

## **Développement du dessin chez l'enfant**

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Introduction

#### **Les niveaux de description**

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- 6. Production de dessins complexes**

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- 1. Culture et règles graphiques**
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# Intitulé: Développement du dessin chez l'enfant :

A. Vinter, LEAD, Dijon

## Introduction

Doc 1

### Niveaux de description de l'acte graphique

#### Niveau Sémantique

Le QUOI de l'acte graphique, son contenu symbolique  
Intentionnel  
Information, Emotion, message, communication...

#### Niveau Syntaxique

Le COMMENT de l'acte graphique  
Existence de règles graphiques

#### Niveau Cinématique

Les aspects moteurs de l'acte graphique (vitesse, longueur, fluidité du mouvement, pression...).

# Chapitre 1 : Les aspects syntaxiques de l'acte graphique

Modèle anatomique relatif à la direction des mouvements

direction des mouvements	description anatomique de la direction des mouvements
↖	extension des doigts
↘	flexion des doigts
↗	abduction (extension) de la main
↙	adduction (flexion) de la main
↓	coordination congruente de la main et des doigts (flexion)
↑	coordination congruente de la main et des doigts (extension)
←	coordination incongruente de la main et des doigts (flexion et extension)
→	coordination incongruente de la main et des doigts (extension et flexion)

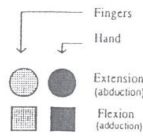
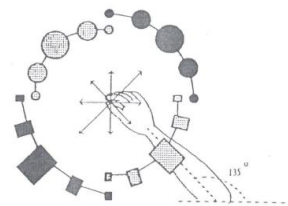


Fig. 1. Simplified anatomical model of the production of movement directions in drawing and handwriting with a fixed elbow. Black circles and rectangles represent directions produced by hand movements. Grey circles and rectangles represent directions produced by finger movements. The size of circles and rectangles reflects the degree of contribution of the involved system. Overlaps of circles and rectangles represent either congruent coordination (in vertical directions) or incongruent coordination (in horizontal directions) of hand and finger movements (from Meulenbroek & Thomassen, 1991).

Doc 1

Doc 3

Starting rules

	Starting rules			
	Compatible items		Incompatible items	
Vertical frame				
Horizontal frame				
	item 1	item 3	item 2	item 4
Rule random occurrence probability	top: .25 left: .75 vertic.: .50	top: .75 left: .75 vertic.: .50	top: .25 left: .25 vertic.: .50	top: .75 left: .25 vertic.: .50
	Progression rules			
	Compatible items		Incompatible items	
Vertical frame				
Horizontal frame				
	item 1	item 4	item 2	item 3
Rule random occurrence probability	topdown: .50 leftright: .50 threading: .25	topdown: .50 leftright: .50 threading: .25	topdown: .50 leftright: .50 threading: .25	topdown: .50 leftright: .50 threading: .25

Doc 2

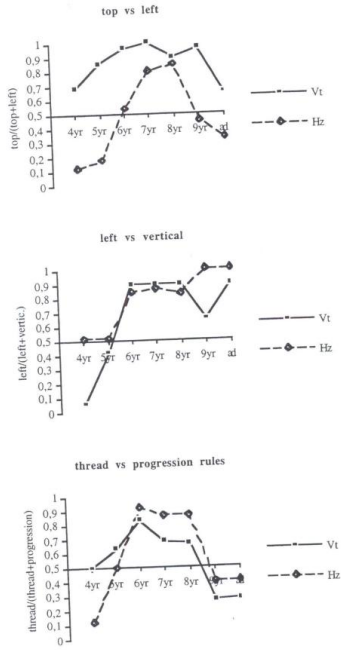


Figure 3. Respective strength of the graphic rules as a function of age and of pattern structure (top versus left; item 2; left versus vertical; item 4; threading versus top-to-bottom and left-to-right; item 3).

## Doc 4

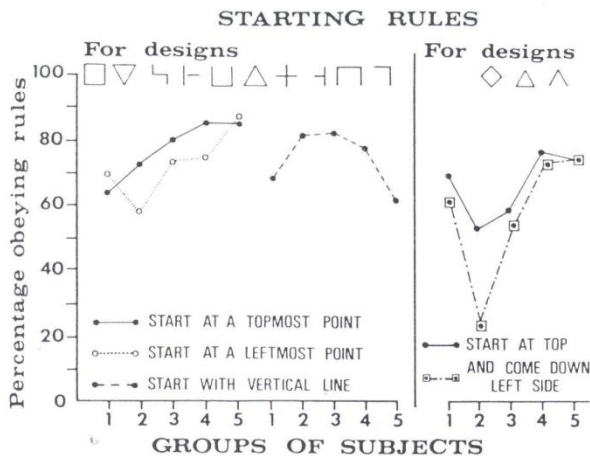


FIG. 1. Percentage of Ss observing four starting rules, summing across the designs to which they apply. Groups 1 to 4 are children: (1) beginning of nursery school; (2) end of nursery school; (3) end of kindergarten; (4) end of first grade. Group 5 is adult (median age 52).

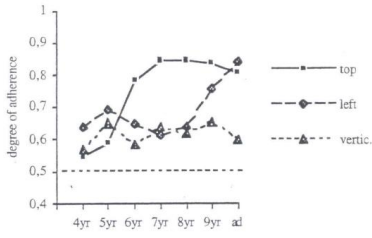


Fig. 1A. Starting rules

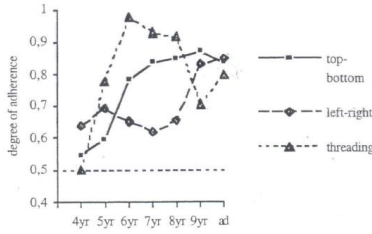
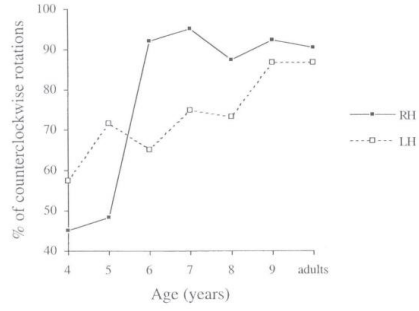


Fig. 1B. Progression rules

Figure 1. Degree of adherence to the graphic rules as a function of age.

From Usher (1954)

FIGURE 2: Production of counterclockwise movements as a function of age and hand.



From Vinter & Meulenbroek (1993)

Doc 5

Doc 6

Doc 7

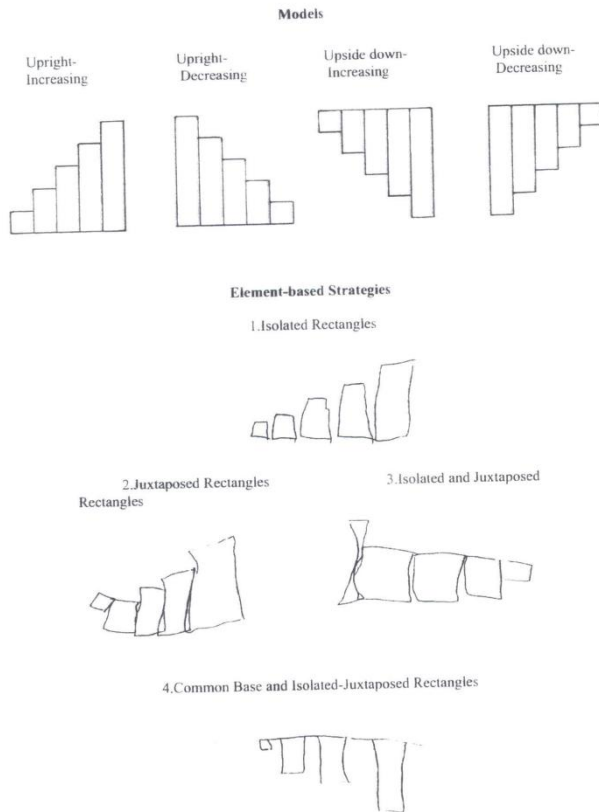
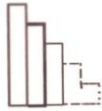


Figure 1. Illustration of the seriated models and of the element-based strategies.

Unit-Based Strategies

5. Accretion stacking



6. Embedding

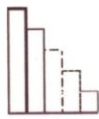


Frame-Based Strategies

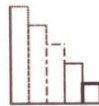
7. Common Base and Anticipated stacking



8. Partial Framing Accretion



9. Partial Framing Embedding



10. Full Framing

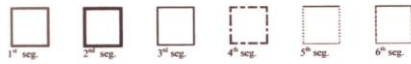
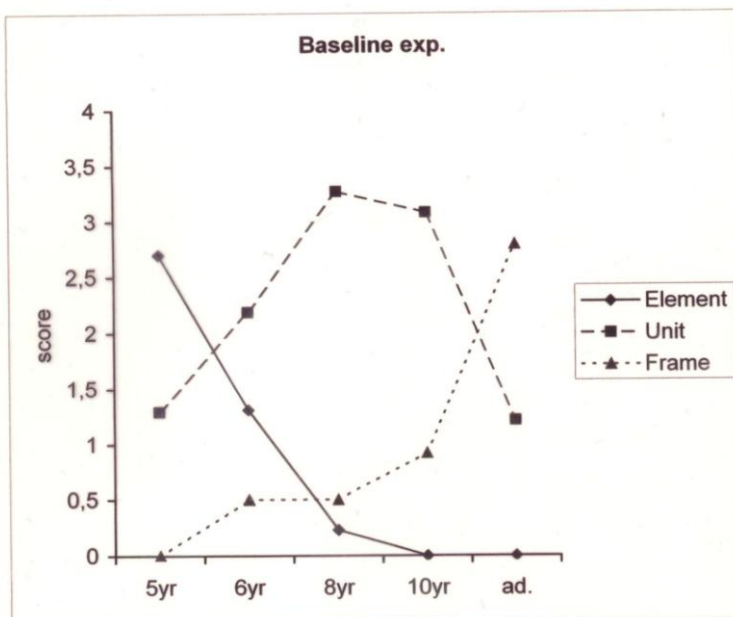


Figure 2. Illustration of the building of the unit-based and frame-based strategies.



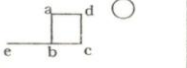
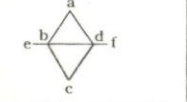
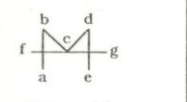

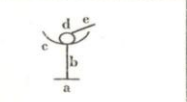
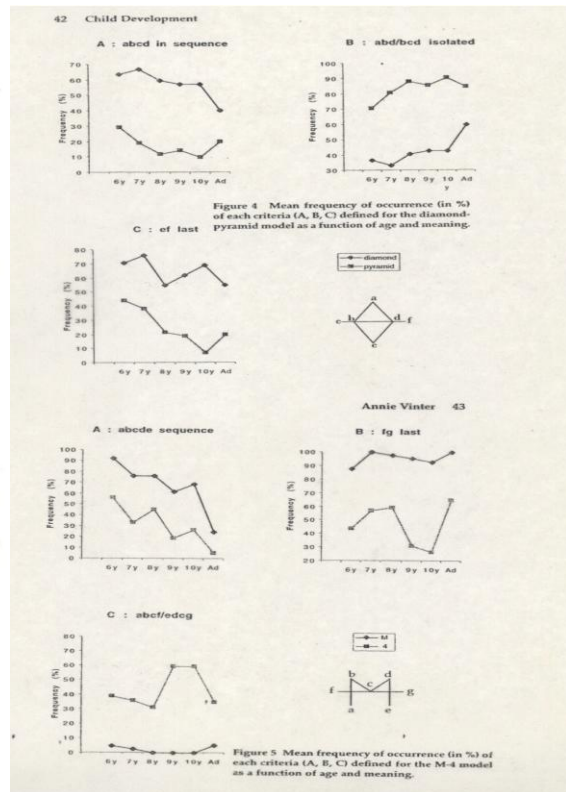
 <p>(pipe-house model)</p>	<p>a pipe with a bubble</p> <p>a house, its shadow and the sun</p>
 <p>(pyramid-diamond model)</p>	<p>a pyramid and its reflection</p> <p>a diamond crossed by a line</p>
 <p>(M-4 model)</p>	<p>two number 4s face to face</p> <p>the letter M crossed by a line</p>
 <p>(N-Z model)</p>	<p>the letter N</p> <p>the letter Z rotated</p>
 <p>(glass-man model)</p>	<p>a glass with a cherry</p> <p>a man with a telescope</p>

Figure 1 Illustration of the models and their meanings.  
From Vinter (1933)



Doc 10

Doc 11

Doc 12

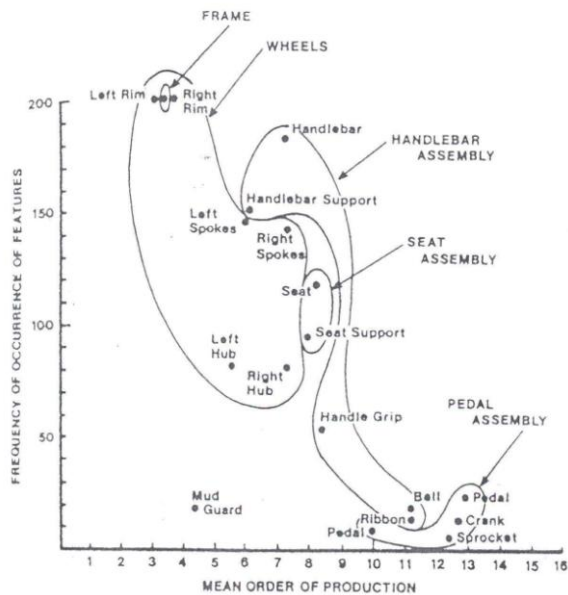


Fig. 10.6. The relation between overall frequency of appearance of features of a bicycle and the temporal order in which the features appeared in the individual drawing sequences.

## Chapitre 2 : Le développement du dessin symbolique.

### Doc 1



Figure 1 : exemples de dessins avec des transparences et des rabattements extraits de Ricci, 1887, Sully, 1896 et Rouma, 1913.

### Doc 2

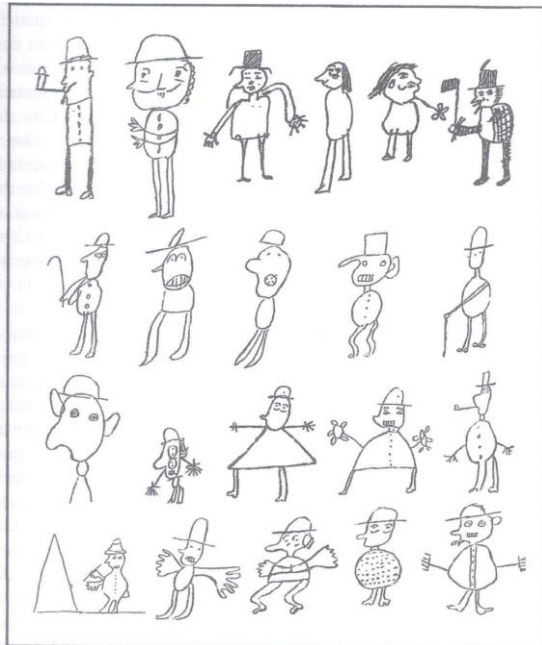


Figure 2 : exemples de bonshommes de profil avec les deux yeux vus de face extraits de Ricci, 1887, Rouma, 1913 et Sully, 1896.



## Doc 3

### LES TRAVAUX DE LUQUET SUR LE DESSIN

Eude en référence à l'atteinte d'un stade idéal adulte : le "réalisme visuel".

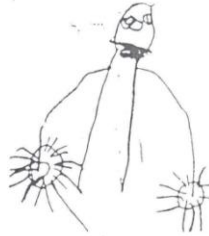
Stade 1. **REALISME FORTUIT** (3-4 ans)

Dessin = tracé au hasard



Stade 2. **REALISME MANQUE** (4-5 ans)

Dessin = juxtaposition d'éléments



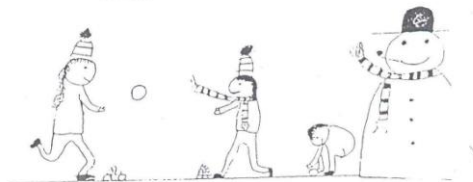
Stade 3. **REALISME INTELLECTUEL** (5-8 ans)

L'enfant dessine "ce qu'il sait être de la réalité"  
(dessins par transparence)



Stade 4. **REALISME VISUEL** (8-9 ans et +)

L'enfant dessine uniquement  
"ce que la réalité donne à voir"  
(dessin réaliste)



## Doc 4

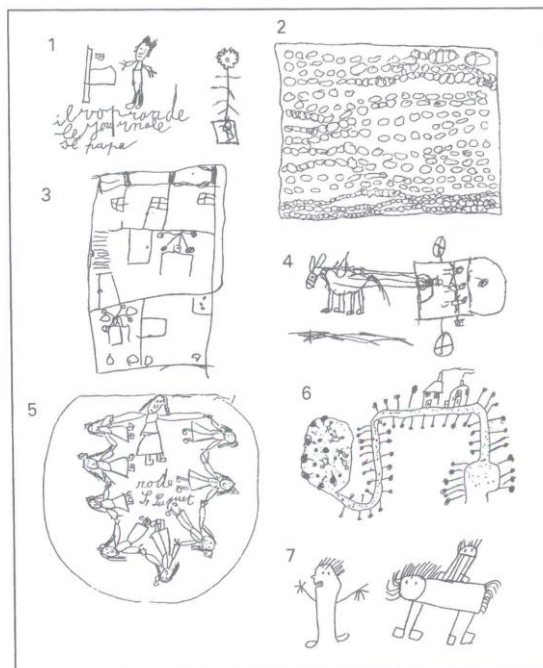


Figure 3 : exemples de dessins extraits de Luquet (1927) avec insertion d'écriture dans le dessin (1), transparence des pommes de terre dans le champ (2) et des meubles dans la maison à trois étages (3), rabattements des roues du chariot (4), des petites filles qui font la ronde (5) et des arbres et des maisons le long de la route (6), figuration individuelle des cheveux du bonhomme et du cavalier ainsi que des poils de la crinière et de la queue du cheval (7).

## Doc 5

âges	horizontale				verticale
4 ans					
4-6 ans					
6-9 ans					
10 ans					

Figure 6 : évolution avec l'âge de l'horizontalité du niveau de l'eau dans le bocal et de la verticalité des arbres sur la pente de la montagne.

## Doc 6

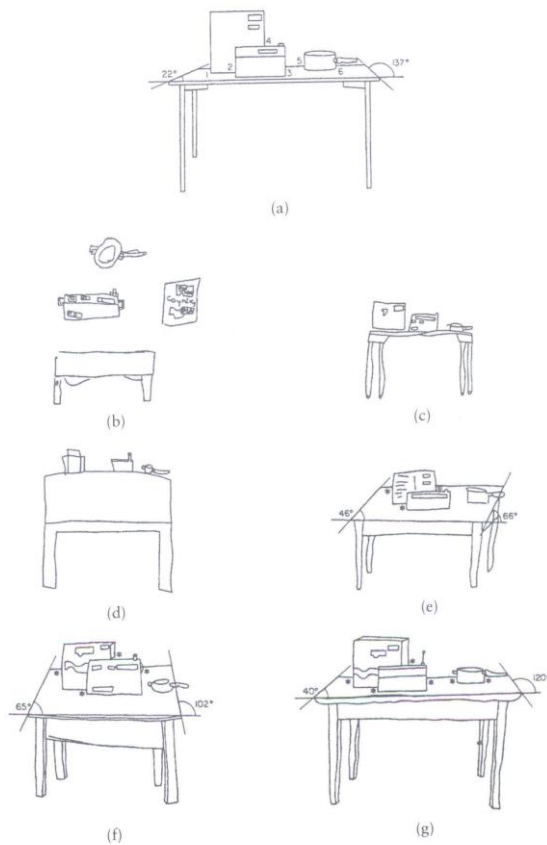


Figure 1.7 Children's drawings of a table depicting Willats' drawing systems: (a) the child's view of the table, (b) topological system, (c) orthogonal projection, (d) vertical oblique projection, (e) oblique projection, (f) naive perspective, (g) perspective.

Doc 7

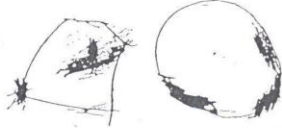
LES ETUDES + RECENTES (Freeman, '80 ; Fenson, '85)

Evolution en 4 étapes de l'attitude picturale :

2 ans : attitude motrice, "d'enregistrement" (gribouillage)  
 \* trace graphique indifférenciée du système gestuel  
 \* trace non reconnaissable en terme de représentation d'objet

= stade MOTEUR

3-4 ans : attitude d'exploration des formes géométriques basiques  
 \* carrés et rectangles  
 \* cercles et formes ovoïdes



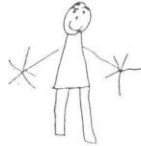
= stade de la constitution du REPERTOIRE GRAPHIQUE

4-6 ans : attitude de construction de dessins par agencement de diverses formes géométriques

Bonhomme têtard (4 ans)

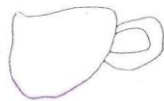


Bonhomme segmenté (5 ans)

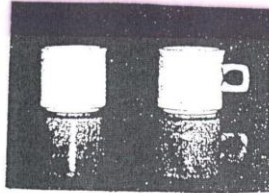


= stade CONSTRUCTIONNEL

Tendance à dessiner ce qu'il sait et non pas seulement ce qu'il voit d'un objet.  
 Expérience classique du dessin de la TASSE



Contexte d'une paire de tasses :

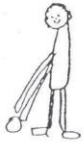


= induction possible de dessins typiques du réalisme visuel (= effet de contexte).

7 ans et + : attitude d'intégration, en un tout cohérent, des formes segmentées (usage de lignes de contour).

= stade du dessin en LIGNES DE CONTOUR

=> plus grande flexibilité au niveau de ce qui est représenté



Stade constructionnel



Stade des lignes de contour

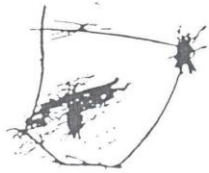


Doc 8

Fenson, 1985 : Randy's drawings.



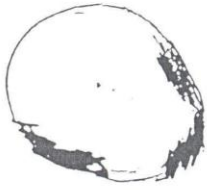
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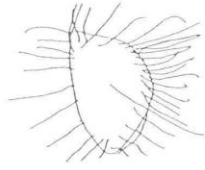
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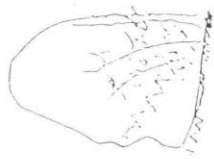
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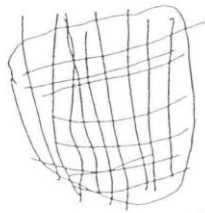
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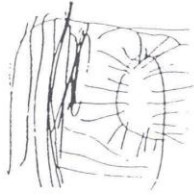
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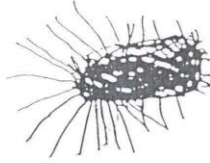
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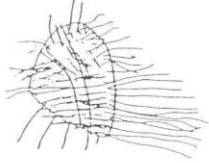
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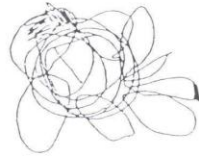
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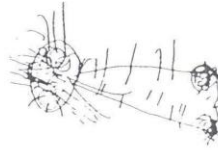
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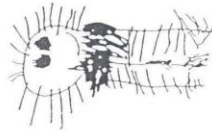
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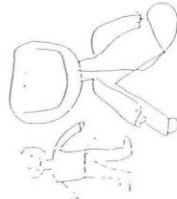
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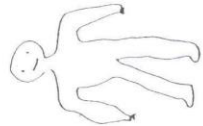
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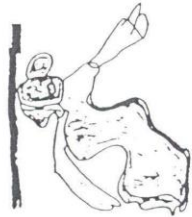
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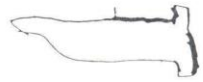
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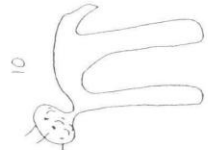
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Table 2. The number of successful copies of each stimulus produced in Expt 2, out of a possible total of 38 in the explicit conditions and 37 in the inexplicit conditions

	Closed	Open	Segmented	Outline
Man/inexplicit	31	26	24	13
Man/explicit	29	26	27	16
Cat/inexplicit	28	22	22	16
Cat/explicit	28	27	29	17

Table 3. The mean scores obtained on each drawing task, broken down by age group, in Expt 2

Age group	Man sequence				Cat sequence				Total
	cl	op	seg	out	cl	op	seg	out	
1	0.52	0.24	0.24	0.08	0.32	0.16	0.24	0.04	1.84
2	0.90	0.87	0.87	0.33	0.93	0.83	0.83	0.40	5.96
3	1.00	1.00	0.95	0.85	1.00	1.00	1.00	1.00	7.80
Overall mean	0.80	0.69	0.68	0.39	0.75	0.65	0.68	0.44	

Key: cl = closed; op = open; seg = segmented; out = outline.

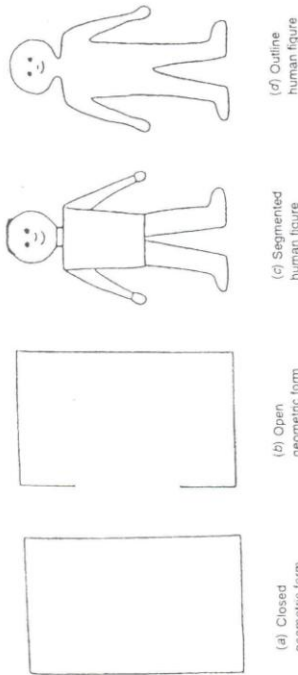


Figure 1. The four line drawings used as stimuli in Expt 1.

**Barrett & Eames, 1996.**

Table 1. The mean scores obtained on each drawing task, broken down by age group, in Expt 1

Age group	Closed	Open	Segmented	Outline	Total
1	0.40	0.27	0.20	0.00	0.87
2	1.00	0.93	0.73	0.60	3.27
3	1.00	1.00	0.94	0.75	3.69
Overall mean	0.80	0.74	0.63	0.46	

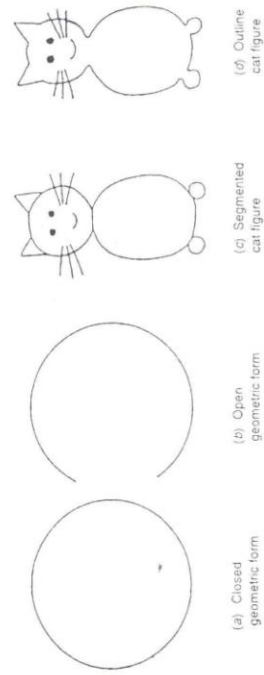


Figure 2. The second set of four line drawings used as stimuli in Expt 2.

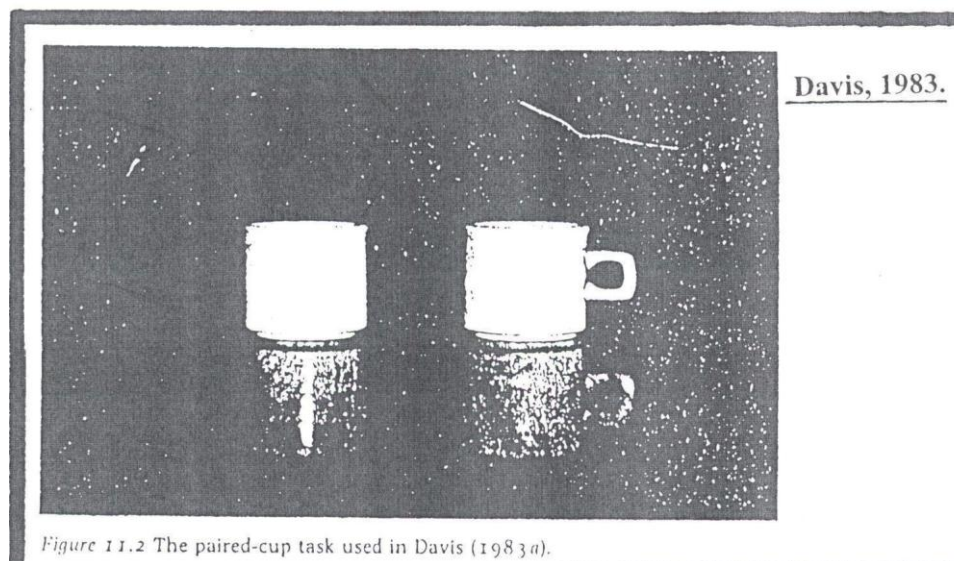


Doc 10

**Tableau :** Nombre d'enfant ayant dessiné et/ou choisi la tasse avec l'anse dans l'une, les deux, ou aucune des tâches (dessin, sélection d'images). **Beal & Arnold, 1990.**

	Instr. standard	Instr. clarifiées	Total
a- Anse présente dans les 2 tâches	31	8	39
b- Anse absente dans les 2 tâches	29	55	84
c- Anse dessinée uniquement	16	13	29
d- Anse sélectionnée uniquement	4	4	8
Total	80	80	160

Doc 11



Doc 12

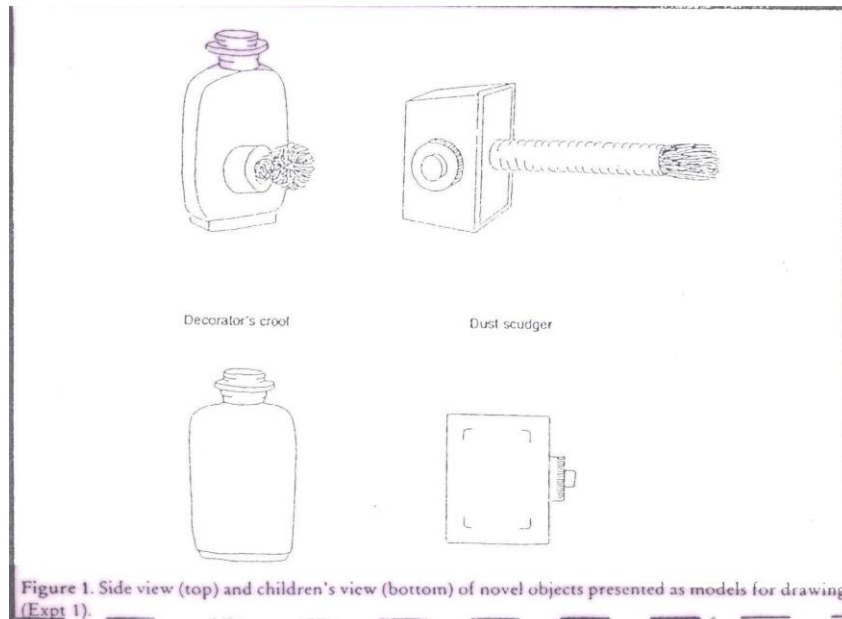


Figure 1. Side view (top) and children's view (bottom) of novel objects presented as models for drawing (Expt 1).

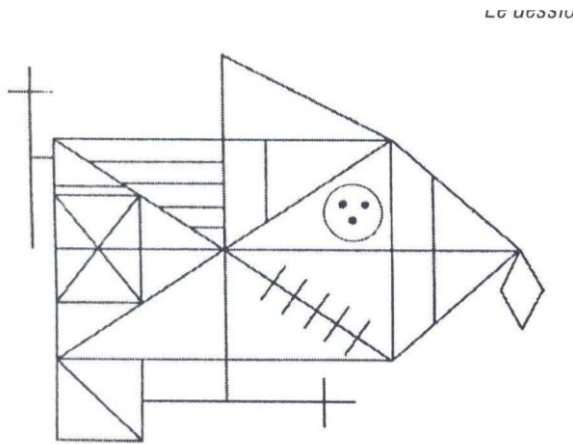
**Krascum, Tregenza & Whitehead, 1996.**

AGE GROUP	OBJECT	Feature included	Feature excluded
4-6 years	cup		
	dust scudger		
	decorator's crook		
7-9 years	cup		
	dust scudger		
	decorator's crook		

Figure 2. A sample of children's drawings (Expt 1).

### Chapitre 3 : Le dessin et les changements représentationnels internes.

Doc 1



Doc 2

Table 1. Percentage success rates for drawings of non-existing houses, men and animals.

Age group (years)	Unsuccessful on all 3 categories	Successful on 1 category	Successful on 2 categories	Successful on all 3 categories
4-6	9	5	36	50
8-10	0	6	3	91

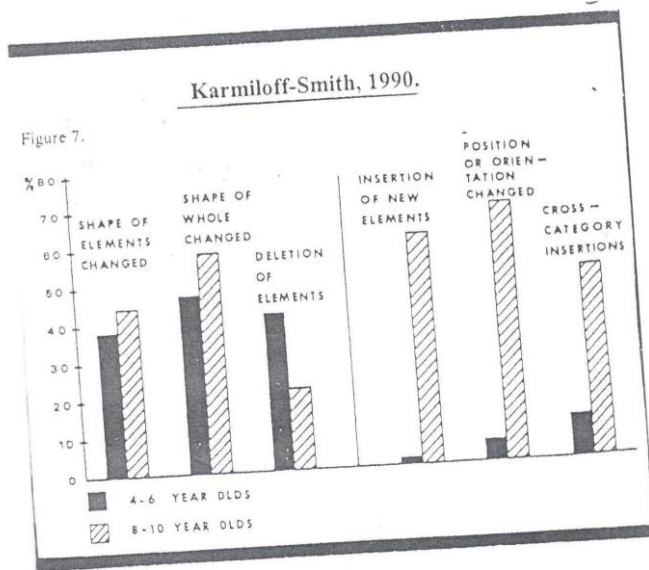
Doc3

<p><i>Shape and/or size of elements changed (ages are in years, months).</i></p> <p>À - Jessie 4, 11      M - Jade 5, 7</p>		<p><i>Deletion of elements (ages are in years, months).</i></p> <p>M - PETER 5, 3      À - MARY 5, 3</p>	
<p><i>Shape of whole changed (ages are in years, months).</i></p> <p>À - Natalsha 4, 11      À - Rossini 5, 1</p>		<p><i>Insertion of new elements (ages are in years, months).</i></p> <p>M - Viki 8, 7      M - Guy 9, 6</p>	
<p><i>Position/orientation changed (ages are in years, months).</i></p> <p>M - Jessie 9, 8      À - Monuko 8, 10</p>		<p><i>Insertion of cross-category elements (ages are in years, months).</i></p> <p>M - Dominic 9, 5      À - Justin 10, 11</p>	

Karmiloff-Smith, 1990.



Doc4

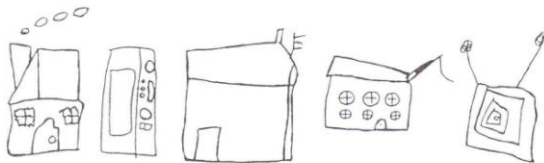


Doc 5

*Piand et Vintz, 2000*

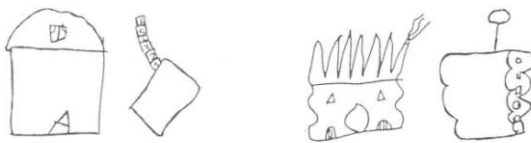
*Drawing Behavior in Children Reflects Internal Representational Changes* 175

1. changes of size and/or shape of elements; 2. deletion of elements; 3. replication of elements;



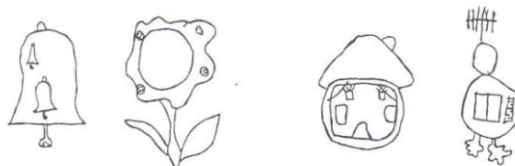
1-house (shape)    1-TV (size)    2-house    3-house    3-TV

4. changes of position or orientation of elements; 5. changes of the whole shape;



4-house    4-TV    5-house    5-TV

6. assimilation to another object (e.g., assimilation of the house to a bell, of the TV to a flower); 7. insertion of new intercategory elements (e.g. leaves instead of windows).



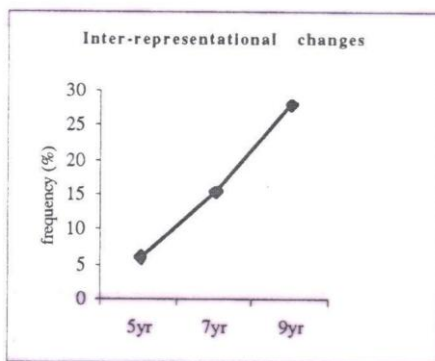
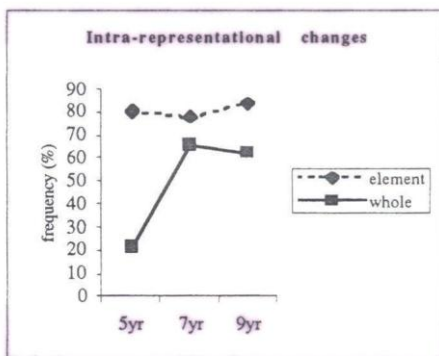
6-house    6-TV    7-house    7-TV

Doc 6

**Table 1. Frequency distribution of the innovation categories as a function of age (in parentheses and italics, the percent of children displaying each innovation is reported).**

Age	1. size-shape elements	2. deletion of elements	3. replicat. of elements	4. position - orientation of elements	5. modificat. of whole shape	6. assimilat. to another object	7. inter-representat. changes
5 years	33,34 % <i>(62,50%)</i>	38,47 % <i>(62,50%)</i>	5,12 % <i>(12,50%)</i>	5,12 % <i>(12,50%)</i>	12,83 % <i>(25%)</i>	5,12 % <i>(12,50%)</i>	0 % <i>(0%)</i>
7 years	29,51 % <i>(75%)</i>	13,12 % <i>(50%)</i>	9,83 % <i>(31,25%)</i>	13,12 % <i>(43,75%)</i>	26,23 % <i>(56,25%)</i>	4,92 % <i>(18,75%)</i>	3,27 % <i>(6,25%)</i>
9 years	30 % <i>(81,25%)</i>	16,25 % <i>(62,50%)</i>	8,75 % <i>(31,25%)</i>	11,25 % <i>(43,75%)</i>	18,75 % <i>(62,50%)</i>	3,75 % <i>(18,75%)</i>	11,25 % <i>(50%)</i>

Doc 7



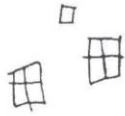
Doc 8

**Table 2. Frequency of occurrences of each type of routine's interruption as a function of age.**

Age	Interruption at the beginning	Interruption in the middle	Interruption at the end
5 years	40,62 %	12,50 %	46,87 %
7 years	71,87 %	6,25 %	21,87 %
9 years	71,87 %	12,50 %	15,62 %

## Doc 9

1. *piecemeal representation*: first we observed deletions leading to a piecemeal representation of the object, a representation which was so fragmentary that it was hard to recognize the object, even impossible in most cases.



house



TV

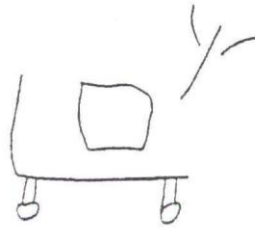
repr. élémentaire  
(identité rompue)

## Doc 10

2. *reduced representation*: second, deletions based on a reduction or restriction of the representation were also obtained; some elements of the object were missing, but not the essential ones, so that the object was still identifiable.



house

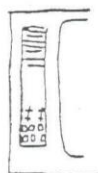


TV

repr. "réduits" en  
éléments

## Doc 11

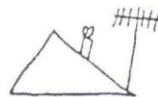
3. *decomposed representation*: third, children produced deletions that were based on a decomposition of the object's representation into its subparts. Such a type of deletion required that the child was able to manage part-whole relationships. Interestingly, two different types of decompositions of the object were performed by subjects: the object may be split into two symmetrical and identical halves, one only being drawn (e.g. the left or the right half), or the object may be decomposed into two non-identical parts which correspond to its fundamental units (e.g. for the house: only the body, or only the roof, of the house is drawn, with their respective elements). The first kind of decomposition resulted in drawings presenting clear similarities with those produced by hemineglect patients, while the second type of decomposition could be expected on the basis of an object's representation as a conceptual category.



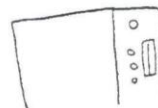
house



TV



house

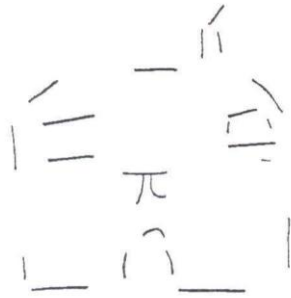


TV

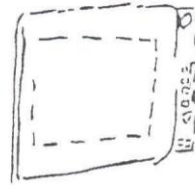
repr. de ses parties

## Doc 12

4. *motor deletions*: finally, a fourth type of deletion was obtained, in which almost no modification at the representational level occurred. The deletion was realized only at a motor level, introducing regular interruptions in the movement by lifting up the pen more or less regularly. The drawing consequently appeared in dashed lines, or as disconnected segments.



house



TV

deletions  
motoras.

## Doc 13

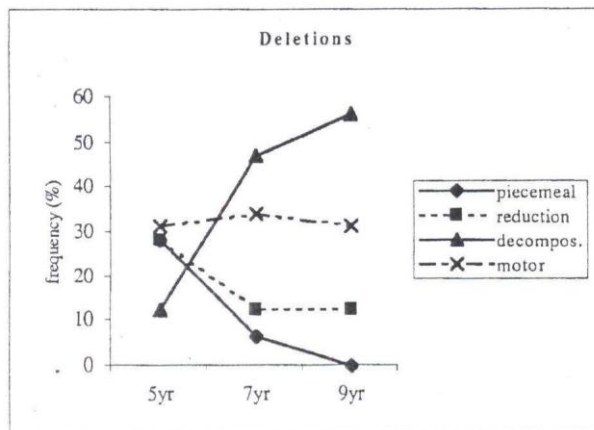
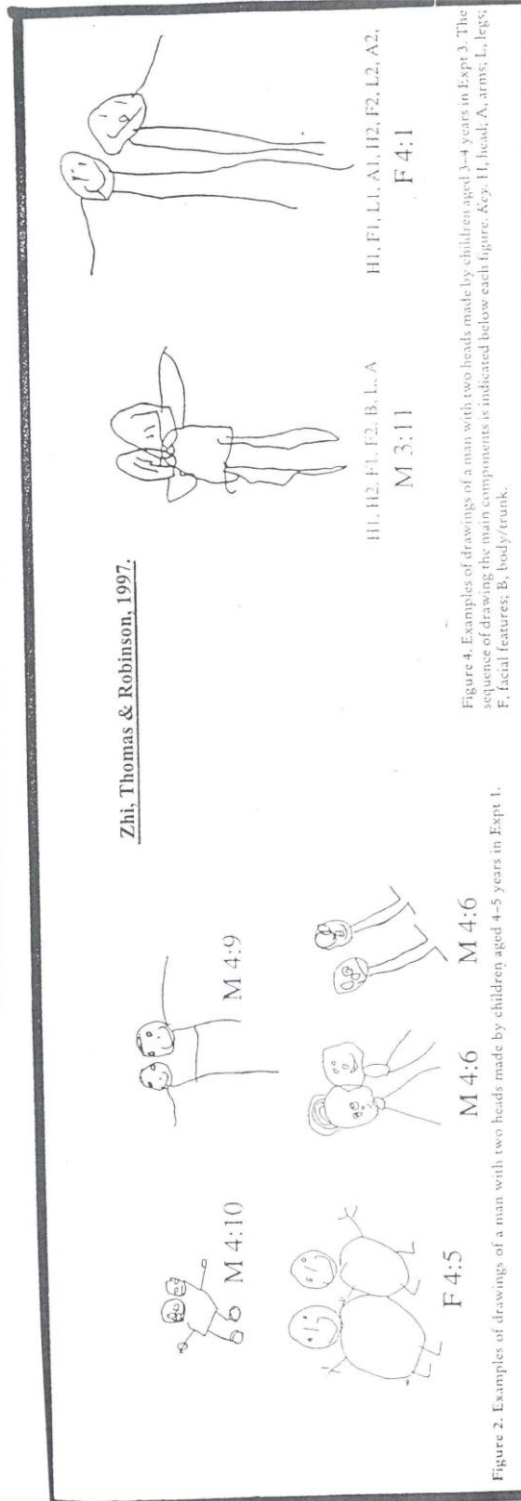


Figure 2. Frequency of occurrence of each type of deletion as a function of age.



Doc 15

**Berti & Freeman, 1997.**

*Minimal group* : "Do you know how a drawing of a man who doesn't exist could be done? It could be done with two heads. Do you think you could do that?"

*Planning group* : " Do you know how a drawing of a man who doesn't exist could be done? It could be done with two heads. Do you think you could do that? I think it's rather hard. Better think about doing it before you start. So shut your eyes and try to imagine the picture of a man with two heads. can you see it? Look at it a bit longer; now open your eyes and try to draw the man you thought about".

Table 4. Attempts to draw a two-headed man in two groups of 5-year-olds.

	Minimal group	Planning group	Total
Reduplication	7	3	10
Partial success	2	1	3
Successful	21	26	47
Anomalous	1	1	2

Doc 16

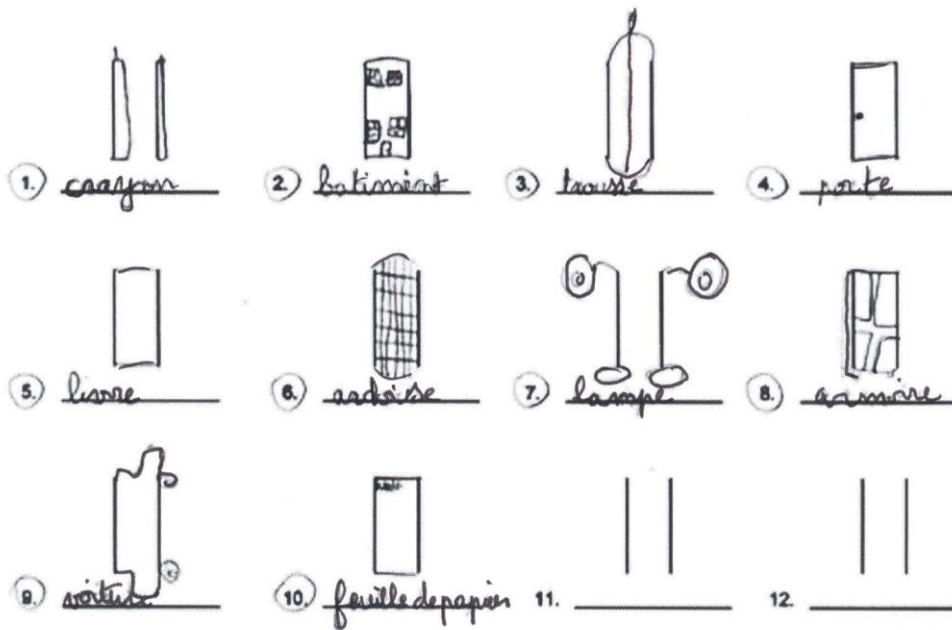
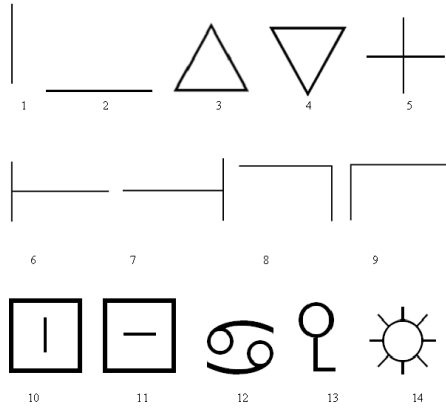


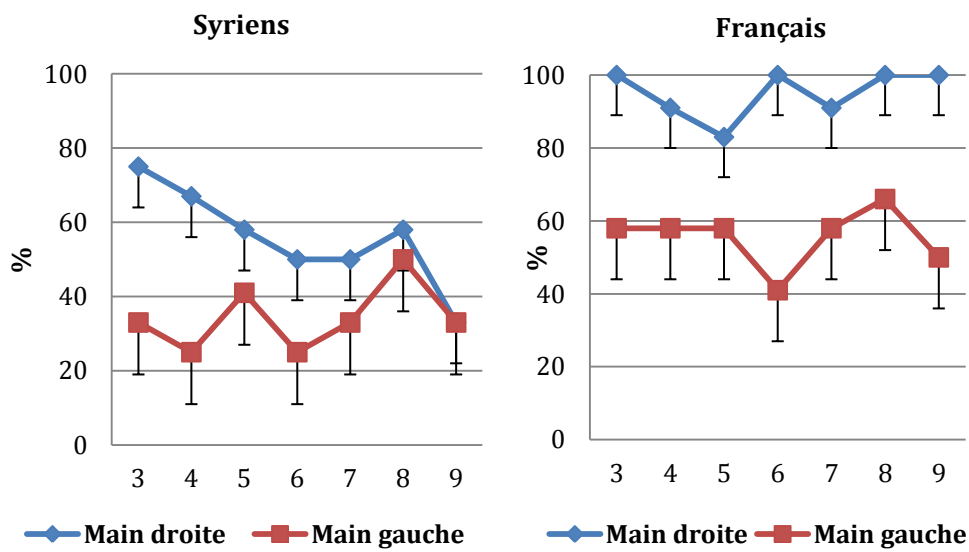
Figure 7: Exemple de test des lignes parallèles réalisé par un garçon de 8 ans (collection personnelle des auteurs).

## Chapitre 4 : Influence de la culture sur le dessin

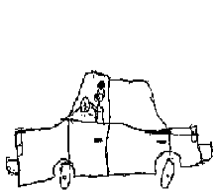
Doc 1



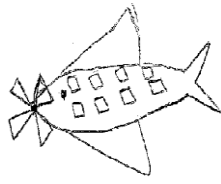
Doc 2



Doc 3



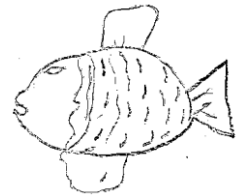
Voiture



Avion



Visage



Poisson



Chien



Tasse



Brosse à dents

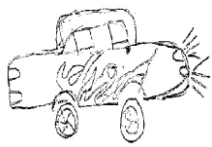


Pot à eau

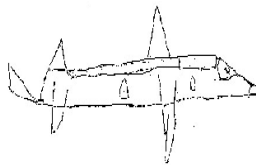


Hache

Ou vers la droite :



Voiture



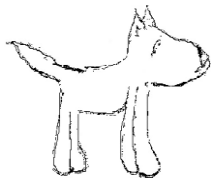
Avion



Visage



Poisson



Chien



Tasse



Brosse à dents



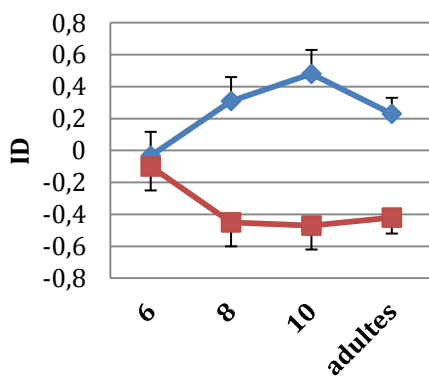
Pot à eau



Hache

Doc 4

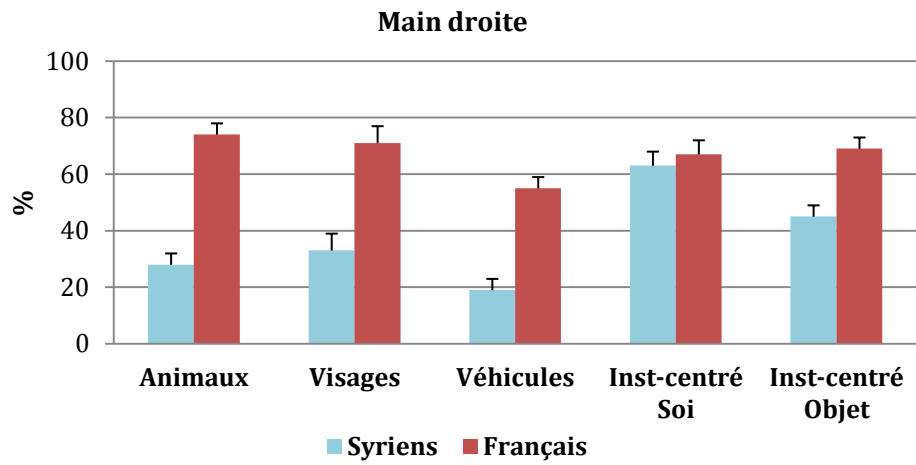
Main droite



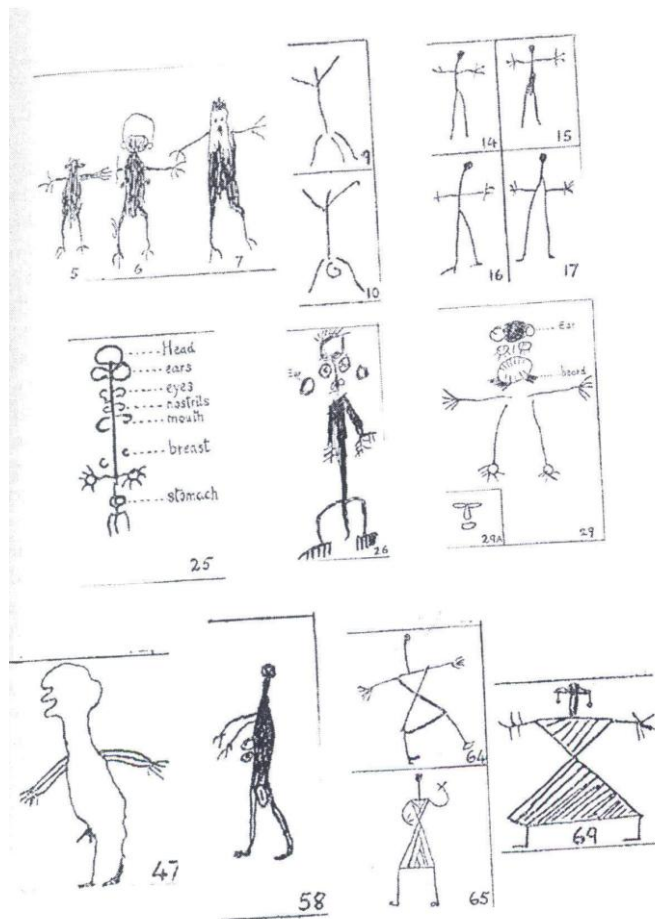
◆ Syriens ■ Français



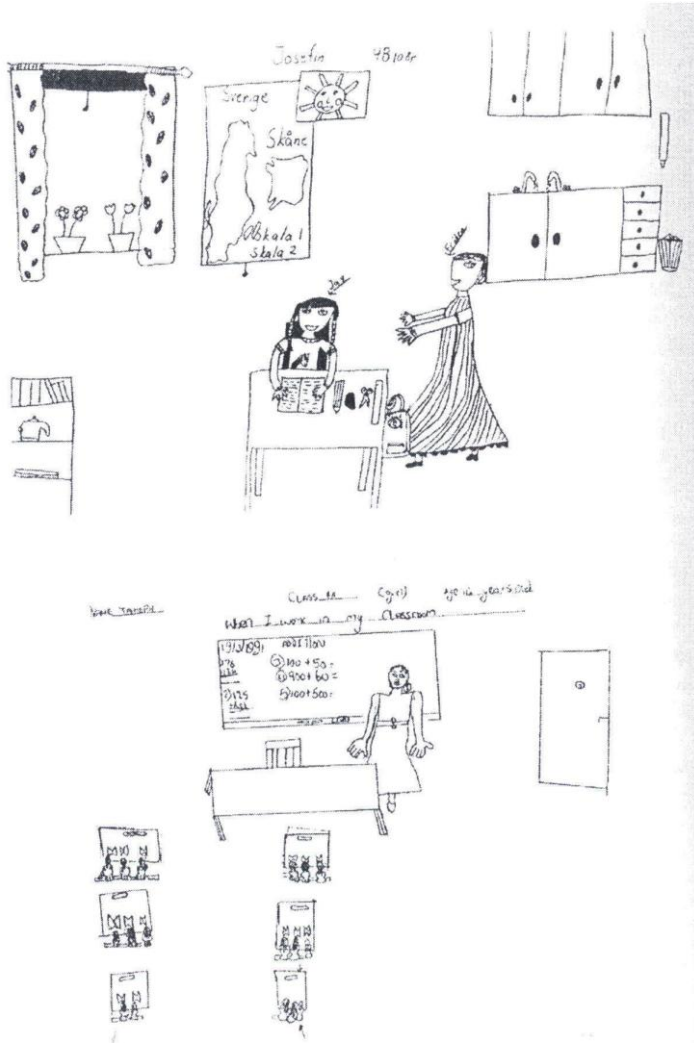
Doc 5



Doc 6



Doc 7



Doc 8



Figure 4: Bonshommes « fer à cheval » (Cox, 1998).

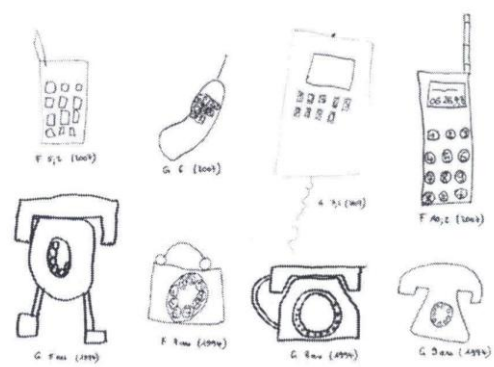
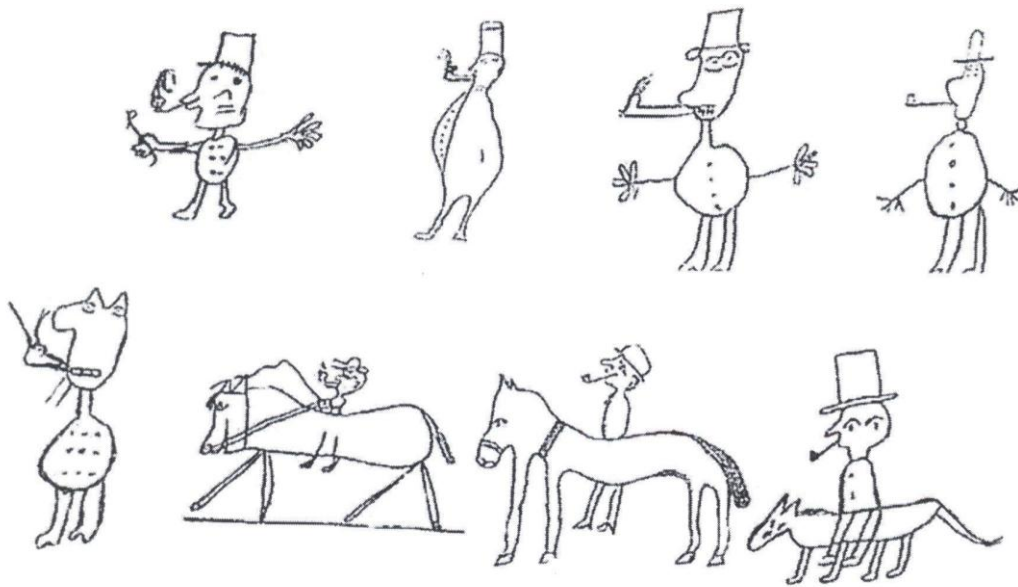


Figure 5: Dessins de téléphones produits en 1994 et en 2007 (collection personnelle des auteurs).

Doc 9



**Figure 6 :** Dessins de bonshommes de profil dont le visage présente les deux yeux vus de face recueillis par Ricci (1887), Rouma (1913) et Sully (1896). A cette époque même les cavaliers fumaient la pipe.

## Chapitre 5 : Dessin et pathologies

Doc A

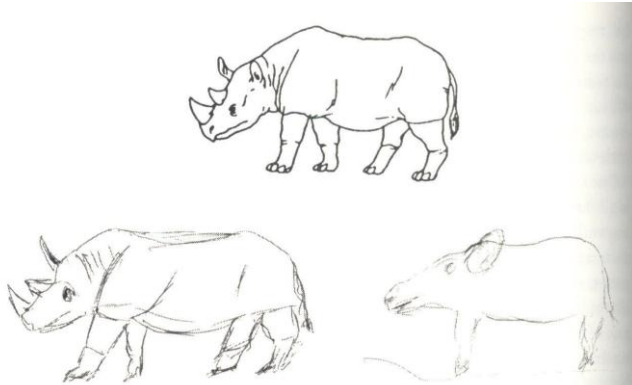


Figure 14.1 The direct (below left) and delayed (below right) copies of the picture of a rhino (above) by DS, a patient with semantic dementia.

Doc 1

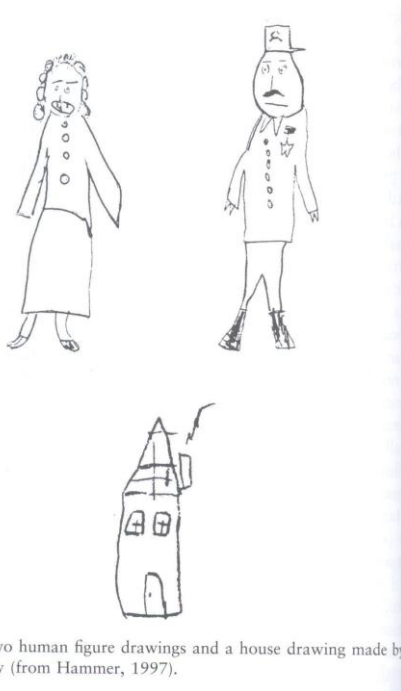


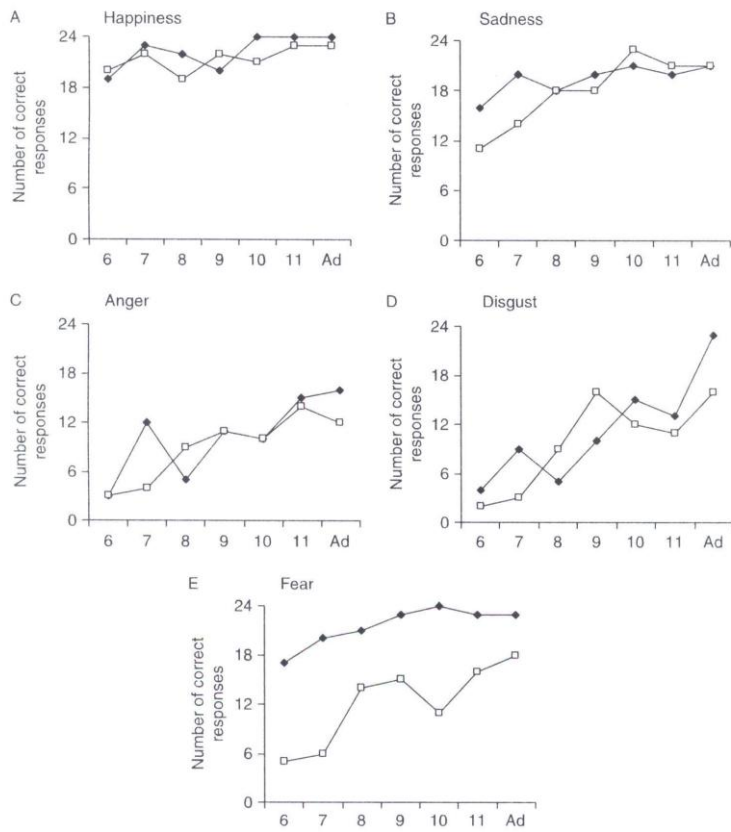
Figure 7.1 Two human figure drawings and a house drawing made by 12-year-old boy (from Hammer, 1997).

Doc 2

TABLE 1.—Mean height (in cm) for each drawing type by age group.

Age Group	Drawing Type							
	Baseline		Happy		Sad		Overall <i>M</i>	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
5 years	5.05	1.47	5.79	1.80	5.52	1.45	5.45	1.57
7 years	5.53	1.56	5.99	1.78	5.34	1.76	5.62	1.70
11 years	6.22	1.46	6.57	1.62	5.67	2.09	6.15	1.72
Adults	5.95	1.80	6.44	2.26	5.02	1.73	5.81	1.93
<i>M</i>	5.69	1.61	6.20	1.86	5.39	1.75		

### Doc 3



**Figure 1.** Number of correct responses as a function of age group and task for the emotions of happiness (A), sadness (B), anger (C), disgust (D), and fear (E). The level of correct responses recorded in the labelling task is indicated by a curve marked by black diamonds, responses recorded in the drawing task by a curve marked by white squares.

### Doc 4



**Figure 1.** The bear and the transparent pot.

## Doc 5

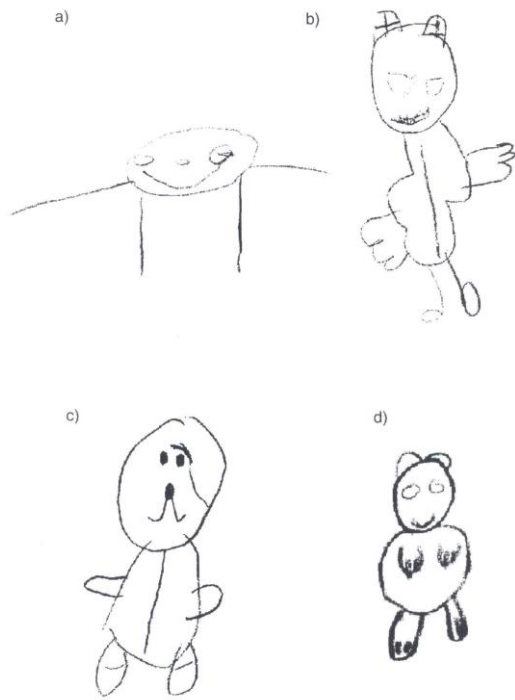


Figure 2. Bears drawn by children with Down's syndrome: (a) female, CA 11;6 years, MA 5;4 years; (b) female, CA 12;1 years, MA 5;4 years; (c) female, CA 9;3 years, MA 3;2 years; (d) female, CA 10;5 years, MA 5;9 years.

## Doc 6

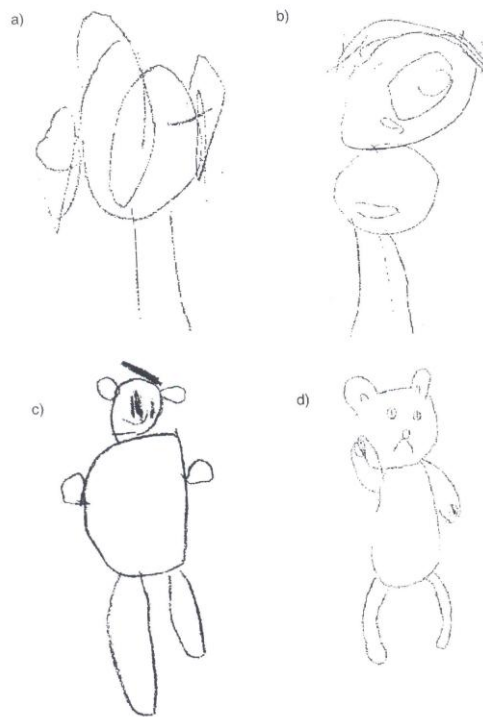


Figure 3. Bears drawn by typically developing children: (a) female, CA 4;9 years, MA 3;7 years; (b) female, CA 4;7 years, MA 4;10 years; (c) male, CA 5;4 years, MA 4;10 years; (d) female, CA 8;6 years, MA 8;3 years.

## Doc 7

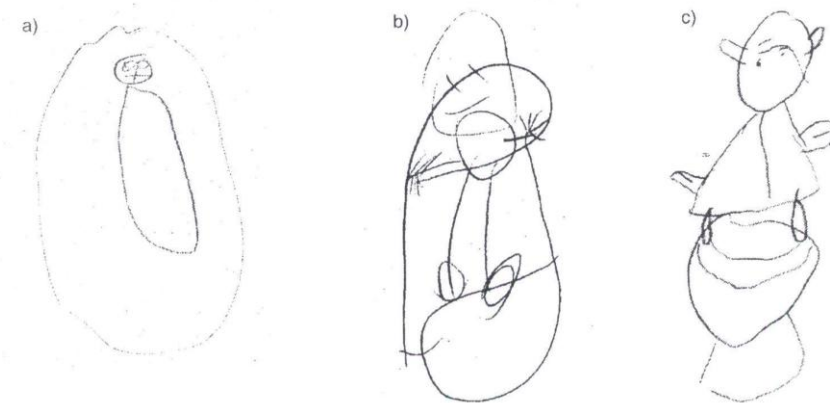
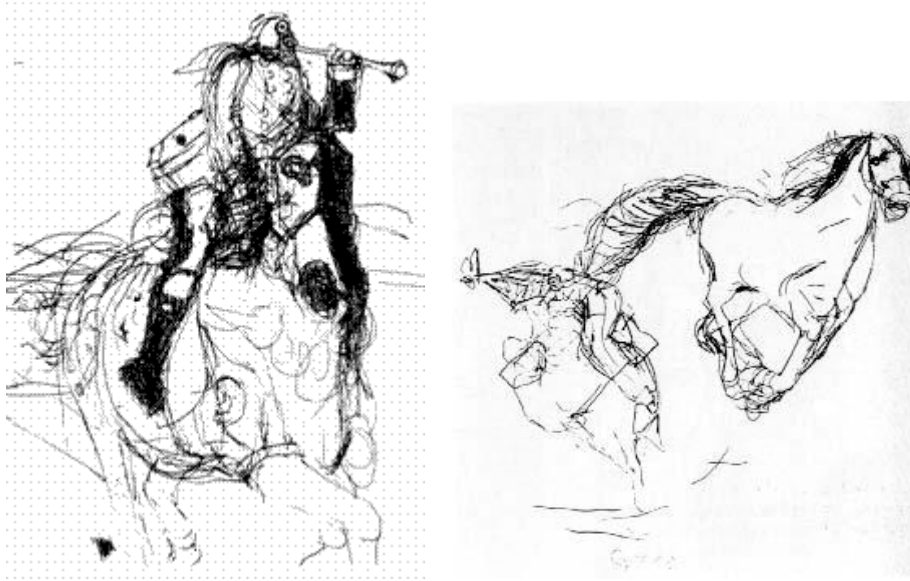


Figure 4. Three types of overlap depicted in the drawings of children with Down's syndrome: (a) 'enclosed', drawn by female CA 11;10 years, MA 8;3 years; (b) 'overlapping' drawn by female CA 11;3 years, MA 8;3 years; and (c) 'balanced' drawn by female CA 9;3 years, MA 3;2 years.

## Doc 8





Horse and Rider by Nadia (6)

Source: Selfe, Lorna (1977) *Nadia: a case of extraordinary drawing ability in an autistic child*

Doc 9

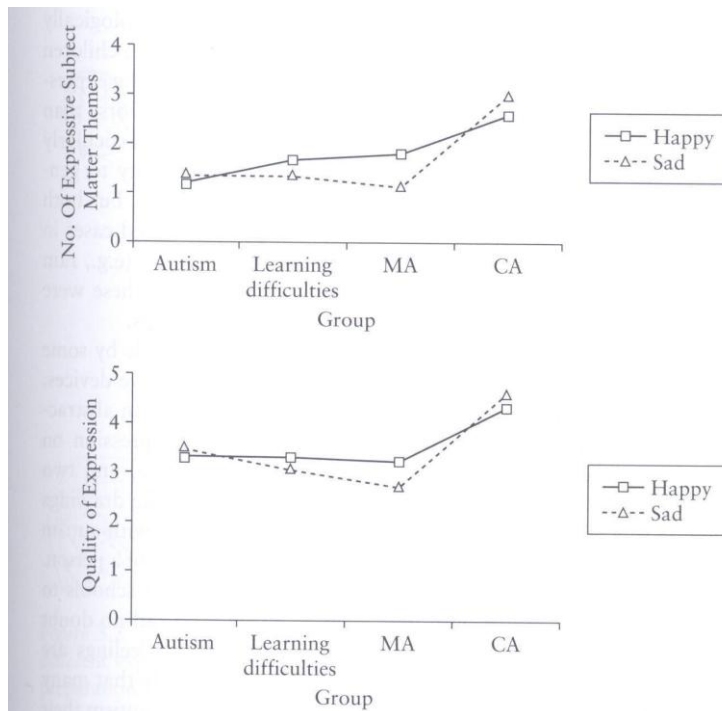


Figure 3.1 Mean quantity of expressive subject matter themes (top) and quality of expression (bottom) of happy and sad drawing by group (taken from a study by Jolley, O'Kelly and Barlow, in preparation).

Doc 10

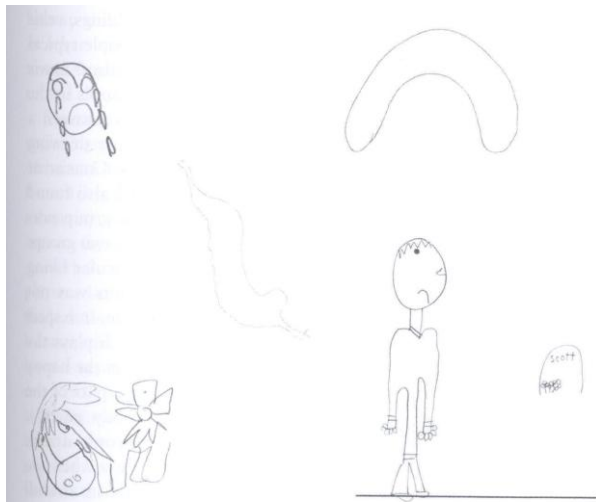


Figure 3.2 Five sad drawings made by children with autism showing different expressive techniques (taken from a study by Jolley, et al., in preparation).

## Doc 11

Table 3.1 Numbers of Children by Group Depicting a Person (Complete or in Part) in their Happy and Sad Drawings

Group	Happy		Sad	
	Depiction of person(s)	Disembodied body parts	Depiction of person(s)	Disembodied body parts
Autism	6	5	4	7
Learning difficulties	9	3	13	2
Mental-aged matched	8	–	8	–
Chronological-aged matched	9	5	9	3

## Doc 12

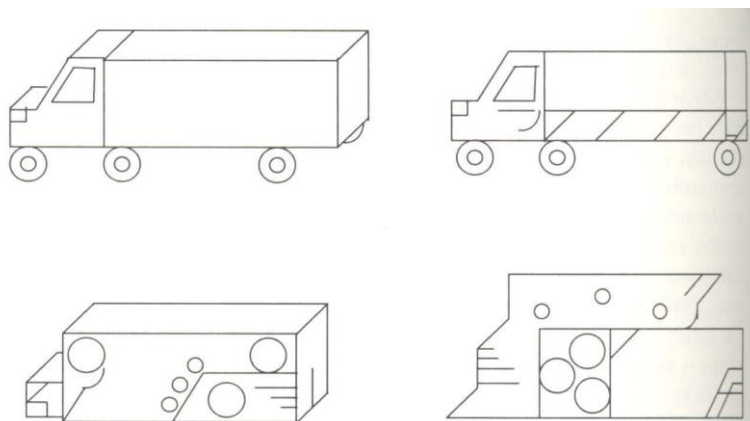


Figure 16.3 Example stimuli used by Sheppard *et al.* (2005).



Doc 13

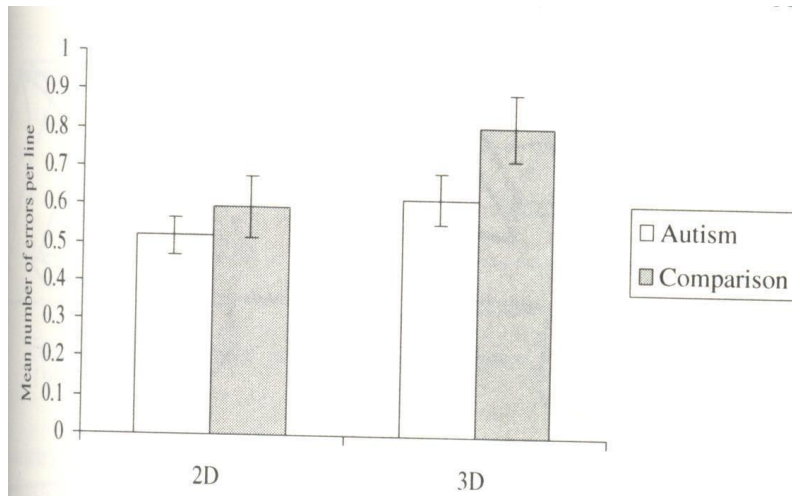


Figure 16.4 Mean number of errors per line on two-dimensional and three-dimensional line drawings.

Doc 14

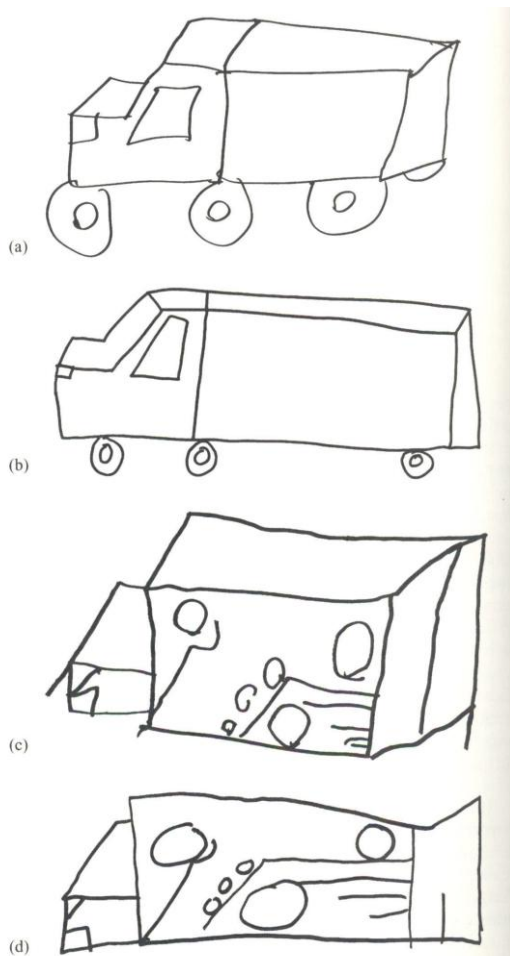
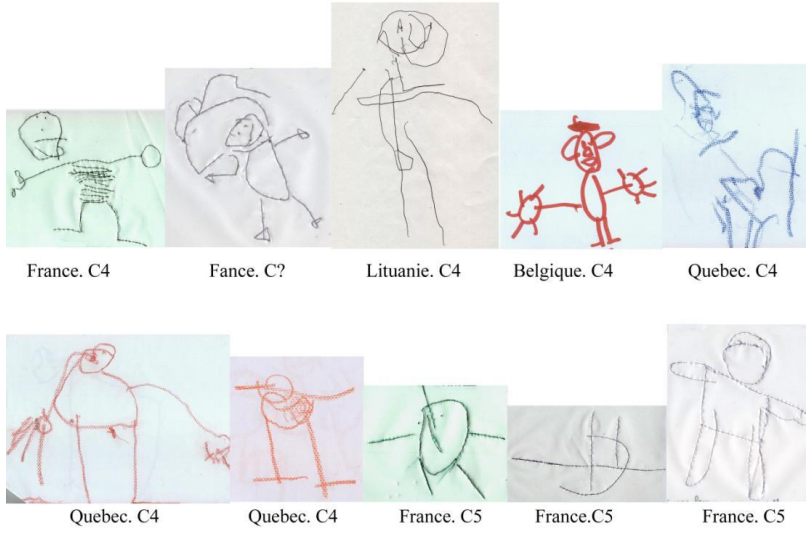


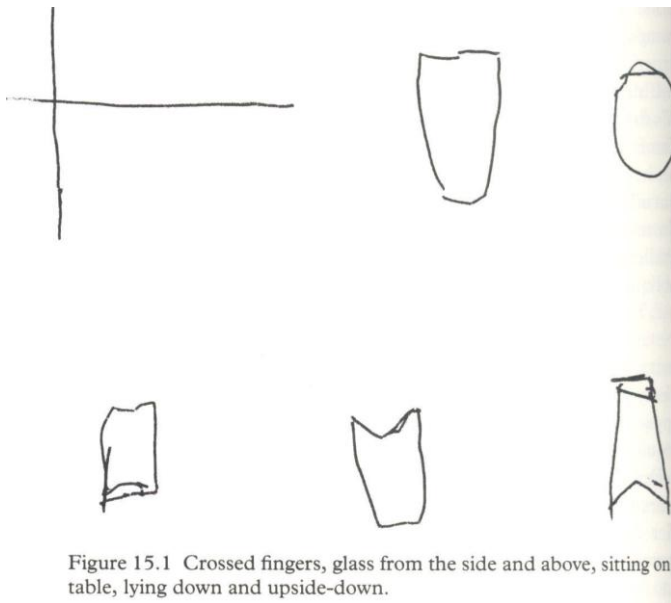
Figure 16.5 Copies of line drawings with three-dimensional interpretation by participants with autism (a, c) and participants without autism (b, d).

Doc 15

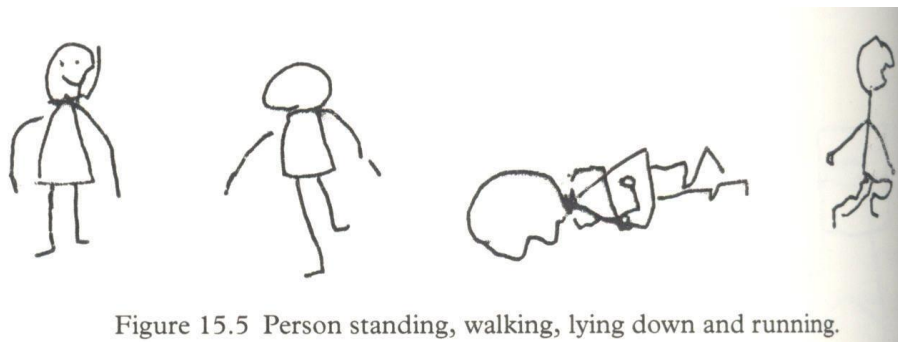
BONHOMME. 8-9 ans. enfants en cécité précoce



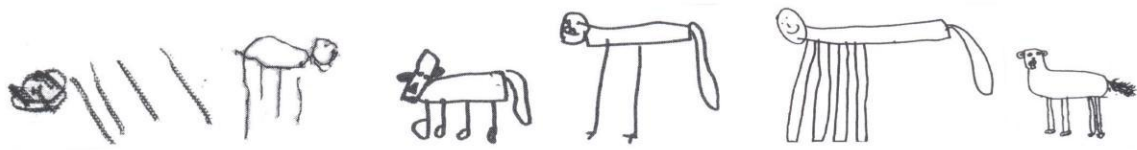
Doc 16



Doc 17



Doc 18



Doc 19



Figure 3 : Dessins du chien et du poisson par des enfants aveugles

Doc 20



Figure 4 : Dessins de l'arbre

Dessins du verre