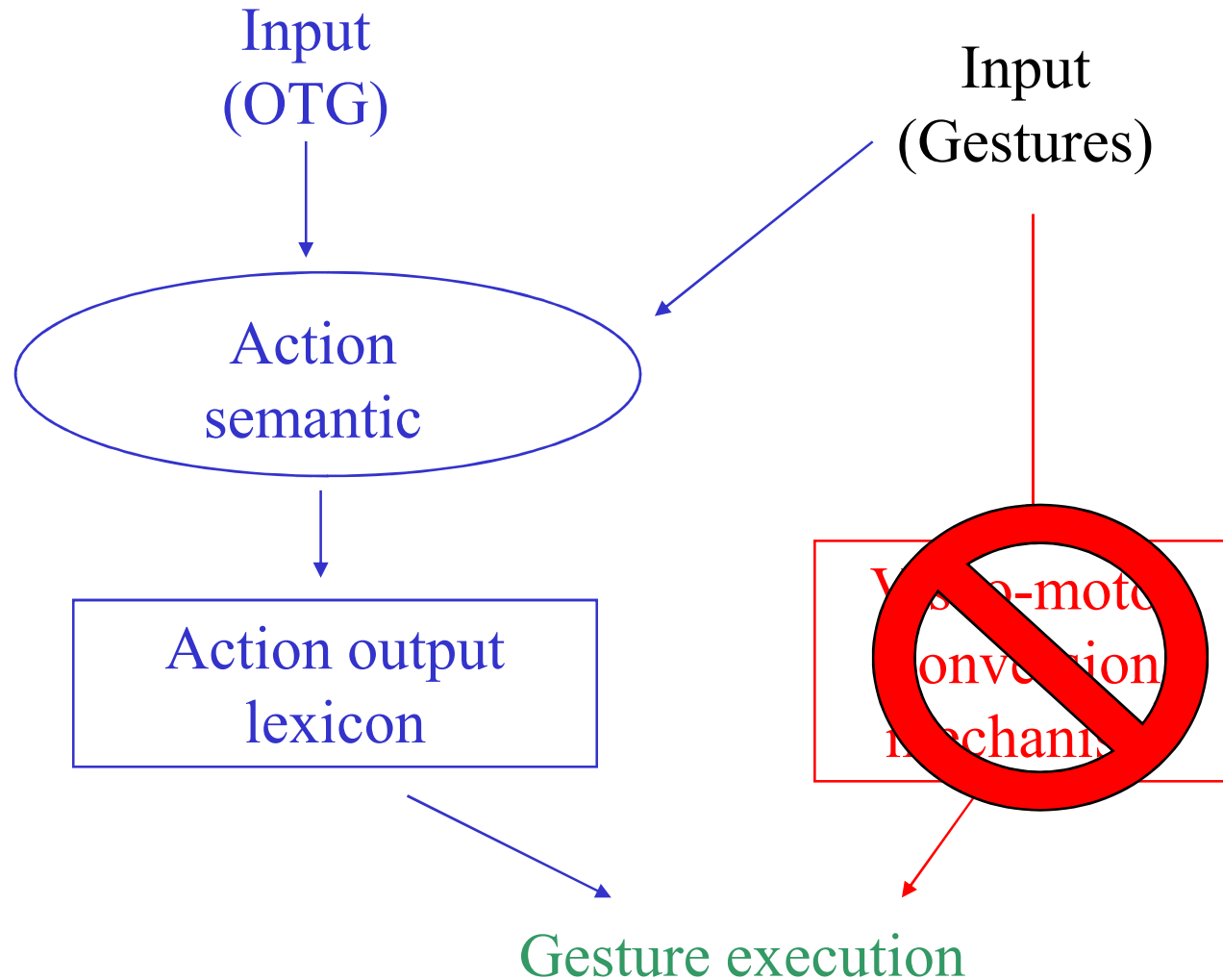
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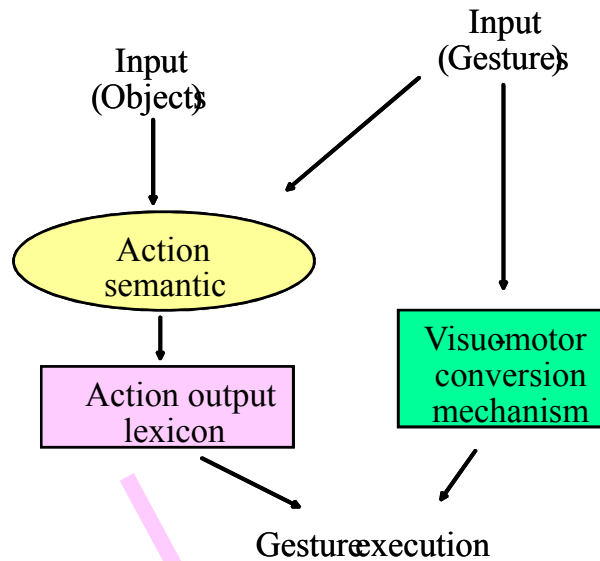


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# DOUBLE DISSOCIATION BETWEEN MEANINGFUL AND MEANINGLESS GESTURE REPRODUCTION IN APRAXIA

Angela Bartolo<sup>1</sup>, Roberto Cubelli<sup>2</sup>, Sergio Della Sala<sup>1</sup>, Silvia Drei<sup>2</sup> and Clelia Marchetti<sup>3</sup>

Cortex, (2001) 37, 696-699

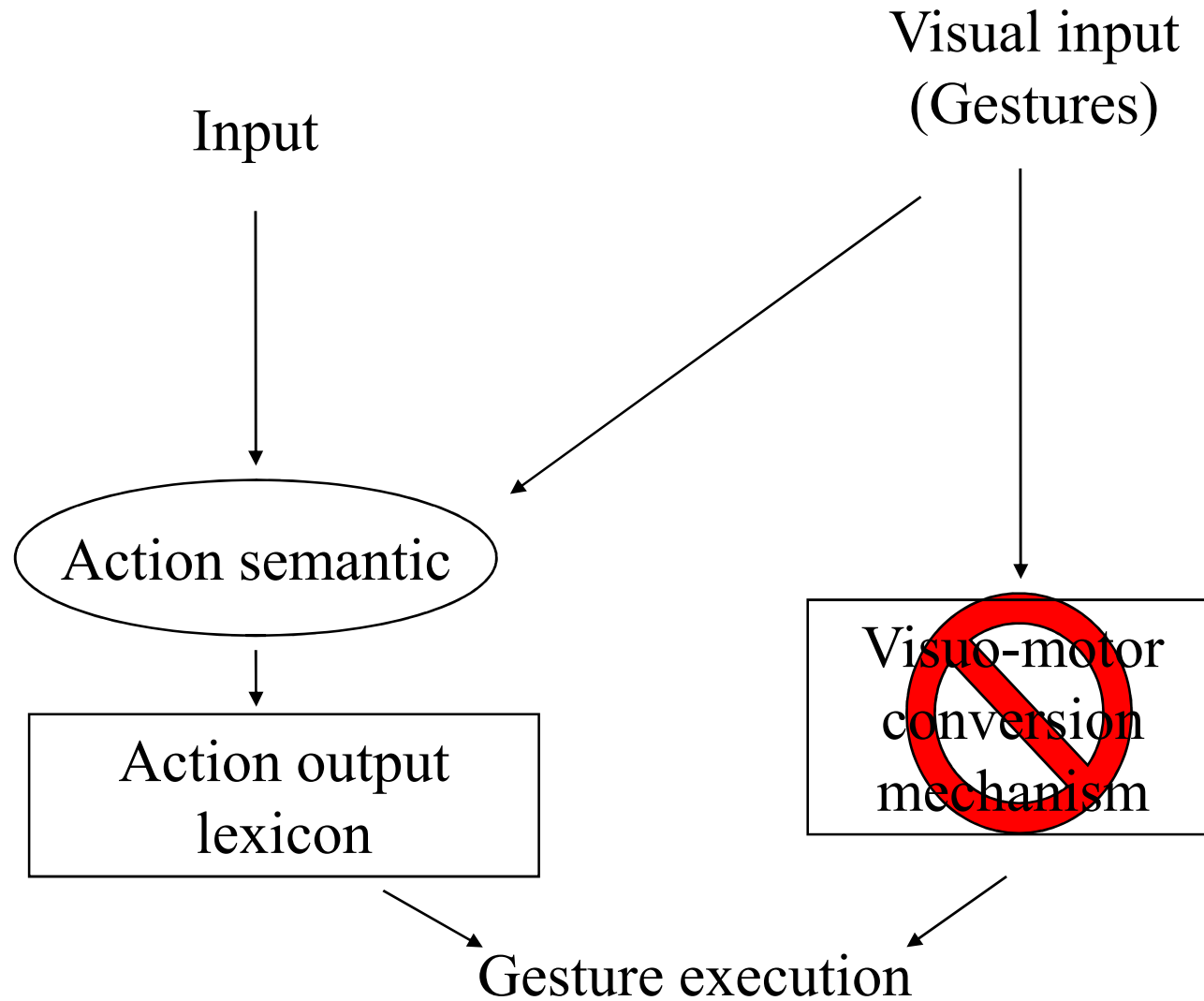


	<b>GESTURE IDENTIFICATION</b>	<b>GESTURE PRODUCTION</b>					<b>Meaningless gestures</b>
		<b>Meaningful gestures</b>					
		Transitive	Pantomime		Intransitive		
		Use	Verbal	Imitation	Verbal	Imitation	
Cut-off	<i>11</i>	<i>13</i>	<i>11</i>	<i>13</i>	<i>12</i>	<i>13</i>	<b>13</b>
<b>BS</b>	<b>14</b>	<b>14</b>	<b>13</b>	<b>14</b>	<b>13</b>	<b>14</b>	<b>4*</b>
<b>LL</b>	<b>13</b>	<b>10*</b>	<b>6*</b>	<b>10*</b>	<b>3*</b>	<b>11*</b>	<b>15</b>

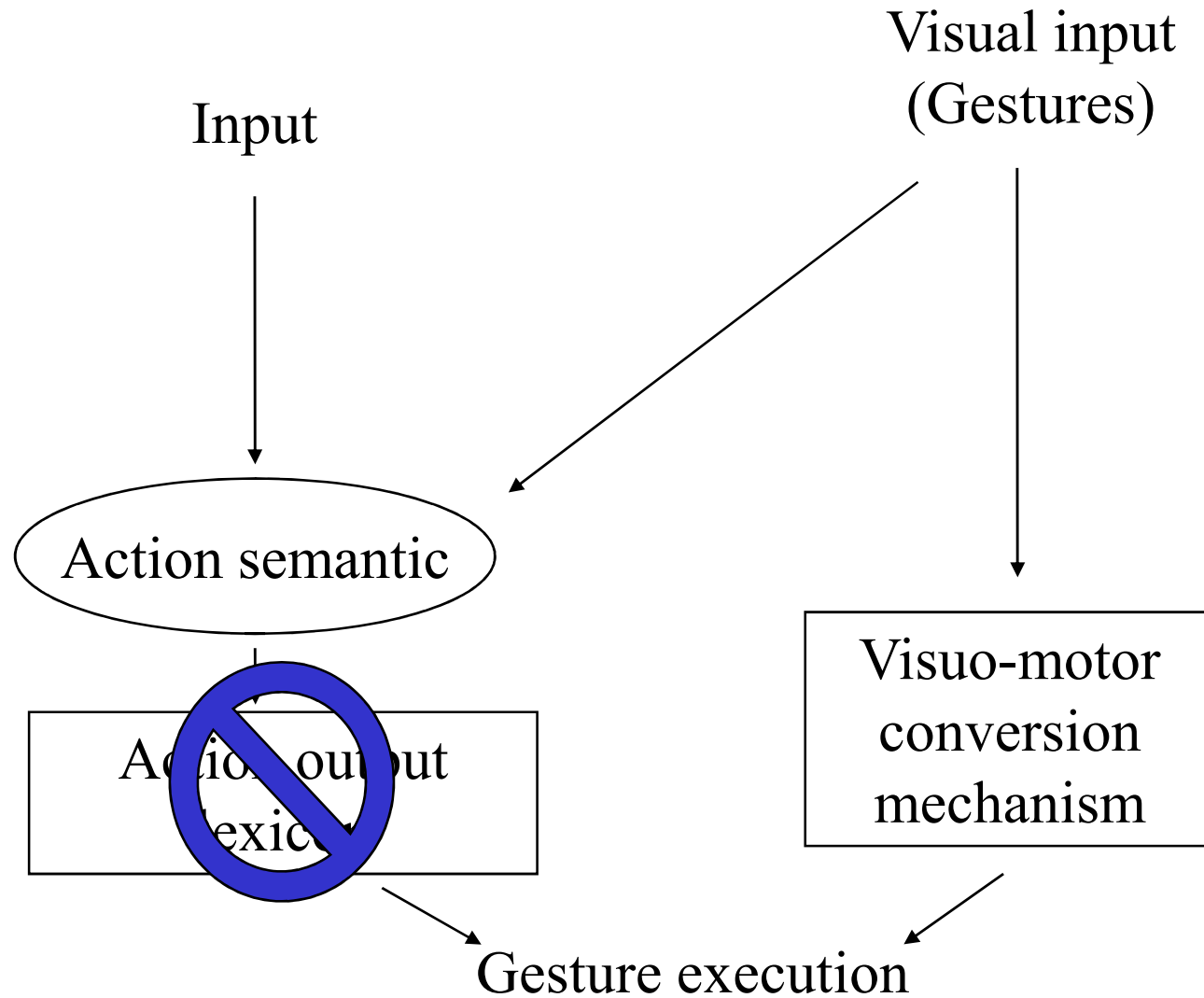
\* Pathological scores



**COGNITIVE DEFICIT  
IN BS**



# COGNITIVE DEFICIT IN LL



# ONE ROUTE TO PROCESS ALL MEANINGFUL GESTURES?

Dumont, C., Ska, B., & Schiavetto, A. (1999). Selective impairment of transitive gestures: An unusual case of apraxia. *Neurocase*, 5, 447-458.

Brain and Cognition 44, 144-165 (2000)

doi:10.1006/brcg.2000.1226, available online at <http://www.idealibrary.com> on IDEAL<sup>®</sup>

## Cognition in Action: Testing a Model of Limb Apraxia

Roberto Cubelli,\* Clelia Marchetti,† Giuseppina Boscolo,\*  
and Sergio Della Sala‡

Mozaz, M, Rothi, LJ, Anderson, JM, Crucian, GP, Heilman, KM (2002). Postural knowledge of pantomimes and intransitive gestures. *The Journal of the International Neuropsychological Society*, 8, 958-962.

European  
Neurology

### Original Paper

Eur Neurol 2003;49:45-52  
DOI: 10.1159/000067027

## Apraxia of Tool Use: An Autopsy Case of Biparietal Infarction

Toshio Fukutake

# ONE ROUTE TO PROCESS ALL MEANINGFUL GESTURES?



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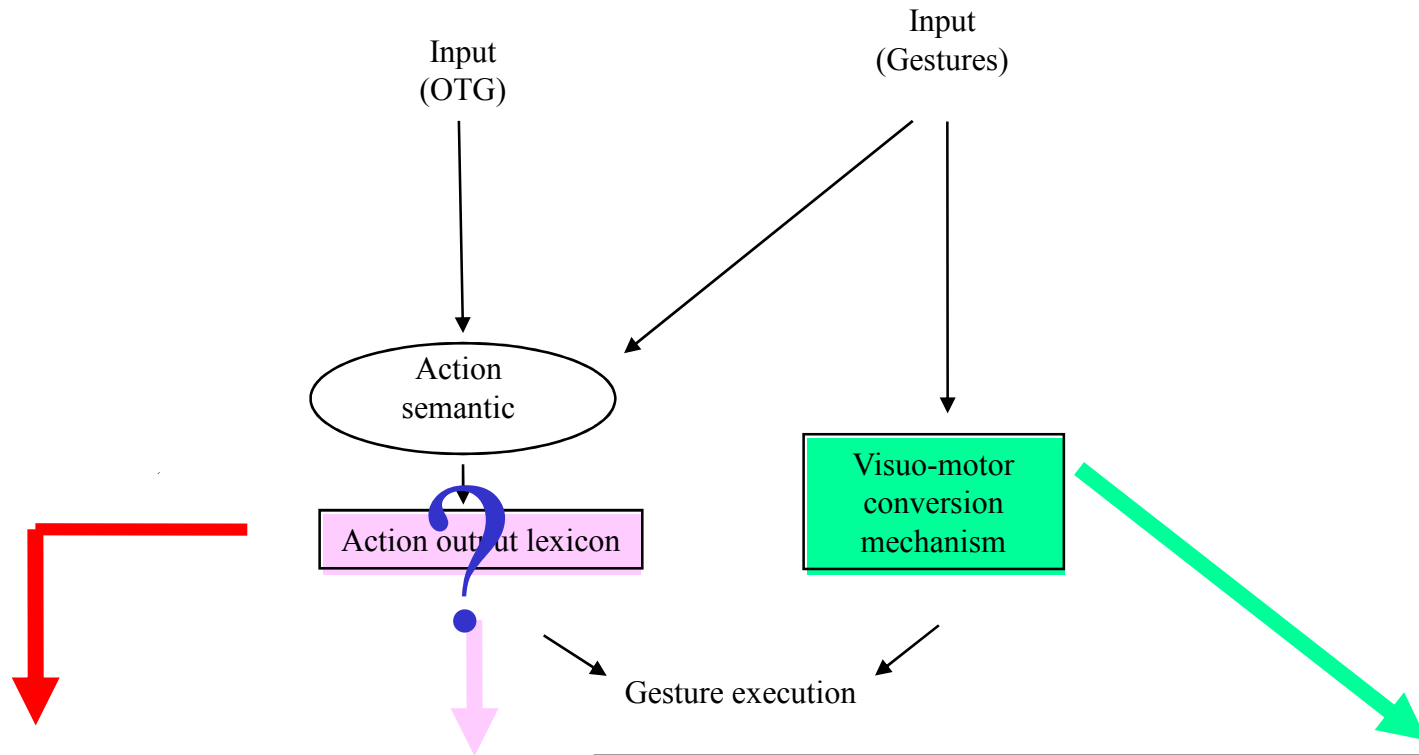
Brain and Cognition 53 (2003) 483–494

Brain  
and  
Cognition

[www.elsevier.com/locate/b&c](http://www.elsevier.com/locate/b&c)

Pantomimes are special gestures which rely on working memory

A. Bartolo,<sup>a,1,2</sup> R. Cubelli,<sup>b,\*</sup> S. Della Sala,<sup>a</sup> and S. Drei<sup>b</sup>



	MEANINGFUL								Mess
	PANTOMIME				INTRANSITIVE			TRANS.	
	Verbal	Visual	Tactile	Imitation	Verbal	Visual	Imitation	Use	
<b>Cut-off</b>	11	10	11	13	12	9	11	13	13
<b>VL</b>	10*	8*	10*	10*	15	13	15	15	12*

Articles	Cases	Production of gestures			
		Transit.	Pantom.	Intrans.	Mless
Bartolo et al. 2001	BS	+	+	+	-
	MF	-	-	-	+
Bartolo et al. 2003	VL	+	-	+	-
Dumont et al. 1999	PF	-	-	+	+
Fukutake 2003	Single case	-	+	+	+

ICONIC/DESCRIPTIVE



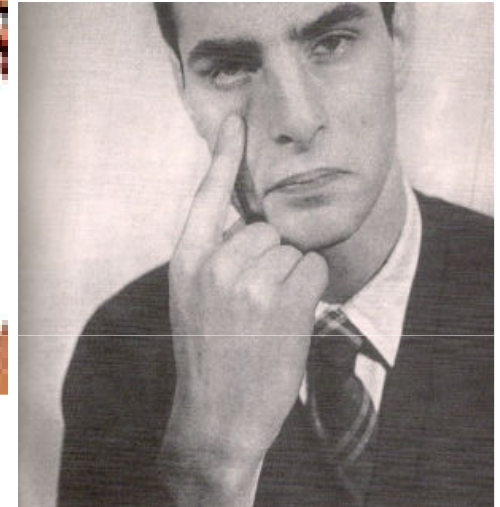
EXPRESSIVE  
(MENTAL STATES)



COMMUNICATIVE



SYMBOLIC



# **PANTOMIMES**

**Show me how you would  
use a pen if you could  
hold it in your hand**

# **INTRANSITIVE GESTURES**

**A woman is with her little  
son, who has just fallen  
asleep. Another child enters  
in the room making noise.  
What gesture should the  
woman perform?**



<b>GROUPS</b>	<b>PRODUCTION OF GESTURES</b>		<b>T-TEST (p value)</b>
	<b>Pantomimes</b>	<b>Intransitive</b>	
<b>LBD PATIENTS (n=10)</b>	9(3.8)	11(3.3)	0.08

**A TREND TOWARDS A BETTER PRODUCTION OF  
INTRANSITIVE GESTURES**



**SERGIO DELLA  
SALA**  
(Univ. Edinburgh)



**ROBERTO  
CUBELLI**  
(Univ. Trento)



**SILVIA DREI**  
(Ravenna Hospital)



**HEIDI HAM**  
(Univ. Edinburgh)



*Many Thanks*