

Appendix B

1. Axioms for PDPH KBS

FORALL X (message("The therapy relationship offered by the physiotherapy services"))

<- (X:IndividualService[features->>{ "agreement of joint goals between individuals, carers and therapist", "standardised assessment to identify problems and monitor changes", "position of information to individuals about their physiotherapy", "opportunity for individual and group work", "negotiated carer involvement in physiotherapy" }]).

FORALL X (message("The External Services team features offered by the physiotherapy services"))

<- (X:ExternalService[features->>{ "strong links between hospital and home settings", "contact with physiotherapist on diagnosis", "programme of long-term monitoring and on-going management", "flexible frequency of physiotherapy review", "self-referral to physiotherapy service by individuals and carers", "commitment to on-going professional knowledge updating" }]).

FORALL X,A,B (X:IndividualOrGroup)

<- ((X[monitoring->A]
and (X[exercise->B]
and concat("group work",A,B)))).

FORALL A,X,Y,Z (X[(A#twice)->Z])

<- (X[A->Y[A->Z]]).

FORALL X,Y (X[benefits->>Y])

<- (Y:Referral[earlyreferral->>{ "address concerns about differential diagnosis", "assessment and monitoring to allow early identification of movement problems", "encourage participation through optimal conditioning of cardiovascular,

musculoskeletal and neuromuscular systems","preventive management of secondary complications such as joint stiffness","introduce movement strategies for use","education of individuals and carers about physical management of PD","monitor drug efficacy to optimise motor performance"]]).

FORALL X,Y (X[daily_activities->>Y])

<- (Y:Referral[core_areas_practice->>{ "gait","balance","posture","transfers" }]).

FORALL X,Y (X[what_patients_get_physiotherapists->>Y])

<- (Y:Referral[services_by_physiotherapists->>{ "assessment","monitoring","treatment and management","referral to other professionals and agencies","on-going support and information" }]).

FORALL X (message("The purpose of the physiotherapy services"))

<- (X:Referral[purpose->>{ "maximise functional ability", "minimise secondary complications" }]).

FORALL X (X:Assessment)

<- ((X[background_history->>{ "demographic details","past medical history","number of years since onset of PD symptoms","number of years since diagnosis of PD","housing","lifestyle","social network","carer issues","contraindications/precautions in relation to physiotherapy","involvement of other professionals","current medication/treatment","presenting problems such as fatigue" }] and (X[physiotherapy_specific->>{ "walking","turning and changing direction","standing up","sitting down","turning in bed","stairs","car transfers","writing","reaching,grasping,manipulating objects" }] and concat("physiotherapy sssessment",background_history,physiotherapy_specific)))).

FORALL X,Y (X[visual_assessment->>Y])

<- (Y:Assessment[motor_impairments->>{ "tremor and
dyskinesia", "akinesia", "hypokinesia
and bradykinesia", "rigidity", "postural instability" } }).

FORALL X (message("Compensatory movement strategies"))

<- (X:Comensatorymovement[compensatory_strategies->>{ "breaking down complex
movement sequences such as rolling in bed, into component parts", "arranging the parts
sequentially", "performing each part individually at a conscious level", "avoiding
simultaneous motor or cognitive tasks", "using mental rehearsal of the forthcoming
movement", cues:Strategies[cueingstrategies->>{ External, Internal } } })).

FORALL X (message("Typical components of general therapeutic exercise
programme"))

<- (X:ExerciseRegimes[generaltherapeuticexercises->>{ "exercises for trunk, upper
and lower limbs and face in lying, sitting and standing", "speech
and breathing exercises", "gait training", "balance training", "transfer
training", "relaxation" } }).

FORALL X (message("Health care professionals should ensure"))

<- (X:CareNeeds[ensuring->>{ "ask individuals if they are happy for information
about
their health to be shared with their carer", "identify the carers of individuals referred to
them", "question carers about their health and refer to as appropriate", "routinely tell
carers that they can ask for an assessment of their own needs", "tell carers about any
local carers support group", "measure the Caregivers Strain index" } }).

FORALL X,Y (X[visual_assessment->>Y])

<- (Y:Assessment[motor_impairments->>{ "tremor
and dyskinesia", "akinesia", "hypokinesia
and bradykinesia", "rigidity", "postural instability" } }).

```
FORALL X,Y ( (X[benefits->>Y]
  and message("key components of group work")) )
  <- ( Y:IndividualOrGroup[group_work->>{"monitoring","exercise","advice","sharing
of information","self-management"}] ) ).
```

```
FORALL X,Y ( (X[personalneeds->>Y]
  and message("key components of individual therapy sessions")) )
  <- ( Y:IndividualOrGroup[highlight->>{"talk privately","have their personal needs
met",
"be properly supervised whilst exercising","have their time in a physiotherapy
department maximised"}] ) ).
```

```
FORALL X
  <- readurl("http://online.unn.ac.uk/faculties/hswe/research/Rehab/Rehab.htm",X).
```

```
FORALL X,Y ( (X[optimal_communication->>Y]
  and message("Multidisciplinary team communication works optimally")) )
  <- ( Y:Communication[communicate->>{"comprehensive multidisciplinary
membership","regular case and team meetings","team management through a single
team member","shared multi-disciplinary case notes","key worker allocated to each case
to co-ordinate care","assessments carried out
according to agreed protocols","data collected to aid service evaluation","goals agreed
with individual and carer","protocols developed for sharing information","review
and discharge dates according to protocol
assessment"}] ) ).
```

```
FORALL A,B <- EXISTS Y Y:#DopamineAgonists[#Dosage->>A;#BrandName->>B].
```

2. Axioms for PSSp KBS

```
FORALL X,Y ( X[locale->>Y] )
```

```
<- ( Y:Adminsitration[venue->>{ "book as early as possible","secretarial help -- need
application forms, confirmation forms,help with processing","select a room that is
comfortable and conducive to discussion","accessible catering","ensure all audio/video
requirements are available","ensure technicians are at hand
to help with equipment","available space for displays","choose a central
and prominent location","determine kind of audience
and notify speakers" } ] ).
```

```
/* what a speechtherapist should do if a person chokes */
```

```
FORALL X,Y ( X[solvingchoking->>Y] )
```

```
<- ( Y:EatingDrinking[choking->>{ "reassure the person","give the person a tissue
to cough any good debris into and lean the patient forward in the chair","DO NOT pat
the person on the back","apply pressure with the flat of the hand jsut below the sternum
- in time with the person's attempts to cough","try leaning the person forward","remove
any residue of food from the mouth and pharynx" } ] ).
```

```
/* what a speechtherapist should do to reduce dribbling/drooling */
```

```
FORALL X,Y ( X[improvingdribbling->>Y] )
```

```
<- ( Y:EatingDrinking[drooling->>{ "not allow the head to droop forward","person's
lips should be closed","encourage the person to swallow saliva frequently","reduction of
milk intake in the person's diet as it may cause saliva to thicken, making it harder to
channel food down pharynx","swallow consciously and
frequently","helpful to chew gums or sweets to prompt frequent swallowing" } ] ).
```

```
/*the causes of dysphagia */
```

```
FORALL X,Y ( X[dysphagia->>Y] )
```

```
<- ( Y:Swallowing[commonproblems->>{ "effect of rigidity upon intra oral muscle
function","poor bolus formation and control","poor oral and pharyngeal
motility","reduced intra oral and pharyngeal sensation","lack of stimultaion of postenor
of tongue by the bolus" } ] ).
```

/*the causes of aspiration */

FORALL X,Y (X[aspiration->>Y])

<- (Y:Swallowing[technicalanalysis->>{ "provides analysis of anatomical
structures","bolus", "identifies pharyngeal difficulties" }]).