

# MSD Hypothesis Framework Iteration 1

Baseline Draft  
Version 0.03a

## Request for comments

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### Versions

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-	
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### Changes 0.02b to 0.03a

- Introduced formatting standards to the document
- Introduced team page
- Introduced table of contents
- Merged bank script for MSD Version 0.1 (now locked)
- Updated "locked" script (wrong version, my mistake...)
- (a) Changes and consolidation based on feedback (page 5)
- (b) Updated team page - welcome Robyn!

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## The Team

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## Draft Reference Model

### Working definitions of the main target groups

#### Primary target

*Broca's dysphasia; characterized by an impaired ability to produce language; comprehension is intact, speech is agrammatic.*

#### Secondary target

*Wernicke's dysphasia; an impaired ability to understand language; comprehension and repetition are poor. Speech intact but language contains neologisms and paraphasias.*

### Terminology

Term	Explanation
WORDB	The name of this project, containing this theoretical framework and its associated software program
MSD	Name of this project's software program component
Word	A dictionary word - reference: Oxford Concise 10th ed.
Construct	One or more words up to, and including, a natural sentence
Implicit memory	Memory which is not normally voluntarily accessible
Explicit memory	Memory which is normally voluntarily accessible
Implicit association	Conceptual process that provides involuntary meanings from words and constructs, creates involuntary associations between words and constructs; excludes explicit association
Explicit association	Conceptual process that is capable of editing meanings of words and constructs and deliberately manipulating associations between them; excludes implicit association
Scaffolding	Constructs taught in such a manner that they collectively act as a mental toolset facilitating the transformation from expressive thought to intelligible speech
Nodes	Action points in mental processes

## Background

This hypothetical framework is a work in progress and is being developed as a foundation to underpin as well as support the design of a computer program provisionally dubbed MSD. It is the purpose of this program to provide statistical evidence that it is possible to build mental scaffolds<sup>1</sup> between implicit and explicit memories<sup>2</sup> for people suffering from dysphasia using the concept of successive approximation through recursion starting from a “*best effort*” baseline.

It is hypothesised that words and constructs which are appropriately located in the mental process loops will assist the bridging of expressive thought to meaningful speech output for patients with dysphasic problems. This concept of “scaffolding” is further elaborated upon later in this paper.

It is precisely due to the requirement for this project to “self-modify” that it is unrealistic to expect this theoretical framework to “coherently hold water” relative to “industry best practice” from the onset. Its current purpose is to provide a convenient starting point which, whilst it needs to have some reasonable basis in established theory, is primarily designed to offer a suitable theoretical framework for recursive self modification.

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<sup>1</sup> See definitions

<sup>2</sup> See definitions

## **Proposed Framework - Main Elements**

### **Mental processes**

Mental processes appear to remain relatively untouched by the damage that causes the range of dysphasias. The observation that leads me to this view is that patients suffering from a broad range of dysphasias will normally retain both their personalities and their usual “traits”. Personality and traits would, from a purely intuitive perspective, be directly related to the manner in which the brain interprets and moves information (information being real-world perception and the interpretations of meanings) from one part of the brain to another.

These processes are very likely to generate meaningful action only at certain intersections (hereinafter called “nodes”) as information flows from one part of the brain to another. This is well understood from research done into the types of conditions that result in Broca’s and Wernicke’s dysphasias and the pathways that are known to exist between the respective parts of the brain.

Based on this it seems likely therefore that both dysphasia and aphasia are the result of damage to nodal capabilities rather than being related to the ability of the brain to “run the actual processes”, as one may reasonably deduce that damage to the actual process itself would manifest itself in other detectable ways as noted hereinbefore.

### **Age of acquisition and word frequency**

Both “age of acquisition” and “word frequency” are thought to play a significant role in word access (Morrison & Ellis, 1995). In the context of this framework, word frequency constraints primarily affects the ability to deliberately access the correct words whilst “age of acquisition” primarily affects recognition and, by implication, permeates into word frequency.

### **Repetition priming**

Repetition priming is, in the context of this framework, its most important enabler.

### **Structural priming**

Goldberg et al in “The role of predication in construction-learning” note that, and I paraphrase, “... *entities are aligned based on the structure that relates them, rather than on the basis of their independent characteristics...*” (Genter, 1982; Markman & Gentner, 1993). Goldman explains that people seem to be noticing higher level, relational similarity in preference to lower-level featural similarity. Abstract comparisons therefore may take precedence over word comparisons (at least in the healthy) implicit mind (Dell, Bock et al, “Language and Cognitive Processes”, 2006) - potentially making structural priming a useful tool for stimulating the linguistic part of implicit memory .

## Recursive Self Improvement - The Current Theory

### Overview:

*This project cannot succeed in achieving its stated objectives without a viable feedback loop. To enable such a feedback loop to function successfully, it is necessary to accurately specify what is being measured, how it will be measured, and what impact various results will have on itself so it becomes clear what needs to be changed of its theory, methodologies and measures before the next successive approximation iteration is launched. Most of all it is important to continue to construct this theory in such a manner that it maintains a broad ability to improve itself recursively.*

For the purposes of this framework the following terms/acronyms have been cast as they are currently thought to provide valuable keys for ongoing analysis in the context of this framework ...

Scope	Classification	Acronym
Patient	Category Density	PSD (high or low) PSDH/L DSD (high or low) DSDH/L
Demographic		
Patient	Category Relevance	PSR (high or low) PSRH/L DSR (high or low) DSRH/L
Demographic		

A word like **“home”** belongs to a category that is heavily populated with associations for most people raised in developed countries. This is classified as *“Demographic Scope Density”* or **DSD** to coin a working acronym; a high Categorial Density score for the patient’s specific experience extends this concept to **PSDH** whilst a low Categorial Density Score would extend this to **PSDL**, as may be the case with patients raised using nomadic traditions.

Categorial relevance is about achieving constructive outcomes for the patient. Most affected patients need help with day-to-day tasks first and foremost and it is categorial relevance which measures this important variable.

It has become clear that substantial care needs to be taken when this concept is applied from words to constructs or sentences as may be illustrated as follows:

- a) **“in my home”**
- b) **“not my home”**
- c) **“above my home”**
- d) **“away from home”**

Whilst a **PSDH**, **DSDH**, **PSRH**, **DSRH** score may be appropriate for either of the constructs **“home”** or **“in my home”**, it is unlikely to be accurate for the construct **“not my home”**. For **“above my home”** a more typical score might be **PSDL**, **DSDL**, **PSRL**, **DSRL** whilst the

construct “**away from home**” might score **PSDH, DSDL, PSRL, DSRL** as in when the patient spent a lot of time away from “**home**”; perhaps as a traveling salesperson.

These concrete delineations have the potential to become useful statistical keys within the scope of this project.

Both repetition and structural priming are known to act to encourage access to constructs that are the specific target of the priming. What is of significant interest in this theory is that constructs with strong associations to their explicitly primed counterparts have also been shown to benefit. To illustrate, the priming of the word “**home**” or the construct “**in my home**” (assuming **PSDH, DSDH, PSRH, DSRH**) will normally cause associated concrete and abstract constructs to become more accessible (hereinafter described as the “*peripheral effect*”).

It logically follows from this that constructs which score highly in their classification scores (**PSDH, DSDH, PSRH, DSRH**) will afford better access to more associated constructs than those with classification scores of (**PSDL, DSDL, PSRL, DSRL**). The priming of the construct “**in my home**” will have a more significant beneficial peripheral effect than the priming of the construct “**above my home**” as its **PSD, DSD, PSR, and DSR** values are higher.

The construction of simple tests to verify this basic theory using the MSD program will be explored in the next version of this document.

## Key working assumptions

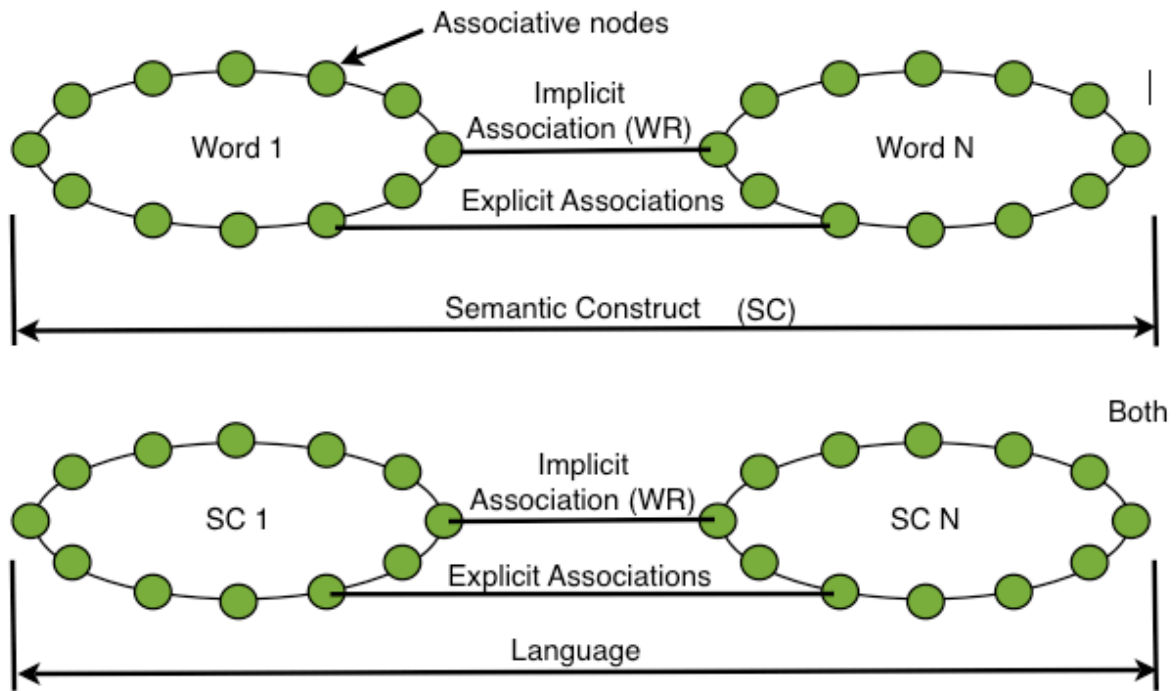
The relevant mind map is constructed in four distinct layers as follows:

Explicit memory (accessible)
Explicit association (editable)
Implicit association (involuntary)
Implicit memory (no direct access)

Both explicit and implicit association paradigms are jointly considered as “associative memory” and is deemed to include construct staging of semantic priming between implicit and explicit memories.

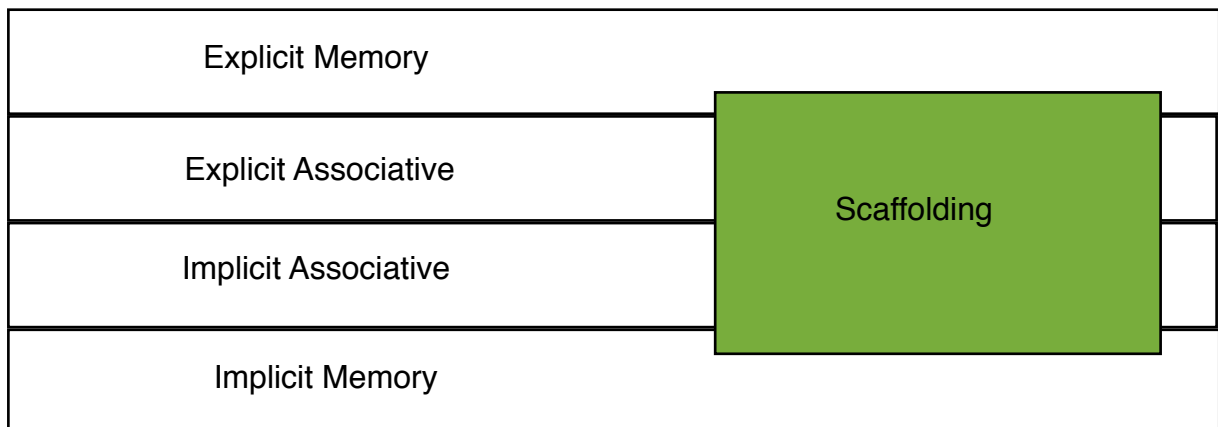
Implicit construct associations appear to be strengthened by at least three, perhaps more factors. These are, at this time, understood to be:

- 1) association strength as a function of time in memory;
- 2) association strength as a function of associative reinforcement (i.e. how many times the association has been reinforced);
- 3) association strength by storage type (the lyrics to songs appear to remain accessible longer than normal speech and information on maps may be understood and used by persons who do not recognise its linguistic equivalent).
  - Construct storage
  - Music storage
  - Picture / map storage



Implicit and explicit association strength factors are  $( [T] [WR] [M] )$ , where  
 T = the time the association has been stored in memory,  
 WR = the total weight of association reinforcements over time, and  
 M = the mode of storage.

A conceptual model of the underlying theoretical word  $\rightarrow$  construct  $\rightarrow$  language model of the proposed software is presented above whilst the concept of “scaffolding” is graphically represented below.



# Appendix 1

## Scenarios

### Bank scripts

**Version A: Single word form. High frequency words. Simple word structure.**

***(Preliminary talk – to wife or husband)***

Man at home. Goes to a drawer, takes out his bank book. Walks to his wife, shows her what he's holding.

1. Bank

Subject	Preposition	Object (noun)	A or Q
		<b>bank</b>	A

Pulls wallet out of pocket, opens it to show her the contents (no notes).

2. Money

Subject	Preposition	Object (noun) (2 syllable, CVCV)	A or Q
		<b>money</b>	A

Wife asks "Do we need to withdraw some money?"

3. Yes

Subject (1 syl, CVC)	Preposition	Object	A or Q
<b>Yes</b>			A

Again, goes to the drawer, pulls out an electricity bill and a cheque. Wife "What have you got there?" Shows wife the bill

4. Bill

Subject	Preposition	Object (noun) (1 syll, CVC)	A or Q
		<b>bill</b>	A

Wife "Yes, we should pay that"

Shows wife the cheque

5. Cheque

Subject	Preposition (Verb)	Object (noun) (1 syll, CVC)	A or Q
		<b>cheque</b>	A

Wife "Yes, and deposit that too"

Man taps on watch  
6. Two

Subject	Preposition (verb)	Object (adverb) (1 syll, CV)	A or Q
		<b>two</b>	A

Wife "You'll go at 2 o'clock? OK"

Later that day, getting organised to go. The man puts his bankbook in his pocket.  
7. book

Subject	Preposition (verb)	Object (object)	A or Q
		<b>book</b>	A

He picks up his wallet, puts the cheque in the wallet, and puts the wallet in his pocket  
8. wallet

Subject	Preposition (verb)	Object (object)	A or Q
		<b>wallet</b>	A

9. cheque.

Subject	Preposition (verb)	Object (object + prepositional phrase)	A or Q
		<b>cheque</b>	A

(At the bank)

The man walks into a bank.

He walks over to the desk and completes a deposit form for the cheque

He writes on the deposit slip

He puts the deposit slip and the cheque inside his bank book

He joins the queue, then is seen at the front, then is called over by a teller. He walks over to the teller

10. Hello

Subject (2 syll, CVCV)	Preposition	Object	A or Q
<b>Hello</b>			A

Teller says "Good morning. How are you today?"

11. Good

Subject	Preposition	Object (1 syll, CVC)	A or Q
		<b>Good</b>	A

The man gives a card to the teller.

12. Here

Subject	Preposition	Object (1 syll, CVC)	A or Q
<b>Here</b>			A

She reads out

"I have aphasia resulting from a stroke.

It is hard for me to speak, read and write.  
 Aphasia does not affect my intelligence,  
 and I usually understand what is said.  
 It helps if you speak clearly.  
 Your help and patience would be  
 appreciated. Thank you.”  
 The teller says “OK, no problem” and hands back the card.  
 The man pushes his passbook towards the teller

13. Cheque

Subject	Preposition	Object (1 syll, CVC)	A or Q
		<b>cheque</b>	A

The teller “Ah, a cheque to deposit, OK”

The teller processes the cheque

The teller “Is there anything else today?”

14. Money

Subject	Preposition	Object (Object) (2 syll, CVCV)	A or Q
		money	A

The teller “How much would you like?”

15. Four (holding up four fingers)

Subject	Preposition (verb)	Object (object)	A or Q
		<b>Four</b>	A

The teller “Four hundred dollars?”

16 Yes

Subject	Preposition (verb)	Object (object)	A or Q
<b>Yes</b>			A

The teller processes the request, prints a docket, passes it to the man “This is for the withdrawal. Sign here please”

The man signs it

The teller “How do you want it?”

17. Fifties

Subject	Preposition	Object (1 syll, CVCCVC)	A or Q
		<b>fifties</b>	A

The teller passes over the money

18. Thank you

Subject (CVCC CV)	Preposition	Object	A or Q
<b>Thank you</b>			A

The teller “Anything else?”

19. Balance?

Subject (1 syll, CVCVCC)	\$	Object	Q
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		<b>Balance?</b>	Q
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The teller “You want to know your balance? Let me check. .... Four thousand three hundred dollars”

The teller: And that’s all?

The man nods

The teller: ”OK”.

The teller gives him his bank book.

He puts the bank book in his pocket

He puts the money in his wallet, and the wallet in his pocket

The teller “Good bye”

20. Bye

Subject (CV)	Preposition	Object	A
<b>Bye</b>			

He walks out of the bank.

Version B: Three/four word form. High frequency words. Simple word structure.

(Preliminary talk – to wife or husband)

Man at home. Goes to a drawer, takes out his bank book. Walks to his wife, shows her what he’s holding.

1. Going to the bank

Subject	Preposition (Verb)	Object (Prepositional phrase)	A or Q
	<b>going</b>	to the <b>bank</b>	A

Pulls wallet out of pocket, opens it to show her the contents (no notes).

2. We need money

Subject	Preposition (verb)	Object (noun)	A or Q
<b>We</b>	<b>need</b>	<b>money</b>	A

Wife asks “We need to withdraw some money?”

3. Yes

Subject	Preposition	Object	A or Q
<b>Yes</b>			A

Again, goes to the drawer, pulls out an electricity bill and a cheque. Wife “What have you got there?” Shows wife the bill

4. Pay this bill

Subject	Preposition (verb)	Object (noun phrase)	A or Q
	<b>pay</b>	this <b>bill</b>	A

Wife “Yes, we should pay that”

Shows wife the cheque  
5. Deposit a cheque

Subject	Preposition (Verb)	Object (noun)	A or Q
	<b>deposit</b>	<b>a cheque</b>	A

Wife "Yes, and deposit that too"

Man taps on watch  
6. Two today

Subject	Preposition (verb)	Object (adverb)	A or Q
		<b>two today</b>	A

Wife "You'll go at 2 o'clock today? OK"

Later that day, getting organised to go. The man puts his bankbook in his pocket.  
7. Got my book

Subject	Preposition (verb)	Object (object)	A or Q
	<b>got</b>	<b>my book</b>	A

He picks up his wallet, puts the cheque in the wallet, and puts the wallet in his pocket  
8. and my wallet

Subject	Preposition (verb)	Object (object)	A or Q
		<b>and my wallet</b>	A

9. and the cheque

Subject	Preposition (verb)	Object (object + prepositional phrase)	A or Q
		<b>and the cheque</b>	A

(At the bank)

The man walks into a bank.

He walks over to the desk and completes a deposit form for the cheque

He puts the deposit slip and the cheque inside his bank book

He joins the queue, then is seen at the front, then is called over by a teller. He walks over to the teller

10. Good morning

Subject	Preposition	Object	A or Q
<b>Good morning</b>			A

11. How are you?

Subject	Preposition (verb)	Object (Object)	A or Q
<b>How</b>	<b>are</b>	<b>you?</b>	Q

Teller says "I'm well, and how are you today?"

12. Good thank you

Subject	Preposition	Object	A or Q
		<b>Good thank you</b>	A

The man gives a card to the teller.

13. Read this please

Subject	Preposition	Object	A or Q
	<b>Read</b>	<b>this please</b>	A

She reads out

“I have aphasia resulting from a stroke.  
It is hard for me to speak, read and write.

Aphasia does not affect my intelligence,  
and I usually understand what is said.

It helps if you speak clearly.

Your help and patience would be  
appreciated. Thank you.”

The teller says “OK, no problem” and hands back the card.

The man pushes his passbook towards the teller

14. Deposit this cheque

Subject	Preposition	Object	A or Q
	<b>deposit</b>	<b>this cheque</b>	A

The teller “OK”

The teller processes the cheque

The teller “Is there anything else today?”

15. Money out please

Subject	Preposition	Object	A or Q
		<b>money out please</b>	A

The teller “How much would you like?”

16. Four hundred dollars (holding up four fingers)

Subject	Preposition (verb)	Object	A or Q
		<b>Four hundred dollars</b>	A

The teller processes the request, prints a docket, passes it to the man “This is for the withdrawal. Sign here please”

The man signs it

The teller “How do you want it?”

17. Fifties please

Subject	Preposition	Object	A or Q
		<b>fifties please</b>	A

The teller passes over the money

18. Thank you

Subject	Preposition	Object	A or Q
<b>Thank you</b>			A

The teller “Anything else?”

19. Balance?

Subject	Preposition	Object	Q
		<b>My balance?</b>	Q

The teller “You want to know your balance? Let me check. .... Four thousand three hundred dollars”

The teller: And that's all?  
 The man nods  
 The teller: "OK".  
 The teller gives him his bank book.  
 He puts the bank book in his pocket  
 He puts the money in his wallet, and the wallet in his pocket  
 The teller "Good bye"  
 20. Thank you

Subject	Preposition	Object	A
<b>Thank you</b>			

21. Good bye

Subject	Preposition	Object	A
<b>Good bye</b>			

He walks out of the bank.

Version C: Complete utterance form.

(Preliminary talk – to wife or husband)

Man at home. Goes to a drawer, takes out his bank book. Walks to his wife, shows her what he's holding.

1. I need to go to the bank

Subject	Preposition (verb)	Object (prepositional phrase)	A or Q
<b>I</b>	<b>need to go</b>	<b>to the bank</b>	<b>A</b>

Pulls wallet out of pocket, opens it to show her the contents (no notes).

2. We need money

Subject	Preposition (verb)	Object (noun)	A or Q
<b>We</b>	<b>need</b>	<b>more money</b>	<b>A</b>

Wife asks "We need to withdraw some money?"

3. Yes

Subject	Preposition	Object	A or Q
<b>Yes</b>			<b>A</b>

Again, goes to the drawer, pulls out an electricity bill and a cheque. Wife "What have you got there?" Shows wife the bill

4. We have to pay this bill

Subject	Preposition (verb)	Object (noun phrase)	A or Q
<b>We</b>	<b>have to pay</b>	<b>this bill</b>	<b>A</b>

Wife "Yes, we should pay that"

Shows wife the cheque

5. We have to deposit a cheque

Subject	Preposition (Verb)	Object (noun)	A or Q
<b>We</b>	<b>have to deposit</b>	<b>a cheque</b>	A

Wife "Yes, and deposit that too"

Man taps on watch

6. I'll go at two today

Subject	Preposition (verb)	Object (adverb)	A or Q
<b>I'll</b>	<b>go</b>	<b>at two today</b>	A

Wife "Two o'clock today? OK"

Later that day, getting organised to go. The man puts his bankbook in his pocket.

7. I've got my bank book

Subject	Preposition (verb)	Object (object)	A or Q
<b>I've</b>	<b>got</b>	<b>my bank book</b>	A

He picks up his wallet, puts the cheque in the wallet, and puts the wallet in his pocket

8. and my wallet

Subject	Preposition (verb)	Object (object)	A or Q
		<b>and my wallet</b>	A

9. and the cheque

Subject	Preposition (verb)	Object (object + prepositional phrase)	A or Q
		<b>and the cheque</b>	A

(At the bank)

The man walks into a bank.

He walks over to the desk and completes a deposit form for the cheque

He puts the deposit slip and the cheque inside his bank book

He joins the queue, then is seen at the front, then is called over by a teller. He walks over to the teller

10. Good morning

Subject	Preposition	Object	A or Q
<b>Good morning</b>			A

11. How are you today?

Subject	Preposition (verb)	Object (Object)	A or Q
<b>How</b>	<b>are</b>	<b>you today?</b>	Q

Teller says "I'm well, and how are you today?"

12. I'm well thank you

Subject	Preposition	Object	A or Q
<b>I'm</b>		<b>well thank you</b>	A

The man gives a card to the teller.

13. Read this please

Subject	Preposition	Object	A or Q
	<b>Read</b>	<b>this please</b>	A

She reads out  
 "I have aphasia resulting from a stroke.  
 It is hard for me to speak, read and write.  
 Aphasia does not affect my intelligence,  
 and I usually understand what is said.  
 It helps if you speak clearly.  
 Your help and patience would be  
 appreciated. Thank you."  
 The teller says "OK, no problem" and hands back the card.  
 The man pushes his passbook towards the teller  
 14. I'd like to deposit this cheque

Subject	Preposition	Object	A or Q
<b>I'd</b>	<b>like to deposit</b>	<b>this cheque</b>	A

The teller "OK"  
 The teller processes the cheque

The teller "Is there anything else today?"  
 15. I'd like some money out please

Subject	Preposition	Object	A or Q
<b>I'd</b>	<b>like</b>	<b>some money out please</b>	A

The teller "How much would you like?"  
 16. Four hundred dollars (holding up four fingers) please

Subject	Preposition (verb)	Object (object)	A or Q
		<b>Four hundred dollars please</b>	A

The teller processes the request, prints a docket, passes it to the man "This is for the withdrawal. Sign here please"  
 The man signs it  
 The teller "How do you want it?"  
 17. Twenties and fifties

Subject	Preposition	Object	A or Q
		<b>twenties and fifties</b>	A

The teller passes over the money  
 18. Thank you

Subject	Preposition	Object	A or Q
<b>Thank you</b>			A

The teller "Anything else?"  
 19. Yes.

Subject	Preposition	Object	A or Q
<b>Yes</b>			A

20. What is my balance?

Subject	Preposition	Object	Q
<b>What</b>	<b>is</b>	<b>my balance?</b>	Q

The teller “You want to know your balance? Let me check. .... Four thousand three hundred dollars”

The teller: And that’s all?

The man nods

The teller: “OK”.

The teller gives him his bank book.

He puts the bank book in his pocket

He puts the money in his wallet, and the wallet in his pocket

The teller “Good bye”

21. Thank you

Subject	Preposition	Object	A
<b>Thank you</b>			

22. Good bye

Subject	Preposition	Object	A
<b>Good bye</b>			

He walks out of the bank.

Version D: Commentary form.

(Preliminary talk – to wife or husband)

Man at home. Goes to a drawer, takes out his bank book.

1. The man gets his bank book

Subject	Preposition (verb)	Object (object)	A or Q
<b>The man</b>	<b>gets</b>	<b>his bank book</b>	A

Walks to his wife, shows her what he’s holding. Says “I need to go to the bank”

2. The man is talking to his wife.

Subject	Preposition (verb)	Object (object)	A or Q
<b>The man</b>	<b>is talking to</b>	<b>his wife</b>	A

3. He is talking about the bank.

Subject	Preposition (verb)	Object (prepositional phrase)	A or Q
<b>He</b>	<b>is talking</b>	<b>about the bank</b>	A

4. He needs to go to the bank

Subject	Preposition (verb)	Object (prepositional phrase)	A or Q
<b>The man</b>	<b>needs to go</b>	<b>to the bank</b>	A

The man pulls the wallet out of pocket, opens it to show her the contents (no notes). He says “We need money”.

The wife responds “We need to withdraw some money?”

The man answers “Yes”.

5. The man has no money

Subject	Preposition (verb)	Object (object)	A or Q
<b>The man</b>	<b>has</b>	<b>no money</b>	A

6. He needs money.

Subject	Preposition (verb)	Object (object)	A or Q
<b>He</b>	<b>needs</b>	<b>money</b>	A

7. He has to pay a bill

Subject	Preposition (verb)	Object (object)	A or Q
<b>He</b>	<b>has to pay</b>	<b>a bill</b>	A

Again, goes to the drawer, pulls out an electricity bill and a cheque. Wife “What have you got there?” Shows wife the bill “We have to pay this bill”

8. They have a bill to pay

Subject	Preposition (verb)	Object (noun phrase)	A or Q
<b>They</b>	<b>have</b>	<b>a bill to pay</b>	A

Wife “Yes, we should pay that”

Shows wife the cheque Wife “Yes, and deposit that too”

9. and a cheque to deposit

Subject	Preposition (Verb)	Object (noun)	A or Q
<b>and</b>		<b>a cheque to deposit</b>	A

Man taps on watch “I’ll go at two today” Wife “Two o’clock today? OK”

10. The man will go at two o’clock.

Subject	Preposition (verb)	Object (adverb)	A or Q
<b>The man</b>	<b>will go</b>	<b>at two o’clock</b>	A

Later that day, getting organised to go. The man puts his bankbook in his pocket.

11. The man puts his bank book in his pocket.

Subject	Preposition (verb)	Object (object)	A or Q
<b>The man</b>	<b>puts</b>	<b>his bank book in his pocket</b>	A

He picks up his wallet, puts the cheque in the wallet, and puts the wallet in his pocket

12. He picks up his wallet

Subject	Preposition (verb)	Object (object)	A or Q
<b>He</b>	<b>picks up</b>	<b>his wallet</b>	A

13. He puts the cheque in his wallet.

Subject	Preposition (verb)	Object (object + prepositional phrase)	A or Q
<b>He</b>	<b>puts</b>	<b>the cheque in his wallet</b>	A

14. and puts the wallet in his pocket.

Subject	Preposition (verb)	Object (object + prepositional phrase)	A or Q
<b>and</b>	<b>puts</b>	the <b>wallet</b> in his <b>pocket</b>	A

(At the bank)

The man walks into a bank.

15. The man walks into the bank

Subject	Preposition (verb)	Object (prepositional phrase)	A or Q
<b>The man</b>	<b>walks</b>	into the <b>bank</b>	A

He walks over to the desk and completes a deposit form for the cheque

16. He takes a deposit slip.

Subject	Preposition (verb)	Object (object)	A or Q
<b>He</b>	<b>takes</b>	a <b>deposit slip</b>	A

He writes on the deposit slip

17. He writes on the deposit slip.

Subject	Preposition (verb)	Object (prepositional phrase)	A or Q
<b>He</b>	<b>writes</b>	on the <b>deposit slip</b>	A

He puts the deposit slip and the cheque inside his bank book

18. He puts the papers in the bank book

Subject	Preposition (verb)	Object (object & prepositional phrase)	A or Q
<b>He</b>	<b>puts</b>	the <b>papers</b> in the <b>bank book</b>	A

He joins the queue

19. He stands in the queue

Subject	Preposition (verb)	Object (prepositional phrase)	A or Q
<b>He</b>	<b>stands</b>	in the <b>queue</b>	A

He is seen at the front, then is called over by a teller. He walks over to the teller

20. The teller calls him over.

Subject	Preposition (verb)	Object (prepositional phrase)	A or Q
<b>The teller</b>	<b>calls</b>	<b>him over</b>	A

21. He walks up to the teller

Subject	Preposition (verb)	Object (prepositional phrase)	A or Q
<b>He</b>	<b>walks</b>	up to the <b>teller</b>	A

He says "Good morning. How are you today?"

The teller answers "I'm well, and how are you today?"

He answers "I'm well thank you"

22. They say Good Morning

Subject	Preposition	Object	A or Q
<b>They</b>	<b>say</b>	<b>Good Morning</b>	A

The man gives a card to the teller. She reads out

“I have aphasia resulting from a stroke.

It is hard for me to speak, read and write.

Aphasia does not affect my intelligence,  
and I usually understand what is said.

It helps if you speak clearly.

Your help and patience would be  
appreciated. Thank you.”

The teller says “OK, no problem” and hands back the card.

23. The man shows the teller a card about his stroke

Subject	Preposition	Object	A or Q
<b>The man</b>	<b>shows</b>	<b>the teller a card about his stroke</b>	A

The man pushes his passbook towards the teller

24. The man gives the teller his bank book.

Subject	Preposition (verb)	Object (object)	A or Q
<b>The man</b>	<b>gives</b>	<b>the teller his bank book</b>	A

The man says “I’d like to deposit this cheque”

25. The man wants to deposit a cheque

Subject	Preposition (verb)	Object (object)	A or Q
<b>The man</b>	<b>wants to deposit</b>	<b>a cheque</b>	A

The teller “OK”

The teller processes the cheque

The teller “Is there anything else today?”

He says “I’d like some money out please”

26. The man asks for money.

Subject	Preposition (verb)	Object (object)	A or Q
<b>The man</b>	<b>asks</b>	<b>for money</b>	A

The teller asks “How much would you like?”

27. The teller asks “how much?”

Subject	Preposition (verb)	Object (object)	A or Q
<b>The teller</b>	<b>asks</b>	<b>“How much?”</b>	A

The man answers “Four hundred dollars please”

28. The man says “Four hundred”

Subject	Preposition (verb)	Object (object)	A or Q
<b>The man</b>	<b>says</b>	<b>four hundred</b>	A

The teller processes the request, prints a docket, passes it to the man “This is for the withdrawal. Sign here please”

The man signs it

29. The man signs for the money.

Subject	Preposition (verb)	Object (object)	A or Q
The <b>man</b>	<b>signs</b>	for the <b>money</b>	A

The teller "How do you want it?"

30. The teller asks how he wants it.

Subject	Preposition	Object (adverbial phrase, clause)	A or Q
The <b>teller</b>	<b>asks</b>	how he <b>wants</b> it	A

The man answers "Twenties and fifties"

31. He wants twenties and fifties

Subject	Preposition	Object	A or Q
<b>He</b>	<b>wants</b>	<b>twenties</b> and <b>fifties</b>	A

The teller passes over the money

32. She gives him the money.

Subject	Preposition (verb)	Object (object)	A or Q
<b>She</b>	<b>gives</b>	him the <b>money</b>	A

He says "Thank you"

33. He says thank you.

Subject	Preposition (verb)	Object	A or Q
<b>He</b>	<b>says</b>	<b>thank you</b>	A

The teller asks "Anything else"?

The man says "Yes. What is my balance?"

34. He asks what his balance is

Subject	Preposition (verb)	Object	A or Q
<b>He</b>	<b>asks</b>	what his <b>balance</b> is	A

The teller "You want to know your balance? Let me check. .... Four thousand three hundred dollars"

The teller gives him his bank book.

35. The teller gives him his bank book.

Subject	Preposition (verb)	Object (object)	A or Q
The <b>teller</b>	<b>gives</b>	him his <b>bank book</b>	A

He puts the bank book in his pocket

36. He puts the bank book in his pocket.

Subject	Preposition	Object	A or Q
<b>He</b>	<b>puts</b>	the <b>bank book</b> in his <b>pocket</b>	A

He puts the money in his wallet, and the wallet in his pocket

37. He puts the money in his wallet

Subject	Preposition (verb)	Object	A or Q
<b>He</b>	<b>puts</b>	the <b>money</b> in his <b>wallet</b>	A

38. He puts the wallet in his pocket

Subject	Preposition	Object	A or Q
<b>He</b>	<b>puts</b>	the <b>wallet</b> in his <b>pocket</b>	A

He walks out of the bank.

39. He walks out of the bank.

Subject	Preposition	Object	A or Q
<b>He</b>	<b>walks</b>	out of the <b>bank</b>	A